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THE SOCIAL IMPACT OF 4R NUTRIENT STEWARDSHIP

The social dimension is one of the three major pillars of sustainability. Sustainable plant nutrition means applying the right source of nutrients at the right rate, at the right time, and in the right place. How does 4R Nutrient Stewardship engage the social pillar? What impacts can we expect on social conditions?

Often, nutrient practices do not seem to be related to social conditions. For example, an improvement in fertilizer placement might increase profits from corn production and reduce losses of nitrogen and phosphorus, but do we really expect it to change social conditions directly? Possibly, if the nutrient source smelled foul (some do!), the change might lead to better neighbor relations and improved quality of rural life - direct social benefits. But additionally, considering long term and broad scale adoption, the two improvements in economic and environmental impact add up to more worldfood supply with more and better natural surroundings for people to enjoy. Isn't that too a social benefit?

Social benefits also arise from the sustainable intensification that the 4Rs support. Much of North American agriculture is becoming more extensive than intensive. Larger and faster equipment, on the one hand, allows better timeliness in planting and other field operations, and improved labor productivity, but on the other hand, it may enable a tendency to manage larger land areas without addressing their site-specific crop nutrient needs. A 4R Nutrient Stewardship approach emphasizes ensuring that each crop in each field receives the right source of nutrients at the right rate, time and place. Tools of precision agriculture—including precision nutrient placement for conservation tillage systems—enable intensive approaches on extensive areas, generating employment opportunities that didn't exist before.

4R Nutrient Stewardship demands adaptive management. While an operator can now cover more acres in a day, that operator needs to be supported by more local site-specific information. Generating that information requires adaptive management—continuous systematic assessment and participatory learning. Adaptive management requires investment in people. Engaging crop advisers and agronomists for 4R advice, certification consistency, and help in record-keeping creates demand for well-educated service providers. Participating in adaptive management builds a sense of teamwork. The cycle of evaluating practices for their economic and environmental impacts engages people to work together. All this put together builds a more interactive social environment.

4R Nutrient Stewardship also demands accountability. The ability to communicate in a simple manner to the many stakeholders of agriculture—neighbors, consumers, environmental advocates—is important for ensuring that public perception supports public policy that enables continuing intensification. Communication is a task that requires skills and training, but is most effective when it's done by the people involved in what's happening. Supporting such communication is an investment toward greater sustainability. The goal-setting part of a farm's 4R Nutrient Stewardship plan brings farmers and crop advisers into contact with people they might never have encountered otherwise. Displaying the logo and sharing its associated information informs public opinion and educates consumers.

Finally, 4R Nutrient Stewardship supports maintaining soils for the benefit of future generations. The success of today's agriculture owes a lot to what previous generations have invested in improving the fertility and conservation of the soil. Replenishing nutrients removed, maintaining organic matter, and sustaining soil biology matter to future generations.

Sound nutrient stewardship delivers benefits, socially as well as economically and environmentally.

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Note: *Plant Nutrition TODAY* articles are available online at the IPNI website: www.ipni.net/pnt