



FERTILIZER CANADA
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Tony Sturz
Director, Policy Development
Department of Communities, Land and Environment
Government of Prince Edward Island
PO Box 2000
Charlottetown, PEI
C1A 7N8

Re: Fertilizer Canada submission in response to the draft *Water Act* for Prince Edward Island

Dear Mr. Sturz;

On behalf of Fertilizer Canada and our members, thank you for the opportunity to provide feedback to the development of the draft *Water Act* for Prince Edward Island (PEI). Our members are working to advance the development and implementation of new technologies and scientifically-based management practices for agricultural cropping systems to better meet social, environmental and economic goals.

Whether from organic or commercial sources, fertilizer nutrients are a key component of sustainable crop production systems. Fertilizer is a key ingredient in feeding a growing global population, which is expected to surpass 9.7 billion people by 2050. Half of all food produced around the world today is made possible through the use of fertilizer. As demand continues to grow, farmers around the world will continue to rely on fertilizer to increase production efficiency to produce more food while optimizing inputs. Fertilizers play an essential role in replenishing nutrients in the soil that are used by plants each growing season, raising soil productivity, and improving soil health; but incorrect nutrient use may lead to negative impacts on a grower's return on investment and risks increased impacts on the environment.

4R Nutrient Stewardship provides a framework of sustainability that protects the environment and natural resources

Fertilizer Canada is supportive of science-based solutions to minimize nitrates from agricultural sources in groundwater. The *Inside the Water Act* document has a stated goal for “water allocation subject to science-based decisions.” 4R Nutrient Stewardship is a leading science-based approach to sustainable agriculture. 4R Nutrient Stewardship is an internationally recognized best management practice (BMP) system, implementing practices to collectively optimize the source, rate, time and place of fertilizer application based on scientific principles and local knowledge. The 4R system embraces adaptive management and a continual improvement cycle. The four key pillars of fertilizer application are the Right Source @ Right Rate, Right Time, Right Place®:

- The **Right Source** means ensuring a balanced supply of essential nutrients, considering both naturally available sources and the characteristics of specific products, in plant available forms.

- The **Right Rate** is applying just enough fertilizer to meet the needs of the plant while accounting for nutrients already in the soil. Farmers and homeowners can use soil tests to identify nutrient shortfalls.
- 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. An example on the farm would be sub-surface banding in the soil near the seed row rather than surface application. Farmers may also need to establish buffer strips near streams, rivers, lakes or wells to prevent unwanted nutrient movement into surface or groundwater.

Shared value partnerships in PEI are growing and leading to successful implementation of 4R practices on the farm.

To help potato farmers achieve greater economic and environmental sustainability, Fertilizer Canada has invested \$300,000 since 2012 under a 4R Memorandum of Understanding (MOU) with provincial partners to implement 4R Nutrient Stewardship in PEI.

Partners under this MOU include the PEI Department of Agriculture and Forestry; the PEI Department of Communities, Land and Environment; the PEI Federation of Agriculture; the PEI Potato Board; Kensington North Watersheds Association; and local agri-retailers who are promoting agricultural sustainability through on-the-ground research, training and extension outreach.

4R Demonstration farms: A series of 4R demonstration farms have been established in PEI — a total of 10 in 2016 — where growers' standard practices are compared directly to 4R BMPs by evaluating crop grade, tuber yield and economic return.

Results indicated that the 4R treated fields produced crops with equivalent or better economic value and quality to positively impact the end net crop value. Though there were variations from farm to farm, three years of results from the demonstration farms in PEI have shown that implementing 4R BMPs can lead to:

- **Increased economic value** – The average crop value of the harvest from the 4R demonstration farms increased by \$80 to \$200 per acre compared to the standard practice plots due to better tuber yield and quality.
- **Lower nitrate and phosphorus residual levels** – Most 4R demonstration sites were observed to have less post-harvest nitrate and phosphate accumulation in the soil. This implies more efficient nutrient uptake and lower environmental impact.

By showcasing the economic potential of the 4R BMPs, more growers across PEI are voluntarily adopting 4R Nutrient Stewardship on their farms.

Grower Survey: In 2016, the MOU participants conducted a grower survey in order to identify a benchmark for measuring nutrient stewardship efforts in PEI, encourage appropriate management decisions, and promote continuous improvement.

A random sample of 30 growers from all 4 districts, representing roughly 20 per cent of PEI's potato growers showed that, on average, growers are meeting 92 per cent of criteria for a basic level of 4R Nutrient Stewardship, 55 per cent of intermediate criteria are being met, and 17 per

cent of advanced criteria are being met. Additionally:

- 21 out of 30 growers surveyed are meeting 100 per cent of basic criteria
- 22 out of 30 growers surveyed are meeting 50 per cent of intermediate criteria
- 11 out of 30 growers surveyed are meeting 25 per cent of advanced criteria

4R Designation for Agri-Retailers: Agri-Retailers and their accredited professional staff play an integral role in supporting growers to achieve productivity goals for safe and nutritious food. Agri-Retailers provide crop inputs, and in the majority of companies, provide agronomic services to growers on the use, handling and storage of crop inputs.

The 4R Designation program demonstrates that growers are moving to the forefront of BMPs in commercial fertilizer and other nutrient use. With this national voluntary program, industry stakeholders can assist growers to demonstrate the tangible commitment being made by the Canadian agricultural industry to the economy, environment and their communities, which can be measured by getting crop acres counted.

To participate, at least one Certified Crop Advisor (CCA) employed by an agri-retailer becomes 4R Nutrient Stewardship accredited by taking the approved training courses offered by Fertilizer Canada eLearning.

Once these courses have been completed and attestations have been signed on the part of the company and the CCA, the accredited CCA is able to report 4R Designated acres on behalf of their company highlighting the commitment that was undertaken to support sustainable agriculture. To date, 13 companies across Canada are participating in the initiative and are ready to report acres under 4R management.

Canadian 4R Research Network: Dr. David Burton (Dalhousie University) has commenced a study in Atlantic Canada quantifying the magnitude and variability of soil N supply in 26 farms in PEI as a function of climate, soil type or agricultural management, allowing an assessment of the opportunity for site-specific N recommendations to reduce the risk of nitrate leaching to groundwater and nitrous oxide emissions. This information has demonstrated the potential for the use of site-specific N supply level measurements as a means of determining the Right Rate of fertilizer N application rates to improve production and reduce the potential for environmental impact.

Recommendations for the PEI Water Act

1. 4R Nutrient Stewardship be formally recognized in the *PEI Water Act* as a recommended best management practice system to reduce agricultural runoff including nitrate into groundwater;
2. Adopt and support science-based decision making to better understand impact of nitrates in water. Water access, allocation decisions and designation of water management areas should be made using scientific data and with input from technical experts and farmers in the field; and
3. Continue to work with industry stakeholders and consider the regulatory authority already in place to achieve the objectives of protecting PEI's water resources – the Farm Practices Act;
4. Promote 4R Nutrient Stewardship in the province.

Thank you for the opportunity to comment on this important matter. Sustainability is a pillar of our industry as we work to feed a growing world population. Fertilizer Canada believes that nutrient management programs based on sound science, expert advice and public education are the best approach towards reducing the negative environmental impacts of unwanted nutrient loading in PEI's water. We are committed to continuing to work with the PEI government to promote nutrient management and agricultural sustainability.

Sincerely,

Director, Sustainability
Fertilizer Canada

cc: Hon. Robert Mitchell, M.L.A., Minister of Communities, Land and Environment, Government of Prince Edward Island