

4R NUTRIENT STEWARDSHIP MEMORANDUM OF UNDERSTANDING

Made this 13 day of October, 2022

BETWEEN **GOVERNMENT OF MANITOBA**, as represented by the Minister of Agriculture and the Minister of Environment, Climate and Parks

AND **FERTILIZER CANADA**, a corporation incorporated under the Canada Not-for-profit Corporations Act, having its head office located in Ottawa, Ontario

AND **KEYSTONE AGRICULTURAL PRODUCERS INC.**, a general farm policy organization that works to ensure primary production in Manitoba remains profitable, sustainable and globally competitive

(hereinafter referred to as "KAP")

Background and Purpose

The parties have previously entered into three (3) 4R Nutrient Stewardship Memoranda of Understanding, the first dated January 15, 2013, the second dated June 16, 2015 and the third dated November 26, 2018. The parties wish to enter into this new Memorandum of Understanding (MOU) with respect to 4R Nutrient Stewardship.

The purpose of this MOU is to link the Government of Manitoba's objectives for environmental performance with the nutrient stewardship programming developed by Canada's fertilizer industry. The parties agree that the *Right Source @ Right Rate, Right Time, Right Place®* approach to nutrient management (commonly referred to as *4R Nutrient Stewardship* or the 4Rs) established by Fertilizer Canada provides the framework for meeting the shared goal of sustainability outlined in this MOU.

Commitment to Sustainability

Canada's fertilizer industry is committed to achieving sustainability in partnership with its stakeholders. The fertilizer industry continues to strengthen environmental stewardship by supporting the implementation of Beneficial Management Practices (BMPs) by agricultural producers. It is also committed to promoting the measurement of impacts of these efforts on the economy, society and the environment.

Right Source @ Right Rate, Right Time, Right Place® Nutrient Stewardship

The fertilizer industry has established the *Right Source @ Right Rate, Right Time, Right Place®* (4R) Nutrient Stewardship system in cooperation with government, researchers, customers and the public. This approach ensures that nutrients are applied using the right source at the right rate, time and place through farmer adoption of BMPs to achieve economic, social and environmental sustainability. The 4R framework recognizes that BMPs must be customized to fit each farm's unique combination of climatic, soil, landscape, cropping and operational conditions. This principle of customized implementation is applied with input from Certified Crop Advisers, professional agrologists and government extension specialists who work with farmers, as needed, to assess their situations and develop management plans. All sources of crop nutrients (commercial fertilizers, livestock manure, biosolids and compost) are integrated into the *4R Nutrient Stewardship* system.

Continuous improvement can be achieved by employing metrics that assess the impacts of source, rate, time and place BMPs on environmental, economic, and social variables. Based on this feedback, adjustments can be made to practices and policies, as well as research and extension programming, to further enhance sustainability. Progress continues on the establishment of science-based metrics.

The Manitoba Approach

Policy and Legislation – The Manitoba Climate and Green Plan identifies agriculture as a critical land use determinant and Keystone Agricultural Producers as an important sustainability partner. The Plan continues the long-standing provincial effort to mitigate greenhouse gas emissions as well as restore and protect surface water quality. The document contains a comprehensive framework for environmental stewardship that includes agricultural activities. 4R Nutrient Stewardship is named as a tool that can facilitate the adoption and tracking of sound fertilization practices in crop production.

On an ongoing basis, the Government of Manitoba has taken action to reduce nutrient loading to surface waters and mitigate climate change. Measures have included education of youth, teachers and the public; extension to producers, agronomists and agri-retailers; incentives to producers and landowners; investments in infrastructure, science and research; new and modernized regulatory instruments.

Three regulatory instruments, addressing these environmental issues, can be linked to 4R principles and practices:

- the Livestock Manure and Mortalities Management Regulation, under The Environment Act, passed in 1998;
- the Nutrient Management Regulation, under The Water Protection Act, passed in 2008;
- the Climate and Green Plan Implementation Act, passed in 2018.



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Extension – Environmental farm planning is the flagship extension vehicle for environmental stewardship in Manitoba. Completion of an Environmental Farm Plan (EFP) informs producers about the assets and risks in their operations and encourages them to take action to address any concerns. The EFP recognizes nutrient management planning through the 4Rs as one of the key practices that producers can adopt to optimize production and minimize environmental risk.

Through ongoing information exchange and training at conferences, workshops and field tours, industry staff, agronomists and government specialists maintain high levels of knowledge and skills in nutrient management, including those of *4R Nutrient Stewardship*. Continuous upgrading equips professionals to provide input to Manitoba growers' use of fertilizers in a wide range of cropping systems.

On behalf of its members, KAP has played a leadership role in promoting environmental stewardship by Manitoba farmers. KAP is an important partner in the evolution of the voluntary adoption of nutrient management practices in Manitoba.

Fertilizer Canada and partners have initiated and will continue extension campaigns and projects in Manitoba. Between 2018-2021, Fertilizer Canada ran a grower and industry facing campaign called *What's in it 4R Me?* to promote the benefits of the 4R Designation program in Manitoba. Several consumer-facing campaigns such as *Fields to Forks - Manitoba* and the *Water Campaign* have raised public awareness of the agriculture community's efforts to grow crops sustainably.

Management Principles – Managing nutrients properly offers both economic and environmental benefits to farmers and the general society. Efficient use of nutrients from commercial fertilizers, manure or other sources reduces input costs for crop production and minimizes the risk of nutrient loss to ground and surface water as well as atmospheric emissions of ammonia and nitrous oxide (N₂O).

4R Nutrient Stewardship relies on an understanding of how the various plant nutrients behave in different climate-landscape-soil regimes, how they are taken up by crops and how their loss to the greater environment can be minimized. Situated in the northern reach of the Great Plains Region of North America, Manitoba features a unique combination of growing season properties, crop rotations, production systems and field conditions that present challenges and opportunities for managing nutrients. Adjustments to the crop nutrient source as well as the application rate, timing, and placement method must take into account these factors influencing the risk of nutrient losses.

MOU Principles:

1. The parties understand that economic, social and environmental performance improvements must be undertaken in relation to each other in order to achieve overall sustainability.



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2. The parties agree that agri-environmental sustainability is achieved in part by the adoption and maintenance of farm-specific BMPs that follow the principles of applying nutrients in the right forms at the right rate, time and place.
3. The parties acknowledge that there is a need to manage the application of fertilizers to land to reduce nutrient loading to waterways across Manitoba, including Lake Winnipeg, and to reduce emissions of greenhouse gases.
4. The parties note that *4R Nutrient Stewardship* has been recognized as an essential part of environmental farm planning through inclusion of the 4Rs in the Environmental Farm Plan workbook. The parties agree that strategies for promoting the adoption of BMPs are often most effective when based on voluntary action by farmers encouraged through extension and incentives developed in cooperation with farmers.
5. The parties recognize that the efficacy of BMPs, including those associated with *4R Nutrient Stewardship*, must be validated by ongoing research. The overall feasibility of adoption, including aspects of economics, practicality and adaptability, must also be demonstrated.
6. The parties recognize the critical role of the private sector in the development and implementation of on-farm solutions to ensure sustainability. In particular, trained professionals such as Certified Crop Advisers (CCAs) and members in good standing with the Manitoba Institute of Agrologists (MIA) work directly with growers and are well positioned to facilitate adoption of agri-environmental BMPs.
7. Fertilizer Canada and the Government of Manitoba recognize KAP as the main farm advocacy group, making it the appropriate partner for this MOU.

Action Items:

1. Fertilizer Canada and the Government of Manitoba will work together with KAP to undertake various activities to promote the adoption of the ***Right Source @ Right Rate, Right Time, Right Place®*** Nutrient Management system. The various activities to be undertaken may include:
 - (a) development of farmer-targeted extension materials, accessible via the Fertilizer Canada website, to encourage farmer adoption of BMPs within the performance areas of the 4Rs;
 - (b) field trials and extension events, catering to producers and/or agronomists, that illustrate and promote the concepts and details of nutrient management according to the 4Rs;



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- (c) delivery of 4R nutrient management training programs, in cooperation with professional associations (e.g. Prairie Certified Crop Advisors Board and Agrologists Manitoba), that qualify agronomists and agri-retailers to formally offer 4R nutrient management planning services to producers and enable participation in Fertilizer Canada's national 4R Designation program, which tracks 4R adoption;
 - (d) reporting of 4R metrics in the province of Manitoba through the 4R Designation program and the Fertilizer Use Surveys.
 - (e) projects that compile data from all suitable studies to refine nutrient uptake and removal values for crops grown on the Canadian Prairies;
 - (f) additional collaboration with the research community to explore potential measures that would validate and improve the effectiveness of the ***Right Source @ Right Rate, Right Time, Right Place®*** system of fertilizer use.
2. The parties acknowledge that these various undertakings are subject to future circumstances (e.g. weather conditions, site suitability, expertise availability) that are unforeseeable and that may impede progress or completion of, for instance, field demonstrations and field extension events. As such, the parties are not committed to any specific undertakings by signing this MOU.
3. The existing 4R Implementation Committee, comprised of members from each of the parties to this MOU as well as industry partners, will continue to:
- (a) select which activities will be undertaken in pursuit of this MOU's objectives;
 - (b) coordinate, organize, plan and oversee the implementation of each activity to the degree necessary and appropriate for each activity; and
 - (c) interface with the Manitoba Soil Fertility Advisory Committee.
4. Fertilizer Canada will financially support the pursuit of this MOU's objectives based on identified priorities and with approval from Fertilizer Canada's Nutrients Committee. In particular, Fertilizer Canada will provide funding to third-party entities that incur expenses while undertaking the activities that support the objectives of this MOU. Such third-party entities may include researchers, producer groups and consulting agronomists, with and to whom Fertilizer Canada will contract and make payments directly. Fertilizer Canada will not be obligated to provide a requested advance hereunder until written approval from Fertilizer Canada's Nutrients Committee has been received.
5. The parties will make in-kind contributions in the form of staff time, including staff participation in 4R Implementation Committee deliberations, and will each cover their own operating expenses, such as travel costs.



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Term of MOU and Renewal:

The term of this MOU commenced on the 1st day of January 2022 and shall end on the 31st day of December 2024. This MOU shall supersede and replace the previous 4R Nutrient Stewardship Memorandum of Understanding dated November 26, 2018. The parties may extend this MOU for an additional term of three (3) years by written agreement prior to the expiration of this MOU.

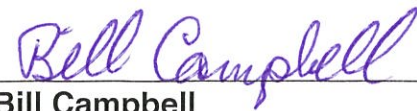
Termination:

The parties may collectively terminate this MOU at any time by written agreement. Any individual party may terminate its participation in this MOU at any time upon providing six (6) months written advance notice to the other parties.

 Date: Oct 13 / 2022
Karen Proud
CEO and President, Fertilizer Canada

 Date: Oct 13/22
Minister Derek Johnson
Manitoba Agriculture

 Date: Oct 13/22
Minister Jeff Wharton
Manitoba Environment, Climate and Parks

 Date: Oct / 13 / 2022
Bill Campbell
President, Keystone Agricultural Producers Inc.



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