

## **4R Nutrient Stewardship**

**By Lara Moody, Director of Stewardship Programs, The Fertilizer Institute**

Crop advisors know that nutrients, like nitrogen, phosphorus and potassium are essential for growing crops – but similar to calories in our diets too much of a good thing can become a problem. Today, many policymakers, environmental groups and the media representatives both nationally and at the state level, are increasingly focused on fertilizers as a problem for the environment, not a solution to meeting the food needs of a growing population. While there is not a one size fits all answer, we know that mandatory rate reductions and input limits are not an environmental, economic or socially beneficial answer either. Alternatively, 4R nutrient stewardship that utilizes fertilizer best management practices addressing the right fertilizer source, at the right rate, the right time, and in the right place, provides the foundation for a science-based system to achieve sustainable plant nutrition management. In short, 4R practices are good for the grower and good for the environment.

Fertilizer is a component of sustainable crop production, but agriculture professionals know that in excess, nutrients contribute to pollution. If we under use nutrients, we mine fertility, reduce yields and reduce farm livelihoods. And, conversely, if overused or incorrectly applied, fertilizer nutrients will negatively impact the environment and the community – not to mention the grower's pocketbook.

There is an existing need to improve the adoption of fertilizer best management practices to enhance the sustainability, efficiency and productivity of agricultural systems. Efficiency and productivity together are interwoven with sustainability. Striving to improve efficiency without also increasing productivity simply increases the pressure to produce more on other lands which may be less suited to agricultural production. Some might advocate that efficiency increases should be achieved by reducing inputs, but this technique is likely to negatively affect yields over time. Conversely, squandering resources to maximize productivity results in increased environmental impacts and decreased profitability.

To address the need for greater adoption of fertilizer best management practices the fertilizer industry is leading an initiative to educate growers about the value of enhanced efforts aimed at nutrient stewardship. Through that effort, we are promoting 4R nutrient stewardship as the framework to achieve cropping system goals, like increased production, increased farmer profitability and enhanced environmental protection.

Because of input costs, the need for production to meet growing demands, and environmental impacts the risks for making the wrong nutrient use decisions is greater now than ever. Luckily, the key factors in growing a good crop happen to be the same as those to reduce negative impacts to the environment. We must accept and address the interconnectivity between practices addressing source, rate, time and place. When your grower customers make a decision about one of the R's it is affected by the other three. To mitigate the risks, we can't simply look at only one of the four nutrient stewardship components.

While the scientific practices that govern the 4Rs are universal, the practices to be implemented are site specific, so there is not a common management plan or set of practices that will work for everyone in every location. Crop advisors are key in the efforts to increase adoption of 4R nutrient stewardship with growers.

The positive impacts of 4R nutrient stewardship, as an alternative to regulation, point to the need for greater adoption. The 4R message is strongest when it is supported by others, but to whom are we trying to get the message? In addition to growers who will implement the practices and retailers and crop advisors who work in close contact with growers; it is the public and other stakeholders who need to understand the positive impact of agriculture and policy makers who may ultimately decide the direction of nutrient strategies. Further - who is going to carry the message? Is it the trade associations and partner organizations, is it the retailers and crop advisors, or is it the growers?

The answer is all the above - and this is what makes your participation necessary. A couple weeks ago I met a retailer who was asked to participate in a watershed meeting as a representative from agriculture and the industry. While the strongest environmental activist at the meeting was a representative from the state bee keepers, this retailer found himself under attack for his perceived role in the negative impacts of agriculture. Should he have been at the meeting? What should have been his response? What would you or one of your clients have done in his place? In many cases meetings that effect nutrient use are taking place, but representation from agriculture or the fertilizer industry is either scant or non-existent.

There are many groups who do recognize the dual role of agriculture relative to environmental impact and production needs and even those that don't require enlightenment. Many of these groups are organizations that would gladly develop partnerships. There are efforts across the country with projects trying to increase the adoption of best management practices and to measure the effect of these practices. Agriculture's involvement with watershed groups can foster a mutually beneficial relationship. The watershed group potentially gains access to additional growers, services, funding, and knowledge and the agriculture community gains access to a larger group promoting our message and increased adoption of 4R nutrient stewardship.

Without agriculture's input who is going to make the case for us? The August edition of *The Progressive Farmer* contained a story titled "Advocating for Agriculture". It highlighted the importance of providing messaging with real information and experiences and not just the science, facts, and numbers. To that end, retailers and advisors who are helping growers implement fertilizer best management practices and growers who are implementing them are better messengers than we are.

In June I spoke at EPA's State Level Nutrient Reduction Strategy Workshop for Agriculture. While EPA representatives were pushing for states to adopt regulations and policies that would affect agriculture, the states were clearly more interested in pursuing voluntary strategies that were developed with stakeholder input. They were very glad to hear of our 4R efforts and our sector's interest, which indicated that we were not yet a part of their conversations. National and state agriculture organizations can't be everywhere, so local level engagement - including that of crop advisors - is needed.

Other efforts to bring agriculture together under a unified stewardship platform include the 4R website ([www.nutrientstewardship.com](http://www.nutrientstewardship.com)), work The Fertilizer Institute (TFI) is undertaking with U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) to develop training modules for service providers on the 4Rs and the new 590 nutrient management standard, supporting small projects where groups are taking the initiative to provide 4R outreach, examining how nutrient stewardship may be a part of carbon markets, participating in expos and conferences to get the word out on 4R, developing materials for use by those interested in utilizing and promoting 4Rs. The International Plant Nutrition

Institute is working with us on many of these efforts as well, and is now developing a 4R Nutrient Stewardship Manual and developing materials and collecting data to support the effort.

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