

Request for Proposals (RFP) Meta-Analyses on the Impacts of 4R Nutrient Stewardship

The 4R Nutrient Stewardship is a new, innovative approach for fertilizer best management practices adopted by the world fertilizer industry. This approach considers economic, social, and environmental dimensions of nutrient management and is essential to sustainability of agriculture systems. The concept is simple: apply the right source of nutrient at the right rate, the right time, and in the right place. However, the implementation of these practices is knowledge-intensive, site-specific, and is likely to change as new technologies become available and our understanding of nutrient management evolves.

More information on the technical aspects of 4R Nutrient Stewardship is available at <http://www.ipni.net/4R> and on 4R industry programs at <http://www.nutrientstewardship.com/>.

The objective of this RFP is to solicit literature reviews and syntheses on topics related to 4R Nutrient Stewardship on a national, regional, or cropping system basis utilizing meta-analyses with stepwise regression, ANOVA, causal analysis, or other statistical methods. The intent of the projects developed from these proposals is to utilize previous research to establish the impacts of 4R Nutrient Stewardship efforts. This will avoid needless duplication of previous research and inform industry, academia, and agencies of knowledge gaps that need to be addressed with future research.

Basic Requirements:

The meta-analyses should examine one or more of the following topics related to 4R Nutrient Stewardship (right source, rate, time, and place) on a national, regional, or cropping system basis:

1. Environmental Outcomes - Examine 4R Nutrient Stewardship's fertilizer source, rate, time, and place factors and their impacts on and relationships with dissolved and particulate N and P loss through tile drainage, leaching and runoff, as well as emission losses through volatilization and denitrification.
2. Crop Utilization - Examine 4R Nutrient Stewardship's fertilizer source, rate, time, and place factors and their impacts on and relationships with crop nutrient uptake and nutrient use efficiency (NUE).
3. Economic and Social Outcomes - Examine 4R Nutrient Stewardship's fertilizer source, rate, time, and place factors and their impacts on and relationships with on-farm economics (e.g., input and management costs, yield, revenue), and if possible socio-economic outcomes.
4. Interactions with Site Conditions and Cropping Systems - Explore the interactions among fertilizer source, rate, time, and place factors as affected by soil resource, climate, and cropping system factors in impacting one or more of the outcomes listed as basic requirements 1 to 3 above.

High priority topics for this RFP include analyses of environmental outcomes such as N loss in tile drainage, surface N and P loss in runoff, groundwater contamination, and N loss in emissions. Proposals that evaluate economic impacts (as discussed previously, e.g., yield, revenue, cost of 4R management practices) and environmental outcomes are especially attractive, as are proposals that simultaneously evaluate multiple environmental outcomes.

For additional information: <http://www.nutrientstewardship.com/funding>

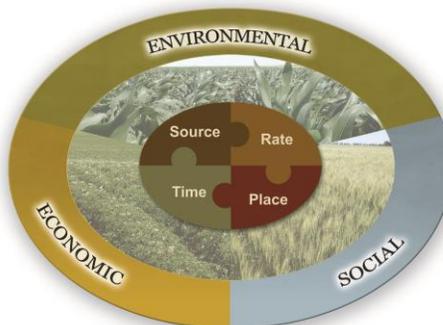
In addition, all proposed meta-analyses must consider crop yields, and when possible, analyses should include data related to costs associated with 4R management factors and resulting revenue, crop nutrient uptake, and soil N, P, K levels. Because crop yield is a vital component related to the impacts of 4 R Nutrient Stewardship, projects including a task to add crop yield data to existing databases or repositories will receive strong consideration. To a lesser degree, projects adding data related to 4R management costs and associated revenue, crop nutrient uptake, and/or soil N, P, K levels to existing data bases or repositories are also eligible for consideration.

Additional Requirements:

1. Such analyses may include review of both peer-reviewed and gray literature; however, gray literature should receive rigorous examination to ensure scientific credibility.
2. Data aggregated and generated, along with the relevant references, must be submitted for inclusion in an open access 4R Fund project database. The format of that database will be subsequently determined and prescribed.
3. The analyses should produce:
 - a. at least one manuscript of sufficient quality to submit for publication in a peer-reviewed journal such as Agronomy Journal, Soil Science Society of America Journal, Soil Science, or Transactions of ASABE;
 - b. synopsis reports in periodicals (e.g., IPNI's Better Crops, American Society of Agronomy's Crops & Soils Magazine, Plant Management Network) or articles in leading agriculture magazines (e.g., Corn & Soybean Digest, Ag Professional, CropLife, Progressive Farmer, Farm Journal).
4. Eligible candidates include: Ph.D. students preparing to define dissertation hypotheses, post-docs, and established researchers.
5. The proposal:
 - a. should be presented with 12 point font, 1" margins, single spacing;
 - b. may not exceed 15 pages in length including: references, a one page budget summary, and a time line/milestones table, and list of deliverables;
 - c. should include a one page abbreviated resume for all key personnel (not counted in the page limit).
 - d. Indirect costs may be charge, but since awards will be granted on a competitive basis, a proposal with significant indirect is not likely to be competitive (less than 10% is expected). *Amended 11/22/13 for clarification.*
 - e. proposals should be submitted to the International Plant Nutrition Institute at ppates@ipni.net by close of business on **December 15, 2013**.

Award:

\$20,000 - \$70,000 with expected project duration of 6-9 months. The 4R Research Fund anticipates awarding a minimum total of \$300,000 in response to this RFP in 2014.



For additional information: <http://www.nutrientstewardship.com/funding>