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Report Name: Summary Report on Canada's Climate-Smart Agriculture Initiatives

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Report Highlights:

As an economic sector, agriculture contributes to just over 10 percent to Canada's overall greenhouse gas emissions. Canada's vision for agriculture to fight climate change is based on creating opportunities to improve carbon sequestration in agricultural lands, to stimulate the adoption of clean technologies on farms, and to support farmers in adopting greener on-farm practices to reduce GHG emissions. Canada is currently implementing climate-smart programs totaling \$550 million CAD, and announced additional funding of nearly \$1.2 billion CAD over the next six to ten years.

Agriculture's Contribution to Greenhouse Gas Emissions

According to Canada's most recent [Greenhouse Gas \(GHG\) Inventory](#), and based on the sectoral classification developed by the [Intergovernmental Panel on Climate Change](#) (IPCC), agriculture contributed in 2020 with just over 8 percent, or 55 megatons of carbon dioxide equivalent (Mt CO₂ eq), to Canada's overall GHG emissions, estimated at 672 Mt CO₂ eq. Based on the IPCC methodology, all GHG emissions reported in the agriculture sector come from non-energy sources (for instance excluding all GHG emissions associated with the fossil fuels used in agriculture). In 2020, agriculture accounted for 30 percent of Canada's national methane (CH₄) emissions, and 75 percent of its national nitrous oxide (N₂O) emissions.

The main sources of GHG emissions in Canadian agriculture are livestock production, and crop production. GHG emissions associated with the livestock sector include methane emissions from enteric fermentation (23.6 Mt CO₂ eq in 2020), and emissions of methane and nitrous oxide from the storage and handling of animal manure (7.8 Mt CO₂ eq in 2020).

GHG emissions in the crop production sector originate mostly from nitrous oxide emissions from the application of inorganic nitrogen fertilizers, crop residue decomposition, animal manure and biosolids applied as fertilizers, and crop management practices (which together amounted to 21.1 Mt CO₂ eq in 2020). Another emissions source related to crop production is carbon dioxide emissions from agriculture's use of lime and urea-based nitrogen fertilizers (3 Mt CO₂ eq in 2020).

Canada's GHG Inventory also includes GHG emission estimates grouped by 'Canadian economic sectors'. According to the document, "for the purposes of analyzing economic trends and policies, it is useful to allocate emissions to the economic sector from which they originate". This is done by reallocating the relevant proportion of emissions from various IPCC subcategories to different headings corresponding to economic sectors, without changing the overall magnitude of Canadian emissions estimates (i.e. 672 Mt CO₂ eq in 2020).

Based on this 'economic sectors approach', Canada's GHG emissions associated with agriculture change from 55 to 69 Mt CO₂ eq in 2020, or just over 10 percent of Canada's total GHG emissions. According to the GHG Inventory, the difference between the two GHG emission estimates for agriculture is attributable to the emissions associated with the on-farm use of fossil fuels.

Climate Actions and Reduction Targets in Agriculture

The March 2022 [Canada's 2030 Emissions Reduction Plan](#) provides a roadmap for the Canadian economy to achieve between 40 and 45 percent reductions in GHG emissions below the 2005 levels by 2030, and to further achieve the goal of net-zero emissions by the year 2050. The Plan also includes a summary of targets and actions the federal government committed to take in order to fight climate change. Additionally, the September 2022 document titled [Faster and further: Canada's Methane Strategy](#) includes the goal of reducing methane emissions by more than 35 percent by 2030, compared to 2020.

For the agricultural sector, Canada's vision to fight climate change is based on measures and programs to create opportunities to improve carbon sequestration in agricultural lands, to stimulate the adoption of new, clean technologies on farms, and to support farmers in adopting greener on-farm practices to reduce GHG emissions.

The current set of climate-smart programs and measures includes the following:

- The [Canadian Agricultural Partnership](#) (CAP), launched in April 2018 for a five-year period (ending in March 2023), provides funding to support the development of environmental farm plans, and the adoption of beneficial management practices (currently, there is no estimate as to the level of funding for these activities)
- The Agricultural Clean Technology Program, with an [Adoption Stream](#) and a [Research and Innovation Stream](#), has a total budget of \$165.7 million CAD over seven years (starting in 2021) for the development and adoption of clean technologies that reduce emissions and enhance competitiveness
 - To date, under both Streams, a total of [139 projects](#) were announced amounting to nearly \$44 million CAD; of this total, there were nine research and innovation projects (about \$9 million CAD) under the Stream that continues to accept applications; currently, the Adoption Stream is closed, and most funded projects related to installing new grain dryers, installing solar panels, and purchasing precision agriculture technology
- The [Agricultural Climate Solutions Living Labs Program](#), with a budget of \$185 million CAD over 10 years (starting in 2021) for the development and implementation of farming practices to tackle climate change (such as shelterbelts, cover crops, intercropping, and rotational practices)
 - In July 2022, the creation of the first set of [nine living labs](#) was announced, with a total investment of nearly \$54 million CAD; the specific projects to be explored at each living lab will focus on carbon sequestration and GHG emissions mitigation through the development and testing of beneficial management practices
- The [Agricultural Climate Solutions On-Farm Climate Action Fund](#), with a budget of \$200 million over three years (starting in 2021) for supporting immediate on-farm action in the areas of improved nitrogen management, increased cover cropping, and rotational grazing
 - In February 2022, [12 projects](#) were announced, for a total of just over \$180 million CAD allocated to 12 recipient organizations; these organization will, in turn, redistribute funding to applicant farmers who would adopt and implement immediate measures related to nitrogen management, cover cropping, and rotational grazing
- A commitment to a national fertilizer emission reduction target of 30 percent below 2020 levels by 2030 (to date, no specific funding was allocated to this measure, and discussions continue between farmers, fertilizer suppliers, and the federal government to define the specific elements required for achieving the emissions reduction target)
- A Livestock Feed Management Protocol is currently being developed under Canada's [Greenhouse Gas Offset Credit System](#), which will credit gas reductions from livestock-produced methane through enteric fermentation. Additionally, Protocols for Livestock Manure Management and Anaerobic Digestion are planned for subsequent development under the same offset credit system.

In addition to these existing programs, the April 2022 [Federal Budget](#) includes several other announcements to support a sustainable agriculture in fighting climate change:

- Provide an additional \$330 million CAD over six years to triple the size of the Agricultural Clean Technology Program, and to support broadening and expanding the scope of the program
- Provide an additional \$470 million CAD over six years to expand the Agricultural Climate Solutions On-Farm Climate Action Fund; these additional financial resources would allow the program to top-up funding for some current successful applicants, to expand the support to additional key climate mitigation practices, to extend the program past its current end date (fiscal year 2023/24), and to support the adoption of practices that contribute to the fertilizer emissions target and the Global Methane Pledge
- Provide \$100 million CAD over six years to support post-secondary research in developing technologies and crop varieties that will help achieving a net-zero emission agriculture by 2050

Finally, in July 2022, the federal, provincial, and territorial (FPT) Agriculture Ministers [announced](#) an ‘agreement in principle’ for Canada’s next five-year agriculture policy framework, called Sustainable Canadian Agricultural Partnership (SCAP), to be implemented from April 2023, replacing the current CAP. SCAP would include the following climate-related elements:

- A commitment to reduce GHG emissions in agriculture by 3-5 Mt CO₂ eq
- The establishment of a new \$250 million CAD Resilient Agricultural Landscapes Program (RALP) meant to increase carbon sequestration, adaptation, and support other environmental co-benefits

These specific elements will be incorporated in a diversity of programs to be developed from 2023 onwards under SCAP, based the [priorities and guiding principles](#) agreed upon by FPT Ministers at their Guelph, ON meeting in November 2021. Fighting climate change, protecting the environment, and ensuring a sustainable agriculture and agri-food sector are all elements that FPT Ministers convened to work on under Canada’s next agriculture policy framework.

To further advance sustainability in agriculture and combat climate change, in December 2022, Canada’s federal government launched consultations on its first [Sustainable Agriculture Strategy](#). The Strategy is meant to be a comprehensive tool to provide an integrated and coordinated approach for addressing environmental issues in the agriculture sector. Facilitating the process is an Advisory Committee co-chaired by Agriculture and Agri-Food Canada and the Canadian Federation of Agriculture, comprised of industry experts, academics, producers, and associations. The comment period closes on March 31, 2023.

Involvement in International Climate Initiatives for Agriculture

Canada plays an active role in various international fora, including G7, G20, and the United Nations (UN), advocating for increased global ambition and concrete actions to address climate change challenges. As a result, Canada is implementing a variety of international commitments, including commitments resulting from [international environmental agreements and instruments](#), that affect its GHG emissions reduction efforts. Canada’s involvement in international initiatives includes the following:

- [Global Methane Pledge](#): At the 26th UN Climate Change Conference of the Parties (COP26), Canada joined the Global Methane Pledge, which aims to reduce global anthropogenic methane emissions across all sectors by at least 30 percent by 2030, relative to 2020; additionally, Canada

committed to further reduce methane from oil and gas operations by at least 75 percent below 2012 levels by 2030.

- [Agriculture Innovation Mission for Climate](#) (AIM for Climate): Launched at COP26, and led by the United Arab Emirates and the United States, AIM for Climate seeks to address climate change and global hunger by uniting participants to significantly increase investment in, and other support for, climate-smart agriculture and food systems innovation over a five-year period (2021-2025); Canada joined the initiative as a ‘government partner’.
- [Coalition on Sustainable Productivity Growth for Food Security and Resource Conservation](#) (SPG Coalition): Launched in 2021 at the United Nation’s Food Systems Summit, the SPG Coalition aims to accelerate the transition to more sustainable food systems through productivity growth that optimizes agricultural sustainability across social, economic, and environmental dimensions; the Canadian government, as well as several Canadian academic and research organizations (e.g., the Canadian Agri-Food Policy Institute) and private sector organizations (e.g., Canola Council of Canada, Cereals Canada, CropLife Canada) are members of the SPG Coalition.

Attachments:

No Attachments.