



FERTILIZER CANADA
FERTILISANTS CANADA

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Re: Response to the consultation on the priorities and work of the Food and Agriculture Organization of the United Nations.

On behalf of Fertilizer Canada and our members, thank you for the opportunity to provide feedback on the priorities and work of the Food and Agriculture Organization of the United Nations (FAO). Fertilizer Canada is an industry association which represents manufacturers, wholesale and retail distributors of nitrogen, phosphate, potash and sulphur fertilizers.

The FAO is one of the most important UN bodies. Its original goals remain as relevant today as they were upon the organizations founding. The FAO provides essential services to all countries, all forms of agriculture, and should play an active role in advancing agriculture and achieving the Sustainable Development Goals.

Working in close collaboration with the International Fertilizer Association, the International Plant Nutrition Institute, regional fertilizer associations, fertilizer companies, agri-business, development agencies, government agencies, environmental groups and farm organizations, the global fertilizer industry is helping to shape agricultural advancement by improving the way farmers deliver essential nutrients to crops with the 4R Nutrient Stewardship framework.

Improving productivity, environmental sustainability, and responding to climate change

Fertilizer Canada is supportive of the outcomes of the 2017 Climate Change Conference (COP21) held in Paris. Achieving these goals will require all to contribute towards both mitigation and adoption of new practices. Sustainable agriculture underpins development, health, and growth across economies. Agriculture needs to be included in efforts to limit and reduce the negative impacts of climate change. Innovations in practices and technologies can help achieve those objectives without compromising productivity and food security, making agriculture more sustainable, more productive, and more resilient.

Feeding the world with climate-smart agriculture, as defined by the FAO, is a priority for Fertilizer Canada. Global crop production must increase by 70 per cent to feed nine billion people by 2050. This must be accomplished in the context of a shrinking availability of arable land. As noted by the FAO, the average amount of cropland and pasture per capita has decreased from 0.4 and 0.8 hectares respectively in the 1970s to 0.2 and 0.5 hectares by the 2000s. (FAOSTAT, 2013) Climate change makes this challenge all the more significant, as it threatens productivity and livelihoods and forces quicker adaptation in farming systems. Meeting the demand for nutritious food will require the efficient use of valuable resources.



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Identifying technologies and practices that can make fertilizer use more efficient can help significantly reduce emissions of nitrous oxide and unwanted nutrient loading in lakes and rivers. It can also help farmers grow more food by improving applications so crops benefit most from the fertilizer, while improving farmers' profitability through more effective spending on inputs and reducing waste. Responsible use of fertilizer plays a significant role in sustainable agricultural intensification. Fertilizer Canada, in collaboration with the International Plant Nutrition Institute (IPNI), The Fertilizer Institute, the International Fertilizer Industry Association (IFA), and other partners, developed a framework that enables better use of fertilizer: 4R Nutrient Stewardship (Right Source @ Right Rate, Right Time, Right Place ®).

4R Nutrient Stewardship framework

4R Nutrient Stewardship is a science-based framework that promotes economic, social, and environmental sustainability on the farm by considering collectively the source, rate, time, and place practices for fertilizer and other crop nutrients. 4R Nutrient Stewardship is based on four key principles:

- 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.

4R Nutrient Stewardship requires the implementation of site-specific BMPs that optimize the efficiency of fertilizer use. The goal of fertilizer BMPs is to match nutrient supply with crop requirements and to minimize nutrient losses from fields. Selection of BMPs varies by location, depending on local soil and climatic conditions, crop, management conditions, and other site-specific factors.

Canadian farms which are currently implementing 4R Nutrient Stewardship demonstrate improved fertilizer efficiency while increasing the quantity produced per acre for each unit of nutrient applied, without sacrificing yield potential. Using 4R Nutrient Stewardship can substantially reduce the nitrous oxide emissions per unit of crop produced by 15 to 25 per cent and in some cases by up to half. To do this, the world-leading Nitrous Oxide Emissions Reduction Protocol (NERP) was developed which employs the 4R principles and generates saleable offsets for farmers. NERP was developed in Canada and coupled with government support and broader adoption, will make the country a leader in climate-smart agriculture.

In addition to reducing greenhouse gas emissions, broad-scale implementation of NERP could:



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- Increase food security and prosperity for the country
- Deploy precision farming in the agricultural supply chain by employing variable rate nitrogen fertilizer application, along with other inputs
- Improve soil health and water quality through the application of regionally-specific BMPs
- Provide domestic emission reductions, contributing to Canada's Paris commitment as identified in the Pan Canadian Framework on Clean Growth and Climate Change (PCF)

4R Nutrient Stewardship and NERP are applicable globally

The principles that underpin 4R Nutrient Stewardship can be applied in any geography and farming system. While the NERP protocol was developed initially for Canada, it uses a modification of Canada's internationally accepted and peer reviewed Tier II inventory method to estimate nitrous oxide emissions at the farm level.

Identifying technologies and practices, such as 4R Nutrient Stewardship and NERP, that can make fertilizer use more efficient, is critical to ensuring all countries control and adapt to climate change and move to a more economically and environmentally sustainable agriculture system.

No one organization can do this alone. This is why partnerships between governments, international organizations, foundations, not-for-profits, and the private sector will be critical to meeting the Sustainable Development Goals set by the United Nations. Recently, NERP and 4R Nutrient Stewardship were recognized in the SDG Industry Matrix, published by the UN Global Compact, as an example solution to Climate Change and a global good practice.

Leveraging the expertise of partners will make greater strides in ensuring social, economic and environmental goals are met in developing countries.

Advancing the empowerment of women and gender equality in agriculture

It is very important that FAO support the advancement of women in agriculture. Women are a vital part of the world's farmers and smallholder women remain the furthest behind on development goals.

Three key issues faced by smallholder farmers are: (1) The limited quality of their production, resulting from depleted soils, unsustainable agricultural practices, especially fertilizer usage; (2) Poor post-harvest handling and; (3) Limited access to markets. These challenges are even more intense for women farmers who are further constrained by limited and unreliable access to land, labour, financial services



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and training opportunities. Addressing these issues will help increase resilience, incomes, and food security, and reduce poverty for men, women and children.

Because of cultural attitudes, discrimination, and a lack of recognition of their role in food production, women experience barriers to accessing inputs and technologies, and have limited or no access to extension services and training on new technologies (FarmingFirst). Female farmers receive only 5% of all agricultural extension services, only 15% of the world's extension agents are women, and only 10% of total aid for agriculture, forestry, and fishing goes to women (FarmingFirst). Direct engagement with women farmers is key to increased sustainable agricultural production and improved farm management, so attention must be paid to underlying gender issues such as access to credit, technical extension training, inputs, and decision-making agency.

Fertilizer Canada and the Co-operative Development Foundation of Canada (CDF) have formed an innovative partnership and currently have a project proposal under consideration with Global Affairs Canada. The 4R Solution project aims to improve agricultural productivity and sustainability for smallholder farmers (specifically women) in Ghana, Ethiopia and Senegal over the next five years. The collaboration focuses on knowledge sharing and training in best practices in fertilizer management using 4R Nutrient Stewardship principles for smallholder farmers. The training is delivered through an extension services network and in each country will also involve governments, agricultural input companies, research institutions, and small farmers organized in co-operatives. The objective is to enable smallholder farmers, working through their own co-operatives, to grow more nutritious, and marketable crops, benefiting from better agricultural practices.

Recommendations

The FAO has a unique opportunity to capitalize on advancements made by the global fertilizer industry, and develop positions that balance environmental and economic performance. The FAO should consider:

- **Adoption of science-based decision-making on matters affecting agricultural productivity and food security:** The FAO has a vital role in the development of standards that facilitate global agriculture. The provision of this service is a global public good and its reputation is built on scientific and technical rigour. This needs to be revitalized to ensure evidence-based rather than opinion-based or speculation-based reports are developed. It is extremely important that the functions of the FAO in this area be adequately funded.
- **Promote commercially, economically sustainable agriculture:** Support practices and technologies that can help achieve environmental objectives without compromising productivity and food security, making agriculture more sustainable, more productive, and more resilient. Continue to support the



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Sustainable Innovation Forum to highlight ways the agriculture industry is ensuring protecting the environment is profitable.

- **Support and promote 4R Nutrient Stewardship as a voluntary solution:** Recognition of the actions undertaken by the global fertilizer industry to promote the principles of 4R Nutrient Stewardship as a means to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- **Consistency in standard-setting:** lack of national/international harmonization have important consequences for market access, productivity, and farmer livelihoods.
- **Fostering investment in agriculture:** The FAO should be more proactive in calling for and fostering an environment for responsible agriculture investment.
- **Support the advancement of women in agriculture:** encourage partnerships which have demonstrated potential to improve the lives of members, in particular women, by providing an income resulting in self-reliance and improved self-confidence.
- **Fostering an environment of respect for farmers:** The world's farmers are on the front lines of climate change, rural development and poverty and hunger. The FAO should play a leadership role in fostering respect for all farmers globally, educating the UN system on the vital role they play, and furthering their engagement in decision-making. Farming of all scales, in all regions, contributes to food security.
- **Champion the mental well-being of farmers:** The FAO should play a leadership role supporting a culture in agriculture where all farmers are encouraged, empowered and supported to take care of their mental well-being.
- **Private Sector Engagement:** Following the approval of the Sustainable Development Goals, there is an important mandate to work with the private sector. The FAO does not have a regularized policy to include private sector. This process should be normalized across the organization, including in the regions to provide maximum engagement and discourse with private sector actors of all sizes. The voice of private sector should follow the principle of equitable participation for all groups.

Fertilizer Canada stands ready to work with the Government of Canada and the FAO and we welcome the opportunity to further discuss how our industry's leadership can be part of the solution.

Regards,

Clyde Graham
Senior Vice President