



FERTILIZER CANADA

FERTILISANTS CANADA

907 – 350 Sparks, Ottawa ON K1R 7S8

T (613) 230-2600 | F (613) 230-5142

info@fertilizercanada.ca

fertilizercanada.ca | fertilisantscanada.ca

May 5, 2021

Jackie Mercer
Manager, Offsets and Emissions Trading
Environment and Climate Change Canada
351, boul. Saint-Joseph 18th Floor Office 18030
Gatineau, Quebec K1A0H3
jackie.mercer@canada.ca

ec.creditscompensatoires-offsets.ec@canada.ca.

RE: Greenhouse Gas Offset Credit System Regulations (Canada)

On behalf of our member companies, Fertilizer Canada welcomes the opportunity to respond to the Federal Government's proposed *Greenhouse Gas Offset System Regulation*. We would like to thank the Government of Canada for listing a reduced nitrous oxide emission protocol within your recent communications. However, our members and grower customers are increasingly concerned that the development of this protocol has not yet been prioritized within the proposed regulation.

Fertilizer Canada represents manufacturers, wholesalers and retail distributors of nitrogen, phosphate, potash, and sulphur fertilizers – the backbone of Canada's agri-food economy. Responsible for half of the world's current food production, fertilizer is fundamental to the future of agriculture and farmers' ability to feed a growing global population. We also contribute approximately \$24 billion annually to Canada's economic activity and support the employment of over 76,000 individuals throughout the supply chain. Canadian fertilizer manufacturers produce about 12 million tonnes of nitrogen, phosphate and sulphur fertilizers annually in some of the most technologically advanced, energy efficient and safest facilities in the world.

The ongoing global pandemic poses an additional threat to global food and nutrition security, and thus now is the time to support sustainable crop production to ensure Canadian agriculture is positioned to contribute to a global recovery.

Canadian growers are asking that the 4R Climate Smart Protocol be prioritized to provide them with the opportunity to be recognized and rewarded for their sustainable actions to reduce emissions on Canadian farmland. The Canadian Canola Growers Association, Grain Growers of Canada, the Canadian Federation of Agriculture, and the Soil Conservation Council of Canada are key partners that actively support 4R Nutrient Stewardship (Right Source @ Right Rate, Right Time, Right Place®) and advocate for the inclusion of the 4R Climate Smart Protocol within the federal offset system. Recently, a number of national crop and livestock organizations joined together to form the Agricultural Carbon Alliance. This coalition of 14 farm organizations represents approximately 62 million hectares or 190,000 farm businesses who support the development of carbon offset protocols that are science-based and accessible to early adopters, explicitly referencing the 4R Climate Smart Protocol.

Developing a protocol to incentivize further improved nitrogen management practices needs to be prioritized to achieve our shared environmental goals. There are socioeconomic and technological barriers to implementing the technologies that underpin intermediate and advanced 4R Nutrient Stewardship best management practices (BMPs). Dr. Alfons Weersink and his graduate students at the University of Guelph¹, characterized these barriers to adoption as (1) farm income; and (previous) low crop prices; (2) lack of expertise in interpreting the data and valuing the advanced technologies; (3) farmer perception of the cost being greater than the benefit (this is also a function of the average age of a farmer); and (4) time. The 4R Climate Smart Protocol could be an essential tool in the implementation of an incentive-based program for the adoption of more advanced 4R BMPs that require agronomic expertise, advanced technologies, or capital investments in new equipment. Not prioritizing a protocol for reduced nitrous oxide emissions ignores an opportunity to incentivize growers to implement more advanced practices required to meet any emission reduction target.

As our industry and its grower customers work toward improving their sustainability, we want to reiterate that the development of the 4R Climate Smart Protocol will be essential to meeting Canada’s sustainability targets by 2030 and rewarding Canadian farmers for their voluntary actions in a global market. To meet these targets while maintaining or growing crop exports, any reduction in emissions from Canadian cropland must be based on emissions intensity and consider emissions per unit of crop produced.

Recommendations

- 1) **On behalf of our member companies, we encourage the Government of Canada to consider and address the following:**
 - a. **Align the federal offset system with provincial jurisdictions.** Areas where protocols are already developed, or are in development at provincial levels, should be adopted (or at least adapted and subsequently adopted) to increase the opportunity for offset credits to be generated and for the federal government to account for new real emission reductions. As a key example, the Government of Canada should seek to collaborate with Quebec and California to further incentivize project proponents by providing a larger offset credit market.
 - b. **The Government of Canada should reconsider the decision to segregate the Greenhouse Gas Offset Credit System from the Clean Fuel Standard.** The separation of these two regulations will ultimately create redundancy and significantly greater administrative burdens for industry or more specifically, our grower customers. Separating these regulations will force project proponents to choose between two systems and would limit the opportunity for end fuel users to access credits in either system which will limit the value and opportunity for incentives to reduce emissions. Similarly, we believe any additionality threshold within the Clean Fuel Standard should be consistent within the Greenhouse Gas Offset Credit System to provide regulatory consistency.

- 2) **Fertilizer Canada asks that Environment and Climate Change Canada (ECCC) participate in discussions with our recently developed 4R Climate Smart Task Force.** Our industry has proactively constructed this group of experts to help address

¹ <https://www.nrcresearchpress.com/doi/pdf/10.1139/cjps-2017-0342>

and answer concerns which currently challenge prioritization of the 4R Climate Smart Protocol within the federal offset system. Fertilizer Canada asks that the department work with us to identify government offset system team representatives to further discuss our technical recommendations via an informational session to ensure prioritization of the 4R Climate Smart Protocol within the proposed regulation.

- 3) **We ask that the Government of Canada escalate and prioritize the development of a nitrous oxide reduction protocol as it will play an integral role in achieving a 30% emission reduction target from fertilizers by 2030.** Following the release of A Healthy Environment and a Healthy Economy which sets a national target of reducing emissions from fertilizer by 30% below 2020 levels, it is more important than ever that the Government of Canada specifically address our concerns and prioritize the development of an offset protocol for reduced nitrous oxide emissions. Protocol implementation requires on-farm practice changes that can be made only once per growing season. With only nine growing seasons between now and 2030, it is critical that the Government of Canada prioritize the development of this protocol for Canadian growers.
- 4) **Fertilizer Canada asks that the department acknowledge the difference between the 4R Nutrient Stewardship framework and practices within the 4R Climate Smart Protocol, which based on our Fertilizer Use Survey, are not business-as-usual and could be incentivized through the proposed regulation.** Although approximately 40% of Canadian growers believe they are implementing a basic, or near basic level of 4R Nutrient Stewardship practices, less than 5% of Canadian growers surveyed are implementing the advanced, nitrogen specific practices required by the 4R Climate Smart Protocol (Appendix A, Page 5).
- 5) **Fertilizer Canada and our technical experts recommend that ECCC consider alternative mechanisms to meet functional equivalency requirements that reflect and align with Canadian agricultural operations.**
 - a. We ask that the development and adoption of a project-specific dynamic baseline be considered with specific attention to the several possible approaches identified for the 4R Climate Smart Protocol (Appendix A, Page 6).
 - b. Fertilizer Canada recommends that agricultural protocols, like the 4R Climate Smart Protocol, be applied on a field-by-field basis to eliminate 'field out, farm out' and encourage greater adoption of the protocol on Canadian fields (Appendix A, Pages 6-7).
- 6) **Following the recent acceptance of a peer-reviewed scientific article to be published in Science Advances entitled *Nature Climate Solutions for Canada*, Fertilizer Canada asks that ECCC work with our industry to complete the necessary processes for adoption of the N₂O reduction modifiers within the 4R Climate Smart Protocol and acknowledge the significant reductions associated with implementation of advanced 4R Climate Smart Protocol practices (Appendix A, Page 7).**

- 7) **Fertilizer Canada recommends the following be included for agricultural protocols to ensure on-farm adoption across Canada (Appendix A, Page 8).**
- a. **Landowner sign-off should be removed.** In the case of projects that only have emission reductions (i.e. N₂O reductions from soils), we recommend that the person having the right to take the action (land manager/lessee or the landowner) is the 'owner' of the reduction.
 - b. **An aggregator is required.** For smaller tonnage land-based offsets from small to medium farms, aggregation is a necessary part of managing transaction costs and increasing the viability of offset projects which has been demonstrated in many markets.
 - c. **Emission reduction estimates should align with protocols.** Canada's National Inventory Report requires updates to accurately assess emission reductions achieved with 4R Climate Smart Protocol practices.
- 8) **On behalf of our member companies, Fertilizer Canada asks ECCC to confirm that the proposed regulation will not discourage or limit any private carbon projects.** As private companies around the world develop and launch various carbon projects, there is a potential for voluntary carbon credits to be sold to companies, not to meet any regulated carbon obligations, but rather to meet their voluntary sustainability targets. From our understanding, the regulation provides the Government of Canada with the ability to cancel a project if it fails to maintain an account in the Department's credit and tracking system and stipulates the requirements a protocol must achieve to be within the federal offset system but does not have the right to cancel or discredit a private protocol or carbon project.

Concluding Remarks

Through continued partnership, the Federal Government can take advantage of the advancements that have been made by the Canadian fertilizer sector. We encourage and welcome continued consultation with industry to ensure the successful development and implementation of a 4R Climate Smart Protocol within the federal offset system.

Sincerely,

A handwritten signature in blue ink that reads "M. Smith". The signature is written in a cursive, flowing style.

McKenzie Smith

Director, Stewardship & Regulatory Affairs

Fertilizer Canada

CC:

John Moffet, Assistant Deputy Minister – Environment and Climate Change Canada

Paola Mellow, Executive Director – Environment and Climate Change Canada

Rachel Doran, Senior Special Advisor to the Minister – Environment and Climate Change Canada

Amanda Bambrick, Senior Offset Policy Advisor – Environment and Climate Change Canada

Barry Anderson, Director of Emissions Trading and Economics – Alberta Environment and Parks

David Brock, Assistant Deputy Minister, Climate Change and Adaptation Division – Saskatchewan Ministry of Environment

Appendix A: Technical Background Information

Additionality

We would like to take this opportunity to explain why it is extremely important to note the difference between the 4R Nutrient Stewardship framework and adoption of 4R Climate Smart practices. 4R Nutrient Stewardship is a framework which includes suites of practices in three category classes of basic, intermediate and advanced to foster increasing better nutrient use efficiency and reduced environmental losses. The 4R Climate Smart Protocol is built on the principles of the 4R Nutrient Stewardship framework, however the practice requirements in the protocol are more advanced and specific to nitrogen with a distinct focus on specific N₂O emission modifiers for individual practices compared to baseline implementation. For example, within our [4R Guidance Tables](#), broadcast application of nitrogen with incorporation in the spring is an acceptable basic practice within the 4R Nutrient Stewardship framework that results in an increase in yield and a marginal reduction in direct or indirect N₂O emissions depending on the product source. However, with a specific focus on nitrogen and N₂O emission reductions, this practice is not sufficient for credit within the 4R Climate Smart Protocol, within which nitrogen applied before the crop is actively growing must be applied banded or injected subsurface. The uptake of such specific and advanced practices is much lower than adoption of basic, or near basic, 4R suites of practices. Therefore, these specific practices are not business as usual and must be incentivized through an offset system.

In 2020, the Fertilizer Use Survey found that 43.8% of corn growers in Ontario and 44.6% of canola growers in western Canada believe they are implementing a basic level 4R Nutrient Stewardship. However, adoption of 4R Climate Smart practices such as having a 4R plan in place, subsurface application of nitrogen, and varying application rates by field is significantly lower. Furthermore, it is important to note that the 4R Climate Smart Protocol requires verification from an Accredited Professional Agronomist (APA). When we add these requirements, the Fertilizer Use Survey tells us that only 1.5% of corn growers in Ontario and 3.6% of canola growers in western Canada would currently meet the 4R Climate Smart Protocol requirements. **Based on our understanding of the *Business as Usual* definition for proposed protocols, the adoption of these practices within the 4R Climate Smart Protocol, especially with opportunities for incremental improvements, would be considered additional and acceptable within the proposed regulation.**

Furthermore, we would like to highlight that the 4R Climate Smart Protocol has been developed to allow for incremental improvements. For the last 10 years, Fertilizer Canada has funded 4R Research that informed our 4R Guidance Documents which outline basic, intermediate and advanced suites of 4R practices for various crop rotations across Canada. As part of the Ontario-Quebec WCI Protocol adaptation process, Fertilizer Canada supported the scientific review authored by Dr. David Burton, and the Climate Action Reserve Team which was facilitated by an ISO 14064:2 guided process. In January 2018, the 4R Research Network conservatively summarized the N₂O emission reductions coefficients associated with each level of implementation and updated the science that modifies the Tier II Inventory approach.

Functional Equivalency

The 4R Climate Smart protocol, known as the Nitrous Oxide Emission Reduction Protocol (NERP) in Alberta, was originally approved for use within Alberta's greenhouse gas (GHG) management framework as a protocol for delivery of compliance quality offsets for Alberta's regulated large final emitters. However, the protocol is based on a universal 4R Nutrient Stewardship framework and can be adapted to fit other jurisdictions. Through review of identified obstacles faced in Alberta, ECCC can avoid such challenges to ensure successful application and uptake of the developed protocol on Canadian cropland.

We recognize that any developed protocol must meet functional equivalency requirements within the regulation, however, we also note that the mechanism to meet these requirements needs to align with and reflect Canadian agricultural operations. To accomplish this and develop a robust and operational protocol for Canadian growers we recommend the following be considered to meet functional equivalency requirements.

- **Flexibility with development and adoption of a project-specific dynamic baseline.** Fertilizer Canada supports the development of a project-specific, dynamic baseline that considers the N₂O emissions resulting from a field implementing only business-as-usual levels of 4R practices. Specific project types without available regional data, like the 4R Climate Smart Protocol, require the development of a project-specific baseline. In this situation, we recommend the development of an eco-district baseline. There are several possible approaches to developing a dynamic baseline. For example, Crop Insurance collects the required data for this calculation such as crop yield, location, and, in most provinces, nutrient application rate. The Government of Alberta investigated crop insurance as a mechanism to monitor yield which provides several learnings. Since yield is measured as dry matter, a moisture test was added as a requirement within the Alberta protocol. This is problematic as a moisture test for every cart weight is impractical and not typically completed, especially since most moisture testers are required to be calibrated daily. The crop insurance system and grain buying facilities all treat grain mass as if it's at or below the generally accepted maximum "moisture" parameters for safe storage (referred to as "dry grain"); 14.5% for wheat, 14.8% for feed barley, 10% for canola and so on. Penalties for being over moisture are applied at sales point in the grain handling system. We encourage the review and revision of this requirement with the offset system consideration of scaled weight carts for yield monitoring.

Similar to the above example, a five-year average yield from crop insurance was investigated within the Alberta protocol as an alternative to meet yield requirements if weighed results were not available. This proved to be problematic with inconsistencies in yearly farm yield averages where yields for specific fields were unavailable or omitted. Crop insurance accounts for yield discrepancies amongst fields and the provincial governments have built robust systems to ensure that yields, by field, are reported accurately. Crop insurance provides a method to assess and verify yield, which should be deemed equivalent within any offset system. If the farmer does not use crop insurance, cart weights of scale tickets can be required as described above.

- **Protocol should be on a field-by-field basis.** For N₂O emission reductions from agricultural soils, Fertilizer Canada recommends that deviations in fields that do not meet the protocol should result in the field being excluded from the protocol for that season, not the whole farm. The level of on-farm record keeping required by a farm to meet the verification standard can allow tracking of fertilizer use and yield by field. Therefore, nitrogen application rates and crop yield from non-applicable fields can be subtracted in the calculation to determine farm offset credits.

Peer-Reviewed Literature

Recently, Brian McConkey was a co-author of an article to be published in Science Advances entitled *Natural Climate Solutions for Canada*², which includes a comprehensive review of reduced emissions on cropland with the use of 4R Nutrient Stewardship. This peer-reviewed scientific article estimates both direct and indirect emission reductions from 4R Climate Smart Protocol practices using the Tier II method within Canada's National Inventory Report (NIR). This scientific publication references the aforementioned scientific review conducted by Dr. David Burton and the Climate Action Reserve Team and utilizes the same methodology to estimate emission reduction coefficients.

Natural Climate Solutions for Canada report also estimates the potential emission reductions from a current *Business as Usual (BAU)* scenario. It is projected that annual mitigation in 2030, relative to the BAU scenario, will be 6.3 (5.0 to 7.6) Tg CO₂e/yr with maximum adoption of advanced 4R Climate Smart BMPs, entailing a cumulative emission reduction of 27.4 (21.9 to 32.9)Tg CO₂e by 2030.

With esteemed scientists and technical experts, Fertilizer Canada stands ready to continue science-based research and review of 4R Climate Smart Protocol practices or associated emission reduction modifiers. Since 2013, the North American 4R Research Fund has contributed over 11.8 million dollars to support Canadian 4R Research projects across the country. The 4R Research Network, comprised of leading research scientists and technical experts across Canada, is prepared to collectively conduct further research and meta-analyses to increase our scientific understanding of practices known to reduce N₂O emission on Canadian cropland. **Fertilizer Canada and its scientific advisors stand ready to bring our expertise to help the Government of Canada meet its sustainability targets. We look forward to working with the Government of Canada to ensure any science-based emission reduction estimates meet the requirements within the proposed federal offset system regulation.**

² Natural Climate Solutions for Canada

Other Technical Recommendations

- **Landowner sign-off should be removed.** In the case of projects that only have emission reductions (i.e., N₂O reductions from soils), we recommend that the person with rights to taking the action (land manager/lessee or the landowner) is the 'owner' of the reduction. Landowner sign-off for these project types needs to be excluded from the protocol requirement list. Implementation of the BMPs required to qualify for emission reductions under the 4R Climate Smart Protocol is entirely under the grower's control. As N₂O reductions are not like carbon that is stored in the soil, there are no reversals to consider. The emission reductions are all accounted for in the crop year. This ownership eliminates possible double counting and reduces the risk of leakage. Requiring landowner sign-off increases the administrative burden for the grower without providing any material benefit for verification.
- **An aggregator is required.** For smaller tonnage land-based offsets produced by small to medium farms in Canada, aggregation is a necessary part of managing transaction costs and increasing the viability of offset projects which has been demonstrated in many markets. It is the aggregator who takes on the risk and liability of meeting all the requirements of the Offset System at hand; and developing robust data management and record collection systems to meet verification and auditing of projects. Furthermore, aggregation increases the accuracy of the final carbon assertion. With a well-designed framework, the beneficial role of aggregators can be realized, and this has been recognized in other jurisdictions. For example, Alberta has built in safeguard language in protocols to ensure the balance of responsibilities between the farmer and aggregator exists.
- **Canada's National Inventory Report requires updates to accurately assess emission reductions achieved with 4R Climate Smart Protocol practices.** Currently, the National Inventory Report (NIR) does not align with the 4R Nutrient Stewardship framework meaning emission reductions achieved with implementation of advanced 4R Climate Smart practices will not be reflected in the current model. An update to Canada's Tier II N₂O protocol for agricultural soils is long overdue as it currently only accounts for nitrogen fertilizer rates and moisture excess with no consideration of product source, application placement or timing, or soil type which can significantly reduce emissions. Therefore, integration of 4R Nutrient Stewardship within the NIR is necessary to ensure these actions are accounted for and progress towards a national emission reduction target is estimated appropriately.