TEAMALBERTA

ADVANCING ALBERTA'S CROP SECTOR TO 2025 AND BEYOND

August 31, 2022

Hon. Marie-Claude Bibeau
Minister of Agriculture
House of Commons
Ottawa, ON
K1A 0A6

via email: Marie-Claude.Bibeau@parl.gc.ca

Re: Discussion Document: Reducing emissions arising from application of fertilizer in Canada's agriculture sector

Dear Minister Bibeau,

On behalf of Team Alberta Crops, we are pleased to take this opportunity to provide feedback on the Government of Canada's Discussion Document – Reducing emissions arising from the application of fertilizer in Canada's agriculture sector.

Team Alberta Crops is a collaboration between Alberta Canola, Alberta Pulse Growers, Alberta Sugar Beet Growers, Alberta Wheat and Alberta Barley Commissions, Potato Growers of Alberta, Alberta-British Columbia Seed Growers, and the Alberta Beekeepers Commission. Our organizations are directed by elected producers to represent the interests of over 20,000 farmers and commercial honey producers across Alberta in the areas of research, education and extension, policy development and advocacy. Collectively, our organization represents 30% of Canada's seeded acres and 30.5% of Canada's primary honey production. All commissions are members of national commodity and farm organizations. Along with our own submission, we encourage your Ministry to thoroughly review and give the utmost consideration to the submissions and feedback from our partner organizations through this critical period of policy development[1].

The national target to reduce absolute levels of greenhouse gas (GHG) emissions arising from fertilizer application by 30% below 2020 levels by 2030 is an aggressive and well-intentioned goal. However, it is critical that federal policies pertaining to agriculture reflect the paramount importance of food security and that our legislative and regulatory environment enables Canadian producers to meet rising demand, especially in the face of global disruptions.

[1] *Canola Council of Canada, Canadian Canola Growers Association, Canadian Honey Council, Canadian Potato Council, Canadian Seed Growers' Association, Cereals Canada, Grain Growers of Canada, Pulse Canada.*

Alberta Barley | Alberta Beekeepers Commission | Alberta Canola Producers Commission | Alberta Pulse Growers | ABCSG Alberta-British Columbia Seed Growers | ASBG Alberta Sugar Beet Growers | Alberta Wheat Commission | PGA Potato Growers of Alberta

To accurately understand fertilizer emissions, it is essential to consider and measure practices and continual improvements producers have made in fertilizer emission reductions in the past and present. The Government of Canada should also increase the priority placed toward investment in research and innovation which has great benefit toward achieving emission reduction targets; as well as considering other incentives to encourage the adoption of beneficial management practices (BMPs) toward improved nutrient management and uptake of new technology. The Alberta crop sector would like to see these practices accounted for by a focus on intensity emission reductions rather than absolute emission reductions.

Ongoing geopolitical issues such as the Russia-Ukraine conflict and the political instability in the Netherlands and Sri Lanka caused by misguided ag policy re-emphasized the importance of food security and the critical role access to a stable and reliable food source that is produced in an ethical, social and environmentally responsible manner. Despite alarming levels of food inflation and supply chain disruptions, there remains a disturbing disconnect between producers and consumers based on widespread misconceptions or lack of awareness of modern agriculture practices, including innovative 4R fertilizer management practices. BMPs have been widely and voluntarily adopted and utilized for years to promote sustainable agriculture by minimizing environmental impacts and cost inputs while maximizing productivity.

Alberta Crop Sector GHG Sources and Sinks

Alberta has one of the best track records in the entire world with respect to reducing crop sector emissions and increasing carbon sinks. The following tables and graphs highlight the strides the Alberta crop sector has made. They were produced in a report from Biological Carbon Canada titled "Assessing Greenhouse Gas Sources and Sinks in the Crop Sector: Alberta and Manitoba". The full document can be found here.

Table S.1. Alberta Crop Sector GHG Sources and Sinks (parentheses indicate sequestration/sink)

Source/Sink	1985 (Mt CO_2eq)	2016 (Mt CO_2eq)	Entire period (1985-2016) (Mt CO_2eq)
Soil carbon sequestration/sink	(0.05)	(6.06)	(66.46)
Emission from nitrogen fertilizer application	0.99	1.59	38.68
Emission from crop residue	1.07	1.99	48.38
Emission from summerfallow	0.40	0.07	9.13
Emissions from fuel used in crop production and transportation	1.26	2.37	56.439
Net GHG balance (net GHG balance = GHG source - GHG sink)	3.66	(0.035)	86.172

Figure S.1. Alberta Net GHG Balance for the Crop Sector (1985-2016)

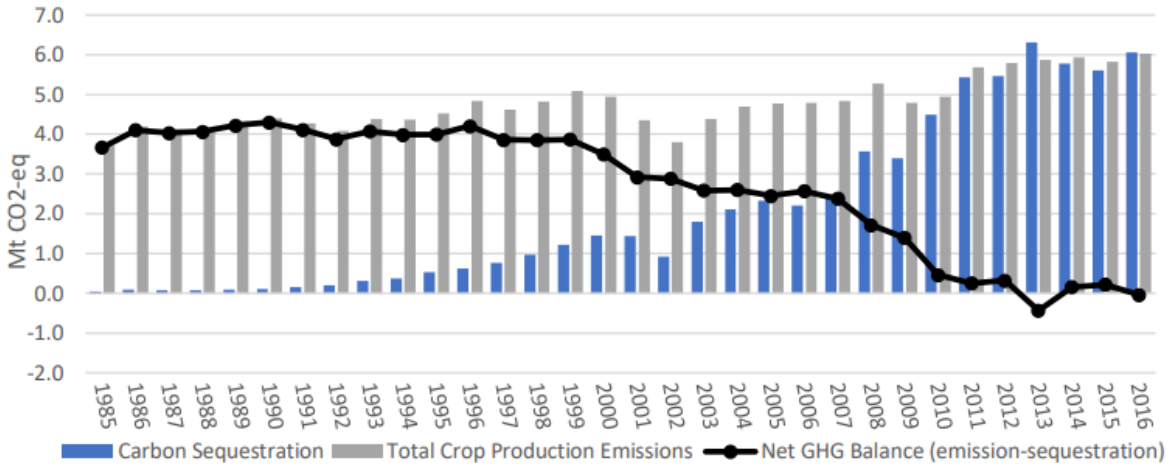
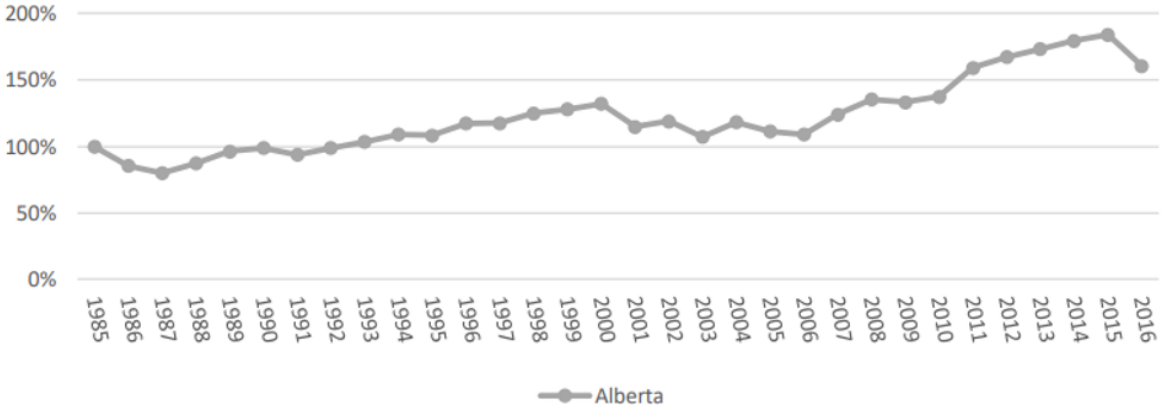


Figure 6.1.2. Alberta Emission from Nitrogen Fertilizer Application (1985–2016)

(a) Alberta aggregate level



(b) Alberta soil zone level

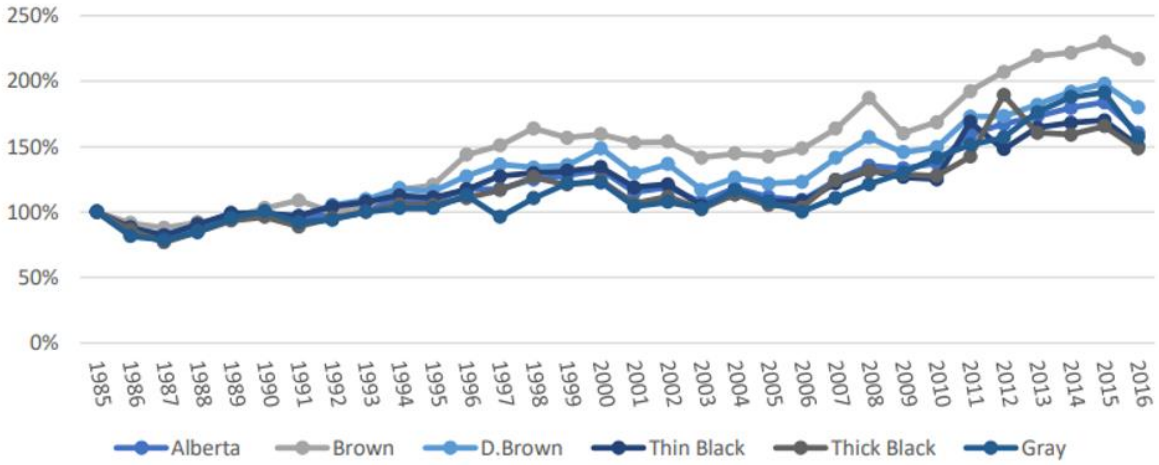
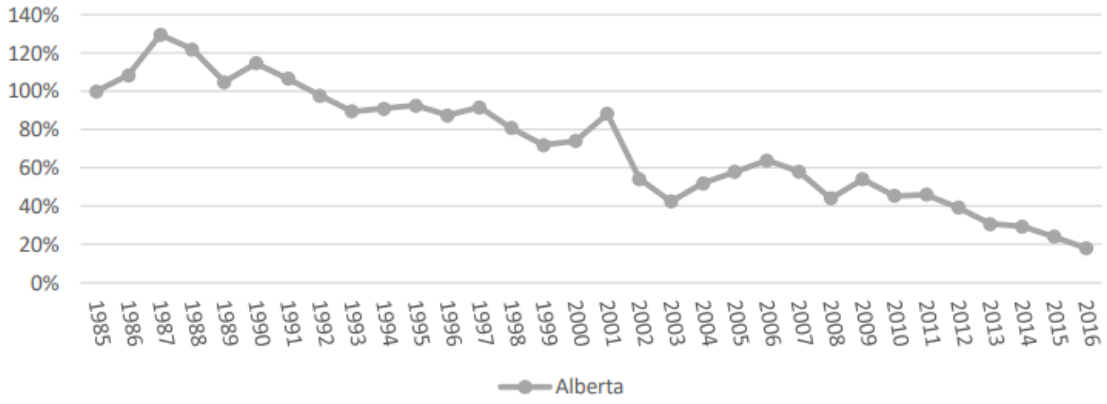


Figure 6.1.4. Alberta Emission from Summerfallow (1985–2016)

(a) Alberta aggregate level



In 2016, the Alberta crop sector was already a net sink for greenhouse gases. While nitrogen fertilizer emissions have increased, these emissions are estimates from the National Inventory Report (NIR), which fail to capture practice changes and fertilizer use efficiencies that have been achieved. Thus, the emissions from fertilizer presented above overestimate emissions from nitrogen fertilizers. The approach used for the NIR is not sufficient for the fertilizer emission calculations. The NIR methodology relies solely on bulk provincial sales of fertilizer, which is then attributed to ecoregions and crop utilization assumptions and the corresponding coefficients.

The method does not account for the following technologies and practice changes and therefore it is unclear how any progress toward the emission reduction target will be measured until the methodology is developed.

1. **The 4R Nutrient Stewardship**

Currently, Canada's modelling for nitrous oxide emissions does not account for differences from many 4R fertilizer management practices. The 4R practices including soil sampling to ensure the right source, the right rate, the right time and the right placement and their corresponding reduction in fertilizer emissions are not captured in the current modelling and estimates in the NIR. The 4R **beneficial** management practices currently employed by Alberta farmers are not yet recognized and accounted for and therefore cannot be meaningfully counted toward emission reduction targets.

2. **Variable Rate Technology**

Variable Rate Technology allows farmers to apply fertilizers with a prescribed map over zones of their field. This technology reduces fertilizer application where it is not needed and increases application where it is, resulting in the right place and the right time across fields maximizing productivity and efficiency of nutrient use.

3. **Sectional Control Technology**

One of the most promising means of reducing crop inputs in general, and especially fertilizer, includes the adoption of sectional control. Fields are variable in size and shape and sectional control can greatly reduce the amount of overlap on headlands and around wetlands, woodlots, and riparian areas. Parkland regions of the prairies could achieve 8-12% reduction in overlap with today's new air seeders. This technology allows farmers to reduce their overlap substantially, save money and save overapplying fertilizer. This technology is still very costly; however, we see more farmers electing for the technology and more acres in Alberta being seeded every year with this technology. The federal government needs to meaningfully be able to account for these fertilizer use reductions and encourage more widespread adoption through grants, tax incentives and continued funding of research. Please see the Prairie Agricultural Machinery Institute Study available on the Alberta Pulse Growers website. https://albertapulse.com/2021/02/sectional-control-technologies-phase-2-report-now-available/

4. **Environmentally Smart Nitrogen and Nitrification Inhibitors**

Environmentally Smart Nitrogen (ESN) and nitrification inhibitors represent massive emission reduction potential. Many farmers in Alberta are already utilizing a practice referred to as layering. Layering is using multiple modes such as nitrogen stabilizers and nitrification inhibitors which results in one, two or three layers of functional nitrous oxide reduction. The slower release of nitrogen restricts hydrolysis and ammonia losses as well as leaching in heavy rainfall events. The NIR does not account for the emission reductions to date from the adoption of ESN and nitrification inhibitors. The federal government can play a role through rebates and grants to lower the cost of these technologies and increase the adoption across more acres.

5. Sound Agronomic Crop Rotations

Crop rotation is a key component to managing soil health and pests. Rotating between cereal, oilseed, pulse and specialty crops is a good agronomic practice that increases nutrients available for crops thanks to the ability of pulse crops to fix their own nitrogen from the atmosphere. In 2020, the 3.5 million hectares of pulse crops grown across Canada reduced greenhouse gas emissions within the cropping systems by approximately 3.6 million tonnes (CO_2 eq). The federal government must continue to invest in research, including through the Agricultural Climate Solution's Living Labs initiative, to continue to advance good soil stewardship the inclusion of pulses in rotation as well as cover crops, companion cropping and intercropping. Data gaps and modelling must be advanced in order to accurately capture gains toward emission reductions.

6. Regulated Carbon Offset Protocols

Team Alberta Crops urges the Government of Canada to work with farm organizations, Biological Carbon Canada, and the provincial government to make improvements to the Nitrogen Emission Reduction Protocol (NERP) to ensure that farmers can be recognized for their continued emission reductions. Other protocols, for avoided grassland conversion, retention of Alberta wetlands which sequester carbon as well as ESN and nitrous oxide inhibitors should be explored. Enhanced soil carbon offsets should also be accelerated so farmers are not penalized with carbon taxes, while not being compensated for their carbon removals. A commitment to work with farmers to accelerate the number of offset protocols will result in fewer emissions, larger sinks and a path to a low-carbon economy.

Team Alberta Crops Commitment to Developing an Emission Reduction Plan that Works for Farmers

Alberta producers are proven leaders when it comes to the innovation and adoption of innovative technologies and practices that maximize efficiency, productivity and environmental sustainability.

The federal government's proposed fertilizer emission reduction targets have resulted in a strong, united response from farmers across Canada. Alberta farmers have been adopting beneficial management practices for decades, which are not yet recognized and accounted for in the NIR. By 2016 Alberta farmers were already net neutral without fertilizer estimates recognizing the reduction provided by BMPs, technology and stewardship. For this reason, Team Alberta Crops must make clear that any mandates to limit nitrogen fertilizer are unacceptable.

Team Alberta Crops is ready to engage in further consultations to accelerate the development of incentives and feasible timelines to support the adoption of solutions that already exist to reduce fertilizer emissions. The federal government needs to invest in accelerating adoption of nitrous oxide limiting practice beyond where Alberta farmers currently stand. A continued commitment to research and development, continued collaborative funding agreements such as the Canadian Agricultural Partnership funding will accelerate fertilizer use efficiency, innovation and technological advancements. Team Alberta Crops partners know the proposed fertilizer emission reduction targets are achievable if the government can commit to meaningful consultation, engagement and funding commitments.

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The Alberta crop and beekeeping sectors are important contributors to the Canadian economy and important exporters our trading partners rely on. We are committed to working to ensure our industries remain competitive. Alberta is leading the country in agricultural sustainability, and we will continue to reduce our overall footprint. Team Alberta Crops supports intensity-based fertilizer use that reduces emissions by maximizing production and efficiencies. Our producers can not be penalized by any imposed limits on fertilizer use and will continue to reduce fertilizer emissions in absence of government regulation.

Team Alberta Crops remains committed to working together to achieve emissions reductions Canada's transition to a lower carbon economy.

In summary, Team Alberta Crops recommends the Government of Canada:

1. Update the methodology behind the National Inventory Report to track the impact of beneficial management practices, technology, regionality (including eco-regions and other moisture and relevant variables) to estimate fertilizer emissions more accurately on farms.

2. Continue to invest in the research, development, adoption and utilization of emission reducing technologies and innovations.

3. Work with industry groups on solutions to increase the adoption and utilization of beneficial management practices.

4. Work with producers, industry groups, and the Department of Finance to develop and deploy tax incentives for the purchase of emission reducing technologies such as variable rate control, sectional rate control and other emission inhibiting technologies for use in primary agricultural production.

5. Avoid implementing an absolute reduction in fertilizer usage including any cross-compliance measures implemented via the Canadian Agricultural Framework or other extension programming.

6. When developing any policy, recognize the reduction in emissions producers have already achieved (including prior to the 2020 baseline proposed) through the utilization of technology and beneficial management practices so that early adopters are treated fairly for their emission reductions already achieved.

7. Recognize food security as a top priority and ensure Canadian producers have the competitive and regulatory environment that enables productivity to be maximized so the Canadian agriculture industry is capable of meeting continual increases in demand nationally and globally.

Please reach out to Team Alberta Crops to consult, find common ground, and explore ways to mitigate emissions and adapt to our changing climate.

Alberta Barley
Alberta Beekeepers Commission
Alberta Canola Producers Commission
Alberta Pulse Growers
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Visit www.teamalbertacrops.com to learn more about Team Alberta Crops stewardship, policy and advocacy work.

Respectfully yours,

Tara Sawyer, Chair, Alberta Barley

Jeremy Olthof, Chair, Alberta Beekeepers Commission

Roger Chevraux, Chair, Alberta Canola Producers Commission

Robert Semeniuk, Chair, Alberta Pulse Growers

Tracy Niemela, Chair, Alberta Seed Growers

Gary Tokariuk, Chair, Alberta Sugar Beet Growers

Greg Sears, Chair, Alberta Wheat Commission

James Bareman, Chair, Potato Growers of Alberta

Cc. Agriculture and Agri-Food Canada

Hon. Nate Horner, Minister of Agriculture, Forestry and Rural Economic Development

Alberta Barley

ALBERTA BEEKEEPERS COMMISSION

ALBERTA CANOLA PRODUCERS COMMISSION

ALBERTA PULSE GROWERS

ABCSG Alberta-British Columbia Seed Growers

ASBG Alberta Sugar Beet Growers

Alberta Wheat COMMISSION

PGA POTATO GROWERS OF ALBERTA