



FARMING IN CANADA

Factors that influence crop selection

Some of the factors that influence crop selection are based on plant disease pressures, soil conditions and land stewardship priorities. Wheat varieties are carefully chosen, based on characteristics including yield potential, protein content, and disease and insect resistance. Farmers consider quality factors like protein content when making cropping decisions. They balance these factors with yield potential to maximize farm income. Commodity prices are also considered, ensuring producers are profitable growing high-quality and high-yielding crops desired by consumers. The growth in canola and pulse crops in Western Canada is an example of how producers are diversifying their crop choices in order to maximize the returns to their farming operation.



Variety Registration

The foundation for consistent Canadian wheat quality is the Variety Registration Process. A new variety of wheat must have the right intrinsic properties before it can be grown as a registered variety in Canada. This extensive process is overseen by the Government of Canada's Canadian Food Inspection Agency, Variety Registration Office. This process addresses farmers' concerns regarding agronomic practices, yield and disease resistance, while the quality attributes of the wheat undergo rigorous scientific testing during three years of trials. During the three years, potential new varieties and control check varieties are grown side by side across the Canadian Prairies to account for variance in year-to-year growing conditions. All agronomic performance, disease resistance and end-use quality parameter results are reviewed each year by a committee of specialists consisting of wheat scientists, producers, grain handlers, wheat marketers and end-use processors. The variety registration process ensures that newly registered varieties will reflect the quality characteristics expected of a particular wheat class. This process guarantees continued consistent high-quality wheat for Canadian customers no matter where the wheat is grown throughout Western Canada.

Seeding

For spring wheat, seeding starts about the middle of April and finishes around the middle of May. Winter wheat is typically planted in August and September. Fertilizer and other crop inputs are used to keep soil healthy. Water conservation is managed by minimal soil disruption and is achieved through reduced tillage technology. Reduced tillage also helps prevent erosion. Precision technology plays a major role in the way Canadian producers farm. GPS mapping, sectional control and auto steer prevents overlapping and results in reduced seed, fertilizer and pesticide use. Precision farming also helps reduce fuel consumption.



Quality Control in the Growing Season

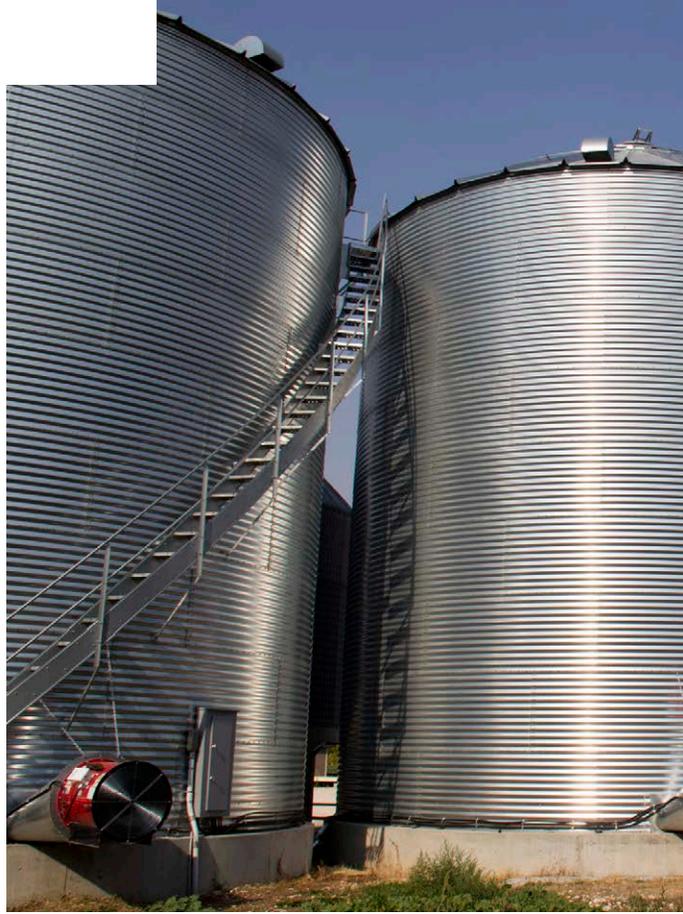
A big part of quality control during the growing season in Canada is reducing plant competition which allows wheat plants to use soil nutrients and moisture most efficiently to maximize quality and yield. To protect the wheat crop from yield and quality loss, farmers monitor plant disease and insect pressure throughout the growing season. Crop rotation reduces pesticide use through sustainable crop diversification.

Harvest

During harvest, straight cutting reduces work time, field passes, emissions and harvest costs. Timing ensures that kernel moisture content is optimal. The use of straw choppers and spreaders allows for faster plant nutrient return to the soil for future crop uptake. Retention of crop residue also helps maintain soil organic matter and preserve soil moisture.

Storage and Marketing

Quality is maintained during storage by cooling and lowering kernel moisture content. On-farm storage capacity has the ability to store virtually the entire year's harvest. By ensuring good storage practices, including the use of technology and equipment such as bin monitoring, aeration and grain dryers, Canadian farmers minimize opportunities for mycotoxins and pests. When it comes to marketing, price is the driving factor. Contracting and delivery opportunities are also factors in marketing decisions.





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A Sustainable Future

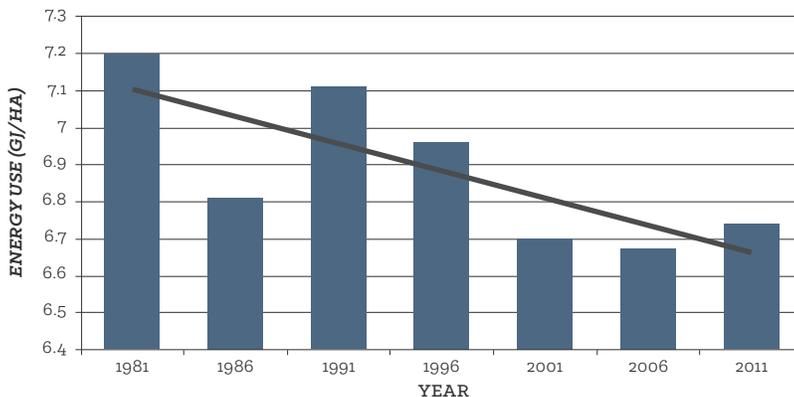
Modern Canadian agriculture has a very good story to tell about sustainability. Modern practices such as conservation tillage are increasing soil health by reducing the amount of fuel used and reducing soil and wind erosion.

Precision agriculture, which uses satellites to steer equipment, allows for fewer field passes and maximizes the efficiency of crop inputs, further reducing fuel use and protecting water from nutrient run-off.

Most Canadian production is naturally rain-fed, and a small portion of crops are irrigated using clean water from natural sources, giving Canadian agriculture a strong sustainability record.

Best management practices are providing the next generation of farmers with clean air, clean water and clean land and an environment that is healthier than when previous generations began farming.

Spring Wheat, Prairies - Energy Use per Harvested Hectare

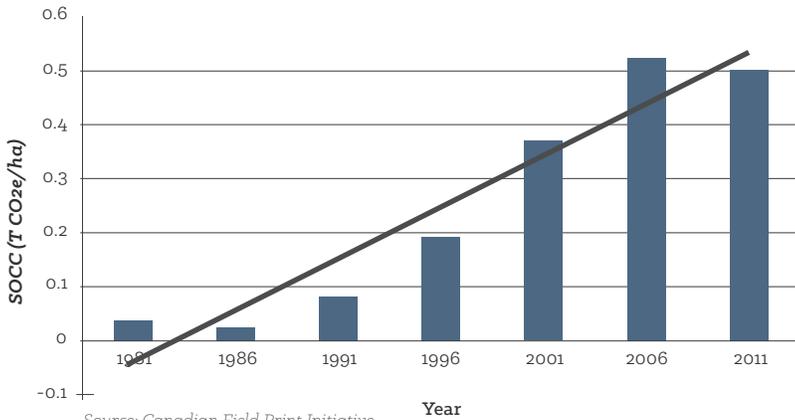


Source: Canadian Field Print Initiative

Energy use in the production of spring wheat has decreased by 6% between 1981 and 2011, on a per hectare basis. As energy use per hectare is going down, production per hectare is going up. During that same time period, the energy use per tonne produced was reduced by 39% and the yield of spring wheat increased by 59%. These trends suggest that further improvements can be expected.



Soil Organic Carbon Change per Hectare of Agricultural Land, Prairies



Source: Canadian Field Print Initiative

Soil organic matter is extremely important as it is one of the key expressions of overall soil health.

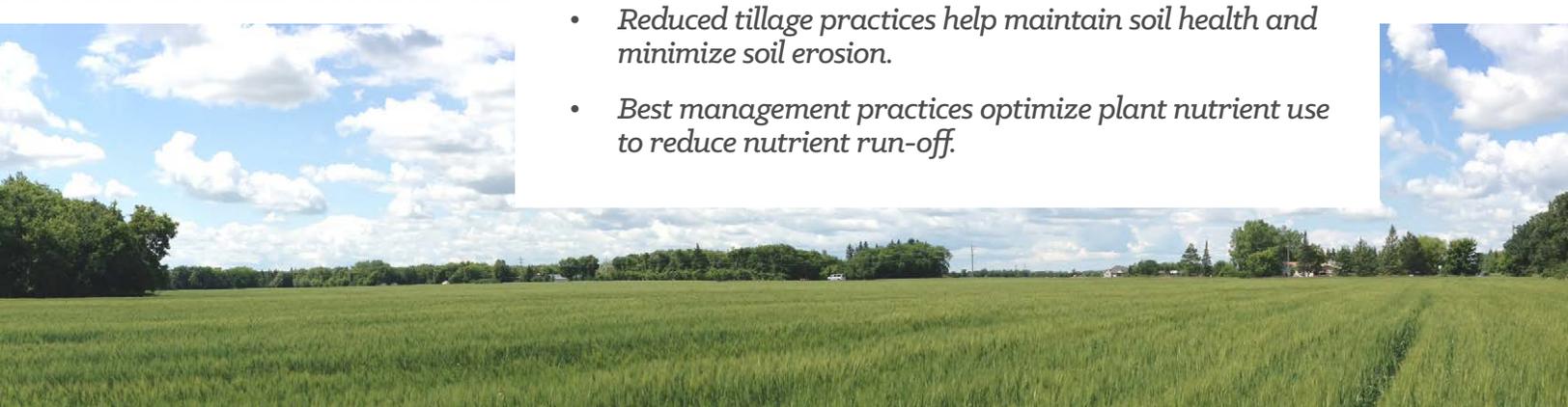
In 1981, soil organic matter was being depleted. With the introduction of modern agricultural practices, including new plant breeding techniques, precision agriculture, and conservation tillage, the quality of the organic matter has changed dramatically. Organic matter in prairie soils is increasing every year.

Modern agriculture means soil is healthier, more productive, is less susceptible to wind and soil erosion, and is able to sequester increasing levels of carbon dioxide every year.



Clean Air, Clean Water, **CLEAN LAND**

- *Minimal tillage technologies reduce soil disruption, keeping Canada's land nutrient rich to produce high-quality crops.*
- *Reduced tillage practices help maintain soil health and minimize soil erosion.*
- *Best management practices optimize plant nutrient use to reduce nutrient run-off.*





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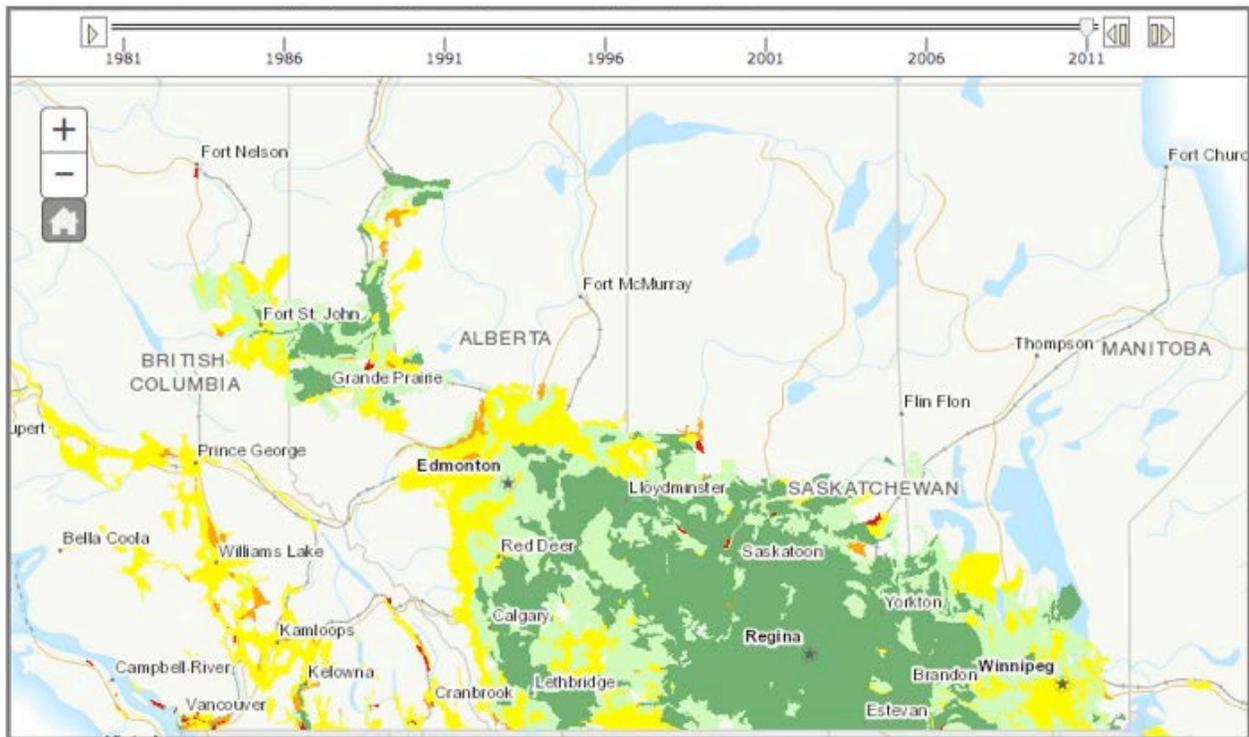
Soil Organic Carbon Change

This map of the prairie growing region shows the increases in soil organic matter in 2011. The green regions highlight where significant increases have occurred.

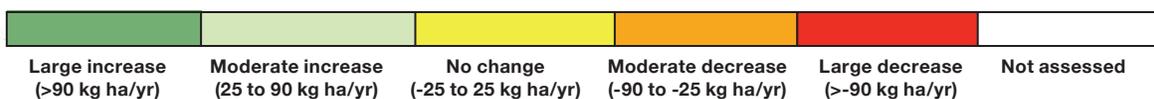
All of that organic matter is also sequestered carbon, demonstrating another way modern Canadian agriculture is helping reduce greenhouse gasses.



Soil organic carbon change (in kilograms per hectare, per year) in Canada in 2011



Legend:



Source: Agriculture and Agri-Food Canada

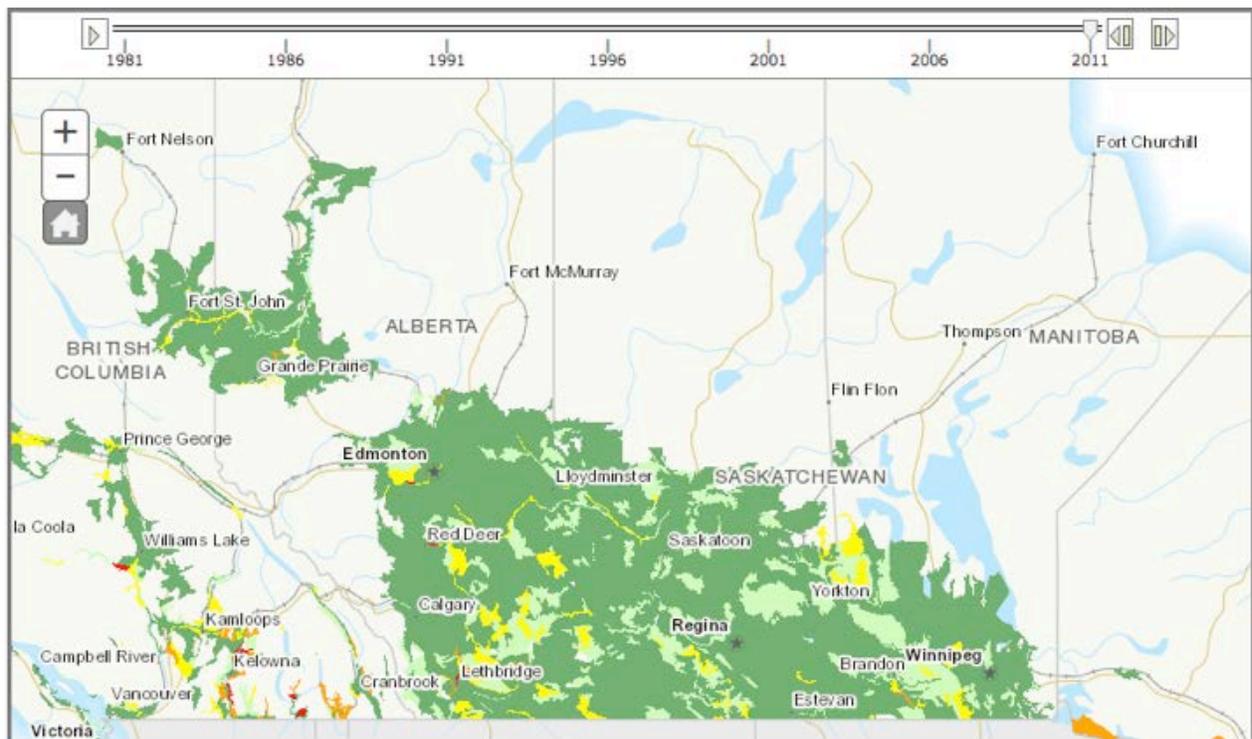


Reducing Soil Erosion- Western Canada

Reducing wind and water soil erosion is another measure of sustainability. Modern Canadian agriculture is delivering on the goal of providing healthy land to future generations.

This map shows the very low incidence of soil erosion across the prairie growing region. The adoption of conservation tillage has meant that Canadian farmers are leading the way in the world regarding soil erosion losses.

Soil erosion - prairie growing region



Legend:



Source: Agriculture and Agri-Food Canada