



January 26, 2018

Re: Response to the online consultation for developing the Code of Conduct for the Management of Fertilizers

On behalf of Fertilizer Canada and our members, thank you for the opportunity to provide feedback to the Food and Agriculture Organization of the United Nations (FAO) on the development of the Code of Conduct for the Management of Fertilizers (CoCoFe). 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.

Fertilizer Canada is an industry association which represents manufacturers, wholesale and retail distributors of nitrogen, phosphate, potash and sulphur fertilizers. As the foundation of the agri-food sector, fertilizer positively impacts soil health, the economy, and the social fabrics of Canadian life. As the world seeks to feed a burgeoning population with high-quality foods from a decreasing land base, farmers around the world will continue to rely on fertilizer to increase production efficiency while conserving our soil, water and air.

Meeting this challenge is not the job of farmers alone, but will require a strong commitment by the entire human community to the development and deployment of ecologically friendly food productions systems. Producers will require more than just new and innovative technologies; they will require a new **framework** for understanding and implementing the principles and practices of sustainable agriculture.

4R Nutrient Stewardship has been designed for this purpose. The 4R approach brings together universal principles of nutrient management with local evidence-based agronomy. The result is best management practices that make sustainable agriculture a reality on the farm. The 4R Nutrient Stewardship framework addresses the four main components of fertilizer application and is designed to link the practices used to manage nutrients in the cropping system to an integrated approach:

- 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.

Specific Comments

Given the global scope of the CoCoFe, do you think the objectives are appropriate? If not, how would you add to them or modify them?

Objective 1: Increasing global food production on current agricultural land - To feed a projected population of nine billion people by 2050, food production will have to increase its per acre intensity by 70 per cent. This must be accomplished with 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.

Objective 2: Maximizing the effective and efficient use of plant nutrients to enhance sustainable agriculture - The 4R Nutrient Stewardship program is about using fertilizer more **effectively and efficiently**. The CoCoFe needs to focus its objectives on **sustainable fertilizer use**, rather than overuse/underuse of fertilizer.

Objective 3: Minimizing the environmental impacts associated with nutrient losses to the environment and increasing environmental benefits - positive environmental impacts associated with proper fertilizer use should also be referenced.

Objective 4: Ensuring food safety by assessing and managing risks from non-nutritive trace elements in fertilizers - Human health benefits of fertilizer must also be highlighted and should be included in objective 5.

Objective 5: Maintaining and increasing food nutrition and safety – This objective needs to include nutrition. Fertilizers provide nutrition to crops and micronutrients are vital to improving human health around the world.

How should the CoCoFe be structured to have the maximum positive impact?

Through continued collaboration, the FAO has a unique opportunity to take advantage of the advancements that have been made by the global fertilizer sector. Recommendations from a science team/network with top nutrient management specialists representing many geographical cropping regions should be provided to a governing council of policy officials from FAO.

Additionally, while the CoCoFe is not designed to provide specific recommendations on field applications of fertilizers, it should be structured around an internationally recognized, science-based framework such as 4R Nutrient Stewardship. The 4R framework is an innovative solution that embraces the objectives of a code of conduct:

- It promotes innovative science-based nutrient management practices
- It is climate-smart, delivering measurement against sustainability goals which includes commitment to mitigate greenhouse gas emissions and nutrient runoff
- It increases the efficiency of agricultural nutrient use practices for enhanced food production
- It encourages a nutrient decision system that accounts for impact on all connected stakeholders, to help improve the growth of value-added agriculture and agri-food sectors
- It can result in downstream assurance of sustainable and responsible use of nutrients in farming

Who would be the best audience for the CoCoFe to meet our objectives and how could we broaden and diversify this audience to increase its influence?

The primary audience for the CoCoFe should be the agencies/departments in individual countries that are responsible for agricultural policy. Increased influence and impact of the CoCoFe could be achieved by ensuring scalability to other stakeholders including the fertilizer industry, grower organizations, NGOs and Universities by addressing agricultural education, grower extension, and research in each country as well as the agencies or groups in each country that are responsible for funding agricultural education,



extension, and research.

What should the scope of the CoCoFe be? Which nutrient input sources should be included; only synthetic fertilizers, or also manure, biosolids, compost, etc.? Should other products such as bio-stimulants, nitrification inhibitors, urease inhibitors, etc., be included as well?

All nutrient sources that provide plant nutrition should be included in addition to advanced fertilizer formulations that help to better match nutrient availability to plant uptake. Including these products will help encourage innovation and advancements in the nutrient use efficiency of fertilizers. Inclusion of all nutrient sources and products should be based on the scientific data available on their use and efficiency.

Will the CoCoFe assist in promoting responsible and judicious use of fertilizers? Why or why not? What other suggestions do you have to help the CoCoFe meet our objectives?

The success of the CoCoFe in promoting responsible and judicious use of fertilizer is dependent on engaging governments, agricultural scientists, agricultural educators, NGOs involved in sustainability and the global fertilizer industry. The CoCoFe should be based on a rigorous science-based framework like the 4R Nutrient Stewardship, and framed through discussion with regional stakeholders with their multiple objectives in mind for the necessary buy-in and implementation.

The 4R Nutrient Stewardship framework was developed based on scientific principles with input from stakeholders across the crop nutrition industry and could serve as a starting point for development of CoCoFe by using a process of wider stakeholder engagement, seeking to make the principles accessible to wider audiences.