

Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada

Agriculture and Climate Change Mitigation—Agriculture and Agri-Food Canada

Report 5



Independent Auditor's Report | 2024



Office of the Auditor General of Canada

Bureau du vérificateur général du Canada

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- report both positive and negative findings
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Cat. No. FA1-26/2024-1-5E-PDF

ISBN 978-0-660-70805-8

ISSN 2561-1801

Cover photo: [iStock.com/Mike Rebeyka](https://www.istock.com/Mike-Rebeyka)

At a Glance



Overall message

Since 2015, Agriculture and Agri-Food Canada has been mandated to act on climate change, and in 2020, the federal government called on the department to develop a strategy to address climate change mitigation in the agriculture sector. Despite this, the department had yet to develop a strategy for how it would contribute to Canada's 2030 and 2050 greenhouse gas mitigation and sequestration goals. In the absence of this strategy, we found that the department had undertaken extensive science-based work that informed its current climate change programming.

In 2021, Agriculture and Agri-Food Canada launched 3 key programs aimed at reducing greenhouse gas emissions; however, the department's delays in funding approvals resulted in recipients missing a growing season, which limited the greenhouse gas reduction results achieved by January 2024. In addition, 2 of the 3 programs had not yet set or finalized all of their performance targets for climate change mitigation. The department's contributions to reduce greenhouse gas emissions under its programs are integral to the fight against climate change, which is why setting targets and tracking results are so important.

Furthermore, without a strategy to provide the sector with a long-term vision and direction, the department's path to help achieve Canada's 2030 and 2050 goals remains unclear. Given the current climate crisis and limited results by January 2024, Agriculture and Agri-Food Canada will need to ensure that all its expected reductions in greenhouse gas emissions for 2030 take place in the 6 growing seasons that remain.

Key facts and findings



- Between 1990 and 2021, greenhouse gas emissions from the agriculture sector grew by 39%, mostly driven by an increase in emissions related to crop production.
- In 2021, about 10% of Canada's total greenhouse gas emissions came from the agriculture sector, making it the fifth-largest emitting sector.
- In 2021, agricultural soils stored 18 megatonnes of carbon dioxide equivalent, offsetting approximately 26% of Canada's total annual agricultural emissions.
- By January 2024, funding disbursed under the On-Farm Climate Action Fund program had resulted in 4,338 producers adopting beneficial management practices; and 1,320,000 hectares of land under improved management.
- By January 2024, funding disbursed under the Agriculture Clean Technology program resulted in 193 new agricultural clean technologies adopted by producers.
- Between May 2022 and June 2023, Agriculture and Agri-Food Canada approved 14 living labs across Canada, with every province having at least 1 living lab.
- Delays in the review and approval of applications to the department's 3 key climate change mitigation programs delayed project implementation and results.

See **Recommendations and Responses** at the end of this report.

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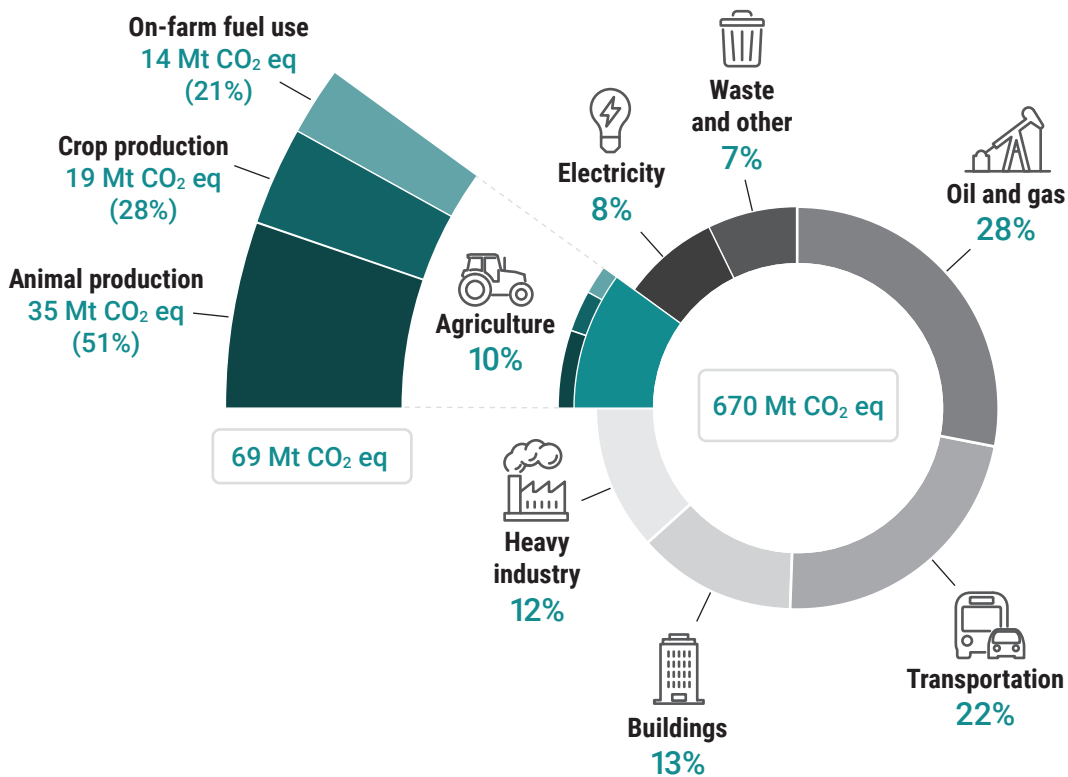
Introduction

Background

Agriculture and climate change

5.1 Greenhouse gases, such as carbon dioxide, are the main cause of human-induced climate change. In 2021, about 10% of Canada’s total greenhouse gas emissions came from the agriculture sector. The leading sources of greenhouse gas emissions from agriculture in Canada are shown in Exhibit 5.1.

Exhibit 5.1—Greenhouse gas emissions from the agriculture sector (in megatonnes of carbon dioxide equivalent, Mt CO₂ eq, rounded) compared with other sectors in Canada in 2021*



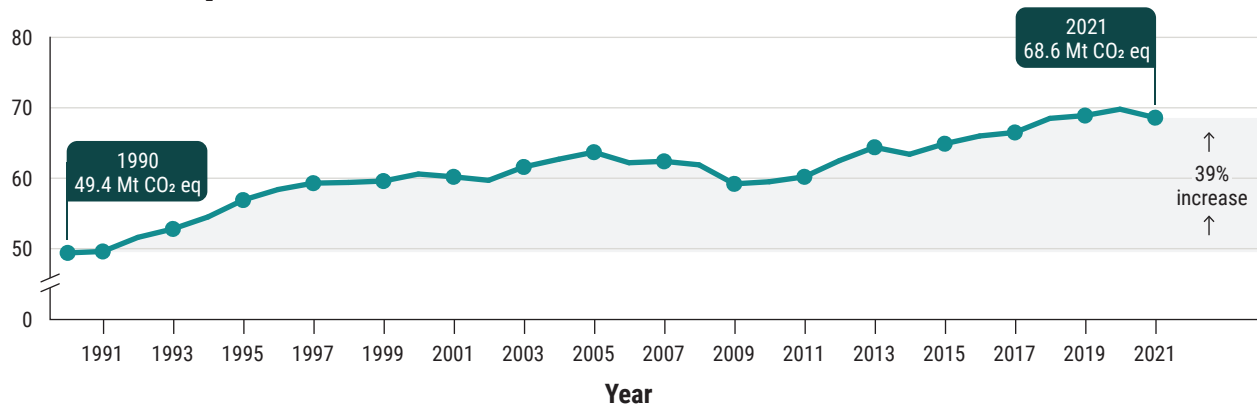
* Numbers are rounded.

Source: Adapted from Canada’s National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

5.2 Between 1990 and 2021, greenhouse gas emissions from the agriculture sector grew by 39%, mostly driven by an increase in emissions related to crop production (Exhibit 5.2).

Exhibit 5.2—Agriculture sector greenhouse gas emissions in Canada, 1990 to 2021

Megatonnes of carbon dioxide equivalent (Mt CO₂ eq), rounded



Source: Canada's National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

5.3 While greenhouse gas emissions from the agriculture sector contribute to climate change, the sector can also help slow climate change by adopting **beneficial management practices**¹ that can reduce the amount of greenhouse gas emissions in the atmosphere. Such practices include, for example, planting cover crops after the fall harvest or before the spring seeding of main crops to sequester (store) carbon in soil as organic matter. Another example is implementing nitrogen management practices to help farmers optimize the amount of fertilizer they use and to reduce the amount of nitrogen oxide emissions released into the atmosphere. In 2021, agricultural soils stored 18 **megatonnes of carbon dioxide equivalent (Mt CO₂ eq)**,² offsetting approximately 26% of Canada's total annual agricultural emissions.

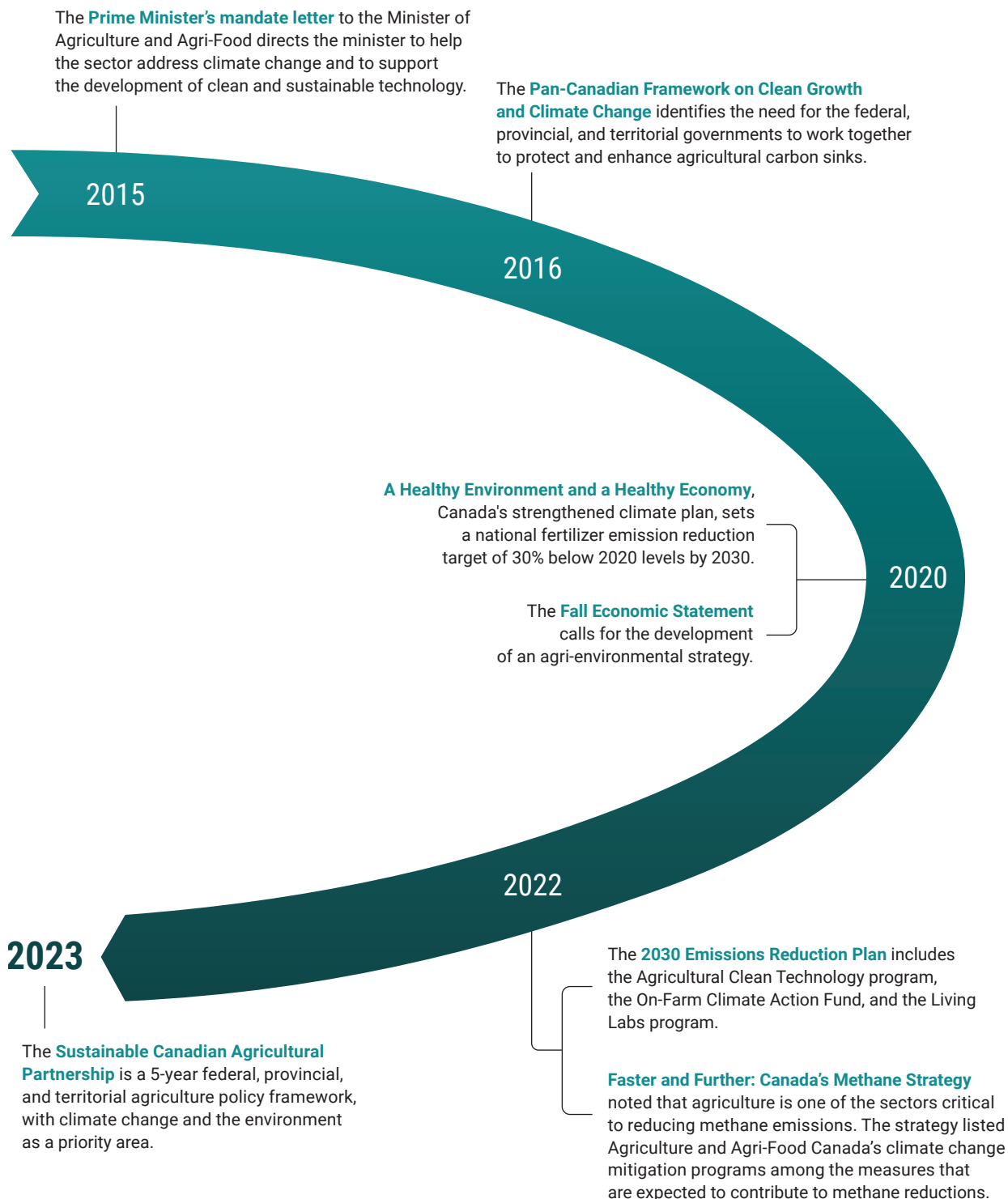
5.4 Since 2015, the federal government has made several commitments to take action on climate change in the agriculture sector (Exhibit 5.3).

1 **Beneficial management practices**—Agricultural practices that can reduce the negative impact of agriculture on the environment and promote soil conservation and water health without forgoing productivity. These include, for example, crop rotation, conservation tillage, and restoration that can sequester carbon and significantly reduce net annual greenhouse gas emissions.

Source: Adapted from the Canadian Journal of Soil Science

2 **Megatonne of carbon dioxide equivalent (Mt CO₂ eq)**—The amount of a greenhouse gas that has the same warming potential as a million tonnes (a megatonne) of carbon dioxide over a specified period.

Exhibit 5.3—Selected commitments by Canada to mitigate climate change in the agriculture sector, 2015–2023



Source: Based on information from various federal government sources

5.5 Agriculture and Agri-Food Canada launched 3 main programs in 2021 designed to reduce greenhouse gas emissions from the agriculture sector:

- The Living Labs program aims to implement at least 1 “living lab” in every province. A living lab brings together producers of agricultural products, scientists, and other sector stakeholders to co-develop and test innovative technologies and on-farm practices to reduce greenhouse gas emissions and sequester (store) carbon in real-world conditions. By June 2023, the department had approved 14 living labs.
- The On-Farm Climate Action Fund aims to help producers adopt beneficial management practices that store carbon and reduce greenhouse gas emissions. Agriculture and Agri-Food Canada provides funding to 13 initial recipients who assess applications to the program and in turn distribute the funding to ultimate recipients—producers—to enable the adoption of beneficial management practices.
- The Agriculture Clean Technology program—Adoption stream aims to support the purchase and installation of commercially available clean technology or equipment upgrades that will reduce greenhouse gas, fertilizer, and methane emissions. We audited only the Adoption stream of this program. All references to the program in this report refer only to the Adoption stream.

Roles and responsibilities

5.6 **Agriculture and Agri-Food Canada.** Agriculture and Agri-Food Canada is responsible for providing leadership in the growth and development of a competitive, innovative, and sustainable Canadian agriculture and agri-food sector. As part of its mandate, the department supports Canada’s national and international commitments to meet targets for reductions in greenhouse gas emissions. This involves implementing programs and activities that contribute to reducing greenhouse gas emissions from the agriculture sector, such as carbon dioxide from on-farm energy use, nitrous oxide from fertilizers, and methane from livestock production.

5.7 Agriculture is a shared jurisdiction in Canada, and the department must work closely with provincial and territorial governments in developing and delivering policies and programs to reduce greenhouse gas emissions and to sequester carbon in the agriculture sector. The department must also work with other government departments, such as Environment and Climate Change Canada and Natural Resources Canada, as well as Indigenous peoples and sector stakeholders.

Focus of the audit

5.8 This audit focused on whether Agriculture and Agri-Food Canada designed and implemented an approach for how the agriculture sector will contribute to Canada's 2030 and 2050 greenhouse gas mitigation and sequestration goals, commitments, and targets. This audit also examined whether the department delivered its climate change mitigation programs and activities to ensure that results are being achieved with respect to commitments to reduce greenhouse gas emissions and sequester carbon.

5.9 This audit is important because the agriculture sector can play a key role in mitigating climate change through agricultural management practices that reduce emissions of greenhouse gases and remove carbon dioxide from the atmosphere.

5.10 More details about the audit objective, scope, approach, and criteria are in **About the Audit** at the end of this report.

Findings and Recommendations

The department had no strategy to meet its expected contributions to reductions of greenhouse gas emissions

Why this finding matters

5.11 Climate change is a complex, long-term problem, and having a strategy for Canada's agriculture sector would establish transformational goals and targets. A strategy would also support collaboration with federal partners, other levels of government, Indigenous peoples, and sector stakeholders. With a goal of contributing to Canada's target of reducing greenhouse gas emissions by 40% to 45% below 2005 levels by 2030, a strategy would provide a common vision and direction of collective action on climate change mitigation for the agriculture sector.

No strategy on climate change mitigation for the agriculture sector

Findings

5.12 We found that as of January 2024, Agriculture and Agri-Food Canada had no strategy in place to guide its climate change mitigation programs and activities. Since 2015, the government has mandated the department to take specific action on climate change issues. The government then called for the department to develop a strategy to

support the agriculture sector's actions on climate change in the Fall Economic Statement 2020. In 2021, the government again called for the department to develop an agri-environmental strategy for Canada that, among other aims, would enable collective action to address climate change.

5.13 The department expected that a strategy would help create a set of ambitious environmental objectives to be achieved through the 5-year (from the 2023–24 to 2027–28 fiscal years) Sustainable Canadian Agricultural Partnership. This is a federal-provincial-territorial agricultural policy framework with many cost-shared programs, including the Resilient Agricultural Landscape Program. However, we found that the 5-year framework began in April 2023, with no strategy in place to inform policy objectives.

5.14 The department further expected that a strategy would guide the development of its On-Farm Climate Action Fund and Living Labs programs. This included developing a data strategy to address data and measurement challenges at the farm, regional, and national levels to measure, report on, and track environmental performance in the agriculture sector and assist in decision making. We found that the programs were developed and put in place in 2021 without a strategy to inform their design or without a data strategy in place. However, we did find that since then, the department had done extensive consultations as part of the development of a sustainable agriculture strategy.

5.15 In the absence of a strategy, we found that from late 2020 to mid-2023, the department had undertaken extensive science-based work that informed its current climate change programming. This work helped identify promising greenhouse gas mitigation practices that would help the sector. According to the department, the policy and programming approaches that are needed to advance the adoption of these practices were being considered and discussed as key elements of a sustainable agriculture strategy.

5.16 We also looked at whether the department had done a review of its programs to ensure policy coherence. We found that it had not done any such review. In our view, this presents a risk of programs working at cross-purposes or the potential for overlap among initiatives, and the inefficient use of available funding and resources.

5.17 One of the benefits of a strategy was that it is intended to contribute to Canada's 2030 and 2050 climate change targets and international commitments. Canada's 2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy, released in 2022, outlines a sector-by-sector path for Canada to reach the 2030 target. In 2022, the department initially estimated sector reductions under this plan would be 13.07 Mt CO₂ eq, to be achieved through its climate change mitigation programs and activities. The

department had reduced its estimated contributions to 11.21 Mt CO₂ eq for Canada’s Greenhouse Gas and Air Pollutant Emissions Projections report, December 2023 (Exhibit 5.4).

Exhibit 5.4—The department’s programs and activities are expected to contribute 11.21 megatonnes of carbon dioxide equivalent (Mt CO₂ eq) reductions in agricultural greenhouse gas emissions by 2030

Programs and departmental activities (fiscal years)	Federal allocated funding (\$)	Estimated permanent emission reductions reported in 2022 (Mt CO ₂ eq)	Revised estimated permanent emission reductions reported in 2023 (Mt CO ₂ eq)
Living Labs (2021–22 to 2030–31)	\$185 million	1.00	1.00
On-Farm Climate Action Fund (2021–22 to 2027–28)	\$704 million	4.29	1.61
Agricultural Clean Technology program (2021–22 to 2028–29)	\$471 million*	0.79	0.77
Sustainable Canadian Agricultural Partnership— Programs supported under the federal-provincial-territorial policy framework (2023–24 to 2027–28)	\$63 million (federal share)	0.81	0.83
Resilient Agricultural Landscape Program (2023–24 to 2028–29)	\$150 million (federal share)	2.68	3.50
Efforts toward the government target for fertilizer emission reductions (by 2030)	Partially funded**	3.50	3.50
Efforts toward the government target for methane emission reductions (by 2030)	None identified	None identified	None identified
Total	\$1,573 million	13.07	11.21

* This funding is a total for both the Adoption and the Research and Innovation streams. The following estimated permanent emission reductions are for only the Adoption stream.

** Although funding for the On-Farm Climate Action Fund and the Sustainable Canadian Agricultural Partnership is expected to contribute to the government’s sector-wide target for fertilizer emission reductions, 2.07 Mt CO₂ eq of the 3.5 Mt CO₂ eq remains unfunded.

Note: According to the department, these modelled estimates are based on the best currently available information, such as sector economic activity, and planned program funding and uptake.

Source: Adapted from data from Agriculture and Agri-Food Canada

5.18 We found that one of the reasons for the decreased estimate of 13.07 Mt CO₂ eq to 11.21 Mt CO₂ eq was because the department initially included emission reduction estimates from tree planting on agricultural lands as a beneficial management practice. For example, trees planted on the edges of fields protect crops and livestock from wind and snow accumulation. The department later removed the reductions for this practice from its updated estimate.

5.19 We found that the department had also estimated emission reduction costs per tonne for the programs in Exhibit 5.4, broken down by mitigation practices. However, this information had not been made public by the department. In our view, making this information publicly available would provide more transparent information to the agriculture sector to explain federal policy development and decisions.

5.20 The broader Government of Canada plan, the 2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy, also states the following: "Actions taken to date, and those laid out in this plan, set into motion many of the key transformations that will be needed to achieve a net-zero emissions world." According to the department's projections and analysis, based on 2021 data, 51 Mt CO₂ eq of emissions need to be reduced or sequestered for the agriculture sector to reach net-zero emissions by 2050. Although Agriculture and Agri-Food Canada acknowledged that significant data and funding gaps remain to map out a feasible pathway to reach net-zero emissions by 2050, we found that it had no long-term strategy for how it would achieve the 2030 or 2050 goals.

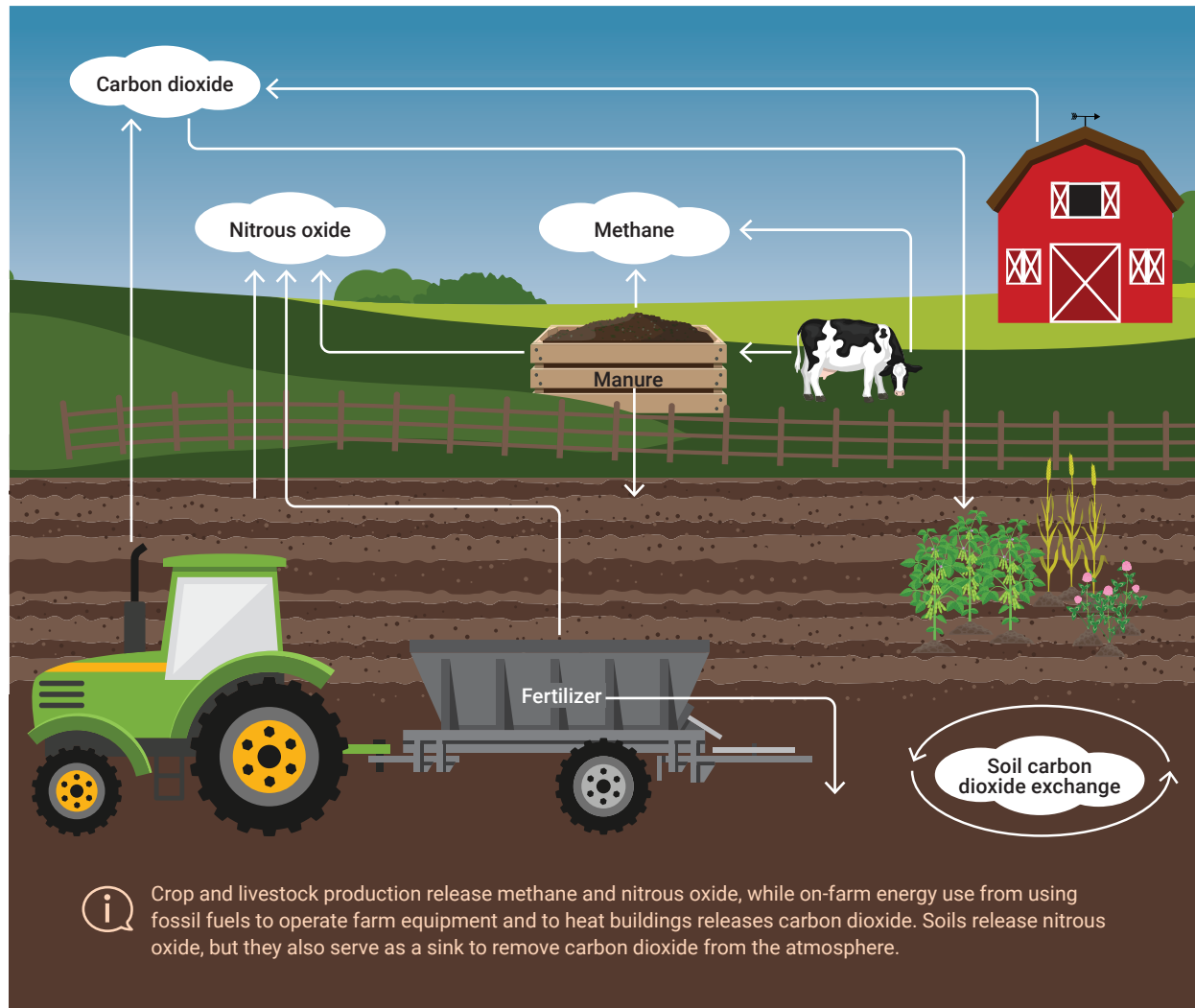
5.21 Our recommendation for this section is at paragraph 5.29.

Programs' emission reduction contributions toward fertilizer and methane targets not identified

Findings

5.22 For fertilizer, under Canada's 2020 strengthened climate plan, A Healthy Environment and a Health Economy, the government committed to setting a national fertilizer emission reduction target of 30% below 2020 levels by 2030. In 2021, the agriculture sector accounted for 75% of Canada's nitrous oxide emissions, primarily from fertilizer use (Exhibit 5.5).

Exhibit 5.5—Examples of greenhouse gas emissions and removals from Canadian agricultural activities



Source: Adapted from Agriculture and Agri-Food Canada

5.23 We found that the department did not consult with stakeholders (for example, farmers and industry associations) prior to establishing the fertilizer emission reduction target. One consequence of this lack of consultation was that some sector stakeholders interpreted the target as an absolute reduction of 30% in fertilizer use, rather than a 30% reduction in emissions from improved fertilizer application techniques.

5.24 To achieve the fertilizer emission reduction target, the department planned to establish voluntary agreements with fertilizer manufacturers, agricultural stakeholders, provinces, and farmers. However, we found that it had established none by January 2024.

5.25 The department estimated 1.44 Mt CO₂ eq in fertilizer emission reductions through the On-Farm Climate Action Fund and the Sustainable Canadian Agricultural Partnership. We found that the

Living Labs program and the Agricultural Clean Technology program had not quantified any expected greenhouse gas emission reductions from their projects that would contribute to the government's fertilizer target. We also found that the remaining 2.07 Mt CO₂ eq required to meet the 3.5 Mt CO₂ eq fertilizer emission reduction target remained unfunded.

5.26 Departmental analysis in September 2023 stated that the greatest opportunity for reducing fertilizer-related emissions in the short term was increasing the adoption of certain beneficial management practices related to nutrient management. The department identified 3 such practices. For example, instead of applying fertilizer only once during the season when seeding, a better practice to optimize the effects of fertilizer might be to apply it at strategic times during the growing season to align with crop needs. According to the department, current adoption rates of these practices are at about 20% of Canadian farms, but 50% to 75% of farms must adopt these practices to contribute up to 3.2 Mt CO₂ eq of the total target. The department was unable to tell us how it would close the gap to reach the total target of 3.5 Mt CO₂ eq in reductions by 2030.

5.27 In 2021, the agriculture sector accounted for 31% of methane emissions. Canada confirmed its support for the Global Methane Pledge in 2021. The pledge aims to reduce global methane emissions by 30% below 2020 levels by 2030. In 2022, the Government of Canada released *Faster and Further: Canada's Methane Strategy*. With the methane reduction measures and supporting programs outlined in the strategy, the government estimated that Canada will be able to further reduce domestic methane emissions by more than 35% below 2020 levels by 2030. The methane strategy noted that agriculture is one of the sectors critical to reducing methane emissions. It listed Agriculture and Agri-Food Canada's mitigation programs among the measures that are expected to contribute to methane reductions.

5.28 We found that the 3 programs we examined had not yet quantified any expected greenhouse gas emission reductions from their projects that would contribute to Canada's methane emission reduction target. Furthermore, without a strategy to provide the sector with a long-term vision and direction, the department's path to help achieve this target remained unclear.

Recommendation

5.29 To ensure that Agriculture and Agri-Food Canada can meaningfully contribute to Canada’s 2030 and 2050 climate change targets, including the fertilizer and methane emission reduction commitments, the department should finalize and implement a sustainable agriculture strategy with actions that include

- establishing measurable outcomes based on best available science, with concrete deliverables, accountabilities, timelines, performance metrics, and a plan to monitor progress
- undertaking analysis to ensure policy coherence among its programs and with programs of the department’s federal-provincial-territorial partners
- expediting the development of a data strategy to address data and measurement challenges at the farm, regional, and national levels
- assessing the funding and resources needed to successfully implement the strategy and the department’s climate change mitigation programs and activities to lead to permanent emission reductions through to 2050
- reporting on the costs of the department’s climate change mitigation programs and activities against the greenhouse gas reductions achieved by those programs and activities

The department’s response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

The department had limited results and poor results measurement

Why this finding matters

5.30 This finding matters because effective program design and implementation enables the achievement of results, supports departmental and governmental policy objectives, establishes conditions for the fair and transparent treatment of applicants, and provides Canadians and Parliament with assurance that public funds are being used as promised.

Results achieved limited by delays in program implementation

Findings

5.31 We found that delays in reviewing applications and selecting recipients for funding led to delays in implementing projects on the ground and limited results achieved in the programs' first year.

5.32 The Agricultural Clean Technology program launched its first application intake on 16 June 2021. The intake was to remain open for 10 months and allow multiple project applications per applicant. However, the department did not anticipate the high demand for the program, and within 6 weeks of the launch, the department had received 443 initial applications, and the requested funding exceeded available funding for the 2021–22 fiscal year. On 1 August 2021, it paused assessments of any further applications. However, the program continued to receive applications through the intake window, which led to a backlog of an additional 1,057 applications received through to 31 March 2022. We found the following:

- Of the 443 applicants who submitted in the first 6 weeks of the intake, 268 (60%) were approved for funding.
- In October 2022, additional funding was made available to the program, which allowed the department to triage the backlog and undertake a call for proposals for a new intake.
- Between November 2022 and January 2023, the program approved about \$35 million in funding to an additional 71 (7%) applications from the 1,057 backlog. These additional recipients from the first intake were not able to implement the funded projects (for cleaner technologies and equipment) for the 2022 growing season, which limited or delayed program results.
- The department's processing of applications was not fully automated and included some manual inputting. In our analysis of the department's data, we found that the department had missed 6 applications, which were not considered as part of the triage of the backlog. The department told us that the applications were missed when they were manually transferred to the department's database.

5.33 In addition, we used representative sampling to examine a sample of 35 of 55 completed applications (47 approved and 8 rejected) for the Agriculture Clean Technology program. We found that in 66% (23 of 35) of cases, the program did not meet the 100-business-day service standard (4.5 months) to review and approve or reject an application, taking an average of 121 business days (5.5 months).

5.34 We also found delays for both the On-Farm Climate Action Fund and Living Labs programs. We found that on average, it took over 5 months for the department to finalize contribution agreements with successful applicants under both programs. The programs were

launched in 2021. To ensure that recipients could take advantage of the 2022 growing season, their contribution agreements would have needed to be signed by spring 2022. We found, however, that only 1 of 22 contribution agreements across these 2 programs were signed in advance of the 2022 growing season, with half of the 22 signed as late as fall 2022 through to February 2023. This delayed the transfer of funds to recipients, limiting the data and results that could have been achieved through the 2022 first-year season.

5.35 The On-Farm Climate Action Fund, originally scheduled to end by 31 March 2024, was extended to 31 March 2028. While the department told us that it informed recipients in November 2023 that their agreements would be extended by 1 year, no agreements had yet been amended by January 2024. The recipients raised concerns as early as May 2023 because they were uncertain about whether their funding would be continued and the impact this would have on their ability to plan and carry out longer-term project planning decisions. In our opinion, this uncertainty could further affect the achievement of the programs' results.

5.36 Despite these findings, funded recipients of the Agricultural Clean Technology program and the On-Farm Climate Action Fund, and voluntary participants in the Living Labs program, expressed to us and in their performance reports the value of these programs. This value included

- allowing producers the ability to adopt clean technology that otherwise they might not have been able to do
- receiving the co-benefits of beneficial management practices, such as reduced soil erosion
- data collection and information being available to producers enabling better decision making for land management

Recommendation

5.37 To minimize administrative lag times, enable longer-term project planning, and support the continuity and sustainability of its climate change mitigation programs, Agriculture and Agri-Food Canada should

- inform, as soon as possible, delivery organizations administering the On-Farm Climate Action Fund, and lead partners implementing the Living Labs program, whether they will have their contribution agreements extended to the end of the programs
- ensure that any future iterations of its climate change mitigation programs improve the timeliness of the review and approval of applications and the finalization of contribution agreements to avoid delays in project implementation

The department's response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Missing or non-finalized performance targets for climate change mitigation programs

Findings

5.38 Establishing programs with meaningful indicators, targets, outcomes, and timelines can provide a clear path forward on the level of ambition desired of the department’s climate change mitigation programs and activities, and their contribution to helping the sector reduce greenhouse gas emissions.

5.39 We found that performance targets for all 3 programs were changed over time and were reported inconsistently across departmental and government documents. For the On-Farm Climate Action Fund and Living Labs programs, we found that many of the dates by which targets were to be established, finalized, or achieved were pushed out to later years. This was because the programs were either waiting on first-year results (2022–23) to establish or finalize targets, which had been delayed, or the programs were extended and received additional funding. In our view, these changing targets make it difficult to assess progress and publicly report results in a clear and transparent manner (Exhibit 5.6, Exhibit 5.7, and Exhibit 5.8).

Exhibit 5.6—As of January 2024, the department had not finalized any of the On-Farm Climate Action Fund’s performance targets related to climate change mitigation

Indicator and preliminary target (targets to be achieved by March 2028)	Result by January 2024*
14,000 producers implementing new beneficial management practices or expanding beneficial management practices adoption on new acres of land with support of the fund**	4,338 producers
1,584,000 hectares (3,914,149 acres) total land under improved management	1,320,000 hectares
2.88 megatonnes of carbon dioxide equivalent (Mt CO ₂ eq) per year in projected carbon sequestered in agricultural soils and greenhouse gas emission reductions due to adopting beneficial management practices	0.18 Mt CO ₂ eq reduced in the 2022–23 fiscal year
3,000 knowledge-transfer activities organized by funding recipients to share knowledge with farmers in support of adopting beneficial management practices	601 activities completed

* These results are based on the 13 initial recipients’ first annual performance reports.

** Results against this indicator will contribute to the United Nations’ Sustainable Development Goal 2 (Zero Hunger) and Goal 13 (Climate Action).

Source: Adapted from Agriculture and Agri-Food Canada data

Exhibit 5.7—As of January 2024, the department had not established, or had not finalized, most of the Living Labs program’s performance targets related to climate change mitigation

Indicator (targets to be achieved by March 2031)	Date for establishing or finalizing the target	Result as of January 2024*
Estimated tonnes of carbon sequestered because of each beneficial management practice demonstrated and adopted by producers	No date for establishing a target	None
Number and percentage of farms adopting each carbon sequestration beneficial management practice in the areas surrounding Living Labs sites	Target to be established in 2023–24	126 farms (the department could not yet determine percentage of farms)
Land area and percentage of land area under improved management (land area that adopted each carbon sequestration beneficial management practice) in the areas surrounding Living Labs sites	No date for establishing a target	3,363 hectares (the department could not yet determine percentage of land area)
Number of beneficial management practices developed or improved that increase carbon sequestration**	Preliminary target: 336	45 practices
Number of beneficial management practices developed or improved that are intended to reduce greenhouse gas emissions**	Preliminary target: 271	34 practices

* These results are based on the initial 9 recipients’ first annual performance reports for the 2022 growing season. Their second annual reports for the 2023 growing season are due by 30 May 2024.

** Results against this indicator will contribute to the United Nations’ Sustainable Development Goal 2 (Zero Hunger) and Goal 13 (Climate Action).

Source: Adapted from Agriculture and Agri-Food Canada data

Exhibit 5.8—Performance targets related to climate change mitigation in place for the Agricultural Clean Technology program

Indicator and target (targets to be achieved by March 2026)	Result as of January 2024*
840 adoption projects supported	352 approved projects, based on 141 performance reports
1,200 adopted agricultural clean technologies**	193 new technologies adopted, based on 141 performance reports
A 15% reduction in inorganic nitrogen fertilizer use by adopting clean technology	16% reduction in inorganic nitrogen fertilizer use, based on 18 performance reports
A 38% reduction in fossil fuel use by adopting clean technology	65% reduction in fossil fuel use, based on 124 performance reports
0.8 megatonnes of carbon dioxide equivalent (Mt CO ₂ eq) in annual potential reduction of greenhouse gas emissions from the adoption of clean technologies and newly developed clean technologies (target to be reviewed and updated in 2024, and achieved by 2028)	0.02 Mt CO ₂ eq in emissions reduced, based on 136 performance reports

* These results are based on recipients’ final performance reports for the first 2 years of the program.

** Results against this indicator will contribute to the United Nations’ Sustainable Development Goal 2 (Zero Hunger).

Source: Adapted from Agriculture and Agri-Food Canada data

5.40 We found that the programs have tracked a total of only 0.2 Mt CO₂ eq in greenhouse gas emission reductions by 31 January 2024. Given the limited results to date, nearly all the reductions will need to take place in the remaining 6 growing seasons until 2030.

Recommendation

5.41 To achieve the expected reductions of greenhouse gas emissions by 2030, and help achieve greater reductions to 2050, Agriculture and Agri-Food Canada should

- identify and implement concrete actions to expedite the reduction of greenhouse gas emissions from its climate change mitigation programs and activities
- finalize measurable, time-bound targets for the programs and publish annual results reports on the progress achieved against the programs' expected results, in particular, on reductions of greenhouse gas emissions

The department's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Gender-based analysis plus considered in program design, and indicators aligned with the United Nations' Sustainable Development Goals

Findings

5.42 We found that the department had integrated the required **gender-based analysis plus**³ considerations into the program design of all 3 programs. The department collected data from program applications so that data could be disaggregated and examined for the programs' impact on specific under-represented and marginalized groups. This included Indigenous peoples, women, youth, people with disabilities, members of minority-language communities, members of visible minority groups, and lesbian, gay, bisexual, transgender, queer, and 2-spirit (LGBTQ2) people.

³ **Gender-based analysis plus**—An analytical process that provides a rigorous method for the assessment of systemic inequalities and a means to assess how diverse groups of women, men, and gender-diverse people may experience policies, programs, and initiatives. The "plus" acknowledges that gender-based analysis goes beyond biological (sex) and socio-cultural (gender) differences and considers many other identity factors, such as race, ethnicity, religion, age, and mental or physical ability.

Source: Adapted from Women and Gender Equality Canada



End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Source: United Nations



Take urgent action to combat climate change and its impacts

Source: United Nations

5.43 Canada's Federal Sustainable Development Strategy sets out the Government of Canada's goals, targets, and plans to implement the 2030 Agenda for Sustainable Development and the United Nations' Sustainable Development Goals. Every goal in the federal strategy is aligned with a specific United Nations' Sustainable Development Goal. The federal goals that the department was responsible for and that are most relevant to this audit are

- Goal 2 (Support a Healthier and More Sustainable Food System), which is aligned with the United Nations' Sustainable Development Goal 2 (Zero Hunger)
- Goal 13 (Take Action on Climate Change and Its Impacts), which is aligned with the United Nations' Sustainable Development Goal 13 (Climate Action)

We found that Agriculture and Agri-Food Canada had 1 or more indicators within each of the 3 programs that aligned with one or both of these goals (Exhibit 5.6, Exhibit 5.7, and Exhibit 5.8).

5.44 We could not assess the programs' contributions to the Sustainable Development Goals, or their impact on under-represented and marginalized groups, as most results were not yet available.

Unreliable and incomplete results measurement, verification, and monitoring of reductions in greenhouse gas emissions

Findings

5.45 We found that the department did not validate the greenhouse gas emission reductions and sequestration data it received from recipients under the 3 programs. The department relied on the data reported by the recipients but did not require documentation to verify results. We also found that the department provided only limited guidance to recipients on how to report results, which led, for example, to inconsistent reporting that made it difficult to roll up overall program results.

5.46 We also found gaps in recipient reporting in 2 programs. For the Agricultural Clean Technology program, recipients were required to provide additional reports when their final performance reports did not contain 1 year of results data. We found that the department had not received all required reports. We also found that there were cases where the program officials did not request an additional report from recipients but accepted recipients' estimates in place of having 1 year of results.

5.47 In the On-Farm Climate Action Fund, across the 13 recipients, we calculated that a total of 64 performance progress reports and 64 financial progress reports had to be submitted by December 2023. We found that as of January 2024, only 35 performance

progress reports and 48 financial progress reports were provided. The department could not provide evidence of follow-up to get the missing reports, which were needed for the department to report on its overall program results.

5.48 The department assumed that almost all the expected emission reductions from its program activities would be permanent. Apart from fertilizer emission reductions, the department assessed the emission reduction estimates for programs in Exhibit 5.4 as permanent. The department provided us with its assumptions on permanency but without evidence to support them. For example, the department assumed that once producers find that beneficial management practices are profitable, they would keep using them. Through the programs, the department provides funding and support to producers to adopt these practices, but once the funding ends, it remains to be seen whether producers will be able to continue to adopt these practices over the long term. We acknowledge that many years of results will be needed before the amount of emission reductions could be determined as permanent.

5.49 We found that none of the 3 programs made provision for post-project monitoring to verify project results or assumptions on the permanency of emission reductions. As a result, the department will not know the extent to which beneficial management practices or greenhouse gas reductions from adopted technology will be sustained over time or what their contributions will be to the 2030 and 2050 targets.

Recommendation

5.50 To enable the accurate, timely, and transparent assessment of results and the ability to roll up greenhouse gas emission reduction data across its projects and programs, Agriculture and Agri-Food Canada should implement a results monitoring framework that includes

- providing specific requirements and guidelines for data submission by recipients
- verifying the quality and accuracy of the data being provided by recipients to ensure consistency and to permit timely course correction where needed
- verifying the extent to which the adopted beneficial management practices and clean technology would result in permanent reductions of greenhouse gas emissions

The department's response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Conclusion

5.51 We concluded that Agriculture and Agri-Food Canada had not designed or implemented an approach for how the agriculture sector will contribute to Canada's 2030 and 2050 greenhouse gas mitigation and sequestration goals, commitments, and targets, as was first called for in 2020.

5.52 We also concluded that Agriculture and Agri-Food Canada had not effectively delivered its climate change mitigation programs and activities to ensure that results were being achieved with respect to commitments to reduce greenhouse gas emissions and sequester carbon. Limited reductions of greenhouse gas emissions had been realized by 31 January 2024, many targets had yet to be established or finalized, and some of the dates by when to achieve targets had been pushed out to later years.

Subsequent Event

5.53 In paragraph 5.35, we noted that none of the On-Farm Climate Action Fund recipient contribution agreements had been amended by the end of our audit period in January 2024. Subsequent to this date, between February and March 2024, Agriculture and Agri-Food Canada signed amendments with 11 of the 13 On-Farm Climate Action Fund recipients, extending their contracts for 1 more year to 2025. According to the department, the remaining 2 recipients did not seek to have their contribution agreements extended following the completion of their projects in 2024.

About the Audit

This independent assurance report was prepared by the Office of the Auditor General of Canada on agriculture and climate change mitigation. Our responsibility was to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government’s management of resources and programs and to conclude on whether Agriculture and Agri-Food Canada complied in all significant respects with the applicable criteria.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001—Direct Engagements, set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance.

The Office of the Auditor General of Canada applies the Canadian Standard on Quality Management 1—Quality Management for Firms That Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements. This standard requires our office to design, implement, and operate a system of quality management, including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we complied with the independence and other ethical requirements of the relevant rules of professional conduct applicable to the practice of public accounting in Canada, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from entity management:

- confirmation of management’s responsibility for the subject under audit
- acknowledgement of the suitability of the criteria used in the audit
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided
- confirmation that the audit report is factually accurate

Audit objective

The objective of this audit was to determine whether Agriculture and Agri-Food Canada

- designed and implemented an approach for how the agriculture sector will contribute to Canada’s 2030 and 2050 greenhouse gas mitigation and sequestration goals, commitments, and targets
- delivered its climate change mitigation programs and activities to ensure that results are being achieved with respect to commitments to reduce greenhouse gas emissions and sequester carbon

An approach is a sustainable pathway to climate change mitigation as defined under the first criterion in the audit criteria table below, and designing and implementing an approach means meeting the first 3 criteria in that table.

Delivering the programs and activities means meeting the last 2 criteria in the criteria table below.

Scope and approach

The first line of enquiry in this audit looked at whether Agriculture and Agri-Food Canada established an approach to climate change mitigation for the agriculture sector. It examined whether the department's approach contributed to achieving federal and national climate change mitigation strategies, goals, commitments, and targets. This line of enquiry also examined whether the approach was developed in consultation with relevant stakeholders, and whether, in designing its approach, the department considered other Agriculture and Agri-Food Canada priority areas to ensure policy coherence.

All of Agriculture and Agri-Food Canada's climate change-related programs and activities were within the scope of this first line of enquiry.

The second line of enquiry examined Agriculture and Agri-Food Canada's delivery of the following selected climate change mitigation programs and activities:

- The Agricultural Climate Solutions Program:
 - the On-Farm Climate Action Fund stream 2021–22 to 2027–28
 - the Living Labs stream 2021–22 to 2030–31: the contributions portion only (not the grants portion)
- The Agricultural Clean Technology program 2021–22 to 2028–29: the Adoption stream only (not the Research and Innovation stream)
- Agriculture and Agri-Food Canada's activities in support of achieving Canada's fertilizer emission reduction target
- Agriculture and Agri-Food Canada's activities in support of achieving Canada's methane emission reduction target

We did not examine the Resilient Agricultural Landscape Program under the federal-provincial-territorial cost-shared Sustainable Canadian Agricultural Partnership (1 April 2023 to 31 March 2028) or the transformative science funding (2022–23 to 2026–27) to the federal granting councils to support post-secondary research in developing technologies and crop varieties that will allow for net-zero emission agriculture.

This second line of enquiry examined whether Agriculture and Agri-Food Canada applied appropriate departmental and federal controls for the review and approval of applications under the 3 programs in our scope.

This line of enquiry also examined the department's monitoring of, and reporting on, the implementation of its climate change mitigation programs and activities, and whether the department achieved, as intended, the expected outputs and annual results, targets, immediate and intermediate outcomes, goals, and commitments of these programs and activities. This included an analysis of the data used in these activities as well as an examination as to whether the data was complete, accurate, timely, and disaggregated.

As part of these lines of enquiry, we considered whether gender-based analysis plus, and the United Nations' Sustainable Development Goals 2 and 13, were incorporated into the subject matter, including the extent to which results had been achieved against commitments in these areas.

As part of the overall scope and approach, we interviewed responsible Agriculture and Agri-Food Canada officials, funding recipients under the 3 programs, and stakeholders; analyzed processes, documents, data, and other information sources; conducted fieldwork visits to examine how selected projects had been implemented under the programs within the scope of the audit; and undertook data analysis as part of the sampling of application files. Where representative sampling was used, sample sizes were sufficient to conclude on the sampled population with a confidence level of 90% and a margin of error of +10%.

Criteria

We used the following criteria to conclude against our audit objective:

Criteria	Sources
<p>Agriculture and Agri-Food Canada designs and implements a sustainable approach to climate change mitigation for the agriculture sector.</p> <p>Designs a sustainable approach means that Agriculture and Agri-Food Canada takes action to</p> <ul style="list-style-type: none"> ensure the design of the pathway to 2030 and 2050 climate change mitigation for the agriculture sector was informed by up-to-date and relevant research, data, and information. A pathway may be the collection of goals, commitments, strategies, policies, plans, programs, and activities related to climate change mitigation. ensure the longevity or permanency of the projects and activities intended to achieve the climate change mitigation goals, commitments, and outcomes. For example, “extension” activities (which provide informal education and learning activities, and technical advice) could be done by Agriculture and Agri-Food Canada directly, or by external parties supported by Agriculture and Agri-Food Canada, to encourage broader adoption of mitigation measures across the sector and to avoid the potential reversibility of measures. align its approach with other Agriculture and Agri-Food Canada priority areas so that policies and strategies do not work at cross-purposes, or are not redundant with each other <p>Implements an approach means that an approach or strategy is finalized and operational, is supported by an action plan as needed, is resourced, has time-bound targets, and informed the design of the programs and activities in support of the approach.</p>	<ul style="list-style-type: none"> Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations A Healthy Environment and a Healthy Economy: Canada’s Strengthened Climate Plan to Create Jobs and Support People, Communities and the Planet, Environment and Climate Change Canada Canadian Net-Zero Emissions Accountability Act 2030 Emissions Reduction Plan: Canada’s Next Steps for Clean Air and a Strong Economy, Environment and Climate Change Canada Faster and Further: Canada’s Methane Strategy, Environment and Climate Change Canada Agriculture and Agri-Food Canada’s Strategic Plan for Science Achieving a Sustainable Future: Federal Sustainable Development Strategy 2022 to 2026 2023 to 2027 Departmental Sustainable Development Strategy, Agriculture and Agri-Food Canada Climate Change Roadmap: Exploring Opportunities to Reduce Agricultural Emissions to 2030, Agriculture and Agri-Food Canada, 2023

Criteria	Sources
<p>Agriculture and Agri-Food Canada aligns its climate change mitigation approach for the agriculture sector to broader federal and national climate change goals and commitments to achieve 2030 emission reduction targets and net-zero emissions by 2050.</p>	<ul style="list-style-type: none"> • Guide to Departments on the Management and Reporting of Horizontal Initiatives, Treasury Board of Canada Secretariat • A Healthy Environment and a Healthy Economy: Canada’s Strengthened Climate Plan to Create Jobs and Support People, Communities and the Planet, Environment and Climate Change Canada • <i>Canadian Net-Zero Emissions Accountability Act</i> • Minister of Agriculture and Agri-Food Canada mandate letters, 2021 • 2030 Emissions Reduction Plan: Canada’s Next Steps for Clean Air and a Strong Economy, Environment and Climate Change Canada • Faster and Further: Canada’s Methane Strategy, Environment and Climate Change Canada • Achieving a Sustainable Future: Federal Sustainable Development Strategy 2022 to 2026 • 2022–23 Departmental Plan, Horizontal Initiatives Supplementary Information Table, Natural Resources Canada
<p>Agriculture and Agri-Food Canada consults with partners, other levels of government, Indigenous peoples, and sector stakeholders in the development of its approach to climate change mitigation for the agriculture sector.</p>	<ul style="list-style-type: none"> • Pan-Canadian Framework on Clean Growth and Climate Change, Environment and Climate Change Canada • Guide to Departments on the Management and Reporting of Horizontal Initiatives, Treasury Board of Canada Secretariat • A Healthy Environment and a Healthy Economy: Canada’s Strengthened Climate Plan to Create Jobs and Support People, Communities and the Planet, Environment and Climate Change Canada • Minister of Agriculture and Agri-Food Canada mandate letters, 2021 • 2030 Emissions Reduction Plan: Canada’s Next Steps for Clean Air and a Strong Economy, Environment and Climate Change Canada • Faster and Further: Canada’s Methane Strategy, Environment and Climate Change Canada • Achieving a Sustainable Future: Federal Sustainable Development Strategy 2022 to 2026 • Agriculture and Agri-Food Canada’s Strategic Plan for Science • Climate Change Roadmap: Exploring Opportunities to Reduce Agricultural Emissions to 2030, Agriculture and Agri-Food Canada, 2023

Criteria	Sources
<p>Agriculture and Agri-Food Canada monitors and reports on the implementation of its climate change mitigation programs and activities, and achieves programs’ and activities’ expected outputs and annual results, targets, immediate and intermediate outcomes, goals, and commitments.</p> <p>Monitor: Agriculture and Agri-Food Canada has systems and practices in place to verify the quality of the information used to obtain data, and to measure and report on greenhouse gas emission reductions and carbon removals. This includes having methodologies in place to reliably count reductions of greenhouse gas emissions and carbon removals associated with the program activities, namely the beneficial management practices implemented by recipients of the funding, and for verifying that the data reported, or obtained through inspections, was complete, accurate, and timely.</p> <p>Outputs, annual results, targets, immediate and intermediate outcomes, goals, and commitments: These come from Agriculture and Agri-Food Canada performance-related documents as well as from selected federal climate change–related plans and strategies. The selected list of measures includes those focused on reductions of greenhouse gas emissions and carbon sequestration, as well as those that support sustainable development and equity, diversity, and inclusion, and gender-based analysis plus commitments.</p>	<ul style="list-style-type: none"> • Policy on Results, Treasury Board • Directive on Results, Treasury Board • <i>Federal Sustainable Development Act</i> (amended 2020) • Minister of Agriculture and Agri-Food Canada mandate letters, 2021 • Policy on Transfer Payments, Treasury Board • Directive on Transfer Payments, Treasury Board • 2022–23 Departmental Plan, Horizontal Initiatives Supplementary Information Table, Natural Resources Canada • Agriculture and Agri-Food Canada’s program logic matrices, performance information profiles, and related documents that present the expected outcomes of the programs • 2023 to 2027 Departmental Sustainable Development Strategy, Agriculture and Agri-Food Canada
<p>Agriculture and Agri-Food Canada appropriately applies departmental and federal controls for the review, approval, and prioritization of applications.</p> <p>Appropriately means in a consistent, fair, equitable, transparent, and timely manner. This also includes examining whether Agriculture and Agri-Food Canada has proper oversight controls in place for the review and approval of applications by third-party delivery agencies contracted to help the department deliver the On-Farm Climate Action Fund program.</p>	<ul style="list-style-type: none"> • Policy on Results, Treasury Board • Directive on Results, Treasury Board • Policy on Transfer Payments, Treasury Board • Directive on Transfer Payments, Treasury Board • Agriculture and Agri-Food Canada policies, directives, guidelines, and procedures for grants and contributions programs • Agriculture and Agri-Food Canada program application assessment guides, and standard operating procedures for the review and approval of applications

Period covered by the audit

The audit covered the period from 1 January 2021 to 31 January 2024. This is the period to which the audit conclusion applies. However, to gain a more complete understanding of the subject matter of the audit, we also examined certain matters that preceded the start date of this period.

Date of the report

We obtained sufficient and appropriate audit evidence on which to base our conclusion on 16 April 2024, in Ottawa, Canada.

Audit team

This audit was completed by a multidisciplinary team from across the Office of the Auditor General of Canada led by Markirit Armutlu, Principal. The principal has overall responsibility for audit quality, including conducting the audit in accordance with professional standards, applicable legal and regulatory requirements, and the office's policies and system of quality management.

Recommendations and Responses

Responses appear as they were received by the Office of the Auditor General of Canada.

In the following table, the paragraph number preceding the recommendation indicates the location of the recommendation in the report.

Recommendation	Response
<p>5.29 To ensure that Agriculture and Agri-Food Canada can meaningfully contribute to Canada’s 2030 and 2050 climate change targets, including the fertilizer and methane emission reduction commitments, the department should finalize and implement a sustainable agriculture strategy with actions that include</p> <ul style="list-style-type: none"> • establishing measurable outcomes based on best available science, with concrete deliverables, accountabilities, timelines, performance metrics, and a plan to monitor progress • undertaking analysis to ensure policy coherence among its programs and with programs of the department’s federal-provincial-territorial partners • expediting the development of a data strategy to address data and measurement challenges at the farm, regional, and national levels • assessing the funding and resources needed to successfully implement the strategy and the department’s climate change mitigation programs and activities to lead to permanent emission reductions through to 2050 • reporting on the costs of the department’s climate change mitigation programs and activities against the greenhouse gas reductions achieved by those programs and activities 	<p>The department’s response. Agreed. AAFC is committed to finalizing the Sustainable Agriculture Strategy (SAS) in 2024. The SAS will be an evergreen document that guides all actors to advance sustainability in the sector and will create coherence across current and future federal, provincial, and territorial programs and policies. The SAS will include a series of principles and a suite of measurable goals, outcomes, and indicators to report on progress around environmental issues, such as methane and fertilizer emissions, and will identify approaches to addressing outstanding data gaps. A governance and reporting structure, that includes accountabilities and timelines, will be established, however, reporting on costs and GHG reductions from AAFC programs will be done through existing mechanisms such as departmental reporting and the ECCC-led Emissions Reduction Plan. Although the SAS is intended to cover actions for all parts of the sector, AAFC will assess the need for additional federal funding and resources periodically through standard processes. The federal response to the SAS is expected to follow in 2024/2025. This will be completed by December 31, 2025.</p>

Recommendation	Response
<p>5.37 To minimize administrative lag times, enable longer-term project planning, and support the continuity and sustainability of its climate change mitigation programs, Agriculture and Agri-Food Canada should</p> <ul style="list-style-type: none"> • inform, as soon as possible, delivery organizations administering the On-Farm Climate Action Fund, and lead partners implementing the Living Labs program, whether they will have their contribution agreements extended to the end of the programs • ensure that any future iterations of its climate change mitigation programs improve the timeliness of the review and approval of applications and the finalization of contribution agreements to avoid delays in project implementation 	<p>The department’s response. Agreed. Agriculture and Agri-Food Canada will support the continuity and sustainability of its climate change mitigation programs through ongoing improvements and regular and timely communication with recipients and partners, including about the renewal of contribution agreements. The Department will implement lessons learned, such as those from the second intake of the Agricultural Clean Technology Program—Adoption Stream, to improve the timeliness of application approvals and the finalization of contribution agreements for future iterations of its climate change mitigation programs. Planned program improvements will be completed for the Agricultural Climate Solutions - On-Farm Climate Action Fund by September 30, 2024, for the Agricultural Clean Technology Program by September 30, 2025, and for the Agricultural Climate Solutions—Living Labs by September 30, 2026.</p>
<p>5.41 To achieve the expected reductions of greenhouse gas emissions by 2030, and help achieve greater reductions to 2050, Agriculture and Agri-Food Canada should</p> <ul style="list-style-type: none"> • identify and implement concrete actions to expedite the reduction of greenhouse gas emissions from its climate change mitigation programs and activities • finalize measurable, time-bound targets for the programs and publish annual results reports on the progress achieved against the programs’ expected results, in particular, on reductions of greenhouse gas emissions 	<p>The department’s response. Agreed. Agriculture and Agri-Food Canada will identify additional actions that could expedite the reduction of GHG emissions through its climate change mitigation programs and activities, by assessing and prioritizing projects and beneficial management practices with the greatest benefit to climate change mitigation objectives as one of the primary assessment criteria. The department will enhance approaches to quantify emissions reductions through improvements to program data collection and analysis, including as new scientific and technical input is available. The department will implement a measurement, reporting and validation approach to support novel, promising BMPs as part of the extension of the On-Farm Climate Action Fund. The Department will review and finalize program performance indicators to ensure that they are reasonable, measurable and time-bound, and progress against expected results under AAFC programs will be published annually. These actions will be completed by March 31, 2025.</p>

Recommendation	Response
<p>5.50 To enable the accurate, timely, and transparent assessment of results and the ability to roll up greenhouse gas emission reduction data across its projects and programs, Agriculture and Agri-Food Canada should implement a results monitoring framework that includes</p> <ul style="list-style-type: none"> • providing specific requirements and guidelines for data submission by recipients • verifying the quality and accuracy of the data being provided by recipients to ensure consistency and to permit timely course correction where needed • verifying the extent to which the adopted beneficial management practices and clean technology would result in permanent reductions of greenhouse gas emissions 	<p>The department’s response. Agreed. AAFC will review its practices for measurement, verification and reporting of results from its programs and will improve its methodologies over the coming years to ensure that it can accurately roll up results of its programming and report it to Canadians. This will include the review of program guides and other requirements for data submission by recipients. AAFC’s modelling capacity enables accurate estimates of environmental outcomes from established beneficial management practices (BMPs), and measurement will evolve over the life of these programs as science advances and data gaps are addressed. While AAFC takes a risk-based approach to the permanence of emissions reductions from BMP adoption, the department will reassess permanence assumptions, over the life of these programs, to evolve its approach based on the evidence available and in consideration of climate change adaptation strategies. Many other factors affect producers’ decisions and the outcomes of BMPs, such as market forces, climate considerations and changing technology beyond the results of these programs. By March 31, 2025, AAFC will explore other opportunities to enhance measurement, reporting and validation approaches for these programs.</p>

