FERTILIZER CANADA

FERTILISANTS CANADA

Meeting the United Nations Sustainable Development Goals

2015

Simply put, fertilizer is food for plants. It is responsible for nearly half of the world's food supply and it is the most important crop input used by Canadian farmers.

Environmental stewardship and sustainability are not new ideas for the fertilizer industry, nor for our customers who have long embraced best management practices (BMPs) in their farms, yards and business operations. As we move forward, it is increasingly important to demonstrate our successes in measurable ways and also to identify areas of potential improvement.

The global fertilizer industry is committed to 4R Nutrient Stewardship (Right Source @ Right Rate, Right Time and Right Place®) to minimize impact on the environment by embracing the economic, social and environmental goals. With use of this science-based framework industry stakeholders, including farm groups, homeowners, researchers, conservationists, governments, landscapers, horticulturalists, industry members and communities can access to strong environmental benefits.

The global fertilizer industry association (IFA), its members and national fertilizer associations like Fertilizer Canada (formerly the Canadian Fertilizer Institute) are developing strategic programs across the globe to address international food security.

This document outlines opportunities for the United Nations (UN) and stakeholders to support and promote internationally recognized programs as a part of the solution to Sustainable Development Goals outlined in the UN 2030 goals.

Topic 2: Goal 2:

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Target 2.3:

By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

Fertilizer Canada recognizes the importance of providing global farmers, regardless of their size, with science-based information on the International 4R Nutrient Stewardship framework (Right Source @ Right Rate, Right Time, Right Place ®) for management of nutrients. This framework ensures the protection of the environment, the production of safe food for consumers and the productivity of producers. Global food security will never be realized without the use of commercial fertilizers, and the industry's 4R Nutrient Stewardship program provides the foundation for responsible use of these essential plant nutrients.

The UN and stakeholders should support and promote this internationally recognized program as a replicable solution to help increase agricultural productivity in developing countries.

Target 2.4:

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

Improved nutrient management is delivered through the incorporation of a 4R Nutrient Stewardship Plan into the farm. 4R Nutrient Stewardship: Right Source @ Right Rate, Right Time, Right Place® is a universal science-based program developed by the International Plant Nutrition Institute. It promotes the application of the scientific principles of crop nutrition in combination with best available local and regional evidence to improve the site-specific management of nutrients. The 4R program is solidly based in sustainable agriculture and seeks to balance nutrient management decisions within a framework of economic, social, and environmental goals.

- Right Source: Ensure a balanced supply of essential nutrients
- Right Rate: Assess and make decisions based on soil nutrient supply and plant demand
- Right Time: Assess and make decisions based on the dynamics of crop uptake, soil supply, nutrient loss risks, and field operation logistics
- Right Place: Address root-soil dynamics and nutrient movement, and manage spatial variability within the field to meet site-specific crop needs and limit potential losses from the field.

The UN and stakeholders should support and promote this internationally recognized program as a replicable solution to ensure sustainable food production.

Topic 6: Goal 6:

Ensure availability and sustainable management of water and sanitation for all.

Target 6.6:

By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Canada's fertilizer industry has undertaken work to reduce phosphorus losses to protect and restore water-related ecosystems and is committed to working with governments, watershed groups, scientists, agri-retailers, farmers and stakeholders.

Fertilizer Canada promotes the adoption and implementation of 4R Nutrient Stewardship - using the right fertilizer source, at the right rate, at the right time and in the right place. Canada's fertilizer industry believes that the voluntary adoption of these principles is the best approach towards reducing the negative environmental impacts of unwanted nutrient loading.

When the right fertilizers are applied at the right rate, time and place, the impact on water quality is minimal. The primary nutrient found to cause the growth of algae and aquatic weeds in streams and lakes is phosphorus, which has many sources other than fertilizer. Phosphorus from properly applied fertilizers rapidly binds with the soil following application. When applied at the right rate, as determined by a soil test, and at the right time and in the right place, its losses in drainage water are minimal.

The research related to 4R Nutrient Stewardship could be easily adapted on the global scale, and is readily available for application in developing areas around the world.

The UN and stakeholders shoud support and promote the 4R Nutrient Stewardship program as a replicable solution to protect water quality.

Topic 13: Goal 13:

Take urgent action to combat climate change and its impacts.

Target 13.2:

Integrate climate change measures into national policies, strategies and planning.

Nitrogen fertilizer is an important driver of nitrous oxide emissions, but it is also the main driver of yield in modern high production systems. Through careful selection of nitrogen fertilizer source, rate, timing and placement practices, the nitrous oxide emissions per unit of crop produced can be substantially reduced, in some cases by up to half. The practices that reduce nitrous oxide emissions also tend to increase nitrogen use efficiency and the economic return on fertilizer dollars.

The Nitrous Oxide Emission Reduction Protocol (NERP) is a science-based protocol designed to meet international standards for improving nitrogen management in cropping systems and estimating the nitrous oxide reduction associated with better nitrogen management. NERP is simple in concept, driven by data that producers are either already collecting or are interested in collecting to improve their overall farm management system.

Improved nitrogen management within NERP is delivered through a 4R Nutrient Stewardship Plan on the farm. 4R Nutrient Stewardship (Right Source @ Right Rate, Right Time, Right Place®) is a science-based program, solidly based in sustainable agriculture that seeks to balance nutrient management decisions within a framework of economic, social, and environmental goals.

NERP was developed in Canada but was designed to be flexible enough to be used anywhere in the world to reduce emissions.

The UN and stakeholders should support and promote the Nitrous Oxide Emission Reduction Protocol as a replicable solution to help integrate climate change measures into national policies, strategies and planning.

Topic 14: Goal 14:

Conserve and sustainable use of the oceans, seas and marine resources for sustainable development.

Target 14.1:

By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

Proposed indicator: Fertilizer consumption (kg/ha of arable land)
Focusing on fertilizer application rates only is misleading and can lead to false conclusions. Thus, keeping comparatively high nutrient application rates in some situations is needed and sustainable in areas with high yields and high nutrient use efficiency. Similarly, increasing fertilizer application rates is justified in areas with a history of soil fertility mining in order to increase productivity and rebuild soil fertility.

The indicator should address all nutrient sources, not only from mineral fertilizers applied to arable land. Also, it should be noted that, by 2050, the nutrient input to marine ecosystems from mineral fertilizers is very likely to grow at much slower pace than the input from livestock manure, aquaculture and wastewater. It is feasible that with improved techniques the nutrient input to marine systems could be reduced in many regions. Therefore, looking at mineral fertilizers only would result in overlooking the fastest growing sources of nutrient input to the oceans. For agricultural systems, the nutrient balance (surplus or deficit) would be the most relevant metric. OECD already monitors nutrient balances in agricultural systems in its member states, taking all nutrient inputs and outputs into account. The Global Partnership on Nutrient Management (GPNM), the European Nitrogen Expert Panel and the International Fertilizer Industry Association (IFA) have also proposed an indicator of N use efficiency, reflecting the N input, the N output, the N output/input ratio and the N surplus/deficit, which could be used for that purpose. It could also be used for Goal 2.

General Comments:

The global fertilizer industry association (IFA), its members and national fertilizer associations like Fertilizer Canada (formally known as the Canadian Fertilizer Institute) and The Fertilizer Institute are developing strategic programs across the globe to address international food security. The global fertilizer industry is committed to balancing the economic, social and environmental goals of our stakeholders, including farm groups, homeowners, researchers, conservationists, governments, industry members and communities.

The global fertilizer industry supports 4R Nutrient Stewardship Best Management Practices which align with the principles of Climate Smart Agriculture and contribute to the United Nation's key deliverables for 2015. 4R Nutrient Stewardship is a science-based approach which works to increase production/profitability for farmers while enhancing environmental protection and improving sustainability. To achieve these goals, the 4Rs encourage farmers to use fertilizer management practices that ensure the right source is applied at the right rate, at the right time and in the right place.

The United Nations has a unique opportunity to take advantage of advancements made by the global fertilizer industry, and to develop a goals and indicators that balance environmental and economic performance. The United Nations should contemplate the following:

- Adopt and support science-based decision-making on matters affecting agricultural productivity and food security.
- Support and promote 4R Nutrient Stewardship program as a solution to help increase agricultural productivity in developing countries.
- Recognize 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.
- Support and promote the 4R Nutrient Stewardship program as a means to protect water quality.
- Support and promote the Nitrous Oxide Emission Reduction Protocol as a solution to help integrate climate change measures into national policies, strategies and planning.