



CANADIAN FERTILIZER INSTITUTE
INSTITUT CANADIEN DES ENGRAIS

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A Canadian 4R Research Network: 4R Nutrient Stewardship for Environmental Health and Crop Production

Federal Agriculture Minister Gerry Ritz has approved \$1.1 million in funding towards the Canadian Fertilizer Institute's project entitled "A Canadian Research Network to Improve 4R Nutrient Stewardship for Environmental Health and Crop Production" under the *Agriculture and Agri-Food Canada (AAFC) AgriInnovation Program: Growing Forward II*. Canadian fertilizer industry funding will be providing an additional \$1.1 million to the project for a total of \$2.2 million over the next three years.

4R Research Network

The project will encompass a network of scientific research to support the 4R Nutrient Stewardship framework and will emphasize collaboration with university researchers, professional advisors, provincial agriculture departments and Agriculture and Agri-Food Canada researchers.

The fundamental focus of the scientific research will support the 4R Nutrient Stewardship framework, delivering Canadian growers the information they need to enhance competitiveness, increase productivity and adaptability under the 4R framework to market needs while addressing the sustainable intensification of agriculture. The result will be science-based data that demonstrates, through agronomic research, the benefits of the 4Rs for improved farmer economics, feeding the world, and protecting the environment.

Under the initiative, 10 leading Canadian researchers will qualify economic, social, and environmental benefits resulting from advanced fertilizer management systems under 4R Nutrient Stewardship framework. In particular the research will focus on reducing greenhouse gas and ammonia emissions, losses of phosphorus to surface waters and nitrate leaching in groundwater. Activities, including field trials, will cover key field crops across Canada and have been selected to overcome gaps in adoption such as lack of best management practices (BMPs), evaluation of multiple nutrient loss pathways of nitrogen and phosphorus, evaluation of BMPs under the diverse soils, weather and cropping systems in Canada, and decision making tools for tailoring BMPs to local needs and conditions. Researchers across Canada include:

- David Burton, Nova Scotia
- Craig Drury, Ontario
- Miles Dyck, Alberta
- Alison Eagle, Alberta
- Linda Hall, Alberta
- Ivan O'Halloran, Ontario
- Jeff Schoenau, Saskatchewan
- Mario Tenuta, Manitoba
- Nicolas Tremblay, Quebec
- Claudia Wagner-Riddle, Ontario



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Supporting Quotes

"Farmers need the latest soil science to meet growing global demand for food, feed, fibre and fuel. The results from this research will demonstrate to environmentalists, the food industry and the Canadian public that 4R Nutrient Stewardship is good for the farm economy and the environment."

- Clyde Graham, Acting President, Canadian Fertilizer Institute

"Recent advances in technologies available to growers and understanding of nutrient cycling in agricultural systems are enabling farmers to use their fertilizer more efficiently to grow crops. We still have much work to do on the environmental and agronomic benefits, but the innovation behind 4R Nutrient Stewardship provides the framework to use this knowledge to reduce greenhouse gas emissions while maintaining or increasing crop yields."

- Mario Tenuta, Lead Researcher at the University of Manitoba

"Having soil scientists quantify potential environmental, economic and social impacts resulting from improved fertilizer application under 4R Nutrient Stewardship helps Canadian farmers by providing solid and credible data to show both our domestic and international customers that we are responsible stewards of the land. Sustainability is central to farmers as we work towards a productive future."

- Gary Stanford, President, Grain Growers of Canada

"We recognize the importance of 4R research to develop and populate scientific information that will enable the use of 4R data in modelling tools and programs to help Canadian agricultural producers maintain yields and remain both environmentally responsible and competitive."

- Terry Roberts, President, International Plant Nutrition Institute

4R Nutrient Stewardship

4R Nutrient Stewardship works to increase production and profitability for farmers while enhancing environmental protection and improving sustainability. To achieve those goals, the 4Rs incorporate the: Right Source of fertilizers that are in - or are easily converted to - compounds best used by the target crop. Apply the Right Rate of fertilizer to match nutrient supply with crop requirements. Apply fertilizer at the Right Time so nutrients will be available when crop demand is high. Apply or maintain fertilizer in the Right Place where the crop can access the nutrients most effectively.

The Canadian Fertilizer Institute

The Canadian Fertilizer Institute is an industry association representing manufacturers, wholesale and retail distributors of nitrogen, phosphate, potash and sulphur fertilizers. Our mission is to be the unified voice of the Canadian fertilizer industry by promoting the responsible, sustainable and safe production, distribution and use of fertilizers. Our industry employs 12,000 Canadians and contributes \$12 billion annually to Canada's economy. Our products contribute to the supply of safe, nutritious food in Canada and around the world. Further information on CFI is available at www.cfi.ca.