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## **RE: Proposed Nutrient Concentration Objectives and Loading Targets for the Red River at the US/Canada Boundary**

On behalf of Fertilizer Canada and our members, thank you for the opportunity to provide feedback to the International Joint Commission's (IJC) public consultation on the *Proposed Nutrient Concentration Objectives and Loading Targets for the Red River at the US/Canada Boundary*.

Representing fertilizer manufacturers, distributors and wholesalers, our members are working to advance the development and implementation of new technologies and scientifically-based management practices for agricultural cropping systems. These efforts align well with the sustainable, targeted and collaborative goals the IJC aims to achieve for the Red River and Lake Winnipeg.

Fertilizers play an essential role in replenishing nutrients in the soil that are used by plants each growing season, raising soil productivity, and improving soil health; but incorrect nutrient use may lead to negative impacts on a grower's return on investment and risks increased impacts on the environment. In order to have this downstream assurance of responsible farming, growers will require a framework for understanding and implementing the principles and practices of sustainable agriculture.

4R Nutrient Stewardship has been designed for this purpose and should be referenced as the recommended approach when developing watershed management plans in order to achieve meaningful nutrient load reductions in Lake Winnipeg. The 4R approach brings together universal principles of nutrient management with local evidence-based agronomy. The result is best management practices (BMPs) that make sustainable agriculture a reality on the farm. The 4R Nutrient Stewardship framework encompasses the four main principles of fertilizer application and is designed to link the practices used to manage nutrients in the cropping system to an integrated approach.

- The **Right Source** means ensuring a balanced supply of essential plant nutrients including granular or liquid fertilizers or manures.
- The **Right Rate** is applying just enough fertilizer to meet the needs of the plant while accounting for nutrients already in the soil.
- The **Right Time** means applying fertilizer when the plant will get the most benefit and avoiding times when fertilizer can be lost to the environment.

- The **Right Place** is applying fertilizer where the plants can easily access the fertilizer and where it is less likely to be lost to the water or air.

The fertilizer industry has established the 4R Nutrient Stewardship Framework in cooperation with government, researchers, grower customers, farm organizations, conservation groups and the public. Adjustments in the crop nutrient source and application rate, timing, and placement method supports agricultural productivity while also helping to improve the water quality of the Lake Winnipeg, the Red River, and contributing watersheds.

## **4R Nutrient Stewardship Planning**

The core of successful 4R Nutrient Stewardship is including a **plan** for managing applied nutrients that is rooted in all four areas outlined above. One of the key principles of a 4R Nutrient Stewardship plan is site-specific management where nutrient management practices are optimized to match the requirements of the crop and manage environmental risks at the individual field or sub-field level.

The result is a series of BMPs that allow growers to convert principles to practical knowledge that fits local conditions. These BMPs need to be regionally specific and based on scientific studies that are relevant to the local cropping systems.

There are a few things that distinguish 4R Nutrient Stewardship from regular nutrient applications. The first is that the 4Rs are a comprehensive approach to sustainable nutrient management. The framework does not individually focus on a single goal; but integrates the overall impact of nutrient management decisions to include potential economic returns, environmental impacts and social results. In fact, 4R does more than just look at a farm's contribution to sustainability, but links cropping system performance to sustainability goals in a measurable and traceable way.

4R Nutrient Stewardship is based on the principle of adaptive management and continuous improvement. Developing a 4R Nutrient Stewardship plan is more than just a paper exercise, it's a living document that evolves over time and retains its value going forward.

Fertilizer Canada has developed [BMP guidance documentation](#) for growers and agri-retailers that provides suites of practices for Nitrogen and Phosphorus organized by major cropping systems and agricultural regions including the Canadian prairies and the Northern Great Plains. Growers are at many different starting points when they first enter into a 4R program. The use of performance levels to group practices provides guidance to growers and their crop advisors on the relative rightness of practices for the crops and conditions in their region. Performance levels also allow growers to qualify their nutrient management practices as 4R consistent and consequently sustainable against an independent standard.

## **Canadian 4R Research Network**

Over the last seven years industry, government, academia and NGOs have invested a total of \$5.63 million in support of research to demonstrate how 4R Nutrient Stewardship plays a critical role in reducing environmental impacts. In 2013, fertilizer industry members in Canada and the

U.S. initiated the [North American 4R Research Fund](#) in support of efforts to understand the impacts of fertilizer BMPs.

Under Canada's projects, nine leading researchers are conducting 10 projects to quantify economic, social and environmental benefits resulting from 4R Nutrient Stewardship. Ontario is home to three of the Canadian 4R Researchers, providing outcomes on the environmental, economic, and social benefits of 4R Nutrient Stewardship for optimal nutrient management of major Ontario crops.

The North American fertilizer industry is committed to continuing this important research and has pledged an additional \$6 million over the next five years to strengthen fertilizer BMPs that reduce nutrient loss to the environment. 4R Research Fund projects are reviewed and selected by a technical advisory group consisting of industry, academic, and government agency experts in agronomy, environmental sciences, sustainability, government relations, and communications. Successful efforts qualify and quantify the impact of using the 4Rs in order to give certainty to growers, and sound guidance to environmental programs, and policy decision makers. Priorities of the newly committed 4R Research Fund resources include phosphorus loss issues in the Great Lakes and Lake Winnipeg regions.

#### **4R Memorandum of Understanding in Manitoba**

Implementing the 4R Nutrient Stewardship in Manitoba is crucial to protecting farmland and waterways. Manitoba is taking steps to ensuring these sustainable practices are being implemented by actively engaging in surface water management practices and encouraging Manitoba farmers to come together to protect the environment while ensuring a growing economy.

Fertilizer Canada works with the Manitoba Government and the Keystone Agricultural Producers to promote sustainable use of nutrients for the benefit of producers and society in the province. Producers in Manitoba also work closely with many other commodity groups to promote sustainable crop production that maximizes nutrient use efficiency and limits potential nutrient losses.

Fertilizer Canada recognizes how valuable water is to communities and that sustainable, environmentally-conscious practices need to be adopted to protect this irreplaceable resource. To accomplish this goal, Fertilizer Canada continues to provide funding that support 4R education and training, the 4R Designation program and 4R communication and promotion.

#### **Recommendations**

- 1. 4R Nutrient Stewardship be recognized as the recommended approach when developing watershed management plans in order to achieve meaningful nutrient load reductions in Lake Winnipeg.** This would qualify as a common principle/component applicable to any watershed and can be easily integrated into a consistent framework to watershed management planning. The 4R approach also aligns with the reports' suggestions of integrating a "science-driven adaptive management process", which is a foundation for applying 4R Nutrient Stewardship on farm. Implementation of 4R Nutrient Stewardship, through efforts such as 4R Designation, can

serve as a means to measure improved on-farm management of nutrients and support monitoring of agricultural sustainability.

2. **Take advantage of Fertilizer Canada's resources and programs to educate and enable growers to adopt 4R Nutrient Stewardship practices in their watersheds.** These resources can also support communication strategies to key watershed audiences on reducing nutrient losses to the environment.
3. **Continue to encourage support for research to spur innovation for the agriculture industry by increasing the matching contribution for projects.** A key feature of the reports was the need to continue supporting research. Fertilizer Canada received funding under the AgriInnovation Program and as a result, launched the Canadian 4R Research Network. We encourage Federal and Provincial governments to continue with research funding programs that support industry-led research and development which creates shared value on innovation.
4. **Continued extensive stakeholder consultation throughout the development and implementation of this initiative.** Leverage existing opportunities by endorsing voluntary measures taken, and collaborate with industry stakeholders to achieve the objectives of protecting Lake Winnipeg's water quality.

Finally, we would like to extend an invitation to request a site visit with one of our lead researchers in the Canadian 4R Research Network or a local 4R Designated Agri-retailer or 4R Demonstration Farm in Manitoba to learn more about how we have advanced fertilizer management under 4R Nutrient Stewardship.

Thank you for the opportunity to comment on this important matter. Fertilizer Canada stands ready to work with the IJC as this initiative is further developed and implemented. We look forward to discussing these opportunities with you at your convenience.

Kind regards,



McKenzie Smith

Director, Nutrient Stewardship

Fertilizer Canada