



Input on Agriculture and Agri-Food Canada's 2022 Discussion Paper

*'Reducing emissions arising from
the application of fertilizer in
Canada's agriculture sector.'*¹

OUR ORGANIZATION'S OBSERVATIONS AND ADVICE

Biological Carbon Canada | August 2022



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August 22, 2022

Biological Carbon Canada
101-5101-50 Ave, #906
Leduc AB T9E0B9



Hon. Marie-Claude Bibeau
Minister
Agriculture and Agri-Food Canada
1341 Baseline Road
Ottawa, Ontario K1A 0C5

By Email: Marie-Claude.Bibeau@parl.gc.ca & to: aafc.fertilizer-
engrais.aac@agr.gc.ca

Dear Minister,

Enclosed are stakeholder and member comments and concerns. They relate to the voluntary targets of the Government of Canada for the N₂O emissions created by the agricultural farming industry, specifically from fertilizer use on Canadian farms.

We welcome any follow-up and questions your Ministry officials may have.

Sincerely,

PER: Biological Carbon Canada
Graham Gilchrist, P.Ag.
CEO

A handwritten signature in black ink, appearing to read 'Graham', is written over the printed name 'Graham Gilchrist'.

CC chrystia.freeland@fin.gc.ca
CC ministre-minister@ec.gc.ca
CC ministerofsi-ministredeisi@ised-isde.gc.ca
CC robert.black@sen.parl.gc.ca
CC Kody.Blois@parl.gc.ca



Background

In 2020, the Government of Canada announced a voluntary reduction in emissions from fertilizers and other sources for the agricultural sector. They reiterated this in their 2022 report.


*2030 EMISSIONS REDUCTION PLAN
Canada's Next Steps for Clean Air and a Strong Economy*

Page 65 - Under Canada's strengthened climate plan, Canada committed to setting a national fertilizer emission reduction target of 30% below 2020 levels by 2030 and to work with fertilizer manufacturers, farmers, provinces, and territories, to develop an approach to meet it.

The target is an absolute emission reduction of 30% from 2020 levels.

In 2022, the Ministry of Agriculture and Agri-Food Canada (AAFC) published a discussion paper on achieving this reduction target.

There has been significant discussion in the farm press. Below is a quick summary of articles provided by Olds College to an AgSmart audience in August 2022.



Headlines from the past 7 days

"It's shocking": Sask. farmers react to federal government's proposed cutdown on fertilizer emissions.

By Brady Robbitt - Global News

Published: August 2, 2022 9:45 AM

Farmers blast feds for 'uninformed' fertilizer emissions proposal.

By Brady Robbitt - Global News

Published: August 2, 2022 9:45 AM

Feds seek more input on plan to reduce fertilizer emissions.

By Brady Robbitt - Global News

Published: August 2, 2022 9:45 AM

Trudeau pushes ahead on fertilizer reduction as provinces and farmers cry foul.


By Brady Robbitt - Global News

Published: August 2, 2022 9:45 AM

Farmers worried emission targets could impact crop yields if fertilizer use is reduced.

By Brady Robbitt - Global News

Published: August 2, 2022 9:45 AM





Quotes from the past 7 days

"Western Canadian producers base fertilizer inputs on realistic targets based on moisture availability. Producers are conservative in the use of fertilizer inputs and don't add more than what is needed. They alone cannot shoulder the impact of this shortsighted policy."

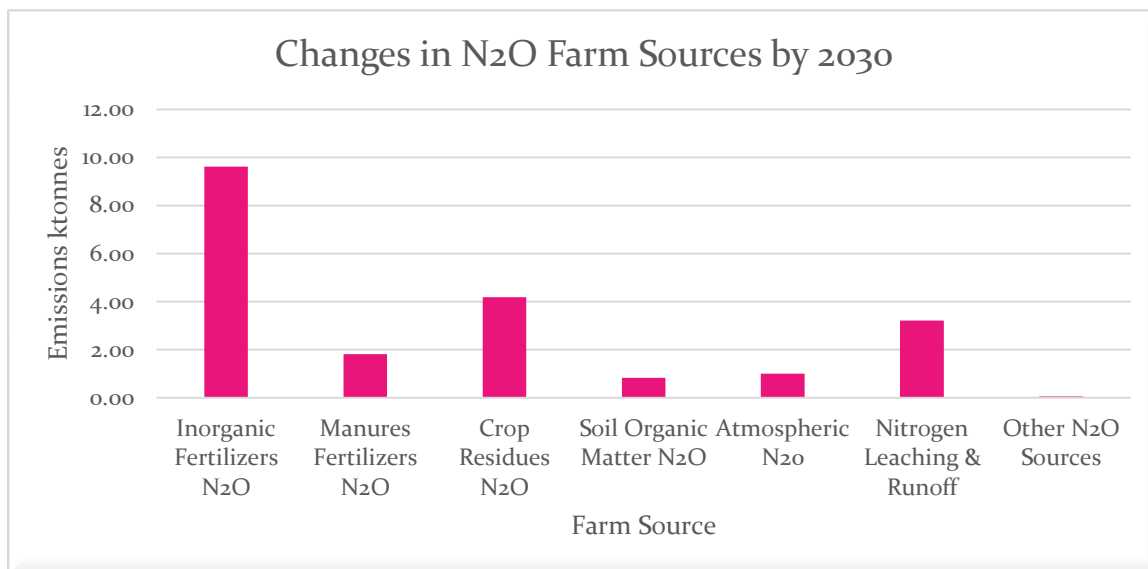
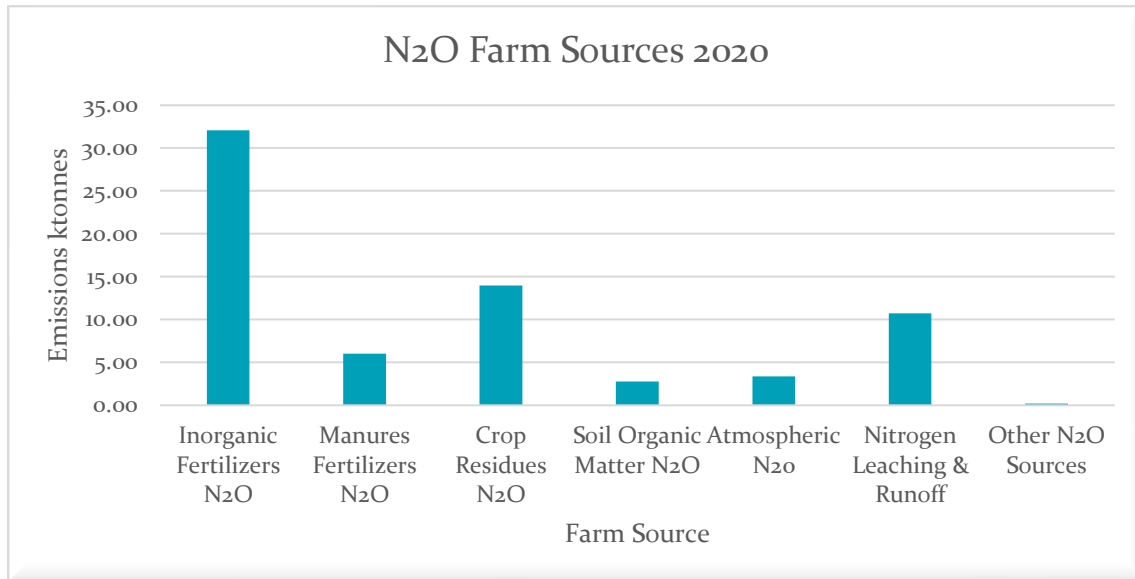
"Western Canadian farmers already produce the most sustainable agri-food products in the world, and they're continually being asked to do more with less. We cannot feed the growing world population with a reduction in fertilizer."

"4R nutrient stewardship is a made in Canada approach that promotes environmental stewardship through best practices in science-based management...achieve better environmental outcomes without reducing much needed food production. Western Canada already accounts for almost all of the acres under 4R management in Canada."



Stakeholder and Member Observations

Examining the background tables published by Environment and Climate Change Canada (ECCC), we see the following emission levels.



The graphs above identify seven farm sources of N₂O. The red chart is the amount the farm industry should remove from each source to reach the 2030 target.

Eliminating nitrogen leaching (3.22kt), lowering both N₂O from manure applied (1.8 kt), and reducing crop residue emissions (4.19 kt) would lower the pressure on the emission target (9.6 kt) from inorganic fertilizer.

Action - AAFC must expand its plan and fully engage the agricultural commodities to address the other six N₂O sources identified in ECCC's emission tables.

Action – AAFC and ECCC must address an effective national strategy to lower nitrogen leaching by enhancing efforts to conserve and restore wetlands and their accompanying uplands.



An example of a wetland with surrounding uplands.

Stakeholder and Member Advice and Input

- 1) APPLY THE SAME PROCESSES OUTLINED IN 4R TO MANURE MANAGEMENT AND THE ON-FARM APPLICATION OF MANURE IN CANADA.

The 4R process is as follows:

- RIGHT SOURCE - Matches fertilizer type to crop needs.
- RIGHT RATE - Matches amount of fertilizer type crop needs.
- RIGHT TIME - Makes nutrients available when the crop needs them.
- RIGHT PLACE - Keep nutrients where the crop can use them.

We believe that manure applications as fertilizer should receive the same quality approaches as other fertilizers. The manure plan includes applications to meet the crop needs and incorporation and not just applications to clean out the manure pile.

Action - Notwithstanding the provincial mixed matrix of manure regulations, the incorporation of manure management¹ in all federal support programs must be considered, including supply management.

Impact – Fewer emissions from manures and less nitrogen leaching.



BMP of Manure Incorporation

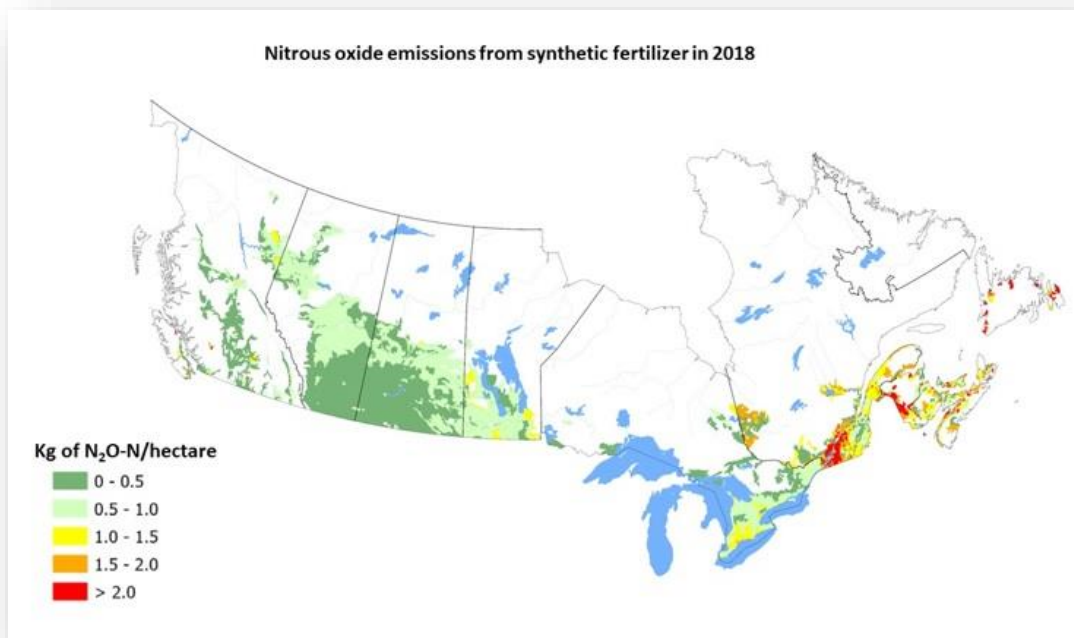
¹ To be clear, it is the deliberate collection and application of manure on a parcel and not the natural deposition by an animal.

- 2) IMPROVE AAFC EFFORTS, ESPECIALLY IN THE DRAINAGE BASIN OF ST. LAWRENCE, TO SIGNIFICANTLY REDUCE NITROGEN LEACHING INTO THE DRAINAGE BASINS.

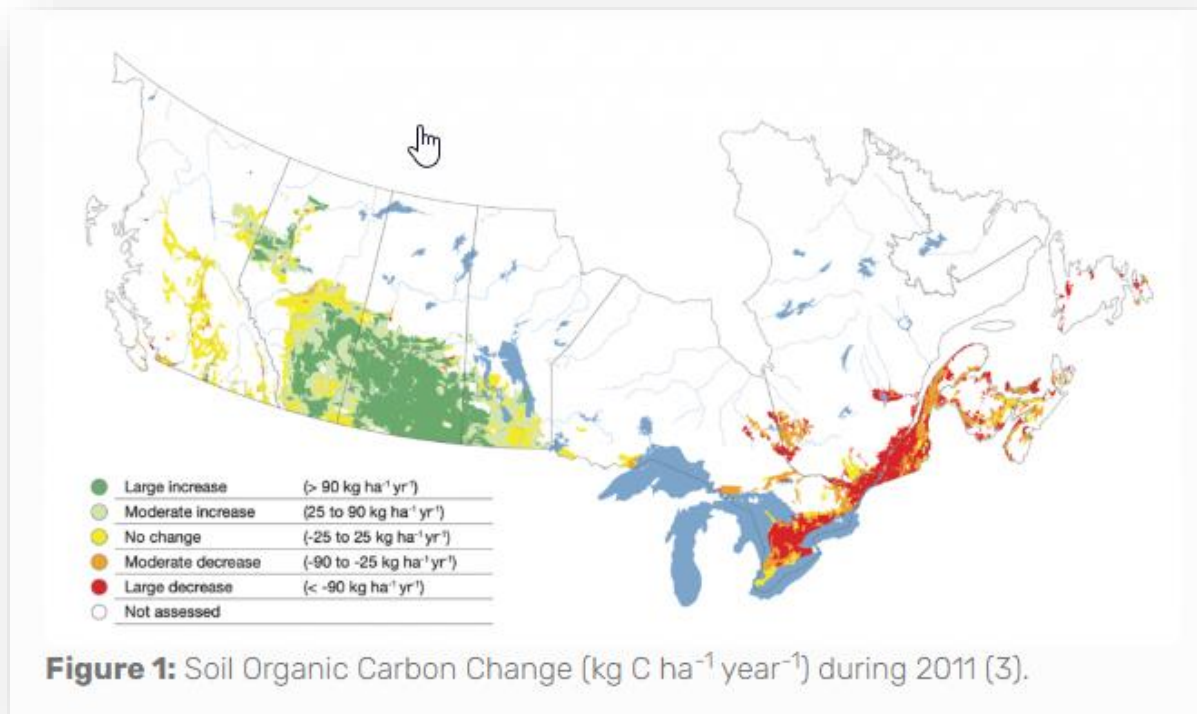
AAFC reports show soil losses, leaching, and other 'red' zones. The maps below show where these red zones are in Canada.

Action - AAFC should direct significantly more resources to these red zones.

Example 1 – Source AAFC



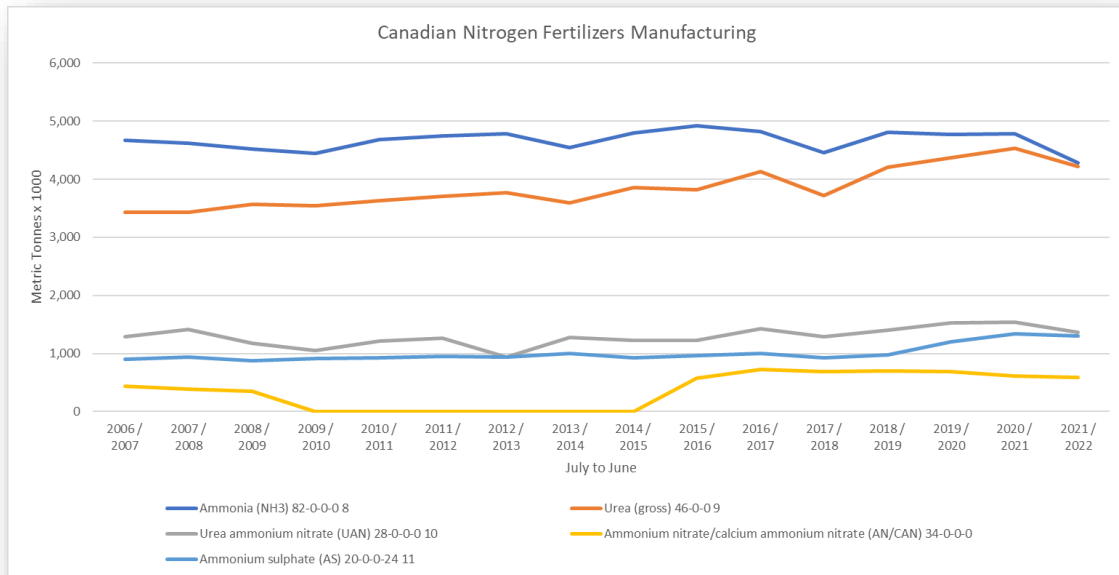
Example 2 – Soil losses. Source AAFC



Impact – Targeting high-risk areas better the ability of Canada to meet N_2O reduction targets.

3) REVERSE THE 2008 POLICY ON SELLING AMMONIA NITRATE FOR FARM USE IN CANADA.

Canada still produces various nitrogen sources of fertilizers. As a result, Canadian farms need choice in their nitrogen sources.



Action - AAFC should study and report to the farm community the various footprints of fertilizer manufacturing and the coefficients of nitrate and ammonia-based fertilizers.

Action - AAFC should support manufacturers producing low GHG coefficient fertilizers.

Impact – Canadian farms should employ low GHG coefficient products.

4) CONCENTRATE ON THE DEVELOPMENT OF UNIT STANDARDS AND MARKET INSTITUTIONS.

Markets are the vehicle for building cross-government labor and GDP growth goals.

New legislation and policy are required on two carbon issues: standards and market integrity (institutions) for scaling.

BCC agrees with the approach taken by the Integrity Council for the Voluntary Carbon Market but offers a made-in-Canada approach.

A Quality Market Product (Standards)

There should be one standard for creating a tonne of GHG reduction, avoidance, or soil sequestration.

ECCC has set the standard for the creation of a Canadian **regulatory offset**. However, the high standard does not exist in the four other markets.

There are at least ten different designs of offsets in the **voluntary markets**. These are:

- Clean Development Mechanism (CDM)
- Gold Standard (GS)
- Voluntary Carbon Standard (VCS)
- VER+
- The Voluntary Offset Standard (VOS)
- Chicago Climate Exchange (CCX)
- The Climate, Community & Biodiversity Standards (CCBS)
- Plan Vivo System
- ISO 14064-2
- WRI/WBCSD GHG Protocol for Project Accounting

The other three markets with no protocols and mixed verification standards. These are:

Insetting – This is where scope 1 to 3 emissions are bundled for GHG footprinting of the finished product. An example is a box of Cheerios from General Mills or several labels from New Zealand vineyards.

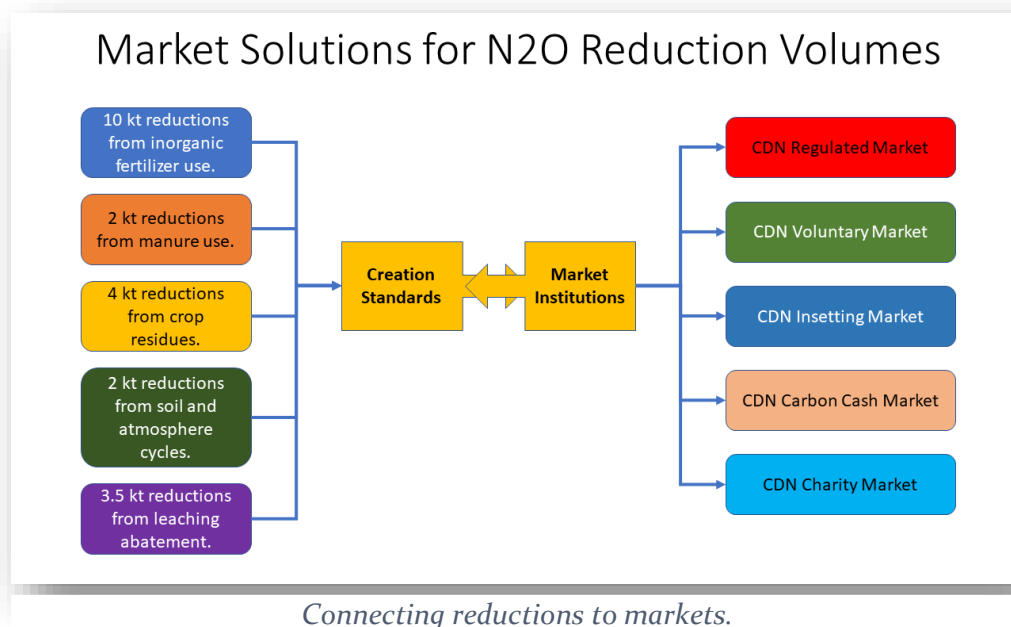
Supply chains do buy carbon data². An example is a premium TrustBix gets for Verified Beef in Canada.

Cash – Firms are selling the carbon data difference between yearly on-farm measurements. They are also creating utility tokens that represent GHG reductions.

Charity – Various charities are adding carbon attributes to their management agreements and easements.

Action - AAFC and ECCC must create in Canada one standard for a tonne of carbon achieved through a reduction, avoidance, or sequestration technology.

Action - AAFC and ECCC should examine trade issues when carbon offsets and data are exported from Canada for business use in other jurisdictions. AAFC should also examine USMCA Article 24.24: Environmental Goods and Services for supporting farm-based production of GHG services.



² A pea processor is paying \$0.30/bu premium when the GHG data delivery is bundled with the pea delivery contract.

Market Trust and Scale (Institutions)

Institutions in Canada should exist to provide carbon market oversight. Other institutions and their market functions already exist for different commodities and securities.

All parts of the carbon supply chain must have trust and transparency.

Action - AAFC should engage the Office of the Superintendent of Bankruptcy Canada to examine the ability of the farm supplier to protect ownership of an offset or other instrument in a bankruptcy or creditor arrangement. For example, paying a farmer for the carbon offset should be prioritized over any other creditor.

Action - AAFC should engage the Office of the Superintendent of Insurance to examine the ability of the market to provide products underwriting the risks in creating GHG offsets or other instruments.

Action – AAFC should examine the language in the *Canada Grains Act*³ for a new Act and its application to regulating trade in Canada for carbon⁴.

Impact – GHG reductions, investments, and other issues will be subject to and benefit from a fully functioning carbon market.

5) ENHANCE TAX POLICY TO SUPPORT THE TECHNICAL COMPETENCE OF THE FARM SUPPORT AND SERVICE PROFESSIONALS IN CANADA.

All Agrologists in Canada have both certification requirements and professional development requirements.



An advisor in the field.

³ Canada Grain Act (R.S.C., 1985, c. G-10)

⁴ The Act has two key principles. These are payment certainty and grading. BCC tested the Act by replacing the word 'grain' with the word 'carbon' in the Act and found the language used was a natural fit for regulating carbon.

An Agrologist uses this to keep abreast of the ever-changing scientific literature and adopts that knowledge to meet client needs. That Agrologist may pay for this annual upgrading from business expenses or be in a position where an employer pays.

The new field of GHG reductions impacts agrology practices. It will range from those who practice agronomy and crop husbandry to those in carbon markets and farm management.

Action - AAFC and Finance Canada must examine equitable tax policy approaches to support Agrologists in their technical development needs in the areas of GHG reductions.

Impact – Lower the risk of on-farm adoption.

6) ENHANCE INVESTMENT IN BASE SCIENCE.

When BCC created the on-farm GHG footprint calculator, we found holes in the scientific literature when looking for coefficients in the areas of reductions, avoidances, and sequestration practices.

Action - AAFC should expand research linkages between academic institutions, industry research, and other researchers to build a broader understanding of GHG reductions, avoidances, and soil carbon improvements.

Impact – Coefficients are needed by ecozone and for adopted practice/technology.

7) ENHANCE TAX POLICY TO ASSIST NEW TECHNOLOGICAL ADVANCEMENTS AND ADOPTION.

The agricultural sector is announcing a series of commodity plans for net zero, and many have new technology in their goals. They indicate new technology is needed to create GHG reductions, avoidances, and soil carbon improvements.

Action - AAFC and Finance Canada must enhance strategic capital investment in GHG technology.

Impact – Lower the risk of accessing capital.

8) ENHANCE TAX POLICY TO ASSIST ON FARM NEW TECHNOLOGY INVESTMENT.

During the Ag in Motion field days just west of Saskatoon, the Minister saw many new technological advances.

New on-farm technology is needed to create GHG reductions, avoidances, and soil carbon improvements.

A good example is changing a grain seeder from a system that applies one mix of fertilizer with the seed to a system that can apply multiple blends of fertilizer for variable rate application and have individual boot control to lower overlap waste⁵.



An example of new seeder technology with full boot control.

Action - AAFC and Finance Canada must enhance CCA depreciation rates and tax credits for technology adoption associated with GHG emissions.

Action - AAFC and Finance Canada must enhance CCA depreciation rates and tax credits for technology to record and store data associated with GHG tracking and farm management use.

Action - AAFC and Finance Canada must delink portions of the fertilizer price associated with Russian sanctions on fertilizers. Those farms purchasing fertilizers caught in those sanctions must receive enhanced tax treatment for 2022, 2023, and until Canada terminates sanctions.

Action - AAFC and Finance Canada must publicly delink issues around Russian sanctions and issues of N₂O abatement.

Impact - Sanctions are farm neutral.

⁵ One of our members was farming a 120 acre parcel. Before adding sectional control, the total acres the seeder traveled over was 144 acres. By changing their seeder to sectional control, the total acres seeded over is now 122 acres.

9) REVIEW TAX POLICY
APPROACHES ON UNDESIRABLE
LAND USE CHANGES AND
OTHER POSITIVE GHG EMISSION
PRACTICES.

In the GHG background tables published by ECCC, the data shows both a shrinking soil sink and soil loss.

Action - AAFC and Finance Canada must examine existing tax policy that supports and runs counter to adverse land use changes that add to the GHG emissions of Canada.



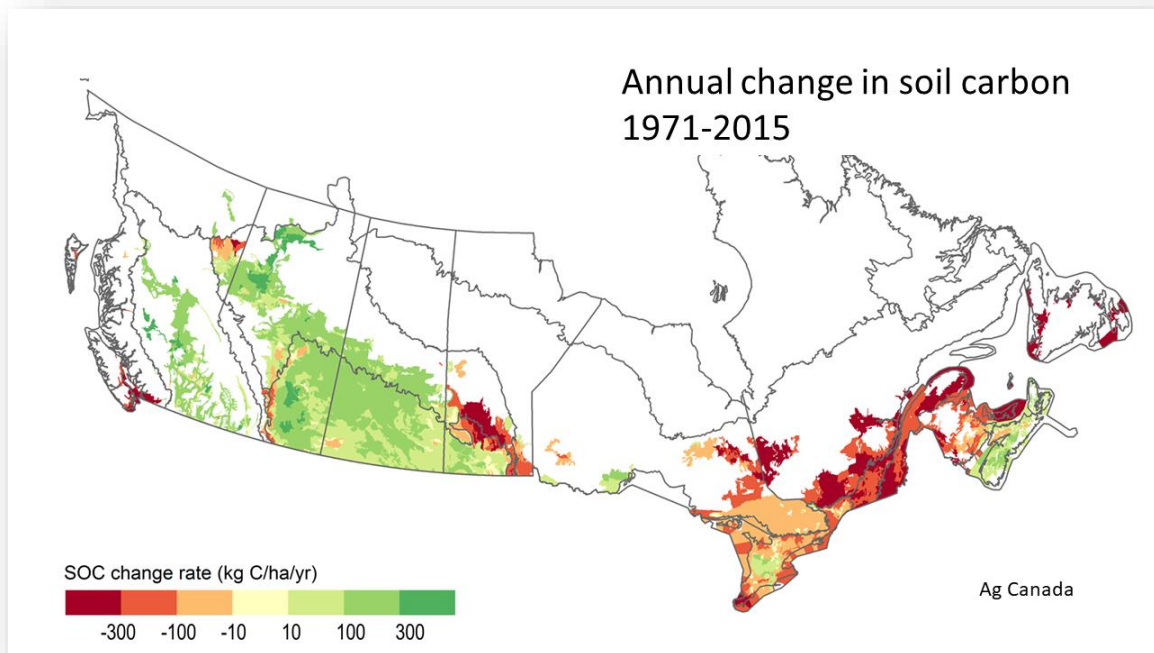
Significant soil disturbance from plowing.

The Government of Canada recently announced new rules for clean fuel and how bio-based feedstocks can be used to make new fuels.

Action - AAFC and ECCC should immediately identify lands that produce products used in creating low-intensity fuel products. The data will ensure no adverse land use changes resulting from the new low-intensity fuel regulations and their anticipated enhanced biomass use for fuel emission targets.

Western Canadian farms adopted no-till agriculture to stop soil erosion. Keeping a cap on the soil stops soil heating and lowers the emissions from the nitrogen cycle. In addition, any tillage done between seeding events allows for management reversals of emission capture.

Action - AAFC and Finance Canada must examine lowering CCA rates on equipment capable of having a soil disturbance over 50%.



Source AAFC

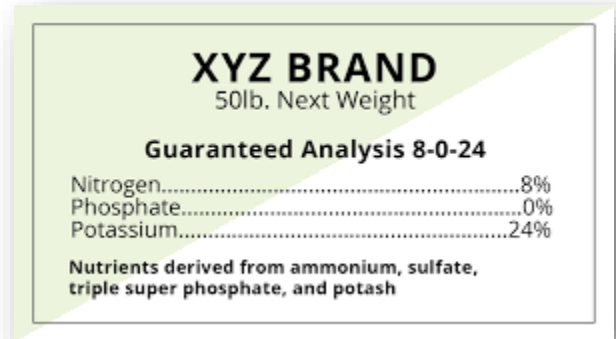
Impact – Soil is finite, and any loss of soil sinks is not in Canada’s strategic interests.

10) REINSTATE CFIA INSPECTIONS OF FERTILIZER QUALITY.

Our stakeholders want label certainty to accurately meet fertility needs and calculate their emissions from every kilogram of actual nitrogen applied.

Action - Notwithstanding issues of capacity and resources, the Minister will engage CFIA to ensure the 'label' on fertilizers sold is correct.

Impact – Canadian farmers should enjoy accurate labels when calculating kilograms of nitrogen applied for emission calculations.



Example of a fertilizer label.

11) URBAN USE OF FERTILIZERS.

Action - AAFC and ECCC must examine how the GHG levy, when applied to commercial uses (non-farm) of fertilizers, would lower GHG emissions and nitrogen leaching.

Action – AAFC must fully understand the difference between the as-applied fertilizer used by Canadian farmers and the sold numbers reported by the industry.

Impact – Canadian farms should not shoulder the entire burden of nitrogen emissions and nitrogen leaching.



Urban Fertilizer Application

12) LICENSES FOR NEW VARIETIES.

At the July meeting of the Canadian Federation of Agriculture, several Ministry staff and farm leaders were exposed to new breeding technology to enhance the GHG capabilities of plants.

Action - AAFC should amend rules and regulations to ensure the process of approving new seed varieties (all crops) have GHG criteria as part of their selection process.

BCC envisions this starting for all varieties in 2027.

Impact – In the long term, a Canadian farm should have a market choice in addressing changes in their GHG farm footprint.



Corn Seed

13) GHG LEVY ABATEMENT

Various provincial GHG regulations have compliance cost containment⁶ or abatement programs for financial hardship.

Action - AAFC and ECCC must review and amend levy regulations⁷ to ensure a company that receives provincial abatement support is obligated to pass on the assistance when the product is sold to a qualified farm in Canada.



A Fertilizer Plant

⁶ An example of the application is from this article. - Alberta lowered CNRL's costs for Peace River site to comply with provincial emissions requirements: Reuters <https://www.cbc.ca/news/canada/calgary/top-emitting-canada-oilsands-site-collects-government-relief-from-pollution-payments-1.6277844>

⁷ Both national and in provinces where their GHG program is deemed equal.

Impact – A Canadian farm's fertilizer purchase price should not add to the bottom line of a fertilizer manufacturer when that business is subject to a GHG levy and when that levy is forgiven or reduced.

14) MATCH USDA NEW INVESTMENT IN SEQUESTRATION AND OTHER ADAPTATION MEASURES

The new *Inflation Reduction Act* in the United States has \$20 billion of new farm investment to make farmland more environmentally friendly.

Action - AAFC and Finance Canada must invest \$370 million⁸ to mirror the new investment by Congress in the US Department of Agriculture (USDA) and their Conservation Reserve Program⁹.

The new funding in Canada would expand protections of wetlands, the areas around the wetlands, and other high sequestration potential landscapes.



An example of land under CRP contract.

This funding would add to the environmental goods and services funding announced in Saskatoon in July 2022.

Action - AAFC and Finance Canada must invest new money into Canadian agriculture to keep Canadian farms competitive with US Farms. Matching what the US Government has announced in new investment, the Government of Canada must increase investment in Canadian farms to make them environmentally

⁸ The amount is extrapolated from the \$ per US farm of the new money, in Canadian dollars.

⁹ CRP is a land conservation program. In exchange for a yearly rental payment, farmers agree to remove environmentally sensitive land from agricultural production, re-establish valuable cover and rebuild wildlife habitats.

friendly. This investment should be as much as \$2.47 billion¹⁰ to keep Canadian farms competitive with US farms.

15) RED TAPE REDUCTION OF NEW PROTOCOL DEVELOPMENT AND APPROVAL.

Our stakeholders appreciate the work of ECCC in developing new protocols¹¹ for agriculture.

Our members and stakeholders are asking ECCC to create a process allowing the Ministry to accept privately developed protocols. The reduction of N₂O is a natural fit for protocol opportunities.

The advantage (jobs and technical investment) is having this avenue to develop the criteria and accept protocols for review allows the sector to lead the development of GHG reductions.

ECCC may find the private sector approach to the protocol development process faster and cheaper.

We stress again that markets will drive both GHG reductions and technical investment. Therefore, allowing sector-build protocols is better.

We also caution both Ministers not to fall into the trap of picking winners and losers.

Action - AAFC must engage ECCC to ensure ECCC can receive and approve new protocols from the private sector, including the agricultural industry.

¹⁰ The amount is extrapolated from the \$ per US farm of the total \$20 billion in new money; in Canadian dollars.

¹¹ In an August 18, 2022 webinar hosted by ECCC, representatives of the Ministry commented on they were the only people (ECCC staff) allowed to build GOC approved protocols.

16) MATCHING BORDER ADJUSTMENT FOR CARBON

The Government of Canada¹² is currently discussing carbon border adjustments.

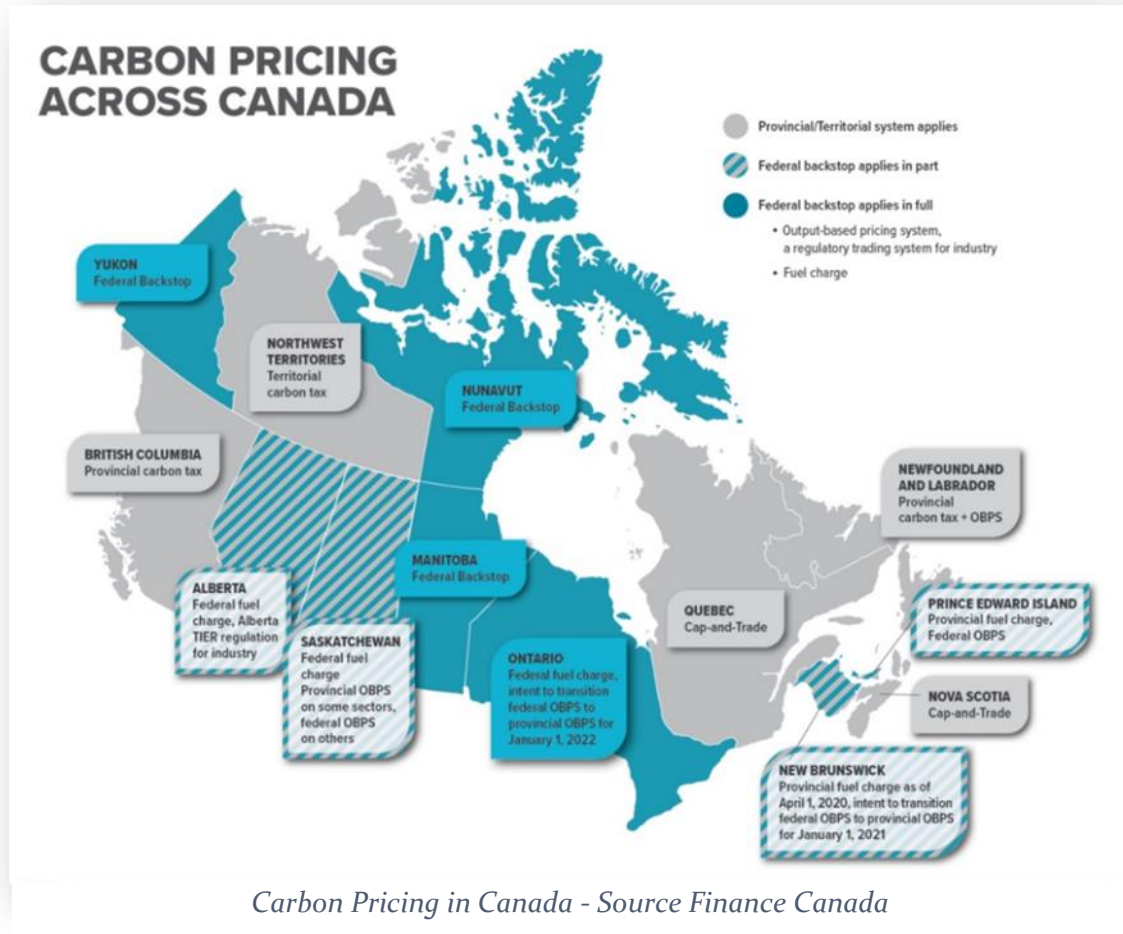
BCC wants several principles incorporated into the finished policy.

These are:

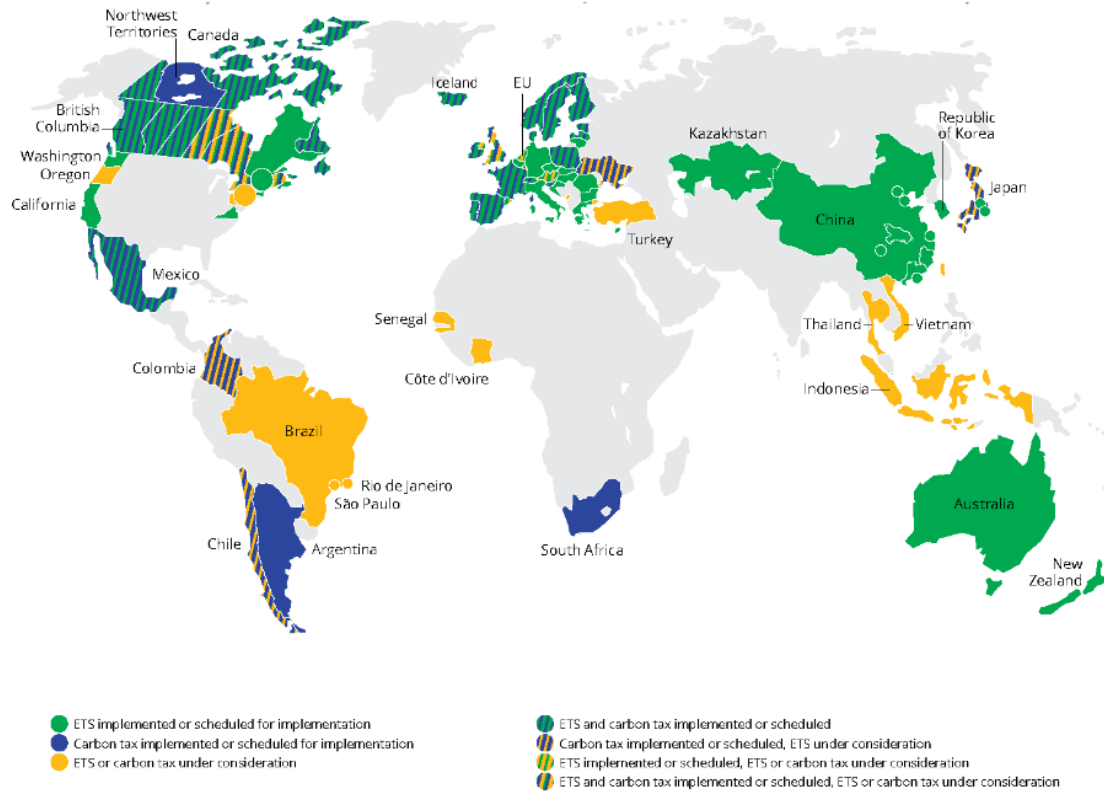
1. When there is **carbon leakage**, the Canadian agricultural industry must be credited with the GHG reduction/avoidance/sequestration when the GHG instrument leaves Canada.
 - a. This approach also means treating carbon like other commodities requiring export certificates and border recording instruments.
2. When there is a **competitiveness issue in domestic industries** (external and internal to Canada), tax credits and other cash adjustments must be available for a farm. The tax credit would also assist when there is carbon cost differentials relative to the competition.
 - a. Two examples of this point.
 - i. Comparison of an Ontario and Iowa corn producer for both direct carbon expenses and indirect carbon costs.
 - ii. Comparison of an Alberta cow-calf ranch with a Quebec cow-calf operation for both direct carbon expenses and indirect carbon costs.

¹² <https://www.canada.ca/en/departement-finance/programs/consultations/2021/border-carbon-adjustments/exploring-border-carbon-adjustments-canada.html>

Action – AAFC must engage Finance Canada to ensure cost competitiveness for a Canadian farm.



Action – AAFC must match the USDA's resources and data for soil and their farms' sequestration levels. AAFC must expand its investments and create new partnerships. These new investments must build the quality of soil data on-farm.



Carbon Pricing Initiatives Image: C2ES

Carbon Pricing in other Markets - Source World Forum

17) COLLECTION OF QUALITY DATA

Our members have several questions. These are:

- How relevant are the coefficients ECCC uses in calculating the national GHG footprint, and
- Are they accurate for on-farm use?

Our observations are Statistics Canada has challenges collecting quality data, and current ECCC coefficients that are nationally based do not reflect on-farm use.

Action – AAFC must investigate the purchase of quality data from a Canadian farm.



Biological Carbon Canada TM is the mark of the Canadian Institute for Biological Carbon.

For more information, please contact BCC.

Our email is biologicalcarboncanada@gmail.com

ⁱ <https://agriculture.canada.ca/en/about-our-department/transparency-and-corporate-reporting/public-opinion-research-and-consultations/share-ideas-fertilizer-emissions-reduction-target/discussion-document-reducing-emissions-arising-application-fertilizer-canadas-agriculture-sector>