Cultivating the Organic Opportunity for Canadian Farmers and Consumers

Economic and Environmental Impacts of Organic Agriculture and Policy Recommendations for Canada

Organic Task Force Summary Report | September 2025

Strattons Farm, Annapolis, NS

Canadian Organic Growers
Cultivons Biologique Canada

About COG

Canadian Organic Growers (COG) is Canada's oldest organic and regenerative association dedicated to supporting farmers and gardeners adopting more ecologically-based agriculture practices. Since its inception in 1975, COG has led the progress and prosperity of the organic movement and sector in Canada.

As a registered educational charity and not-for-profit, we work collaboratively with stakeholders across Canada to be the national voice for organic growers and consumers, to advance policy work and industry development at the local, regional and national levels and to train and support organic, regenerative and ecological growers across the country.

Vision

COG envisions a regenerative and resilient organic food and farming system across Canada.

Mission

COG provides education, advocacy and leadership to help build an agricultural system that empowers farmers and consumers, enhances human health, builds community and mitigates climate change while increasing Canadian food sovereignty.

Visit our website for more information www.cog.ca and follow us on social media at @canadianorganic.

Meadow View Ranch, Whitewood, SK

Acknowledgements

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This summary report is based on four technical reports: Appendix 1: Economic Impacts, Appendix 2: Environmental Impacts, Appendix 3: Growth Projections, and Appendix 4: Policy and Programs.

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Executive Summary

Organic farming is a tool for Canadian farmers and policymakers to increase farm profitability while delivering a range of environmental outcomes.

Canada's agriculture sector is facing increasing challenges, including trade tensions, increasingly frequent extreme weather events, and rising financial pressures. These challenges highlight the need to diversify and strengthen the resilience of agricultural production. Organic farming presents one strategic pathway forward: it can improve farm profitability and provide environmental benefits while meeting growing consumer demand.

Organic farming in Canada is federally regulated under the Canadian Food Inspection Agency (CFIA), third-party verified according to the Canadian Organic Standards (COS), and internationally recognized through nine equivalency arrangements with key trading partners. The organic sector includes more than 7,500 certified operators—almost 6,000 producers and 1,600 processors—managing 3.18 million acres and supplying a wide range of products and ingredients for value-added foods and beverages.[1] In 2023, Canada's organic market was valued at over $9 billion, up from $6.38 billion in 2019, making it the fifth largest globally.[2] During this time, however, domestic organic production has not increased, contributing to a growing production gap and increasing imports. This points to an opportunity to expand Canadian organic production to better meet growing demand at home and abroad, while supporting both economic and environmental objectives.

Despite its documented benefits, organic agriculture in Canada has received limited research and policy support, hindering growth. To address this, Canadian Organic Growers (COG) convened the Organic Task Force (OTF) —a team of farmers, researchers, and policy experts—to answer the question: **How can expanding organic production help Canada meet its economic, environmental, and climate goals, and what public support is needed to achieve this expansion?**

Objectives of the OTF:

- Identify economic and environmental impacts of organic production in Canada.
- Identify management practices that contribute to and enhance environmental outcomes on organic farms.
- Develop a realistic organic growth scenario and project its outcomes and contributions to policy goals.
- Estimate costs to producers and governments to achieve this scenario.
- Provide policy and program recommendations that support organic sector growth.

Rooted Oak Farm, North Augusta, ON

[1] Canada Organic Trade Association, 2023 Quick Facts Sheet. https://canada-organic.myshopify.com/collections/.
[2] FiBL. The World of Organic Agriculture 2025. https://www.fibl.org/en/shop-en/1797-organic-world-2025.

Key Findings of the Report:

Organic agriculture is a market-driven response to strengthen farmer livelihoods, build resilient food systems, and advance Canada's economic and environmental goals.

This report finds that organic farming in Canada:

- **Provides higher net returns for farmers** (117% higher net return per acre).
- **Has high short-term transition costs** (most return values are negative during the transition period).
- **Benefits biodiversity** (greater bird, plant, and insect biodiversity).
- **Maintains and improves soil health** (higher soil organic carbon (SOC) levels on average).
- **Reduces greenhouse gas (GHG) emissions by 35% per acre and 15% per unit of production.**

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- **Uses up to 50% less energy and is up to 40% more energy efficient,** based on long-term Prairie trials.
- **Uses key beneficial management practices (BMPs)** including more diversified rotations, including cover crops and green manures, and managed habitat, at higher rates than on non-organic farms, delivering specific ecological and agronomic benefits.

The OTF used these findings to estimate the economic and environmental impacts of tripling organic acreage in Canada,[3] and found that such an increase would:

- **Generate $1.73 billion in additional net farm income over 10 years,** or $1.73 million annually, including transition costs.
- **Every $1 invested in organic farm transition generates nearly $8 in additional net returns for farmers.**
- **Avoid GHG emissions of 769 kt CO_2e annually,** offsetting 1% of Canada's agricultural emissions.
- **Increase biodiversity and maintain and improve soil health across more farmland.**
- **Increase the number of certified organic farmers by 40%.**
- **Reduce synthetic nitrogen (N) fertilizer use by 79.5 million kg N/year,** contributing 14% of Canada's fertilizer emissions reduction target.
- **Reduce pesticide use by 1.8 million kg active ingredient/year.**


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- **Strengthen Canadian organic supply,** enabling farmers to better meet growing domestic and global market demand.
- **Create opportunities for producers to adapt to the impacts of climate change.**

[3] This is a realistic growth scenario that acknowledges the complementary role of organic farming in Canada's agricultural landscape and aims to position Canada to better meet domestic and global organic demand while benefiting farmers and advancing environmental goals. When applying the projections to more ambitious growth scenarios, such as 25% organic farmland for example, the conversion would generate $13 billion over 10 years, reduce agricultural emissions by 12% (compared to no organic farming), and meet 124% of the fertilizer emissions reduction target.

The OTF used multiple research methods, including economic analysis of crop budgets, international life cycle assessments (LCAs) comparing GHG emissions, literature reviews, and Holos modeling and economic analysis at four Canadian case study sites. Consistent findings across methods strengthen confidence in the results. The report presents high-level, national conclusions, while acknowledging the wide diversity of practices, management approaches, and climate and soil types across Canada and within and across organic and non-organic systems.

Despite this diversity, organic is an established, regulated, and market-supported system that provides a context and framework for farmers to refine sustainable management, including integrated nitrogen and carbon management. Its market-based incentives and third-party verification system offer governments a mechanism for supporting the long-term adoption of practices that can deliver economic and environmental benefits.

Policy Recommendations:

The data in this report clearly show that organic farming delivers multi-functional economic and environmental benefits. Yet, Canadian governments have missed opportunities to invest directly in expanding organic farming and organic remains an underutilized tool in Canadian policy. Research by the OTF indicates that Canada stands alone in this approach, unlike our comparator nations, which actively support and fund organic food and farming to achieve policy goals.

Winter Sun Farm, Bella Coola, BC

Compared to Canada, we estimate that the U.S. spends eight times more per acre annually on organic programs, while the EU spends over 200 times more.[4]

The OTF recommends targeted federal investments to expand Canada's organic production to capture more of its benefits, and enhance sustainability. Research findings indicate the need for two main areas of production support: 1) reducing the risk of transition to organic through financial and technical support, and 2) helping existing organic farmers adopt practices that will mitigate the yield gap and improve profitability, while also further improving agri-environmental outcomes. Given the limited research and extension support for organic systems in Canada, targeted investments in these areas are a high-impact opportunity to improve the productivity and sustainability of organic agriculture while providing value to the agriculture sector at large.

Experience in other jurisdictions shows that production investments must be complemented by market development efforts to ensure long-term sustainability, requiring coordination to align production growth with demand, ensure market access for producers, and provide price stability for consumers. This report provides detailed production recommendations, and suggests a commensurate market development spending range, but does not further break down market development costs.[5]

Ferme Coopérative Tourne-Sol, Les Cèdres, QC

The report recommends an annual investment of $68.5 million to triple and enhance organic agriculture in Canada. We find that every $1 invested in organic farm transition generates nearly $8 in additional net returns for farmers and the economy.

Table 1 summarizes estimated costs of recommended policy measures.

[4] Based on funds dedicated to organic programs in agricultural policy frameworks, normalized to an annual basis and expressed as a function of total farmland acreage. See Figure 1.
[5] For more detail on market development mechanisms, see the Canadian Organic Alliance's (COA) Organic Action Plan (OAP): https://cog.ca/policy/organic-action-plan.

Table 1. Summary of Policy Recommendations and Costs to Triple and Enhance Organic Agriculture in Canada[6]

Recommendation	5-Year Provincial Investment	5-Year Federal Investment	5-Year Total Investment
Organic Transition Incentives[7]	$89 million	$133 million	$222 million
Organic Innovation Fund for Advanced Practice Adoption	$20 million	$30 million	$50 million
Organic Education and Extension Services	$7 million	$20 million	$27 million
Organic Research Expansion[F]	/	$25 million	$25 million
Organic Certification Cost-Share[F]	/	$10 million	$10 million
Support for New Entrants[F]	/	$5 million	$5 million
Improve Organic Crop Insurance	/	/	/
Organic Data Strategy[F]	/	$2 million	$2 million
Fund Organic Standards Update[F]	/	$1.5 million	$1.5 million
Total	**$116 million**	**$226.5 million**	**$342.5 million**
Annual Costs	**$23.2 million**	**$45.3 million**	**$68.5 million**
		Estimated net cost savings[8]	**$171 million**
		Additional net returns to farmers over 10 years[9]	**$1.73 billion[10]**

F = Federal only

This report strongly informs a chapter of the broader Organic Action Plan (OAP)—a long-term strategy to support the growth of Canadian organic production and markets—designed by the Canadian Organic Alliance (COA).[11] The COA has identified several short-term priorities that align with current government objectives, can be implemented immediately, and offer strong returns on investment. These priorities—an organic data strategy, a permanent organic standards review mechanism, and an organic market development fund—will strengthen the foundation for the more comprehensive organic production growth initiative proposed in this report.

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[6] This approach offers a strategic framework for governments, based on the research in this report and informed by experience in some Canadian provinces and other jurisdictions. However, provinces and territories vary in their priorities and needs for organic agriculture. Flexibility will be needed to allow each jurisdiction to tailor interventions to its context. For this reason, the Agricultural Policy Framework (APF) would be a key mechanism for implementation.

[7] Farmers cover 70-83% of transition costs in this scenario, or $688 million.

[8] Research suggests that organic conversion could save the government 50 cents per dollar spent (i.e. $171 million on a $342.5 million investment), as organic farms tend to draw less on existing programs and can be less reliant on programming such as business risk management programs.

[9] Additional net returns retained by producers from transitioning to organic, over 10 years including transition.

[10] Investing $222 million in organic farm transition generates $1.73 billion in additional net returns for farmers, or nearly $8 for every $1 invested.

[11] COA includes COG, COTA, and the Organic Federation of Canada.

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List of Abbreviations

AAFC = Agriculture and Agri-Food Canada
APF = Agricultural Policy Framework
BMP = beneficial management practice
CFIA = Canadian Food Inspection Agency
CGSB = Canadian General Standards Board
COA = Canadian Organic Alliance
COG = Canadian Organic Growers
COR = Canadian Organic Regime
COS = Canadian Organic Standards
COTA = Canada Organic Trade Association
FPT = Federal, Provincial, Territorial
GHG = greenhouse gas
LCA = life cycle assessment
OAP = Organic Action Plan
OTF = Organic Task Force
OTI = Organic Transition Initiative
SCAP = Sustainable Canadian Agricultural Partnership
SOC = soil organic carbon
SOM = soil organic matter

Tables and Figures

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Introduction

The New Farm Centre, Creemore, ON

1. Introduction

Canada's farmers and food systems face increasing economic and environmental pressures. Strengthening domestic resilience will support local food systems, reduce reliance on imports, and provide farmers with tools and pathways to manage risk and adapt to change. Organic agriculture, as a profitable, recognized, and regulated system, offers an opportunity to address these needs while advancing Canada's economic, climate, and biodiversity priorities. With an appropriate policy framework, a growing organic sector can contribute significantly to both environmental and economic resilience.

Agricultural Sustainability in Canada

Agriculture can contribute to biodiversity loss, climate change, and economic vulnerability, but through ecological management, it can also be an important part of the solution. Progress toward Canada's climate, biodiversity, and economic goals has been slow, increasing the risk of falling behind.[12] A recent Senate Committee report on soil health notes that while some improvements in soil management have occurred, these may obscure ongoing soil degradation and agricultural land loss across the country, such as declining soil organic carbon (SOC) levels in Eastern Canada's cropping systems.[13] This decline is linked to cropping intensification—marked by simplified rotations, increased reliance on annual crops, low-residue practices, and reduced perennial use—along with climate change, extreme weather events (such as drought, fire, and flooding), urbanization, and misinterpreted outcomes of certain soil practices. Meanwhile, the use of synthetic fertilizers and pesticides has risen substantially, raising further environmental concerns.[14] Farmers and ranchers are also facing increasing impacts from extreme weather, leading to higher costs for some farm support programs.[15] To address these challenges, Canada needs to expand farming systems that promote de-intensification and diversification, rebuild soil health, and improve long-term resilience.

Organic Agriculture in Canada

In Canada, organic agriculture is defined as "a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock, and people. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment."[16] Organic production in Canada is federally regulated and verified by accredited third parties, adhering to strict practices related to allowable inputs, including the prohibition of synthetic inputs, and maintaining crop rotations. Canada has nine organic equivalency arrangements, opening access to 35 countries and over 90% of the global organic market.[17]

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[12] Office of the Auditor General of Canada. (2024). Report 5—Agriculture and Climate Change Mitigation—Agriculture and Agri-Food Canada, of the 2024 Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada. https://www.oag-bvg.gc.ca/internet/English/att__e_44477.html.

[13] Senate of Canada. (2024). Critical Ground: Why Soil is Essential to Canada's Economic, Environmental, Human, and Social Health. https://sencanada.ca/content/sen/committee/441/AGFO/reports/2024-06-06_CriticalGround_e.pdf.

[14] Malaj, E., L. Freistadt, and C. A. Morrissey (2020). "Spatio-Temporal Patterns of Crops and Agrochemicals in Canada Over 35 Years." Frontiers in Environmental Science 8: 1–17. https://doi.org/10.3389/fenvs.2020.556452.

[15] For example, the cost of AgriInsurance doubled between 2019/20 and 2023/4. https://www.tbs-sct.canada.ca/ems-sgd/edb-bdd/index-eng.html#infographic/dept/1/financial.

[16] Organic production systems: general principles and management standards. https://www.publications.gc.ca/site/eng/9.894375/publication.html.

[17] CFIA. Organic equivalency arrangements with other countries. https://inspection.canada.ca/en/food-labels/organic-products/equivalence-arrangements.

1. Introduction

Organic agriculture in Canada has deep roots in Indigenous practices and food systems, later influenced by global organic pioneers. The movement gained momentum in the 1970s and 80s with the establishment of organizations and organic certification bodies. By the 1990s, provincial standards emerged, and in 2009, Canada implemented national Organic Products Regulations, making certification mandatory for interprovincial and international trade. Since then, the organic sector has grown substantially, driven by consumer demand.

Canada's organic sector currently includes nearly 6,000 producers managing 3.18 million acres of certified organic land and close to 1,600 certified processors. Organic accounts for 3.4% of the total market share and generates over CAD $9 billion in annual sales—up from $6.38 billion in 2019.[18] Canada ranks as the fifth-largest consumer market in a growing global organic market, which surpassed CAD $200 billion in 2023.[19] With the U.S. organic market projected to triple over the next decade and an increasing number of emerging, strategic growth regions, such as the Indo-Pacific market, the value of which is projected to double in the next five years, organic offers Canada a key opportunity not only to better meet existing domestic demand but also to boost and diversify exports amid shifting trade dynamics.[20]

Despite this potential, Canadian governments—outside of Quebec—have largely overlooked organic agriculture as a strategic policy opportunity.[21] This is evident in Canada's Agricultural Policy Framework (APF), the Sustainable Canadian Agricultural Partnership (SCAP), which offers minimal support for organic farming and food. As a result, and given current economic headwinds, the number of organic producers in Canada has declined for the first time since the Canadian Organic Regime (COR) was introduced in 2009, and organic acreage makes up only 2.3% of total agricultural land.[22] Further, a substantial and rising portion of organic food consumed in Canada is imported, with a majority from the U.S., Mexico, and Peru.[23] This growing reliance on imports exposes trade vulnerabilities and missed opportunities for economic growth and environmental gains.

Winter Sun Farm, Bella Coola, BC

[18] COTA, 2023 Quick Facts Sheet. https://canada-organic.myshopify.com/collections/.
[19] The World of Organic Agriculture, 2025. https://www.fibl.org/en/shop-en/1797-organic-world-2025.
[20] Market Data Forecast. 2025. Asia-Pacific Organic Food Market Research Report. https://www.marketdataforecast.com/market-reports/asia-pacific-organic-food-market.
[21] Quebec Biofood Policy. https://www.quebec.ca/gouvernement/politiques-orientations/politique-bioalimentaire.
[22] The World of Organic Agriculture, 2025. https://www.fibl.org/en/shop-en/1797-organic-world-2025.
[23] Statistics Canada. (2024). Canadian imports of certified organic products. Retrieved from CATSNET Analytics, Agriculture and Agri-Food Canada (AAFC).

Global Policy Momentum in Organic Agriculture

Governments worldwide are increasingly investing in organic agriculture as part of broader strategies to capture market opportunities while addressing agricultural, environmental, and economic policy goals. Several of Canada's peers, including Germany, Denmark, Japan, the United Kingdom, and the U.S., have made organic farming a mainstay of their sustainable agriculture strategies. These investments are essential for meeting environmental and climate objectives while boosting farmers' competitiveness in both domestic and international markets and providing healthy food options for consumers. Organic agriculture is also recognized globally as a transparent, sustainable production system with an established trade network.

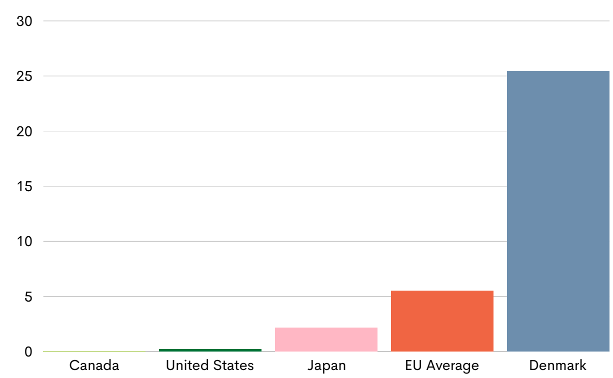
Key jurisdictions like the U.S. and the European Union (EU) have boosted organic production through public investment. Europe, where 10% of farmland is already organic, aims to increase this share to 25% by 2030 as part of its Farm to Fork Strategy. In the U.S., the Department of Agriculture launched a USD $300 million Organic Transition Initiative (OTI) in 2022 to assist farmers transitioning to organic production and support market development, building on decades of investment in organic research and production.

Government Spending on Organic: How Does Canada Stack Up?

A review of organic agriculture policies in other countries reveals that nearly all of Canada's major agricultural competitors have dedicated policies and programs to promote and expand organic production—and they invest significantly more in their organic sectors than Canada.

The United States spends eight times more per acre annually on organic programs, while Japan spends 80 times more, and the European Union spends over 200 times more on average.[24]

Figure 1. Public Spending on Organic Food and Farming by Jurisdiction



Spending amounts are drawn from national agricultural policy frameworks' allocations to organic programs, normalized to annual values, and expressed per acre of total farmland in each jurisdiction. This report estimates that Canada spends CAD $0.03 per acre of farmland per year, while the U.S. spends $0.22 per acre, Japan spends $2.13, and the EU spends $5.51 on average (with wide variability between European countries, with some European countries investing well above this average, such as Italy at $24.14, or nearly 900 times more than Canada; and Denmark at $25.45, nearly 950 times more[25]).

[24] Appendix 4: Policy and Programs Technical Report.
[25] Denmark has the highest organic market share in the world, at 13% as of 2023. EU CAP Network, Thematic Group on Strengthening the position of farmers in the Organic Food Supply Chain, Organic Policies in Denmark: Case Study. https://eu-cap-network.ec.europa.eu/sites/default/files/publications/2023-03/TG%20Organics_Case%20Study%20Denmark_final.pdf.

Project Scope and Methods

This project compares the economic and environmental impacts of certified organic crop production with comparable conventional baselines in a Canadian context. The analysis focuses on cropping systems and does not directly address livestock or dairy systems.

The study relies on peer-reviewed literature, primarily systems-level comparisons between organic and conventional farming systems. Canadian data sources were prioritized, but global research was also used where Canadian data is limited. While research has highlighted the limitations of the organic-conventional binary in terms of examining important variations within these broad classifications, it remains a useful framework for developing broad comparative metrics.

Impact areas were selected based on Canadian agricultural policy challenges and priorities. Economic and GHG emissions impacts were assessed quantitatively, while environmental impacts - specifically related to soil health, biodiversity, water, energy efficiency, and climate resilience - were assessed more qualitatively.

The economic and GHG analysis covered major Canadian field crops, including wheat, canola, barley, oats, rye, flax, peas, lentils, chickpeas, corn, and soybeans. Select horticultural crops were also included - potatoes, carrots, lettuce, spinach, apples, and blueberries - based on available organic and conventional data and their potential for organic market growth. Canola, apples, and blueberries were excluded from summary figures due to limited organic production or data uncertainty.

The project used multiple research methods, including economic analysis of crop budgets, international LCAs comparing GHG emissions, literature reviews, and additional economic and emissions analysis at four Canadian case study sites. Findings were generally consistent across these methods, increasing confidence in the results.

The study also used the research findings to model the potential impacts of tripling organic acreage nationally. This scenario is illustrative and not a prescriptive target; rather, it is intended to explore the possible outcomes of rapid production growth based on appropriate policy support.

The report presents national-level findings, while acknowledging regional differences in climate, soils, and management practices. Given ongoing data limitations, results should be revisited as new research and data become available.

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Research Findings

Moose Creek Organic Farm, Oxbow, SK

2. Research Findings

2.1 Economic Impacts of Organic Agriculture

See [Appendix 1: Economic Impacts Technical Report] for full analysis and sources for this section.

Organic agriculture can increase long-term net returns for producers, but involves short-term transition costs

This analysis compares the financial returns of conventional and certified organic crop production. It finds that organic production is generally more profitable, with similar production costs and higher market prices. This trend is consistent across individual crops and full rotations, including when incorporating full-season green manures.

The analysis focuses on field crops and select horticultural crops. While not directly assessing the economic impact of specific management practices, these effects may be indirectly reflected in the overall results. Findings may also be relevant to other types of production, though these were not studied.

Despite the potential for higher long-term profitability, the transition to organic production presents financial challenges. During the three-year transition period, yields often decline, and products cannot yet be sold at organic price premiums.[26] As a result, the analysis generally shows negative net returns during this phase, posing a significant barrier to adoption.

Over the longer term, however, the transition tends to pay off. Within 10 years, including transition, most crops show positive and relatively improved annual average net returns.

2.1.1 Net Returns for Organic Crops

Our economic analysis of Canadian crop budgets found that net returns for producers are higher under organic production than conventional for almost all field crops.

Net returns for organic production of horticultural crops are also higher, but Canadian crop budget data for horticultural crops are less reliable, so only four crops are summarized here.

Table 2 presents a comparison of conventional and organic prices, production costs, expected yields, and net returns across 14 Canadian crops, using national datasets and representative enterprise budgets.

While results vary by crop, organic production delivers 117% higher net returns on average.

[26] Canadian General Standards Board (CGSB), 2021. Organic production systems: General principles and management standards. Government of Canada publication CAN/CGSB-32.310-2020 Corrigendum No.1, March 2021. https://inspection.canada.ca/en/food-labels/organic-products/standards.

Table 2. Difference in Net Returns Between Conventional (CON) and Organic (ORG) Crops[27]

Crop	ORG Yield Assumption (% of CON)[28]	CON Price ($/t)	ORG Price ($/t)	CON Prod Cost ($/ha)	ORG Prod Cost ($/ha)	CON Net Return ($/ha)	ORG Net Return ($/ha)	% Difference in Net Return
Field Crops								
Barley	75.4%	238	407	1,508	1,571	-762	-609	20%
Chickpeas	56.9%	1,086	2,791	1,100	1,379	168	475	183%
Corn	90.7%	252	511	2,126	1,737	393	2,896	637%[29]
Flaxseed	76%	630	1,831	1,368	1,736	-629	-104	83%
Lentils	56.9%	1,268	3,343	993	1,326	460	853	85%
Oats	71.4%	275	502	1,439	1,711	-585	-597	-2%
Peas	56.9%	432	864	1,429	1,673	-535	-656	-23%
Rye	76%	240	442	1,623	1,521	-844	-431	49%
Soybeans	76.7%	634	1,402	998	1,316	940	1,970	110%
Wheat[30]	75.9%	313	603	1,556	1,715	-707	-472	33%
Field Crop Average								**118%[31]**
Horticultural Crops								
Carrots	75.3%	992	1,984	29,346	39,160	11,168	21,893	96%
Lettuce	70.3%	4,336	8,672	16,950	16,950	80,847	120,566	49%
Potatoes	70.3%	475	951	11,747	11,794	7,664	15,520	102%
Spinach	76%	2,201	4,402	15,850	15,850	4,885	15,667	221%
Horticultural Crop Average								**117%**
Total Average								**117%**

[27] Table 2 compares net returns for certified organic production (i.e. not including transition period).
[28] Yield assumptions were based on Boschiero et al. (2023)'s global dataset since no comprehensive dataset exists for Canada by crop, but these assumptions are in line with the sporadic Canadian data that does exist.
[29] The significantly higher net returns for organic corn resulted from the combination of a relatively small yield gap, much higher market value, and lower cost of production.
[30] This analysis uses spring wheat data, as it represents the majority of wheat production in Canada.
[31] When corn is excluded, the average increase in net returns for organic field crops is 59%.

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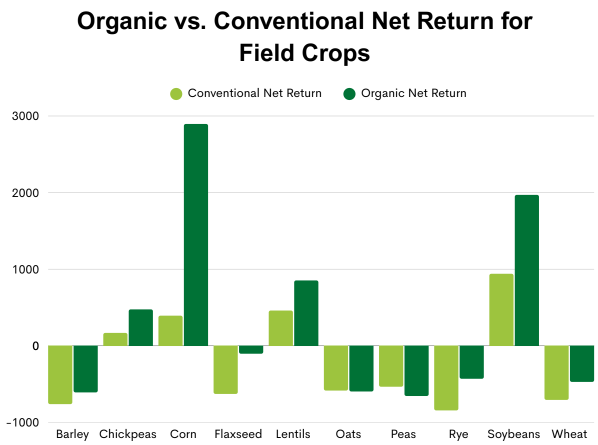
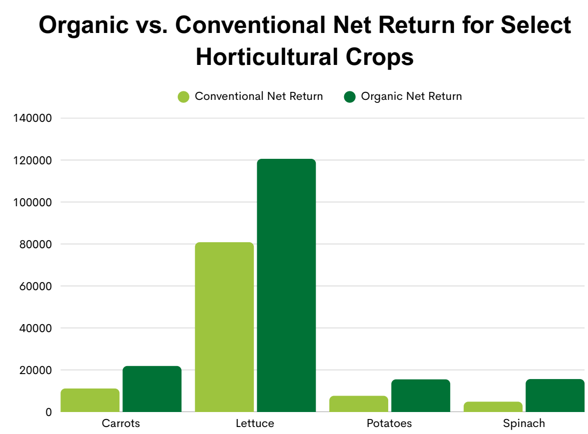
Figures 2 and 3. Difference in Net Returns Between Conventional and Organic Crops





Visual representation of Table 2—118% higher net returns for organic field crops and 117% higher for horticultural crops.

The calculations indicate negative enterprise net returns for some crops, on average, whether produced organically or conventionally, due to price and cost dynamics in the measured period. While persistent, negative net returns suggest limited enterprise viability, the budget calculations include non-cash costs, including depreciation and owner labour. This could imply positive short-term cash flows for these enterprises. Price and cost risks can also be managed with various market tools and insurance. Insurance and subsidy payments are not included in the enterprise budgets.

The distribution of costs differs between organic and conventional production. On average, enterprise budgets for organic crops reflect higher costs for labour, seed and seed treatment, compost, and certification. Conversely, organic budgets tend to show lower costs for crop protection and storage. Fertility, machinery, fuel, insurance, drying, taxes, interest, and other expenses are similar or variable.

These results are consistent with national data from the 2016 Census of Agriculture, which show that organic farms tend to be more profitable on a per acre basis than non-organic farms.[32]

Rooted Oak Farm, North Augusta, ON

[32] Klassen, S. E. (2022). Just in principle? : assessing the contributions of organic farming to socio-ecological sustainability in Canadian agriculture (T). University of British Columbia. Retrieved from https://open.library.ubc.ca/collections/ubctheses/24/items/1.0421368.

2.1.2 Transition Costs and Post-Transition Returns for Organic Crops

Our economic analysis found that the transition period when converting to organic production produces negative net returns for most crops, with likely yield reductions and no organic price premium before certification. Land must be managed in adherence to the COS for three years before certification.[33]

Table 3 presents the net return for crops during the organic transition period, which assumes organic production costs and yields, and conventional prices; the transition cost, or the difference between the transition and conventional net returns; and the average annual increase in net returns per hectare, over 10 years, including the transition years.

While all crops except for corn carry a transition cost, and the actual net returns for most crops are negative during the transition period, **the average net returns over a 10-year period are higher than average net returns for conventional production over the same period.**

Table 3. Organic Transition Costs and 10-Year Average Change in Net Returns Following Transition

Crop	Transition Net Return ($/ha)*	Transition Cost ($/ha)**	10 Year Average Annual Increase in Net Returns for Organic Transition ($/ha)
Field Crops			
Barley	-1,008	-246	33
Chickpeas	-658	-827	-33
Corn	548	156	1,802
Flaxseed	-1,174	-545	202
Lentils	-499	-962	-11
Oats	-1,101	-516	-163
Peas	-1,165	-629	-273
Rye	-929	-86	264
Soybeans	170	-770	491
Wheat	-1,070	-364	56
Horticultural Crops			
Carrots	-8,634	-19,823	1,534
Lettuce	51,808	-29,040	19,076
Potatoes	1,849	-5,818	3,744
Spinach	-92	-4,976	6,054

[33] The exception to this rule is if land had no prohibited substances applied before converting to organic, in which case only a 15-month wait period is required. This analysis uses the three-year period since it is studying the impacts of land conversion from conventional production.

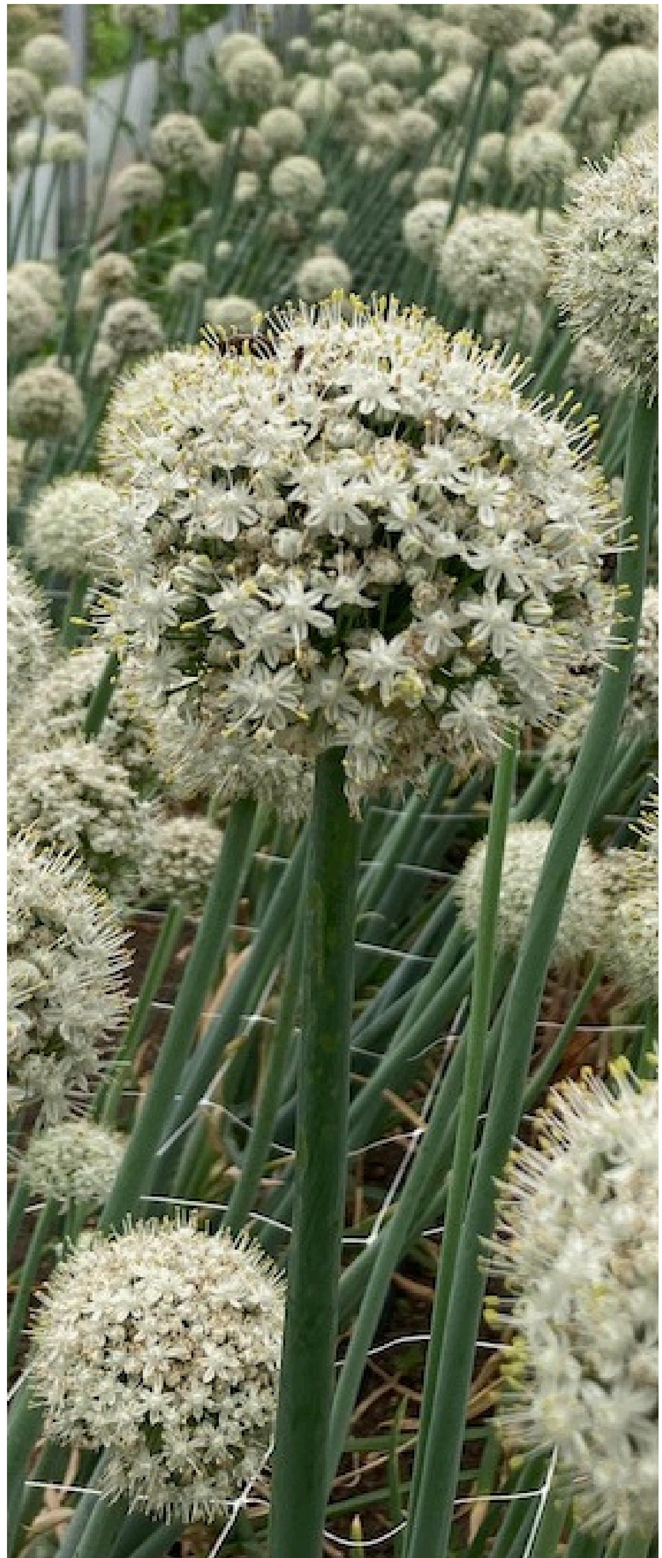
Corn stands out as a high-yielding organic crop that can achieve positive net returns even during the transition. However, certain crops—namely oats and peas—have relatively low expected organic yields, making organic production less profitable for these crops. Meanwhile, crops like barley, lentils, and chickpeas do have higher organic returns than conventional over time, but high transition costs keep their 10-year net returns near break-even in this analysis. The break even points differ by crop (see Appendix 3).

2.1.3 Transition Costs and Returns of Crop Rotations at Four Canadian Sites

The study also modeled economic returns from organic and conventional field crop rotations at four sites across Canada. Overall, the results were consistent with the crop budget analysis:

organic rotations produced higher long-term net returns at all sites, averaging 337% more than conventional systems, even when including green manure or fallow years.

This suggests that participation in the COR may support producers in profitably adopting lower intensity practices like green manures. All sites showed negative net returns during the transition period.



Ferme Coopérative Tourne-Sol, Les Cèdres, QC

Background on Case Study Sites:

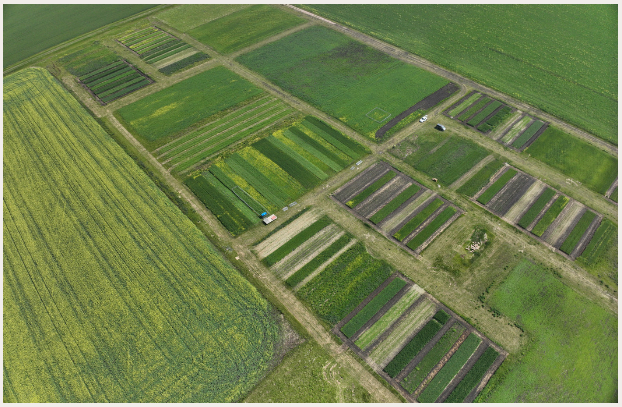
The report features four case studies assessing the economic and emissions impacts of organic and conventional field crop rotations. Three are research sites and one is a commercial farm. The sites are spread across Canada's primary cropping regions and reflect the diversity of eco-zones, management intensity, and approaches within field crop systems. While not comprehensive, these case studies ground-truth and deepen the report's main findings which rely on crop budgets and LCAs. As shown in Table 3, the report compares the organic and conventional rotations that are the most representative of the crops and practices used by farmers in that region and system. This means the conventional and organic rotations at a site do not always have the same crops, due to differing drivers and needs. All case studies have good organic data; conventional data was sourced on-site or modeled from regional averages.

Moose Creek Organic Farm, Oxbow, Saskatchewan:

Moose Creek, located in the thin Black soil zone about 250 km southeast of Regina, has been a certified organic farm since 1989. It follows a diverse crop rotation, with around half of the land in green manures at any given time to help maintain soil health and provide fertility. In this 2022 snapshot, the farm grew a mix of crops, including wheat, flax, oats, hemp, green feed, and alfalfa seed.

Glenlea Organic Long-Term Trial, Glenlea, Manitoba:

The Glenlea long-term rotation, established in 1992 by Dr. Martin Entz, is Canada's longest-running comparison of organic and conventional farming. Located 20 km south of Winnipeg, MB, in the Black soil zone, the study includes two main crop rotations—grain-only and forage-grain—each managed both organically and conventionally. Some organic plots receive composted manure, and weeds are controlled using new organic management tools. Additionally, three restored prairie grassland plots serve as benchmarks to explore the question "Can agricultural soils be as healthy as perennial grassland soils?"



Agriculture and Agri-Food Canada (AAFC) Harrow Research and Development Centre, Harrow, Ontario:

The AAFC Harrow Research and Development Centre in Ontario hosts a long-term organic and conventional farming trial. The fields transitioned to organic production between 2015 and 2017 and have been certified organic since 2018. Both the conventional and organic rotations followed a corn-soy-winter wheat sequence. However, the organic system included leguminous green manure cover crops following the winter wheat, to provide nitrogen in the system. The organic management approach at this site is representative of many organic grain farms in eastern Canada.

CETAB+ Organic Research Trial, Victoriaville, Quebec:

This research trial, managed by CETAB+ (le Centre d'expertise et de transfert en agriculture biologique et de proximité) at Cégep de Victoriaville, studies sustainable practices that balance soil health, crop productivity, and environmental impact in organic farming systems. Located in Victoriaville, the site transitioned to organic farming between 2016 and 2018 and now tests 15 organic treatments with varying tillage and fertilization methods. The main crops include corn, soybeans, and cereals like barley or spring wheat, with some plots dedicated to perennial forage and fallow for comparison.

Table 4. Details of the Four Canadian Case Study Rotation Comparisons

Site	Type	First Year Organic	Years of Data	Soil Texture	Annual Precipitation (mm)	Conventional Rotation[34]	Organic Rotation	Organic Amendments
Moose Creek, SK	Organic farm	1989	2022	Clay loam	455	Simulated: wheat, canola, flax, peas	Spring wheat, hemp, oats, flax, alfalfa seed, green feed. 50% in alfalfa green manure.	Green manures, manure used sparingly
Glenlea, MB	Replicated, phased research trial	1992	2011-2023	Clay	542	Actual data: wheat, flax, oats, soybean	Spring wheat, flax, alfalfa hay x2 years	Green manures, composted cattle manure to meet phosphorus requirements
Harrow, ON	Replicated, phased research trial	2017	2018-2022	Sandy loam	801	Actual data: corn, soybean, winter wheat	Corn, soybean, winter wheat	Green manures
Victoriaville, QC	Replicated research trial	2018	2019-2022	Sandy loam	896	Simulated: corn, soybean, spring wheat	Grain corn, soybean, spring wheat or barley	Green manures and manure

Table 5 presents the net returns of the compared rotations at each site, as well as the transition costs and 10-year average annual net return differences.

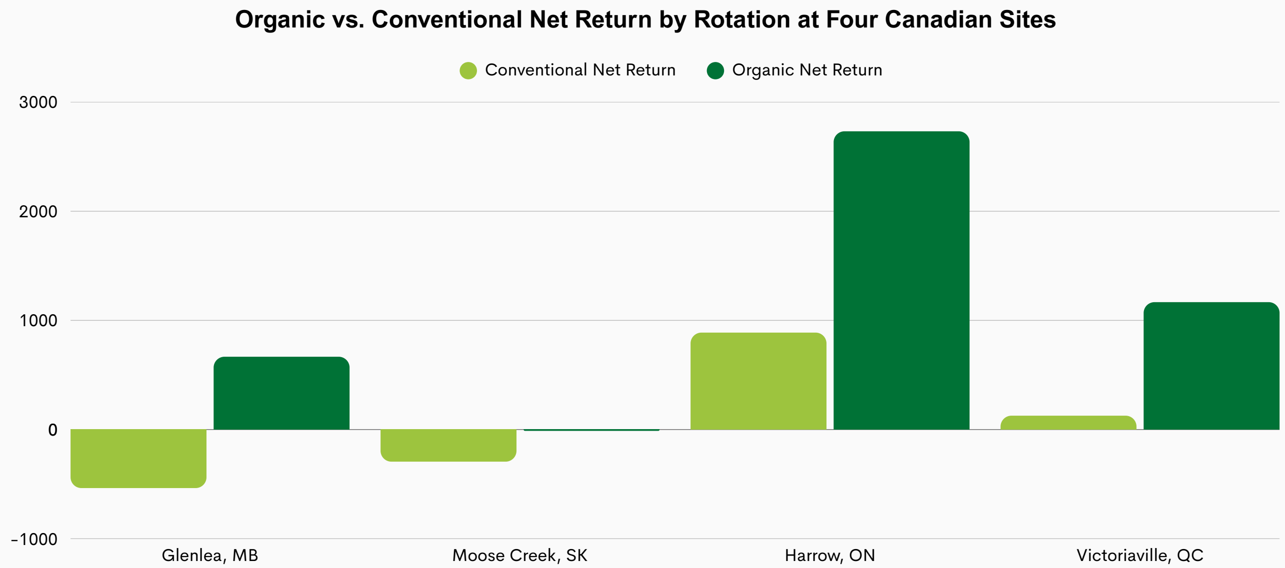
[34] Conventional rotations used conventional fertilizers to meet the crops' requirements and were based on regional averages when actual data was not available for the site.

Moose Creek Organic Farm, Oxbow, SK

Table 5. Net Returns of Conventional and Organic Rotations and Organic Transition Costs and Returns at Four Canadian Sites

Site	Conventional (Rotation Avg) Net Return	Organic (Rotation Avg) Net Return	Long-term Net Return Difference ($/ha)	Transition Cost ($/ha)	10-year Average Annual Net Return Difference ($/ha/yr)
Moose Creek, SK[35]	-294	-12	282	-58	180
Glenlea, MB	-536	667	1,204	-878	579
Harrow, ON	888	2,732	1,845	-343	1,188
Victoriaville, QC	127	1,167	1,040	-313	634

Figure 4: Net Returns of Conventional and Organic Rotations at Four Canadian Sites



Visual representation of Table 5.

[35] Organic net return analysis uses actual farm costs but generic prices.

2.2 Environmental Impacts of Organic Agriculture

See Appendix 2: Environmental Impacts Technical Report for full analysis and sources.

Organic farming supports a multitude of positive environmental outcomes.

The analysis shows that organic farming provides multiple environmental benefits, including healthier soils and greater biodiversity—both essential for the long-term sustainability of farming systems. Healthy soils support water retention and cycling, nutrient cycling, carbon sequestration, and increased resilience to floods, droughts, and wildfires. Organic systems also tend to produce lower GHG emissions per acre and per unit of production compared to conventional farming.

To reach these conclusions, we examined two types of evidence. First, we compared organic and conventional farming systems across key environmental impact areas. Second, we assessed the effects of required or common organic farming practices on certain impact areas. The findings highlight the need for more research on how multiple, stacked BMPs (including more diversified rotations and cover cropping, utilization of legume biological nitrogen fixation and organic amendments, crop residue retention, and modification of tillage intensity) interact to manage ecosystem services and system trade-offs.

Gubersky Gluten Free Organics, Saint Michael, AB

2.2.1 Soil Health

Organic production methods tend to lead to better soil health outcomes, generally maintaining soil health and SOC compared to conventional farming.

Healthy soils are the foundation of well-functioning ecosystems, and soil is a fundamental, non-renewable resource that must be sustained. In agriculture, soil health is defined as the ability of the soil to produce high-quality food with minimal inputs. SOC and soil organic matter (SOM) are among the most commonly proposed indicators of soil health. SOC is core to all aspects of soil health and environmental co-benefits.

These indicators of soil health reflect the many functions of soil. From an environmental standpoint, some of these functions are to support plant growth with water and nutrients, support biodiversity, enable water infiltration, retention and percolation, and buffer the release of nutrients and chemicals into waterways as well as nitrous oxide emissions into the air.

Organic farms generally exhibit higher SOC concentrations and carbon stocks compared to conventional farms. Most studies indicate that organic systems not only maintain but can also improve SOC levels, particularly when BMPs are used and combined. These practices include reduced tillage intensity and frequency, cover crops (particularly combined with organic amendments), forages, and integration of livestock and livestock manures into the system.

Higher SOC in organic systems does not directly point to more carbon sequestration. When manure or crop residue is brought in from outside the farm and applied, it can increase SOC but does not necessarily represent sequestration, since the carbon was already captured wherever the manure or crop was produced. On the other hand, if SOC increases due to crop residue, green manures and manure produced on the farm, it can represent sequestration. Recent literature finds that the first scenario is most common in organic research trials. However, even if it does not represent landscape-scale carbon sequestration, higher SOC concentrations have myriad on-farm benefits.

Organic management can enhance aggregate stability, leading to better soil structure. This improvement helps lower bulk density and improves soil porosity which in turn supports better rooting, water infiltration, water retention, and aeration. These soil properties reduce risk of erosion and runoff.

Organic agriculture can lead to increased soil microbial biomass and biodiversity, both indicators of active soil life. Specifically, studies show that soil microbial biomass is higher in organic systems when perennial forages or compost are used. Additionally, organic systems tend to support higher earthworm populations, although the use of copper-based fungicides in organic orchards can negatively impact earthworms in some cases.

Organic horticulture specifically is associated with higher SOM and lower bulk density. Vineyard studies, however, show mixed results, with some showing improvements in soil health under organic management, while others report no significant differences.

While SOC impact is well-researched, limited studies exist on other aspects of soil health. Further, the effects can vary based on specific practices and soil types. There is a need for more region-specific, long-term research to refine practices for the diverse conditions found across Canada. Measurement of SOC and other soil health indicators on farms and at long-term study sites is important so we can understand how to best manage carbon and nitrogen in different systems and regions across Canada.

Butkiewicz Farm, Rolling Hills, AB

2.2.2 Biodiversity

Organic production generally supports higher levels of biodiversity than conventional production, with higher soil, in-field and total farm biodiversity, elimination of most pesticides, more heterogeneous farm landscapes, and higher retention of natural features and habitats on organic farms.

Organic farms in Canada generally exhibit higher biodiversity than conventional farms, due to practices that support diverse ecosystems. Studies in Ontario, Quebec, and Saskatchewan have found that bird and plant species abundance and richness were greater on organic farms, driven by preserved non-crop habitat and landscape heterogeneity.

Eliminating pesticides has also been linked to increased species richness and abundance on organic farms. Research in Quebec and Saskatchewan has linked organic production to an increase in plant species richness and an increase in bee and insect populations, attributed to the cessation of herbicide use.

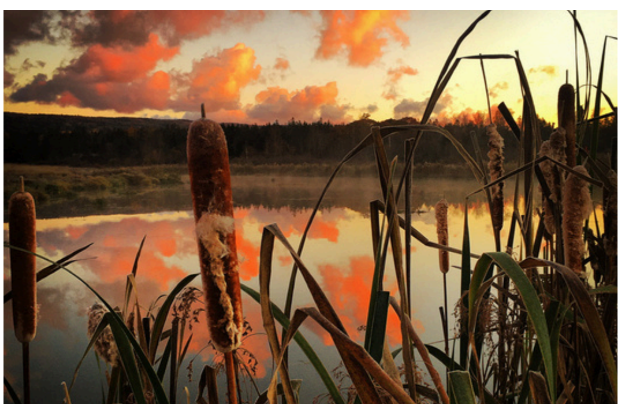
Landscape heterogeneity also plays a key role in supporting biodiversity, with organic farms typically having smaller fields and more non-crop habitats, such as hedgerows and wetlands, which support biodiversity. Increased crop rotational diversity also benefits biodiversity, particularly insects that are important for bird populations. The biodiversity benefits of organic farming are most pronounced in simpler agricultural landscapes, like the Prairies, and may be less noticeable in more diverse areas.

The New Farm Centre, Creemore, ON

The Canadian research is paralleled by global data. According to a recent global meta-analysis, organic farming shows a 23% increase in biodiversity (species richness) compared to conventional farming. For field crops such as wheat and corn, this increase in biodiversity came at the expense of yield, but not for non-cereal crops such as horticultural crops and forages. Another meta-analysis found that organic farms support greater resource abundance and/or diversity at all food chain levels.

2.2.3 Water Quality and Supply

Organic systems have the potential to improve water quality and supply by reducing synthetic inputs, reducing erosion, and improving the soil's water-holding capacity.



Strattons Farm, Annapolis, NS

There is limited data directly comparing the impacts of organic and conventional farming on water quality, availability, and use. However, features of organic systems, like buffer strips and higher SOC, act to retain and recycle nutrients, reducing losses into the environment, thereby improving water quality, water infiltration and soil water retention.

Status-quo farming with high input use has resulted in both pesticide and nutrient runoff or leaching into freshwater and marine environments. Some dramatic examples are the annual toxic algal blooms in Lake Erie and the Gulf of Mexico dead zone, caused by runoff along the Mississippi River, from several U.S. states and parts of Canada.

Organic systems can improve groundwater recharge and reduce runoff. Some studies suggest organic farming can reduce nutrient loading and water loss. For example, organic dairy farms in Ontario showed lower nutrient loading and reduced risk of nutrient losses compared to intensive confinement-based systems. The Rodale Institute confirmed higher water volumes (both in the soil and percolating through it) and reduced runoff in organic treatments, indicating better groundwater recharge and more water available to plants, correlated with higher SOM. This study also highlighted the need to manage nutrient inputs for timing and nutrient supply, which can be a challenge with green manures.

Canadian and global LCAs tend to predict lower water consumption on organic farms. The most recent global meta-analysis of LCAs comparing organic and conventional production found that organic systems had less environmental toxicity as well as lower acidification. These show mixed predictions for eutrophication (marine and freshwater dead zones caused by nitrogen and phosphorus) due to organic management.

2.2.4 Climate Adaptation and Resilience

In the face of a less predictable and more extreme climate, diverse agricultural systems, such as organic farms, show the most resilience in yield and profit stability.

Organic agriculture has strong potential to support climate adaptation by focusing on diversification and building soil fertility and soil health, through higher use rates of practices such as cover cropping, legumes, and reduced synthetic fertilizers. Higher SOM and soil health improves water infiltration and holding capacity, and reduces erosion.

Research shows that diversified farming systems are more resilient to climate extremes, maintaining yield and profit stability. For example, the Rodale Institute's long-term Farming Systems Trial found that organic systems outperformed conventional systems in drought years due to better water retention. Other long-term trials have shown that diverse rotations with cover crops increase resilience and yield stability. In Ontario, rotations with forage legumes in Ontario raised yields by 6-13% compared to monocultures, with higher yields during drought conditions. An 8-year Iowa study found similar results, with diverse rotations yielding as much or more than conventional systems. Overall, complex rotations with three or more crops increase resilience and yield stability.

Reduced reliance on costly inputs and increased profitability supports economic resilience during extreme weather events. Organic farming's lower dependence on energy and synthetic inputs reduces vulnerability to rising costs, including climate-related price spikes.

2.2.5 Greenhouse Gas Emissions

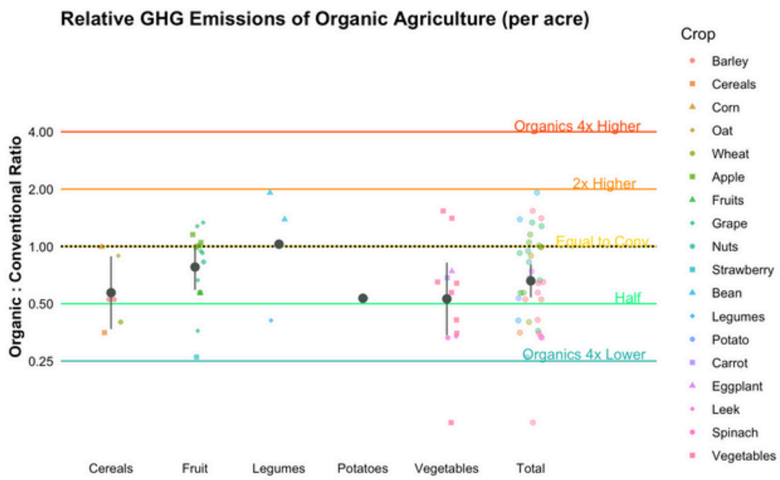
Organic agriculture lowers GHG emissions by 35% per acre and 15% per unit of production.

Agriculture accounts for approximately 10% of Canada's annual GHG emissions, including 76% of the country's N_2O emissions. Identifying systems to reduce these impacts is important. Organic agriculture, which prioritizes healthy environmental and ecosystem outcomes, may play a role in reducing GHG emissions. Organic agriculture does not rely on emissions-intensive synthetic fertilizers and pesticides and instead, relies on organic amendments like manure and compost, and crop rotational diversification, strategies that can help build soil health, sequester carbon into soils and reduce emissions.

GHG Emissions of Organic Crops

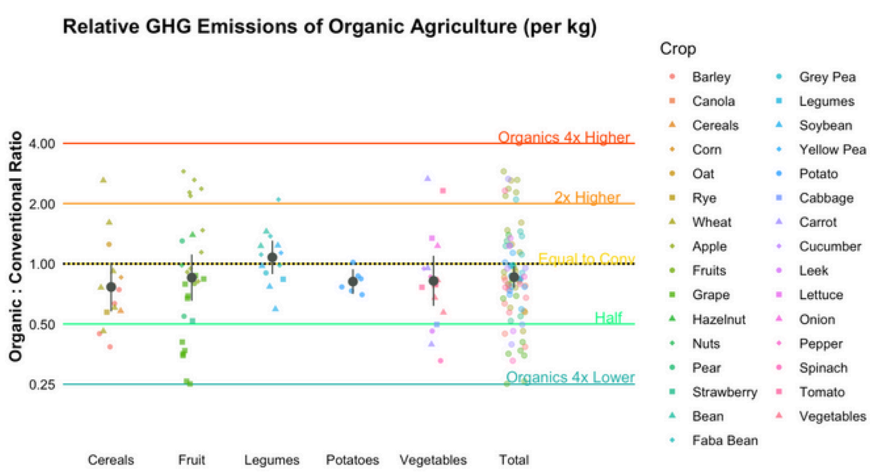
Our analysis of a global dataset of 79 LCAs comparing GHG emissions for organic and conventional production of crops grown in Canada found that, on average, organic crops produce 34% less GHG emissions on a per area basis, and 14% less per unit of production. The results varied considerably among crops and studies as shown in Figures 5 and 6.

Figure 5. GHG Emissions of Organic Compared to Conventional Agriculture on an Area Basis



Organic agriculture is on average 34% lower emissions per area (across 18 crops or crop categories from global LCA dataset, adapted from Boschiero et al., 2023. See selection criteria for LCAs included cited in Appendix 2).

Figure 6. GHG Emissions of Organic Compared to Conventional Agriculture on a Per Unit Mass Basis



Organic agriculture is on average 14% lower emissions per unit of production (across 32 crops or crop categories from global LCA dataset, adapted from Boschiero et al., 2023. See selection criteria for LCAs included cited in Appendix 2).

LCA results show that organic farming significantly reduces GHG emissions at the systems level, both per acre and per unit of output. Most LCAs identify fertilization as the largest source of emissions in conventional production, whereas emissions sources in organic production are more varied.

While attributing emissions to specific practices is challenging, organic farming appears to provide a valuable whole-systems approach for mitigation and for studying the effects of BMPs, both individually and in combination.

GHG Emissions of Organic Rotations at Four Canadian Sites

We also used Holos, a Canadian modeling software developed by AAFC, to model GHG emissions for the four Canadian case study sites described in Table 4, comparing organic and conventional rotations. The Holos modelling generally supported the findings of the LCA crop analysis, with organic rotations producing less GHGs on a per area basis at all sites, and less on a per unit of output basis at three of four sites.

Across the Canadian rotation case studies, GHG emissions are on average 36% lower per area and 19% lower per kg yield, validating the global dataset for the Canadian situation.

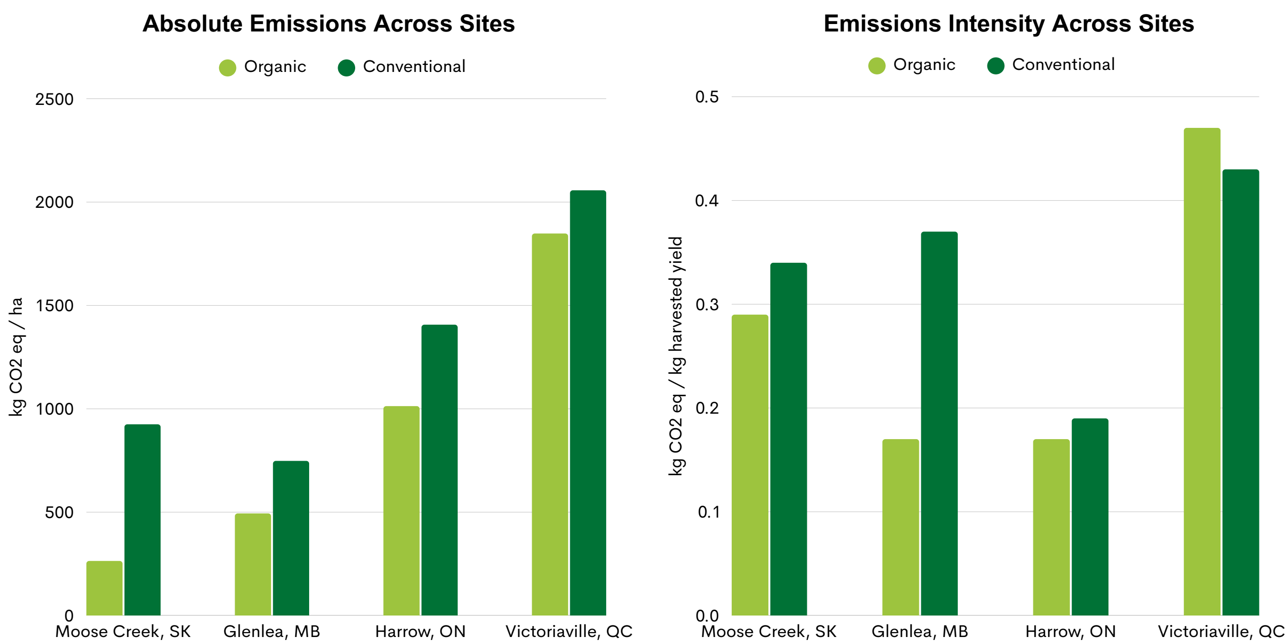
The emissions analyzed include direct and indirect N_2O, farm energy CO_2, and upstream emissions from the manufacture of synthetic inputs. Changes in soil carbon were analyzed separately, and only for two sites, and are not included in Table 6 or Figures 7 and 8.

Moose Creek Organic Farm, Oxbow, SK

Table 6. GHG Emissions of Conventional and Organic Rotation Comparisons at Four Canadian Sites

Site	kg CO_2 eq per ha per Year			kg CO_2 eq per kg Harvested Yield		
	Organic (O)	Conventional (C)	O:C Comparison Ratio[36]	Organic (O)	Conventional (C)	O:C Comparison Ratio
Moose Creek, SK	264	925	29%	0.29	0.34	85%
Glenlea, MB	494	748	66%	0.17	0.37	46%
Harrow, ON	1,013	1,407	72%	0.17	0.19	86%
Victoriaville, QC	1,848	2,057	90%	0.47	0.43	107%

Figures 7 and 8: Emissions Per Hectare and Per Kg Harvested Yield Across Study Sites

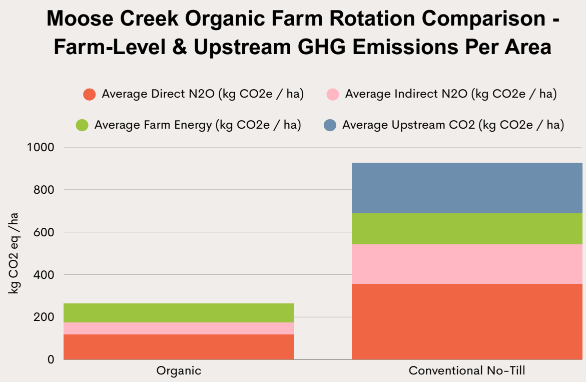


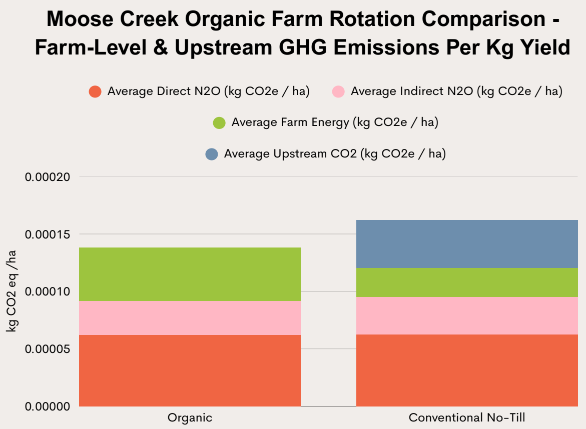
Visual representation of Table 6

[36] The O:C comparison ratio represents organic emissions as a percentage of conventional emissions. For example, organic per area emissions at Glenlea are 66% of conventional emissions.

Spotlight: Lower Emissions from Organic Reduced Tillage Compared to Conventional No-Till

Figures 9 and 10: Comparative Farm-Level and Upstream Emissions at Moose Creek Organic Farm Per Area and Per Unit of Harvested Yield[37]





The Moose Creek farm analysis, compared to a benchmark conventional no-till scenario, **indicates that the organic reduced tillage system emits less than one-third of the emissions per unit area and 85% per unit of product compared to the conventional no-till scenario**, highlighting its lower overall and intensity-based emissions.

Moose Creek Organic Farm, Oxbow, SK

[37] The emissions presented include farm level emissions, including direct N_2O (estimates the field-level N_2O emissions from nitrogen applied, including fertilizer, crop residues and nitrogen mineralization); indirect N_2O (emissions that occurred away from the field, by NO_3 leaching and runoff, NH_3 volatilization, or biomass nitrogen that was transported away from the farm); farm energy CO_2 (the CO_2 from fuel use); and upstream emissions (emissions are from the manufacture of fertilizer and herbicides.)

Organic rotations generally had lower emissions, except at Victoriaville when expressed by kg of yield. In Holos, organic rotations generally had lower emissions from farm equipment and lower upstream emissions (from manufacturing of synthetic inputs). Differences in N_2O emissions depended on the site: at Glenlea and Victoriaville, N_2O emissions were equal for organic and conventional rotations, at Moose Creek they were lower for organic, and at Harrow they were higher.

Organic nitrogen requirements are met by green manures or other organic amendments such as livestock manure, and compost. These sources vary in their in-field N_2O emissions depending on application rate and timing, management practices, and growing season precipitation. The green manure adds non-harvested biomass to the system, leading to the possibility of sequestering carbon, and removes the upstream emissions associated with fertilizer nitrogen.

Glenlea takes a novel approach and adds enough manure to meet the crop's phosphorus needs, while depending on legumes to provide the bulk of the nitrogen. When compared to Victoriaville, which targeted its manure application to the regionally recommended nitrogen rates, the Glenlea manure applications increased yield more, and emissions less, than the Victoriaville manure applications. Although these two sites are very different, this example suggests that judicious manure use may be a way to maintain yield while moderating emissions.

It was clear from the Glenlea and Moose Creek sites, which have been under organic management for over 30 years, that adjusting management over time is vital for maintaining sustainable organic systems. Farmers and policymakers should plan for these adjustments, making changes in response to yields and fertility.

When evaluating crop nitrogen supply and N_2O emissions, it is important to consider carbon dynamics as well. At every site except for Moose Creek, the organic system had more carbon inputs than the conventional comparison, indicating the potential for higher SOC in the organic systems over time. Although Moose Creek uses a lot of perennials, which should build SOC, yields of both forages and cash crops were limited by low soil phosphorus. The lower yields (for example, wheat and flax averaged 37% lower yields than conventional), resulted in lower carbon inputs.


Glenlea Organic Long-Term Trial, Glenlea, MB

GHG Emissions Considerations for Organic Expansion

The adoption of organic agriculture eliminates direct synthetic fertilizer use and the associated manufacturing emissions. However, organic inputs also have GHG emissions footprints associated with their application in the field, and in the case of manure, its production. Compared to nitrogen fertilizer:

- In-field emissions from solid manure are lower, while most other manure-based amendments tend to be similar or higher.
- In-field emissions from green manures vary, but on balance are similar.
- Adding a green manure sometimes increases carbon sequestration, but most relevant studies show no change.

If organic agriculture is expanded using existing organic amendment supplies that would be applied to soil regardless of the production system (i.e. organic or non-organic), such as manure and crop residues or other plant-based composts, then landscape scale emissions should not change (this doesn't include emissions from manufacturing fertilizers, which would decline). However, changes in manure management and yield sacrifices for green manuring, if required, could result in increased emissions or emissions intensity in an expanded organic scenario. On the other hand, fertility use efficiency, including from manures, declines in more intensively fertilized systems. Thus, the targeted and judicious use of manures in organic systems may allow for improved crop response and nutrient use efficiency from these recycled nutrient sources.

The Homestead Farm, Goodfare, AB

Newer research questions the use of compost as a GHG reduction strategy. Therefore, composting is of particular concern when considering the impact of scaling up organic on GHG emissions. It results in a more stable carbon source than raw manure, but methane and N_2O emissions from composting are significant. Moreover, the application of compost does not increase sequestration compared to raw manure, as the organic carbon losses during the composting process offset the gains from carbon stabilization.

While expanding organic production can be expected to contribute to GHG emissions reduction, there are many interacting factors such as the associated changes in yield and organic amendment requirements. Focusing on low-emission organic crops, such as grapes and barley, and increasing perennial rotations, could provide additional opportunities for impact. Similarly, crops with high pesticide requirements in conventional production may be opportunities for low-emissions organic growth, given recent LCAs suggesting pesticide use contributes significantly (20-50%) to the emissions of certain crops. This also applies to displacing organic food that is grown elsewhere and imported over long distances.

2.2.6 Energy Use and Efficiency

Organic systems tend to be more energy efficient than conventional systems.

The energy efficiency benefits of organic production are established in the literature. In long-term trials in the Canadian Prairies, organic crop production used 50% less energy and was 24-40% more energy efficient per unit of product or land area. However, net energy output was lower for organic systems, as conventional systems yielded higher, but they also used more energy. More research should be done in other organic farming systems. Longer rotations with perennials (e.g., six-year rotations) reduced energy use (by 14%) and associated GHG emissions (by 29%) in the long-term trials.

2.2.7 Addressing the Yield Gap

While the organic yield gap can be reduced through research and extension, this should be paired with a shift away from the pursuit of endless productivity growth.

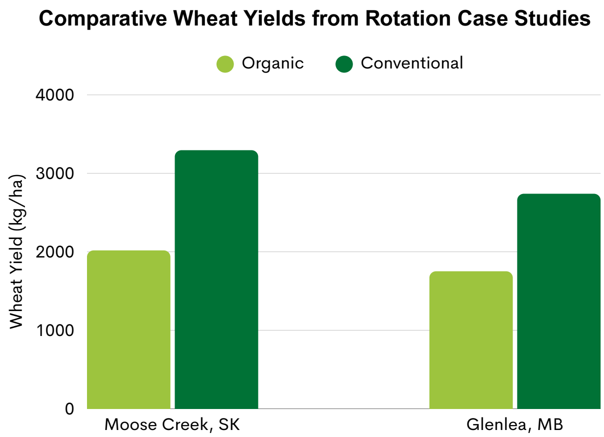
As a model of sustainable agriculture, organic has developed practices that are ecologically grounded while reducing risk and supporting multifunctional outcomes, but this often comes with the trade-off of lower gross production per unit land area. In contrast, yield-focused practices from the Green Revolution have significantly boosted production but contributed to major ecological challenges, as outlined earlier in this report.

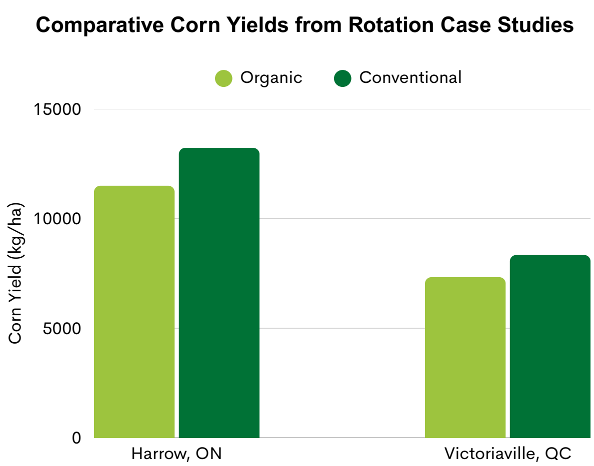
The case studies presented in this report show organic crop yields ranging from 53% to 94% of conventional levels, with the exception of soybeans, which had slightly higher organic than conventional yields. In the Prairies, phosphorus availability can restrict organic yields, especially evident at Moose Creek. At Glenlea, the 13-year dataset shows that improvements in weed control, nutrient management, and use of adapted wheat varieties have nearly doubled organic wheat yields since 2011, narrowing the gap to just 10%. Figures 11 and 12 compare yields of the main cash crops—wheat in the Prairies and grain corn in Eastern Canada.

Winter Sun Farm, Bella Coola, BC

Whole-rotation yields were lower when green manures were included but not harvested (since the unharvested yields were excluded from the whole-rotation totals). However, when organic rotations included perennial crops harvested for forage, they could match or exceed conventional rotations (see Figure 13). This applies at Glenlea, where the organic rotation has two years of alfalfa hay compared to the conventional rotation which is a four-year grain rotation (see Table 4 for crops in the rotation). In Eastern Canada, whole-rotation yields of organic systems were 83 and 84% of conventional rotations as the rotations generally contain the same crops and do not take years out of cash crop production for green manuring (see Figure 13).

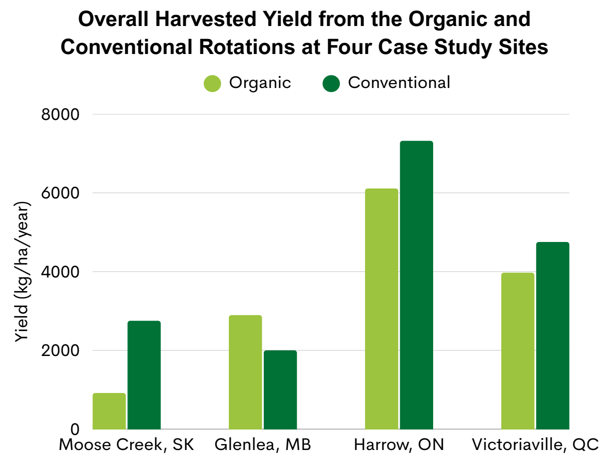
Figures 11 and 12: Comparative Wheat and Corn Yields from Rotation Case Studies





Top: *Prairies yield comparison for the main cash crop, wheat, in the representative rotations chosen for two sites. At Moose Creek the wheat yield is 39% lower, based on 2022 data, and at Glenlea it is 36% lower, based on a 13-year average from 2011-2023.* ***Bottom:*** *Eastern Canada yield comparison for the main cash crop, corn, in the representative rotations chosen for two sites. At Harrow the corn yield is 13% lower (data from 2018-2022) and at Victoriaville it is 12% lower (data from 2019-2022).*

Figure 13: Overall Harvested Yield from the Organic and Conventional Rotations at Four Case Study Sites



Total harvested yields from the whole compared rotations at the four case study sites, averaged by year.

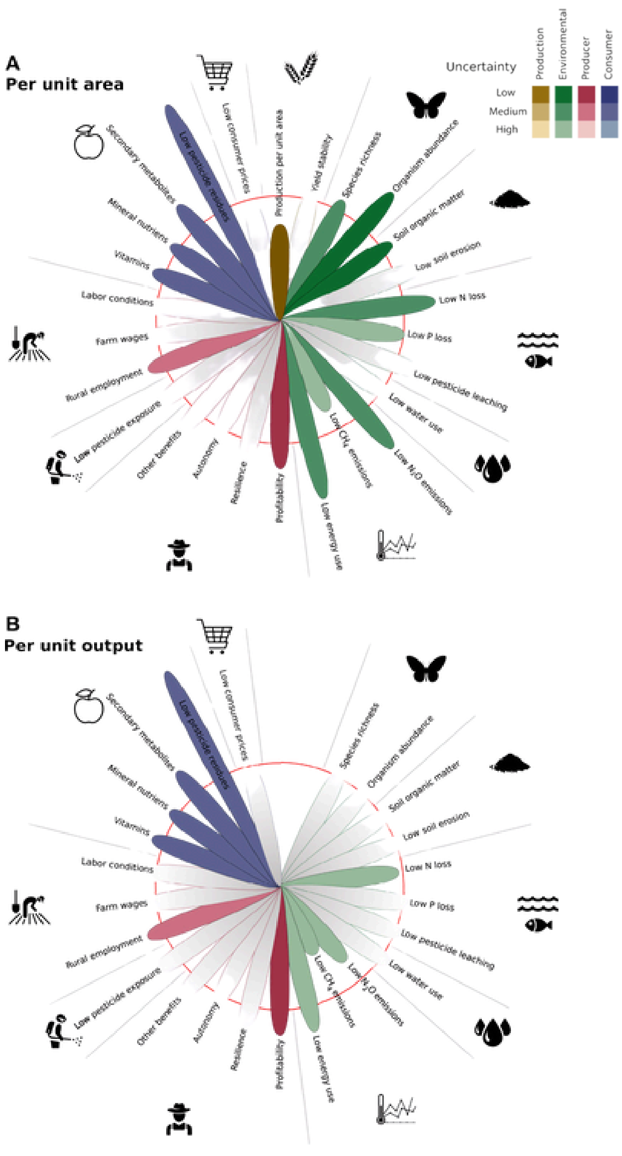
Projections in this study use yield coefficients from a global meta-analysis, estimating an average 24% yield gap between organic and conventional systems, consistent with Canadian data. Yield gaps vary by crop, with nitrogen-fixing crops like soybeans and pulses showing smaller yield gaps, particularly when paired with best practices such as legume cover crops.

Organic yield performance is influenced by multiple factors including management intensity, limited research investment, lack of adapted crop varieties, minimal extension services, and relatively new science and practice in Canada. Outside Quebec, government support for extension is limited, and extension overall is often driven by input suppliers, leaving organic producers with particularly few resources. Targeted investment in research, breeding for organic and low-input systems, extension, and innovations such as biocontrols, nutrient recycling, and precision weed management can significantly improve yields while maintaining ecosystem benefits.

Nonetheless, yield is not the sole indicator of agricultural performance. Organic systems provide numerous ecological and social benefits, including improved biodiversity, nutrient cycling, reduced chemical inputs, displacement of nitrogen fertilizer manufacture through use of legumes, reduced health risks, freshwater contamination reduction, and greater resilience to climate extremes. These multifunctional benefits may be difficult to quantify but are essential for long-term sustainability and resilience. As illustrated in Figure 14, organic systems outperform conventional ones per hectare across most indicators except yield. On a per unit output basis, organic still performs better for most indicators, though data confidence is lower. Similarly, the recent global meta-analysis by Boschiero et al. (2023) indicates that organic systems generally show better environmental performance than conventional systems regardless of functional unit, and that when assessed using an area-based functional unit, organic systems perform better for all evaluated impact categories (climate change, ozone depletion, ecotoxicity, human toxicity, acidification, eutrophication, use of resources, water, and energy).

Upland Organics, Wood Mountain, SK

Figure 14: Petal of Impacts of Organic Agriculture, from Seufert & Ramankutty (2017)



These petal graphics, generated by Seufert and Ramankutty (2017)[38], demonstrate the multifunctionality of organic systems. Environmental performance can be referenced in the context of "land area" (A) or "per unit output" (B). In this figure, each petal represents how organic agriculture performs relative to conventional agriculture, which is represented by the red circle. If a petal extends beyond the red circle it indicates organic agriculture performs better. Dark shaded petals indicate a high level of confidence while light shaded petals show where there is insufficient or highly variable data.

Performance per unit output is a good measure of production efficiency, but can obscure absolute impacts. For example, if GHG emissions per tonne are 5% lower but yield is 10% higher, total emissions increase. Conversely, emissions per hectare offer an absolute measure of emissions from the land base, but if lower emissions are coupled with lower yield then some might argue that more land would need to be farmed to meet demand, thus increasing emissions. These are complex discussions that require consideration of what humanity actually needs, what commodities should be grown to support that need, and how to reduce waste and inefficiencies.

Although feeding a growing global population is a major challenge, it is not clear that further increasing production is the solution. The current global food system already produces enough calories for over 10 billion people, and 46.5% of food in Canada is wasted - most of it preventable.[39] [40] This points to political and structural causes of food insecurity, rather than agronomic ones. Reducing food waste, shifting diets, enhancing nutrient density, supporting local and regional food systems, and focusing on ecological performance may alleviate land use

[38] Seufert, V. & Ramankutty, N. (2017). Many shades of gray—The context-dependent performance of organic agriculture. Sci. Adv.3,e1602638. DOI:10.1126/sciadv.1602638.
[39] Holt-Giménez, E., Shattuck, A., Altieri, M., Herren, H., & Gliessman, S. (2012). We Already Grow Enough Food for 10 Billion People … and Still Can't End Hunger. Journal of Sustainable Agriculture, 36(6), 595–598. https://doi.org/10.1080/10440046.2012.695331.
[40] Second Harvest. (2024). The Avoidable Crisis of Food Waste: Update. https://www.secondharvest.ca/research/avoidable-crisis-updated.

pressures more effectively than productivity gains alone.

Additionally, organic agriculture tends to focus on food-grade crops for human consumption, rather than biofuels or industrial uses, impacting comparisons of land-use efficiency and highlighting the importance of aligning food production with nutritional needs.

2.2.8 Practice Adoption and Management Intensity

Practices required or more commonly used in organic production provide ecological and agronomic benefits.

The COS include management standards that are intended to enhance and maintain the environmental performance of the farming system (in addition to supporting animal welfare). Several core practices required by the COS are outlined in Table 7 below, and linked to the environmental impacts of organic farming identified in this study.

> *In organic systems…*"Management methods are carefully selected in order to restore and then sustain ecological stability within the operation and the surrounding environment. Soil fertility is maintained and enhanced by promoting optimal biological activity within the soil and conservation of soil resources. Pests, including insects, weeds and diseases, are managed using biological and mechanical control methods, and cultural practices that include minimized tillage, crop selection and rotation, recycling of plant and animal residues, water management, augmentation of beneficial insects to encourage a balanced predator–prey relationship, the promotion of biological diversity and ecologically based pest management." – CAN/CGSB-32.310-2020, 0.3 Organic practices[41]


The Homestead Farm, Goodfare, AB

[41] CGSB, 2021. Organic production systems: General principles and management standards. Government of Canada publication CAN/CGSB-32.310-2020 0.3 Organic practices, March 2021. https://inspection.canada.ca/en/food-labels/organic-products/standards.

Table 7. Requirements of the COS and Associated Environmental Impacts

Requirement	Soil Health	Biodiversity	GHG Reduction	Water Quality	Climate Resilience	Energy Use	Yields
Required by Regulated Organic Standards: CAN/CGSB-32.310 - 2020							
Elimination of synthetic pesticides: 5.6	✔	✔	✔	✔		✔	
Elimination of synthetic fertilizers			✔	✔		✔	
Maintain or increase SOM: 5.4.1 a)	✔	✔	✔	✔	✔		✔
Optimum balance and supply of nutrients: 5.4.1 b)	✔		✔	✔	✔	✔	✔
Stimulate biological diversity in the soil: 5.4.1 c)	✔	✔					✔
Crop rotational diversity: 5.4.2 a)	✔	✔			✔	✔	
Features to promote ecosystem health: 5.2.4	✔	✔	✔	✔	✔		
Responsible tillage practices: 5.4.3	✔			✔			✔
Incorporation of plant and animal matter: 5.4.2 b)	✔	✔		✔			✔

[42] CGSB, 2021. Organic production systems: General principles and management standards. Government of Canada publication CAN/CGSB-32.310-2020 Corrigendum No.1, March 2021. https://inspection.canada.ca/en/food-labels/organic-products/standards.
[43] In the organic standards, permitted substances are listed. Prohibited substances are not. Synthetic fertilizer is omitted from the Permitted Substances Lists (CAN/CGSB-32.311-2020) and fertility management for organic farms is described in 5.4 Soil fertility and nutrient management.
[44] Features to promote ecosystem health include: a) pollinator habitat; b) insectary areas; c) wildlife habitat; d) maintenance or restoration of riparian areas or wetlands; or e) other measures which promote biodiversity.
[45] Plant and animal matter, or organic amendments, listed in the organic standards are compost, green manure crops and manure. Organic amendments "produced on the operation must be the basis of the nutrient cycling program" (5.4.5).

Strattons Farm, Annapolis, NS

2. Research Findings

Census of Agriculture data show that organic farms adopt a number of ecological BMPs at higher rates and retain more unmanaged habitat for biodiversity than non-organic farms.[46] These findings suggest that organic farming can be an effective pathway for incentivizing the adoption and integration of priority BMPs. Across Canada, organic farms have:

- 3× higher adoption[47] of cover cropping
- 4.5× higher adoption of green manures
- 6× lower use of fertilizers
- Half the use of insecticides and fungicides, and more than 6× lower herbicide use, with reduced pesticide-treated acreage per farm
- 2.5× more farm area retained in woodlands and wetlands
- 2× higher adoption of windbreaks and shelterbelts

While reduced tillage adoption rates are similar, organic farms report higher tillage and lower zero-tillage rates.[48] However, soil health remains comparable between systems at the whole-farm level. Responsible tillage is required under the COS, and innovation in this area is a national organic research priority.

The New Farm Centre, Creemore, ON

Variability in Management Intensity and Managing the Whole System:

Organic farming systems in Canada exhibit wide variability in management intensity, including crop rotation diversity (including use of cover crops), nutrient and organic amendment utilization, tillage intensity, and livestock density. These differences exist both across and within all organic cropping and livestock sectors in Canada. This range of management approaches reflects regional contexts, varying ecological conditions, and individual producer approaches.

This diversity directly influences the balance of farm outcomes related to productivity, GHG emissions, SOC, soil health, and biodiversity.

The four case studies in this report illustrate this diversity. For example, AAFC's Harrow site features a more intensive short three-year rotation with frequent green manure use, representative of many commercial organic grain farms in Eastern Canada. In contrast, Moose Creek Organic Farm employs a more extensive cropping system, including the use of perennials and permanent wetland set-asides.

Such variability makes it challenging to attribute environmental benefits to individual practices. However, organic systems provide a framework for stacking and integrating multiple BMPs, essential for agroecosystem sustainability and achieving significant outcomes.

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[46] Klassen, S. E. (2022). Just in principle? : assessing the contributions of organic farming to socio-ecological sustainability in Canadian agriculture (T). University of British Columbia. Retrieved from https://open.library.ubc.ca/collections/ubctheses/24/items/1.0421368.
[47] Adoption here generally refers to proportion of farms using the practice.
[48] Census of Agriculture, 2016.

Efforts to reduce GHG emissions must be coupled with strategies to maintain and build SOC. GHG mitigation cannot come at the expense of soil loss or degradation. Nitrogen management, often practiced in terms of the 4Rs (Right Source, Rate, Time, and Place), is critical to minimizing emissions in cropping systems. However, there is a need for a parallel focus on intentionally managing SOC. Thus, we can conceive of a framework for soil carbon management, or the 4Rs for Carbon:[49]

- Rotation diversification (including cover crops and/or perennials)
- Residue management
- Rate of tillage intensity
- Return of manure and organic amendments

These 4Rs for carbon management are key pillars of regenerative agriculture, and are routinely utilized in organic cropping systems in varying combinations depending on the intensity of management.

The benefits of the 4Rs for carbon are regionally dependent on region and their application must be tailored accordingly. For example, while zero-tillage has improved SOC in the Prairies, it does not reverse SOC declines in humid regions and minimum tillage can increase N_2O emissions under wet conditions. In these environments, SOC gains must be based on added residue and carbon input to soil. These realities, combined with a propensity for high intensity management, have created a situation where SOC levels in Eastern Canada continue to decline.

Cover crops are a key example of the challenge of managing both nitrogen and carbon. High-biomass cover crops can build SOC and supply nitrogen. However, if used primarily to build SOC and not accompanied by reduced nitrogen fertilizer use, they may lead to high N_2O emissions, especially in humid regions. Organic systems, by operating at lower production intensity, allow for the integration of high-biomass cover crops to build SOC and replace synthetic nitrogen, thus reducing overall emissions while managing soil health.

This integration is important since the SOC benefits of cover crops alone are debatable and vary widely with their type, utilization (full-season, intercropped, relay cropped etc.), and region. Data from 19 long-term North American research sites show that while cover crops improve some soil health metrics at most sites, only about half showed gains in SOC stocks (Mg SOC ha-1). Low-biomass cover crops (<2 Mg ha^{-1}) are unlikely to contribute to SOC gains. Thus, cover cropping alone is insufficient to fuel rapid SOC increases, which require stacked practices tailored to regional conditions.

Organic systems offer an ideal context for testing and refining stacked ecological BMPs to manage trade-offs and build resilience.

This need is not adequately addressed by market-based incentives, highlighting the need for public investment in research and innovation that benefits the broader agricultural sector.

[49] As proposed by Dr. Derek Lynch: https://theconversation.com/adjusting-the-intensity-of-farming-can-help-address-climate-change-191293.

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Growth Projections and Impacts

Upland Organics, Wood Mountain, SK

3. Growth Projections and Impacts

See [Appendix 3: Growth Projections Technical Report] for full analysis and sources.

Given the identified economic and environmental benefits, this study explored the potential impact of tripling organic acreage for key crops in Canada. The economic and GHG emissions projections are based on 14 major Canadian crops and assume the expansion happens over a period of five years.[50] This is not a prescriptive target but rather a growth scenario designed to meet existing demand while contributing to pressing 2030 sustainability objectives. Since this study focuses on a specific set of crops, it may not account for the full impact if all crops and systems were included.

Tripling organic acreage in Canada would:

- **Increase certified organic farmland from 2.2% to 6.6%,**
  representing an expansion from 960,755 hectares (2.37 million acres) to 2.89 million hectares (7.12 million acres), or an increase of 1.92 million hectares (4.75 million acres). These figures include cropland and pasture, and do not include organic land in maple, aquaculture, or wild harvest production. It is assumed that the increased acreage would come from converted conventional land.

- **Increase the number of certified organic farmers by 39%,**
  from 5,965 in 2023 to 8,273 producers. This includes 2,308 new organic farms, with 38% being primarily field crop operations (882 farms) and 62% horticulture (1,426 farms). This assumes that 25% of increased acreage in field crop production comes from existing organic farms expanding onto converted conventional land, while 100% of the increased horticulture acreage comes from non-organic farms converting to organic or from new entrants to agriculture (with 10% new entrants, or 143 farms).

- **Increase farmer net returns by $1.73 billion over 10 years**
  ($173.7 million annually), including $129.9 million annually from select field crops and $43.8 million annually from select horticultural crops.

The Homestead Farm, Goodfare, AB

[50] The acreage growth rate has plateaued over the past five years, but has increased by one-third over the past 10 and more than doubled since 2005.

Reduce GHG emissions by 769 kt CO2e annually

(based on per area LCA data) or by 312 kt CO2e annually (based on per unit production LCA data). This is calculated from emissions reductions associated with crops and does not include additional gains from the incorporation of green manures. It also does not assume any emissions change on converting pastureland. Currently, the 14 analyzed crops (organic and conventional combined) generate 26.154 Mt CO_2e per year. With organic acreage tripled, emissions would decline to 25.843 Mt CO_2e, a 1.2% reduction. In a more ambitious potential scenario where organic expands to 25% of total farmland, compared to no organic production, total agricultural emissions could be reduced by 12%. However, if production declines associated with organic production are compensated for elsewhere in the food system, the impact would not be as significant.

Rooted Oak Farm, North Augusta, ON

Increase organic production of the analyzed crops from 832,320 tonnes to 2.14 million tonnes, and change total crop production by -1.45%,

or 554,772 tonnes (conventional production of those crops, assuming total farmland remains unchanged, would shift from 60.64 million tonnes to 58.44 million tonnes). This assumption excludes canola production, given that it is not included in the organic expansion scenario. These figures account for a 20% lower cropping intensity on newly converted organic land, reflecting factors such as increased use of green manures in organic systems, but do not factor in potential productivity gains from future research or technical support for organic farming.

Strengthen soil health and biodiversity, and support climate adaptation and resilience.

Reduce synthetic fertilizer use by 79.5 million kg nitrogen (N) annually,

by converting 957,803 hectares of cropland from conventional to organic production (corresponding with a tripling of organic cropland area, excluding pastureland), assuming a shift from average synthetic N fertilizer application rates to none on converted land. This is associated with 0.548 Mt CO_2e/year in emissions reduction from synthetic N fertilizer, contributing nearly 14% of Canada's fertilizer emissions reduction target. A scenario of expanding to 25% organic farmland would meet 124% of the fertilizer emissions reduction target.

Reduce synthetic pesticide use by 1.8 million kg ai per year, or nearly 2% of total agricultural pesticide use, reducing associated environmental risks and impacts.

Increase manure nutrient use efficiency. Presently, conventional farms often apply manure at higher than needed rates. Also, organic farms sometimes use manure to meet nitrogen requirements. Focusing manure rates on replacing phosphorus and using legumes to provide the nitrogen would reduce manure rates, and allow for the manure to be spread over more of the organic land base, leading to higher manure nutrient use efficiency.

Strengthen Canada's organic supply to help farmers capture a larger share of the domestic and global market, reduce reliance on imports, and increase exports. While limited data prevents a precise estimate of current domestic market share or potential gains in this study, this is a key area for further analysis. Canada tracks limited organic trade data, but what is available shows an organic food trade deficit in 2023. Among the crops included in this report, carrots, lettuce, spinach, and apples are major organic imports. In contrast, domestic production of potatoes and blueberries already far exceeds imports.

Provide government savings. Research from Europe finds that investing in organic farming leads to government cost savings of 50 cents on the dollar, generated by lower program uptake by organic farms, including reduced reliance on business risk management programs.

The Homestead Farm, Goodfare, AB

Policy Recommendations

The New Farm Centre, Creemore, ON

4. Policy Recommendations

See Appendix 4: Policy and Programs Technical Report for full analysis and sources.

Despite its documented benefits, organic farming adoption in Canada remains low due to financial, technical, and social barriers (Appendix 4 outlines 10 barriers to organic adoption that appear consistently in the literature). Targeted policies and programs can help address these obstacles, accelerating growth and enhancing organic's economic and environmental impact.

While Canada has supported organic standards, regulations, and some extension and research, a more strategic, coordinated policy approach is needed to rapidly scale adoption. A set of additional instruments that work well together can advance the organic sector relatively quickly. International experience shows that countries successfully growing their organic sectors use multi-instrument policy mixes, combining production incentives (supply-side support), market development strategies (demand-side growth), and strong regulatory frameworks to ensure credibility and consumer confidence.

With a coordinated national strategy, organic agriculture can drive progress toward Canada's economic, environmental, and climate goals, while strengthening rural economies and enhancing food system resilience. Tripling organic field crop and forage acreage and doubling horticultural acreage would create significant opportunities to accelerate economic growth and progress towards Canada's 2030 targets.

This report outlines a policy instrument mix designed to accelerate organic growth, with a focus on production support, but acknowledging that demand-supply coordination is critical to an orderly expansion of organic production and markets.

A $68.5 million annual investment could triple and enhance organic agriculture in Canada, delivering lasting benefits for farmers, consumers, and the environment.

Several policy instruments are proposed as Federal-Provincial-Territorial (FPT) cost-share funding arrangements under a 60% federal cost-share model, consistent with existing SCAP arrangements.

4.1 Production (Supply-Push) Supports

The research findings in this report indicate the need for two broad categories of production instruments: support for farmers wishing to transition from conventional to organic production or start up organically (4.1.1), and support for existing organic operations to encourage adoption of more practices having a bigger impact on environmental performance and productivity (4.1.2). Several supporting measures are also proposed to sustain and ensure the success of transition and continuous improvement efforts (4.1.3).

4.1.1 Organic Transition Cost-Share

One of the main barriers to organic adoption is the cost of the transition period. During this time, farmers are adjusting their management practices and facing a learning curve, while typically facing lower yields, yet still receiving conventional prices. To help offset these costs, it is recommended that Canadian governments provide cost-share payments covering up to 30% of average transition expenses over three years. This would include payments of $120 per hectare for field crops and $2,500 per hectare for horticulture crops (see Table 11 for details). Support should also be offered for grasslands, pasture, hay, and other forages at $25 per hectare to discourage their conversion to annual crops. Cost-share payments should be available to both existing producers—whether non-organic or expanding organic operations—and new entrants, who are expected to be primarily in the horticulture sector.

Although not all field crops result in significant GHG emissions reductions, organic systems rely on diverse, longer crop rotations. Broad support across all crop types, including pulses and oilseeds, is needed to avoid distorting production towards specific crops to preserve the integrity of the organic system. The proposal in Table 11 assumes a tripling of organic field crop and forage acreage and a doubling of horticulture acreage, aiming to maximize environmental benefits through larger-scale adoption. While horticulture contributes less to GHG emissions reductions overall, it delivers strong economic returns and represents the most viable entry point for new farmers.

Action 1:
Offer cost-share payments to producers to offset organic transition costs.
Cost: $222 million

Table 8. Transition Incentive Program Sample Design

Category	Average Transition Cost ($ per hectare)	Government Cost-Share Ratio (%)	Subsidy ($ per hectare)[51]	Target Organic Area Increase (ha)	Cost to Government	Federal Contribution (60%)
Field Crops	$400 / ha	30%	$120 / ha	922,774	$111 million	$67 million
Horticulture	$14,777 / ha[52]	17%[53]	$2,500 / ha	35,029	$88 million	$52.8 million
Pasture and Forages	/	30%	$25 / ha	928,677	$23 million	$13.8 million
Total					**$222 million**	**$133 million[54]**

[51] The per ha subsidy levels for horticulture and pasture and forages were based on Quebec's levels, which was a successful program for encouraging rapid conversion to organic agriculture.
[52] Horticulture average transition cost estimate is based on potatoes, carrots, spinach, and lettuce.
[53] This per ha payment amount for horticulture uses the same amount as the QC transition program, while the cost share ratio was calculated from the payment amount.
[54] The Provincial contribution in this case would be $88 million, or $8.8 million if split equally across Provinces. This matches the $9 million investment made in Quebec in organic transition that encouraged rapid uptake of conversion.

4.1.2 Payments to Improve Organic Performance

Due to variability in management and outcomes, and the relatively nascent development of organic research and extension in Canada, targeted support should be offered to certified organic farms to encourage the adoption of practices that improve environmental performance and productivity.

This support would be delivered in two phases: a) an initial assessment and planning phase focused on improving agroecosystem resilience, productivity, profitability, and carbon and nitrogen management; and b) an implementation phase to carry out the plan. Specifically, farmers would receive $5,000 to hire a consultant to help develop a plan, using an incentive model based on earlier APF programs. Implementation funding would then be delivered through organic-specific streams within existing programs such as the On-Farm Climate Action Fund and the Resilient Agricultural Landscapes Program. Projects should also include an on-farm research and evaluation component to measure the impact of combining multiple practices on environmental and economic outcomes.

Action 2:
Provide funding to organic producers to hire consultants and to implement context-specific management strategies for improving profitability, productivity, and environmental performance. Conduct on-farm research on the impacts of stacked practices on a range of outcomes on participating farms.
Cost: $10 million/year.

4.1.3 Other Production Supports

Additional instruments are needed to support both transitioning and existing organic producers, and ensure the viability of the organic system for more producers across the country.

National Organic Extension Program:
Knowledge and education are key to successful transitions and long-term success in organic farming. In Canada, the science and practice of organic agriculture are still developing, and extension services are extremely limited and not sufficient to support continued growth. This gap affects all farmers looking to adopt ecological practices. There is a need for a strong advisory system to support farmers through the organic transition. This should include on-farm assessments, help with developing transition plans, and guidance on practices, certification, and regulations. Transition advisory services have been a critical part of organic policy in countries such as Denmark. Support should also be provided for ongoing technical assistance, including through organizations that support mentoring and peer-to-peer networks. In addition, more trained organic advisors and independent extension agents are needed to build long-term capacity.

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Action 3:
Establish a national organic extension program that:

- Hires a transition advisory coordinator in each province and territory. ($3.25M/yr, cost-shared 60/40 F/PT)
- Provides transition advisory services to transitioning producers, including conversion checks, organic farm plan development (funded through transition incentive budget)
- Provides ongoing extension through regional specialists
- Funds organizations that provide extension services and facilitate communities of practice and peer-to-peer networks ($1M/yr)
- Supports farmers in establishing baselines and monitoring outcomes
- Builds the capacity and increases availability of organic agronomists and technical experts through train-the-trainer programs ($1M/yr)

Cost: $4.25 million/year

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Research Investment:
Organic agriculture spans a wide range of commodities across Canada, each with unique regional research needs. Farmer involvement in research is essential to ensure practical, high-impact outcomes. The organic sector has developed a participatory process to identify national research priorities, which include improving productivity and profitability through better soil health, ecological pest and weed management, resilience to disease and drought, reducing GHG emissions, increasing carbon sequestration, and addressing issues like low soil phosphorus (see Appendix 4 for details).[55] However, progress has been limited by a lack of dedicated funding. The sector's diversity has made it difficult to establish funding mechanisms such as national check-off programs to support research. However, the sector is prepared to provide in-kind contributions. Increased investment in organic research would help manage on-farm risks, support innovation, and generate knowledge that can benefit the broader agricultural sector.


Upland Organics, Wood Mountain, SK

Action 4:
Expand the national Organic Science Cluster[56] research program to address national organic research priorities.
Cost: $5 million/year without the requirement for matching cash contributions

[55] 2021 Canadian Organic Research Priorities. https://cdn.dal.ca/content/dam/dalhousie/pdf/faculty/agriculture/oacc/en/2021/2021%20Canadian%20Organic%20Research%20Priorities%20FINAL.pdf.
[56] Organic Agriculture Centre of Canada and Organic Federation of Canada. Organic Science Cluster. https://www.organic-science-canada.ca/.

Certification Cost-Share:
Certification costs can be a barrier to entering and staying in the organic sector, particularly for smaller farms. To support market access and help retain certified operators, a federal cost-share program for organic certification should be established, as is already the case in many other jurisdictions. This support could be delivered as a dedicated stream within an existing program.

Action 5:
Provide cost-share for up to 100% of organic certification fees, with priority for small or disadvantaged producers.
Cost: $2 million/year

Support for New Entrants:
Canada has a recognized farm succession challenge, which also affects prospects for organic farming. Many new organic entrants are expected to be smaller-scale horticultural producers, but current provincial and federal succession programs often focus on family farm transfers or individuals with farming backgrounds. As the country undergoes a major generational shift in agriculture, and as more young and aspiring farmers show interest in ecological farming, coordinated efforts are needed to fill these gaps and provide better support for new entrants to organic farming. Efforts should prioritize supporting existing organizations, especially those providing land matching services. Significant funding is needed, with a portion specifically dedicated to new entrants transitioning into organic production.

Action 6:
Fund organizations providing training and land matching support to new entrants, including a dedicated allocation for new entrants to organic agriculture.
Cost: $1 million/year

Improved Production Insurance:
Tailored crop insurance is needed to reflect the specific conditions of organic farming. Saskatchewan currently offers the most comprehensive program, with more limited schemes in some other provinces. Data from these programs can help improve understanding of yields, risks, production costs, prices, and practices in organic systems, supporting more accurate risk assessment and pricing, including during the transition period.

Action 7:
Develop organic-specific insurance products in all provinces and territories that reflect organic pricing, practices, and risks; provide training for insurance providers on organic systems; and explore premium assistance for transitioning producers.

4.2 General Supports

National Organic Data Strategy:
Canada currently lacks publicly available data on key organic metrics, unlike the data available for conventional and other specialty crops in Canada and organic data available in other jurisdictions. Although authorities including AAFC, CFIA, and Statistics Canada already collect certain data on organic production and trade, much of it is not widely shared or easily accessible, despite being foundational to sector development.

Action 8:

Establish a coordinated, interdepartmental approach to collect and publicly share data on organic production, supply chains, labour, markets, and trade. This should include the creation of a government-managed Organic Authenticity Database to provide key industry metrics and strengthen organic integrity.
Cost: $2 million upfront + ongoing maintenance costs

Streamline the Canadian Organic Standards (COS):
The COS must be reviewed every five years to remain current, maintain public trust, and ensure continued market access through international equivalency arrangements. Without regular updates, Canadian organic products risk losing certification and access to markets. Unlike other countries where governments fund these updates, the Canadian organic sector manages the updates with no predictable funding mechanism. Providing permanent funding and a clear structure for regular COS reviews—including support for interpretation and training—would be a low-cost, high-impact way to strengthen market access, free up industry resources, and support ongoing collaboration between government and the sector.

Action 9:

Provide complete and permanent funding and an enhanced structure for the review of the COS, under the current sector-driven review model, including funding for standards interpretation and training. Cost: $1.5 million every five years
Cost: $2 million upfront + ongoing maintenance costs

4.3 Market (Demand-Pull) Supports

To ensure long-term sustainability, growth in organic production must be matched by market development. Government coordination is needed to align supply with demand and avoid market imbalances. Strengthening domestic organic production and increasing access to Canadian organic products, aligned with current public priorities, will require investments in processing, supply chains, and market capacity.

While this report focuses mainly on production, several examples of potential market supports are highlighted below, and further detailed in the COA's OAP, with which this report is aligned. Competitor countries invest significantly in this area. For example, one-third of the U.S. OTI funding was allocated to an Organic Market Development Grant program, supporting processing expansion, market promotion, and equipment. Based on the recommended CAD $342.5 million investment in organic production, a proportional investment in market development would total CAD $171 million over five years, or $34 million annually.

Processing Infrastructure and Supply Chain Capacity:
Increased organic supply chain capacity is needed at all scales. This includes access to specialized processing and storage infrastructure, which is a major barrier for small- and mid-sized organic farms seeking to sell into local or value-added markets. Without targeted investment, these farms often cannot compete beyond commodity markets, where scale drives profitability. However, the cost of equipment and facilities makes individual investment difficult. Capital is needed for projects such as on-farm processing, storage and handling, shared-use hubs, certified slaughterhouses, and co-packers. Strengthening organic supply chains will require integrating organic priorities into existing infrastructure programs for processors and distributors, supported by increased government cost-sharing or preferential loan rates. In Canada, public contributions of 50–70% will likely be needed to encourage rapid uptake.

Action 10:
Provide financial incentives to increase organic processing capacity, supporting new or expanded aggregation, processing, storage, marketing, and distribution mechanisms for organic products to create a path to market for producers of all scales, including small farms servicing local and regional markets, as well as processors and distributors.

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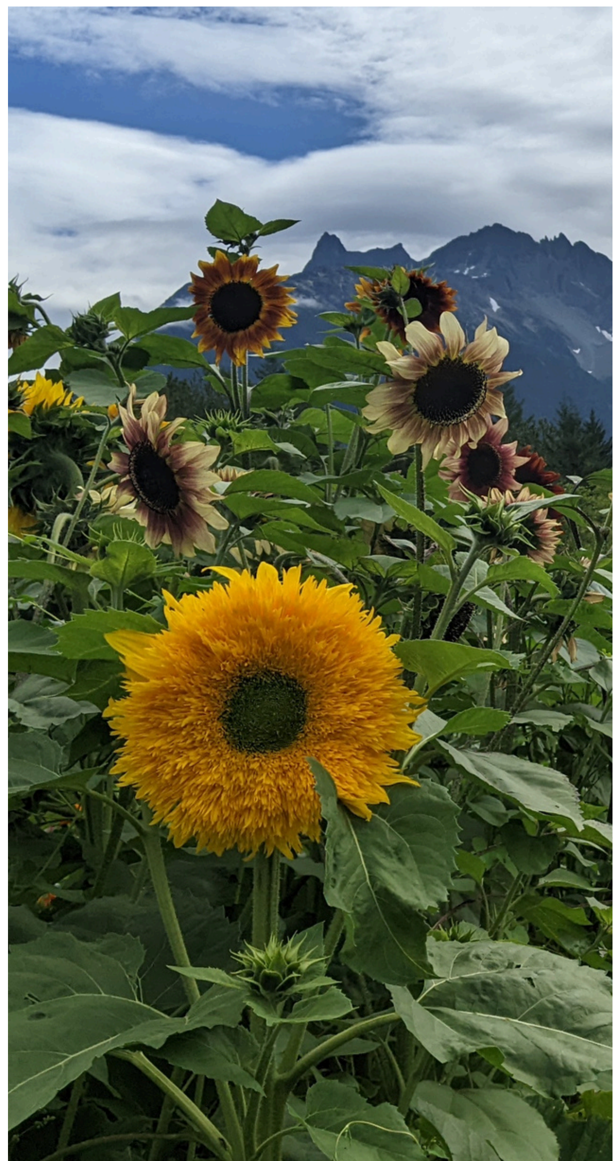
Organic Market Development and Promotion Fund:
Existing Agri-Marketing programs do not provide sufficient support for the organic sector. Dedicated funding is needed to improve consumer awareness, strengthen market analysis, support access to domestic and export markets, and build stronger collaboration across the value chain, including with retailers and food service providers. This funding should support initiatives such as consumer education campaigns, market research, and partnerships that increase the availability and visibility of organic products. Retail engagement is particularly important to ensure that investments in organic production are matched by efforts to expand consumer access.

Action 11:
Establish an Organic Market Development and Promotion Fund to strengthen domestic markets, expand export opportunities, and support trade diversification.

Institutional Procurement:
20% organic procurement targets for public institutions are common in EU member states. The Danish experience shows that 60-90% targets are possible without increased costs by changing menus, reducing waste, buying seasonal foods, and converting to a more plant-rich diet. This has been achieved through supporting kitchen transitions, including equipment and staff training.

Action 12:
Introduce a national Organic Public Procurement strategy, setting a goal of 10% organic in public sector kitchens.



Winter Sun Farm, Bella Coola, BC

Canadian Organic Growers
Cultivons Biologique Canada

Conclusion

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5.0 Conclusion

Expanding organic agriculture in Canada can increase farm incomes, reduce environmental impacts, and meet growing consumer demand for sustainable food. Evidence from Canada and globally supports the economic and environmental benefits of organic production. While the diversity of organic systems makes precise analysis complex, research consistently shows the value of core organic practices such as diverse crop rotations, cover cropping, legumes, green manures, perennials, and livestock integration.

Regenerative principles can support producers at all levels in improving their management and outcomes.[57] Organic standards offer one pathway to advancing these goals, as a regulated, third-party verified, and profitable framework with established market demand for adopting biologically-based management practices.

This makes organic agriculture a practical entry point for policymakers to advance sustainability within existing government infrastructure.

Organic yields are currently below their potential due to limited practice, research, extension services, and access to adapted seed varieties. Targeted investment in research, innovation, and extension could significantly improve productivity and profitability while preserving environmental benefits. Many of these tools would also benefit conventional producers.

This study focused primarily on economic and environmental impacts of cropping systems, and did not examine areas such as livestock systems, social or health outcomes, or market dynamics (including impacts on organic price premiums or consumer prices from rapid production growth). We acknowledge the necessity of parallel market development to meet growing demand, create opportunities for producers, and prevent unintended consumer cost increases, and this is a key area for further research. Additional work is needed to summarize disaggregated impacts for different organic production systems, specific regions, and other impacts categories. More research is also needed on topics such as water quality and cycling, GHG benchmarking, and improved measurement tools for organic system performance in diverse contexts.

By removing barriers such as high transition and certification costs, increasing research and technical support, and integrating organic agriculture into broader agricultural[58] and related policies—mirroring successful strategies in other jurisdictions—Canada can unlock new opportunities for producers, reduce reliance on costly fossil fuel-based inputs, replace imports and diversify exports, support climate and biodiversity goals, and enhance competitiveness at home and abroad. Ultimately, expanding organic production presents a cost-effective investment for Canadian governments, capable of potentially lowering government farm support expenditures while also reducing currently externalized costs of agriculture.

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[57] Regenerative principles include context, keeping the soil covered, maintaining living roots, promoting diversity, minimizing soil disturbance, and integrating livestock. https://cog.ca/regenerative-organic-hub/resource-library/principles-of-regenerative-agriculture.

[58] Organic agriculture aligns with the five key priorities of the current APF (the SCAP)—sector capacity and competitiveness; climate and environment; science and innovation; market development; and resiliency and public trust. See The Guelph Statement: https://agriculture.canada.ca/en/department/initiatives/meetings-ministers/guelph-statement.

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