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## **4R FUND SUPPORTS THE NEXT GENERATION OF CROP NUTRITION RESEARCH**

**The 4R Fund was established in 2013 by the fertilizer industry to measure and document the economic, social, and environmental impacts of 4R Nutrient Stewardship.** The concept of 4R Nutrient Stewardship is to apply the right fertilizer source at the right rate, at the right time, and with the right placement. Moving “right” from a concept to something measurable requires a two-pronged approach: glean knowledge from previous studies and initiating new studies to fill knowledge gaps. The 4R Fund provides researchers with resources to do both. In 2013, a request for proposals was publicized and a total of twenty-three projects in the U.S. and Canada were funded.

**Five of these projects are gleaned knowledge from previous studies.** These aren't traditional reviews. The techniques being used are new to agriculture but are not new to science. They have been used extensively in the social sciences and in medicine. Meta-analyses, as they are called, leave the traditional narrative style of past reviews behind. Instead, they provide quantitative answers to the question, “Across all studies that can be analyzed, how much of an overall difference is there?” The 4R Fund meta-analysis projects are reviewing published research to find strategies most likely to reduce nutrient losses while securing needed supplies of food, feed, fuel, and fiber.

**Seventeen of the 4R Fund studies are research and demonstration projects aimed at increasing our understanding of what practices constitute the next generation of nutrient stewardship.** These studies examine not only productivity but also nutrient use efficiency and nutrient losses. Many sites are heavily instrumented and measure a variety of environmental variables.

**A unique feature of the 4R Fund is the mandate for open access to data.** This is the objective of the remaining project. Eventually, all data and meta-data from each experiment will be collected, described, and archived. This will preserve the data and make it available for answering new questions in the future. This is a unique offering for industry-funded research and sets a precedent for transparency.

The 4R Fund was established from contributions of members of The Fertilizer Institute and Fertilizer Canada (formerly the Canadian Fertilizer Institute) and has since grown to include contributions from additional agricultural stakeholders. For more information, visit <http://www.nutrientstewardship.com/funding>.

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