



FERTILIZER CANADA
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Paul Smith
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Ministry of Agriculture, Food and Rural Affairs
1 Stone Road West, 2nd floor
Guelph, ON N1G 4Y2

December 31, 2017

Re: Response to New Horizons: Ontario's Draft Agricultural Soil Health and Conservation Strategy

Dear Paul Smith;

On behalf of Fertilizer Canada and our members, thank you for the opportunity to provide feedback to *New Horizons: Ontario's Draft Agricultural Soil Health and Conservation Strategy*.

Fertilizer Canada represents manufacturers, wholesale and retail distributors of nitrogen, phosphate and potash fertilizers. The fertilizer industry is a significant contributor to Canada's manufacturing economy, with the production of ammonia and nitric-acid based fertilizers in Ontario at CF Industries' Courtright facility. Additionally, countless large and independent agri-retailers support Ontario's farmers, helping them to feed Ontarians and the world.

Agricultural soil health is a vital issue in Ontario, which also holds some of the country's most viable and productive farmland. Fertilizer Canada supports the development of a strategy to enhance the health of Ontario's soils for agricultural production. As members of the Soil Conservation Council of Canada, we encourage collaboration between stakeholders to support the commitment to secure the sustainable productivity of Canada's soils. Aligning the research and extension efforts of soil science and conservation in Ontario is imperative to reach these objectives.

Effective management of soil fertility is critical to maintaining the health and productivity of Ontario's agricultural soils. 4R Nutrient Stewardship is a science-based framework encompassing the four main principles of fertilizer application (Right Source @ Right Rate, Right Time, Right Place®). The 4Rs are not independent but highly interdependent and should be considered as suites of practices that work together toward the goal of improving nutrient use efficiency and reducing nutrient losses from the cropping system.

- 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. Farmers and homeowners can use soil tests to identify nutrient shortfalls.
- 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.



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- 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. An example on the farm would be sub-surface banding in the soil near the seed row rather than surface application. Farmers may also need to establish buffer strips near streams, rivers, lakes or wells to prevent unwanted nutrient movement into surface or groundwater.

Every farm and every field is different. 4R Nutrient Stewardship promotes the use of Certified Crop Advisers to help farmers assess soil and environmental conditions to develop a customized nutrient management plan that is site-specific. Based on feedback, adjustments in practices, research and extension programming is made to further enhance sustainability on-farm.

4R Nutrient Stewardship is being implemented across Ontario through a 4R Memorandum of Cooperation (MOC), formalized in 2015 alongside the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA); Fertilizer Canada; and the Ontario Agri Business Association (OABA). Additional collaboration under this agreement includes the Ministry of Environment and Climate Change; Grain Farmers of Ontario; the Ontario Federation of Agriculture; the Christian Farmers Federation of Ontario; Conservation Ontario; The Nature Conservancy – OHIO; the International Plant Nutrition Institute; the Ontario Certified Crop Advisor Board and Ontario agri-retailers.

Canada's fertilizer industry is committed to the adoption of 4R Nutrient Stewardship on Ontario's farmland.

Canada's fertilizer industry is committed to working with governments, watershed groups, scientists, agri-retailers and farmers nationally and within Ontario to improve fertilizer application. While the draft soil strategy references 4R Nutrient Stewardship BMPs as a proposed Ontario soil health and conservation research priority in an appendix, it is imperative that the strategy integrate 4R Nutrient Stewardship as a recommended approach to enhance the health of Ontario's soils.

The fertilizer industry and conservation partners are working together to advance 4R Nutrient Stewardship. In the last five years, 4R efforts in Ontario have significantly increased; programs in place now were not a part of the solution a decade ago. Specifically, these efforts include substantial research, education, outreach and advocacy all geared towards increasing adoption of nutrient stewardship on the farm. And, they are yielding results. Below are descriptions of multiple voluntary initiatives focused in Ontario and their growing impact on fertilizer BMP adoption.

4R Certification Program Collaboration is underway with the Nutrient Stewardship Council, Ohio Agri-Business Association and The Fertilizer Institute in the U.S. to ensure alignment between cross-border efforts to implement 4R Nutrient Stewardship and reduce nutrient losses under a 4R Certification Program. The program certifies agronomic service providers (including fertilizer retail locations and independent crop advisors) based on third-party audit procedures, verifying program requirements including employee education, customer education and 4R practice recommendations and adoption by their farmer customers.



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In 2016, the 4R Ontario Agri-Retail Certification Pilot project was launched to evaluate the validity, suitability and accountability of the 4R Certification model for implementation in the Ontario marketplace. In year one, four Ontario agri-retail locations in the Western Basin of Lake Erie volunteered to participate in the audit program. Audits were conducted by the lead auditor from the U.S. based program in the fall of 2016. Ontario agri-retailers will be implementing the 4R Certification program province-wide in 2018, allowing Fertilizer Canada to count the acres under 4R Nutrient Stewardship and demonstrate the tangible commitment being made by Ontario's agricultural industry.

4R Research 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. Specifically, the funds are used to inform knowledge gaps related to quantifying the role fertilizer BMPs have on water and air quality, climate change, soil health, nutrient cycling and productivity.

Research efforts have been endorsed by the Government of Canada, who invested \$1.1 million matched by industry to further quantify the outcomes of 4R Nutrient Stewardship application. Under this project, nine leading Canadian researchers are conducting 10 projects to quantify economic, social and environmental benefits resulting from 4R Nutrient Stewardship. We expect additional economic and environmental outcomes such as reductions in greenhouse gas emissions, nitrogen losses to the atmosphere and groundwater, phosphorus losses to surface waters and improved productivity, efficiency and profitability of production. Ontario is home to three of the Canadian 4R Researchers, providing leading research on the environmental, economic, and social benefits of 4R Nutrient Stewardship for optimal nutrient management of major Ontario crops. Canada's fertilizer industry is committed to continuing this important research over the next 5 years.

Certified Crop Advisor 4R Nutrient Management Specialty Certification In September 2014, the North American Certified Crop Adviser board unanimously approved a plan to develop a specialty certification for Certified Crop Advisers (CCAs) who wanted and needed to demonstrate a higher level of expertise in the area of nutrient management. This specialty certification utilizes the 4Rs as the foundation for nutrient management and protecting soil and water.

Fertilizer Canada collaborated with the Ontario CCA Board on development of a 4R Nutrient Management Specialty Certification Exam and Resource Study Guide in Ontario. Individuals who have attained certification as a CCA 4R Nutrient Management Specialist have taken special training and passed an additional exam to ensure they are promoting practices that optimize nutrient use by the plant and minimize loss to the environment. To become certified, crop advisers are taking a significant step to demonstrate their competency in specialized nutrient, soil and water management and will share this knowledge with their farmer clientele and other stakeholders. Those with the 4R Nutrient Management Specialty Certification must complete a minimum of 7.5 Continuing Education Units in the areas of nutrient management and Soil and Water Management in each two-year cycle. Currently, the specialty certification is also offered in multiple states along Lake Erie including Indiana, Michigan, and Ohio. There are now almost 200 CCAs certified in North America on 4R Nutrient Management – 89 of



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which are based in Ontario.

Surveying Partnering with major commodity groups, the 4R Ontario MOC surveyed over 500 growers in Ontario to assess fertilizer practice adoption in 2016. The survey captured baseline fertilizer and manure use practices on over five per cent of the total acres of corn and soybean crops in Ontario. Just under half of the growers that participated were in the Western and Central Lake Erie basins. The 4R principles outlined below, such as subsurface application practices, optimizes the crop nutrient uptake and reduces risks of nutrient losses through runoff.

- Eighty-eight per cent of growers in Ontario are aware of 4R Nutrient Stewardship. Growers in the Western and Central Lake Erie Basins are 4.6 per cent more aware of 4R Nutrient Stewardship, and 5.1 per cent more familiar with the 4Rs relative to growers in the rest of Ontario.
- Growers identified agri-retailers as their predominant 4R resource, particularly in the Western and Central Lake Erie basin, where 10 per cent more growers ranked agri-retailers as their top resource for 4Rs.
- Forty-three and one-half per cent of Ontario growers soil test for nitrogen every three years or more frequently, and just over 63 per cent of Ontario growers soil test for phosphorus every three years or more frequently.
- The most common timing of phosphorus fertilizer application is in the spring at planting.
- The most common placement of phosphorus fertilizer is broadcast with incorporation which was higher in the Western and Central Lake Erie Basin (43.7 per cent crop acres) compared to the rest of Ontario (27.9 per cent crop acres). Phosphorus fertilizer placement as side banding at planting or by the seed were the next two most common placement practices.
- Forty-three per cent of corn growers applied manure to over 30 per cent of corn acres; mostly in the fall or in the spring before planting. Only 10 per cent of soybean growers applied manure to just 13 per cent of soybean acres; mostly in the fall or in the spring before planting. The most common placement for manure (liquid and solid) is on surface and incorporated within one to two days.

Financial support for ongoing surveying, assessment and reporting to achieve greater adoption of 4R practices will be necessary to continue the momentum achieved to date and demonstrates a positive partnership with the farm community to achieve results.

Nitrous Oxide Emission Reduction Protocol (NERP) As a tailored 4R Nutrient Stewardship approach to nitrogen management, Fertilizer Canada has been a leader in the development of NERP. Originally approved for use in Alberta's greenhouse gas management framework, NERP reduces on-farm emissions of nitrous oxide in a quantifiable, credible, and verifiable way that would allow farmers to produce saleable carbon credits. NERP is now being adapted for use in Ontario and Quebec as the candidate protocol to support their respective cap and trade systems. NERP is a useful tool that can support emission reductions and improve soil health on Ontario farms by managing on-farm applied nitrogen sources. Using NERP, crop response to nitrogen is optimized and the ability of nitrate-N to accumulate or persist in the soil and subsequently lost through emissions or leaching is minimized.



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Environmental Farm Planning In 2016, the inaugural National Environmental Farm Plan Summit came to order in an effort to take all provincial environmental farm plans (EFPs) and form the framework for a Canadian-wide approach to the EFP. As an outcome of this summit, the parties agreed that 4R Nutrient Stewardship could become integrated as the recognized sustainable approach to the nutrient management component of the EFP, thereby supporting environmental sustainability of Canadian farmers. With some provinces such as Saskatchewan already recognizing the 4Rs in the language of the province's EFP workbook, this initiative is already in motion. A pilot program on the Alberta EFP is currently being launched to set the stage for national implementation of 4R Nutrient Stewardship and how that translates to the EFP in terms of fulfilling its requirements for environmental sustainability.

Additional Efforts

- Fertilizer Canada's Greener World program teaches home gardeners how best to fertilize lawns and gardens using the 4R principles. Healthy grass makes several important contributions to the environment. It reduces pollution, absorbs the greenhouse gas carbon dioxide and supplies oxygen. While the Greener World program teaches the importance of how to best use and apply fertilizer safely to maintain a healthy lawn, it is that healthy lawn which becomes one of the most effective tools in minimizing potential for urban runoff. Lawns also clean water through filtration, reduce soil erosion and reduce water run-off.
- Fertilizer Canada has developed BMP guidance tables that provide 4R BMP suites for Nitrogen and Phosphorus organized by major cropping systems and agricultural regions including southern Ontario. 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.
- Implementation of 4R Nutrient Stewardship grower workshops, demonstration farms and online training highlighting how the 4R framework fits into the Ontario geography, cropping systems and regulatory environment.
- The Ontario Government has embraced 4R Nutrient Stewardship as an important tool to meet agricultural and environmental goals, referenced in government publications such as *A Phosphorus Primer* and *Soil Fertility Handbook (OMAFRA Publication 611)*.
- The International Joint Commission published its 2016 Progress Report of the Parties documenting the actions taken since the 2012 Great Lakes Water Quality Agreement (GLWQA). The report recognizes the industry's contributions, citing 4R Nutrient Stewardship and encourages adoption of the 4R Nutrient Stewardship Certification program or other comprehensive nutrient management programs:

"4Rs Nutrient Stewardship is an internationally recognized approach based on core scientific principles of applying the right source of plant nutrition, at the right rate, at the right time, and in the right place to improve nutrient use efficiency to reduce any potential nutrient loss into the environment."



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Recommendations

Fertilizer Canada supports a soil strategy for Ontario but asks OMAFRA to consider the following for *New Horizons: Ontario's Draft Agricultural Soil Health and Conservation Strategy*.

- Integrate 4R Nutrient Stewardship as the recommended approach to nutrient management in the soil strategy and recognize the voluntary actions undertaken by the fertilizer industry, farmers and stakeholders through the 4R Nutrient Stewardship program;
- Continue to accelerate 4R adoption in Ontario by recommitting to a 4R Memorandum of Cooperation with Fertilizer Canada and OABA beyond 2018;
- Government investment in further 4R Nutrient Stewardship research as an identified soil research priority and as a key indicator for meeting the objectives of the soil strategy;
- Support the adoption of the Nitrous Oxide Emission Reduction Protocol to produce tangible reductions in Ontario's GHG emissions; and
- Include a Fertilizer Canada representative on the *Agriculture Soil Health and Conservation Working Group* to ensure alignment with 4R Nutrient Stewardship programming.

While Fertilizer Canada is committed to funding research, extension programming and awareness-building initiatives, there is more that can be done. Nationally, Fertilizer Canada is undertaking multiple efforts which strategically supports our goal of 20 million acres recognized under 4R Nutrient Stewardship by 2020.

Thank you again for the opportunity to comment on this important matter. We look forward to further discussing *Ontario's Draft Agricultural Soil Health and Conservation Strategy* with you at your convenience.

Sincerely,

Cassandra Cotton
Director, Sustainability
Fertilizer Canada