5 SUSTAINABLE AGRICULTURE

Canada's agriculture and agri-food is a key economic sector, but faces particular challenges from both climatic and non-climatic stressors. Producers across Canada are experiencing the effects of climate change with more frequent and severe droughts, floods, and storms. They are also affected by global geopolitical challenges, including market disruptions and high costs. With the global demand for food expected to grow 60% by 2050, ensuring Canadian agriculture is well positioned to meet these challenges in an environmentally sustainable fashion must be a collective priority. The Sustainable Agriculture Strategy currently being developed by Agriculture and Agri Food Canada in collaboration with sector stakeholders can play a key role in addressing these challenges. To be successful, the Strategy must be adequately resourced, and look beyond the farm gate to accelerate and scale the implementation of climate-smart and nature-positive practices, tools, technologies, and innovations across agri-food value chains.

Photo: Raphael Rychetsky

The Green Budget Coalition envisions a future in which Canada is a leader in sustainable and innovative agriculture with a resilient and diversified food system. To achieve this, collaboration at all levels of government and with the private sector is essential. Outlined below are key recommendations for investments that are aimed at helping producers diversify their income by advancing or incentivizing stewardship activities that produce enhanced environmental benefits.

Total Recommended Investment:

$4.5 billion over five years, followed by $134 million per year, ongoing, as follows:

Photo: Marcus Spiske

Avoided land conversion and habitat retention

Conversion of threatened ecosystems (e.g., wetlands, grasslands, and forested areas) in productive and sustainable farmland, whether due to urban development or other significant agricultural land use changes, is a net loss for habitat preservation. In Canada, we have lost approximately 80-85% of native grasslands[29] and approximately 70% of wetlands in southern areas of Canada and up to 95% in densely populated areas.[30] Conversion, loss, and degradation of these ecosystems reduces their ability to support biodiversity and threatens to reduce critical services such as carbon storage, nutrient cycling, forage production, water storage, pollination, water quality, as well as water supply and management. Preventing the disturbance or conversion of grasslands alone can mitigate 12.4 MT of carbon emissions in Canada.[31]

Through the resources and habitats they support—soils, prairies and pastures, rivers and streams, forests and woodlots, fauna and flora—agricultural lands provide tremendous ecological goods and services and offer producers an opportunity to participate in efforts for climate change mitigation and adaptation as well as efforts to halt and reverse biodiversity loss. However, each year, Canada loses around 60,000 acres of prime farmland to urban expansion and has experienced a 192% price increase in the past 20 years. The increasing costs of land has exacerbated pressures for an aging agricultural community to sell land to real estate or industrial developers for a large profit. In addition, it has made accessing land increasingly difficult for young farmers. Canadian producers will need to employ sustainable intensification, an effort to increase yields with fewer inputs and without expanding land use. The Royal Bank of Canada estimates that "we can avoid 20MT of emissions by preventing land use change between now and 2050."[32]

29 CFGA National Grassland Inventory. https://www.canadianfga.ca/en/projects-projets/grassland-inventory/#:~:text=Approximately%2080%20to%2085%20per,for%20ongoing%2C%20comprehensive%20grasslands%20inventory

30 Ducks Unlimited Canada. https://www.ducks.ca/stories/wetlands/whats-happening-to-canadas-vanishing-wetlands/

31 RBC Green Revolution. https://thoughtleadership.rbc.com/the-next-green-revolution-how-canada-can-produce-more-food-and-fewer-emissions/

32 Ibid.

National Land Use Strategy

Recommendation: With the engagement of provinces, territories, and Indigenous peoples, develop and implement a comprehensive **National Land Use Strategy** that strikes a balance between environmental protection, agricultural production, and urban expansion and limits conversion of prime agricultural lands, grasslands, wetlands, and forested areas.

$25 million over three years, with option for renewal [AAFC, NRCan, ECCC]

Agricultural habitat incentive programs

Recommendation: Provide financial incentives and programs for producers to de-risk the uptake of innovative approaches that support the retention of agricultural habitat:

- Reinstate funding for a **National Perennial Forage Conversion Program**[33] aimed at field-scale conversion by enhancing cropped land with interspersed productive cropland and perennial cover. **$500 million over five years** [AAFC]
- **Maximize the economic and environmental return of marginal land** using precision/smart agriculture technology and implementing strategic and financial incentives for producers to convert marginal areas from annual crop production to natural infrastructure and features that provide a variety of ecosystem services. **$500 million over five years** [AAFC]
- Provide **financial incentives to producers** for the **avoided conversion** of native and tame grasslands, wetlands, and forested areas which sequester carbon and provide biodiversity and other ecosystem services. **$1 billion over five years** [AAFC]
- Develop and implement an **agri-gift program** in collaboration with all levels of government to facilitate agricultural lands' protection, especially in densely-populated regions where urban expansion is high. Integrate a cross-compliance principle to ascertain preserved lands are to be cultivated through best management practices for soil health. [AAFC, FIN]
- Develop and implement a **fund to support access to agricultural lands** for the farming community, accessible to farm businesses and agricultural land trusts. **$200 million over five years**, **then $25 million per year, ongoing** [AAFC in partnership with CRA]

Photo: Jonathan Kemper

33 Similar to the former GreenCover Canada

Improve environmental, climate, and socio-economic data collection and dissemination

Data and carbon accounting

Recommendation: Harmonize data across government departments and improve systems for measuring, reporting, and verifying greenhouse gas emissions across agricultural landscapes to better inform the National Inventory Report, agricultural policy-making and programs, and decisions across agriculture and agri-food value chains.

$50 million over three years, **then $2 million per year, ongoing** [AAFC, ECCC, StatCan]

- Fund, coordinate and scale research programs to develop refined, regionally-specific emission factors so that Canada can more accurately account for agricultural natural climate solutions impacts on GHG sources and sinks;
- Develop an accessible and integrated toolkit to support producers' efforts to measure and monitor GHG sources and sinks, while ensuring comprehensive collection and data channeling into the national inventory (e.g., integrate findings from remote sensing, computed models and soil samples);
- Develop a centralized platform to improve data sharing and utilization between government agencies (notably StatCan, AAFC and ECCC), crop insurance schemes, and address data gaps and discrepancies; and
- Scale and accelerate investment in agricultural natural climate solutions science, innovation and measurement systems, including data collection and integration on adoption and penetration rates of climate smart practice adoption.

Agricultural producers' adoption of natural climate solutions is not being effectively reported within Canada's National Inventory Report. Improved data integration, collection, management and quantification methodologies will help ensure that policies and programs aimed at encouraging natural climate solutions adoption are informed by accurate and accessible data. These features would also improve producers' understanding of the impacts of a given practice and their contributions to national GHG emission targets. Lastly, improving data collection and GHG quantification methodologies that inform the inventory would stimulate efforts to develop more robust baseline agri-environmental indicators, such as soil organic carbon (SOC) levels and nitrous oxide emissions, that are needed to scale the agriculture sector's participation in ecosystem service markets and programs.

See also recommendation on Accurate data, research, information, and knowledge for improved evidence-based monitoring and decision making, later in this document.

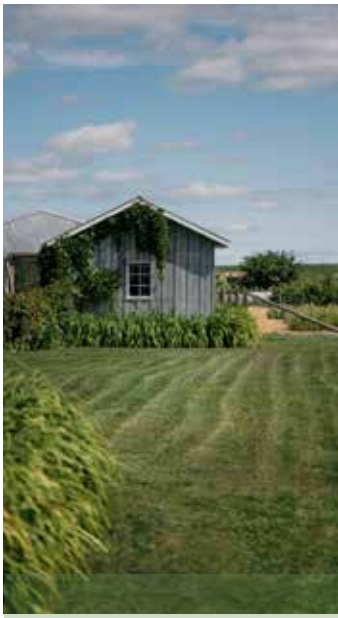

Photo: Tamiscomingue

Research to quantify economic, environmental, social benefits

Recommendation: Increase investments in research that quantifies the economic, environmental, and social benefits of agricultural practices to refine best management practices (BMP).

$100 million over five years, **followed by $20 million per year, ongoing** [AAFC, SSHRC, NSERC]

- Ensure that the **monitoring and evaluation results** and **return on investments** from government programs, such as the Agriculture Climate Solutions program, are **shared with producers and policymakers**.
- **Expand and strengthen the Living Labs program**, with a heightened emphasis on:
  - Informing regional adoption and national reporting with improved on-farm research and data collection.
  - Developing and deploying education and researcher programs.
- **Improve the transparency of public data** to identify and eliminate counter-productive incentives and subsidies for activities that directly or indirectly cause environmental harm. *See also Aligning policies and investments with halting and reversing biodiversity loss by 2030, later in this document.*

Conducting complementary research to determine the return on investment needed and behavioural considerations involved in the adoption of best management practices (i.e., the incentive value at which farmers will enroll in the best management practice) will support the optimization of future investments in agri-environmental programming. Investing in this will have a variety of benefits including quantifying carbon sequestration benefits from best management practices, ensuring that investments and efforts in environmental programming are maximized, and supporting improved decision-making for operators.

Photo: Jonathan Kemper

Valuing ecological services

Recommendation: Facilitate the development of a market-based system for valuing ecological services derived from the agricultural sector, to bring value to Canadians and transparency to international food consumers.

$25 million over three years [AAFC]

- Allocate start-up funding to **facilitate the development of the on-farm based EG&S market** that would enable credible claims and investments to improve overall biodiversity, increase sector resilience, and optimize future investments in agri-environmental programming.

Canada is rich in ecological goods and services, which is advantageous in marketing sustainable products. However, no marketplace exists that provides security to Canadian companies to make investments with an assured outcome. Establishing a Canadian standard for the production and trade of ecological services could provide an economic advantage to those farmers and ranchers producing superior environmental value and could also help ensure that investments intended to produce a desired environmental state actually produce that outcome.

Photo: S. Federava

Accelerate and augment the implementation of climate-smart and nature-positive practices, technologies, and innovations

Tools, technical assistance, and knowledge transfer

Recommendation: Increase investment in tools, technical assistance, and knowledge transfer to encourage and enable producers to accelerate the adoption of best management practices that will improve productivity, generate new income streams, educate/encourage nature-positive practices, and improve on-farm climate resilience.

$500 million over five years [AAFC]

- **Expand extension programs** to introduce practices, tools, and technologies that assist and incentivize producers;
- **Fund 1,000 new extension service agents** to support sustainable practices;
- **Improve and expand access to resources, training, and education** for technical assistance providers to adopt nature-based solutions;
- **Develop a training and certification program** for technical assistance providers to better connect producers to incentives for adopting nature-based solutions and advise on the associated opportunities and risks (e.g., supply chain interventions);
- Enhance, support, and expand upon **farmer-to-farmer** and **peer-to-peer learning opportunities;**
- **Top up the Agriculture Clean Technology Fund** to help producers reduce emissions by improving energy efficiency, fuel switch, and electrify farms; and
- Ensure that **best management practices** engage and encourage **full-spectrum participation,** are **fiscally sound** and **financially attractive** to large-scale farms and agri-businesses that exert a massive influence on the landscape and smaller operations alike.

For Canada to sustainably intensify production and drive broader food system outcomes by improving food security, adapting to climate change and managing demands on limited natural resources, it is important that producers are encouraged and enabled to adopt and augment climate-smart and nature-positive practices and technologies.

Soil health

Recommendation: Prioritize the resilience, productivity, and carbon storage capacity of Canada's soils.

$6 million over three years to develop a Soil Health Strategy, to grow over time ($1 million in 2024-25, $2 million in 2025-26, and $3 million in 2026-27) [AAFC]:

- Develop and implement a **Pan-Canadian Soil Health Strategy** as part of the Sustainable Agriculture Strategy that will enable farmers to access information and financial resources needed to improve soil practices; and

- Ensure that **support is available to producers** that want to **test, adopt, and measure best management practices** such as organic amendments, diverse crop rotations, conservation buffers, soil compaction prevention, and integrated pest management.

Soils are the basis for agricultural production in Canada and are important for resilience, productivity, and carbon storage capacity. The protection and regeneration of soils has been identified as a key action in a suite of recent federal announcements (e.g., Guelph Statement, On Farm Climate Action Fund, Agricultural Climate Solutions, Emissions Reduction Plan, and the Sustainable Agriculture Strategy). The adoption of soil management practices such as reduced tillage, diverse crop rotations, proper maintenance of soil nutrients, inclusion of cover crops and/or perennials in rotation, and modified grazing practices can make meaningful contributions towards Canada's climate change and biodiversity commitments. Healthy Canadian soils will ensure productivity, profitability, and resilience in food production.

Business Risk Management (BRM)

Recommendation: Ensure that Business Risk Management (BRM) programs integrate climate risk management, environmental practices, and climate readiness. Any changes to the federally funded business risk management program are recommended to be additive and incentive-based.

$1.08 billion over five years followed by $87 million per year, ongoing

- Create a specialized **Climate Risk Reduction Fund** to provide voluntary incentives such as premium discounts or enhanced payouts for producers that adopt best management practices. **$435 million over five years, then $87 million per year, ongoing** [AAFC]
- Develop a **program to pilot innovations** in business risk management design including encouraging the adoption of specific best management practices. **$10 million over three years** [AAFC]
- Enhancing the **transparency and accessibility of data** on the effectiveness of business risk management programs, including performance measures and reporting, working towards a quantification of the risk reduction benefits of best management practices adoption and preventive measures. **$5 million over five years** [AAFC, StatCan]
- **Establish early warning signs** (e.g., drought, floods, etc.) and related recommendations for regionally-appropriate best management practices in collaboration with provinces and territories. **$280 million over three years** [AAFC]
- Integrate **Livestock Price Insurance** as part of the AgriInsurance program and subsidize the cost shared premium to encourage uptake, an amount shared between the federal and provincial governments. **$350 million for five years** [AAFC]

The costs of business risk management programs are increasing due to the significant risks climate change poses to farm operations. In contrast to similar programs elsewhere, business risk management programs in Canada do not yet compensate for measures taken by producers to mitigate these risks through adaptive practices such as environmental

Photo: Tamiscomingue

best management practices. While business risk management programmes have been primarily aimed at income stabilization, they also offer a means to reward new practices that enhance medium and long-term climate resilience and produce positive agri-environmental outcomes.

Support a Sustainable Agricultural Value Chains Initiative

Recommendation: Launch three to five farmer-centric multi-stakeholder collaborations to accelerate the uptake of beneficial management practices at a regional scale, while driving better outcomes for the sector as a whole.

$550 million over five years for five pilot projects [AAFC, ISED]

Long-term sustainability relies on new approaches that stimulate large-scale, transformative change by linking on-farm practices with those beyond the farm gate with the greatest promise to return value to farm level.

A Sustainable Value Chains Initiative would align public incentives with market-based approaches through a series of farmer-centric, multi-stakeholder collaborations tailored to the needs and realities of context-specific value chains, providing solutions for producers in four key areas: finance to de-risk the uptake of new practices; peer-to-peer learning and extension; improved data collection and dissemination; and verified sustainability performance standards.

Building on the model set by the U.S. Climate Smart Commodities Partnership,[34] the Sustainable Agricultural Value Chains Initiative would stimulate partnerships and collaborations, enabling Canada's agri-food sector to navigate emerging trends, and helping markets to respond to climate-smart choices by actors along agri-food supply chains while driving progress towards Canada's climate, productivity, and sustainability goals.

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34 US Department of Agriculture, " Partnerships for Climate-Smart Commodities." https://www.usda.gov/climate-solutions/climate-smart-commodities