



FERTILIZER CANADA

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FOR IMMEDIATE RELEASE

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4R Climate-Smart Protocol Reduces Greenhouse Gas Emissions by up to 35 per cent

OTTAWA, ON – New research concludes that Canadian growers can reduce their on-farm greenhouse gas emissions by up to 35 per cent by implementing 4R Nutrient Stewardship best practices. A literature review, conducted by Dr. David Burton, a nitrous oxide researcher at the Department of Plant, Food, and Environmental Sciences at Dalhousie University, found it is possible to reduce emissions by 10 per cent over original estimate from previous studies.

“Since 2008, the Canadian fertilizer industry has used a conservative estimate of 25 per cent potential nitrous oxide emissions reductions using the 4R Climate-Smart Protocol,” said Clyde Graham, Executive Vice President, Fertilizer Canada. “Following this review, we’re finding that the effectiveness of the 4Rs is greater than initially estimated.”

[The 4R Climate-Smart Protocol](#), also known as the Nitrous Oxide Emission Reduction Protocol, is an easily adaptable, science-based solution to agricultural impacts which incorporates 4R Nutrient Stewardship (Right Source @ Right Rate, Right Time, Right Place®) for Canada’s growers under the guidance of an accredited professional. A national strategy incorporating the Protocol would significantly reduce on-farm nitrous oxide emissions per unit of crop produced while still allowing growers to benefit from the input that is the main driver of crop yields in modern high-production systems.

“While nitrous oxide emission reduction is based on climate and soil, the flexibility of the 4R Nutrient Stewardship framework allows growers from any region to maximize the results of their nutrient management practices, thus achieving a reduction rate of up to 35 per cent,” said Burton. “The agriculture sector contributes 36 per cent of total global greenhouse gas emissions; research has confirmed that the implementation of the 4R Climate-Smart Protocol can significantly reduce that.”

Fertilizer Canada has just completed three years of extensive research engaging nine scientists across the country, five of whom worked to quantify the economic, social and environmental benefits resulting from advanced nitrogen fertilizer management practices under 4R Nutrient Stewardship.

“While these results enable growers from regions across the country to confidently implement 4R practices, there is still work to be done to fully understand the benefits of the 4Rs.” said Karen Haugen-Kozyra, Professional Agronomist and President of environmental consulting firm, Viresco Solutions.



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To further this research, members of the Canadian fertilizer industry have recommitted funding for five more years to demonstrate the effectiveness of 4R Nutrient Stewardship management for reducing the environmental impacts of agriculture.

Such commitment to research will support and enable implementation of the 4R Climate-Smart Protocol launched by Fertilizer Canada to support the country's reduction of nitrous oxide emissions from on-farm nitrogen use.

Read the report, [A Review of the Recent Scientific Literature Documenting the Impact of 4R Management on N₂O Emissions Relevant to a Canadian Context](#), to discover how nitrogen fertilizer management presents an opportunity to reduce the emissions of N₂O from agro-ecosystems in Canada.

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***Fertilizer Canada** represents manufacturers, wholesale and retail distributors of nitrogen, phosphate, potash and sulphur fertilizers. The fertilizer industry plays an essential role in Canada's economy, contributing \$23 billion annually and over 76,000 jobs. The association is committed to supporting the fertilizer industry with innovative research and programming while advocating sustainability, stewardship, safety and security through standards and Codes of Practice. Please visit fertilizercanada.ca.*

***Canadian 4R Research Network** funding was provided by Agriculture and Agri-Food Canada's AgriInnovation Program (Growing Forward 2), contributing Fertilizer Canada member companies to the North American 4R Research Fund and Fertilizer Canada's Science Cluster Program.*

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