Illinois Nutrient Research & Education Council

801 E. Sangamon Ave PO Box 19281
Springfield, IL 62794
Phone: 309.212.0047
julie.armstrong@illinoisnrec.org

August 1, 2017

MEMO TO: NREC Potential Project Investigators

FROM: Ted Mottaz, NREC Research Committee Chair

RE: **REQUEST FOR 2018 NREC PROJECT PROPOSALS**

We are pleased to announce the solicitation of projects for the calendar year 2018 for the Illinois Nutrient Research & Education Council (NREC).

NREC's priority is funding projects that advance the science of products and practices that increase the efficiency of nitrogen and phosphorus use while maintaining productivity goals and consequently reduce losses of one or both of these nutrients to water without being detrimental to agricultural production or yield. It is expected that the results of such projects will be shared with other scientists by publishing in peer scientific journals. We also expect the results to be widely distributed to farmers and crop advisors via meetings, news releases, and electronic media in a manner that effectively promotes and assures implementation of the derived best management practices.

In 2018, NREC is focusing on the following key areas of investigation that farmers have identified as needs based upon the goals outlined in the Illinois Nutrient Loss Reduction Strategy. Included in the list are questions that have arisen from results of existing projects funded by NREC. When considering new projects, the Council will give preference to funding projects in these areas:

Nitrogen and Phosphorus Management Projects

1. Continue/expand studies testing the impact of N management systems on efficiency of N use.
    a. Expand the work on optimum N rate to include more Illinois soil types, especially in Southern Illinois.
    b. Evaluate the efficacy of combinations of method, rate and time of application on N efficiency. For example, combination of preplant N and late N application using conventional application methods (UAN injected preplant and Y drop method for late application) for corn.
    c. Evaluate the efficacy of fertilizer additives that claim to enhance the efficiency of N fertilizer use. This would include but not be limited to nitrification inhibitors and urease inhibitors.

2. Determine factors impacting release and/or tie-up of organic and fertilizer nitrogen (mineralization immobilization, nitrification, denitrification, leaching, and plant uptake). This research will require the use of N^{15} as well as established tile system.

3. Cover Crops: Evaluate the feasibility, economics and best management practices of growing cover crops to address nitrogen and phosphorus loss as well as crop productivity. Best management practices should look at all aspects of cover crops from crop selection and seeding through crop termination. NREC is particularly interested in funding research on projects that:

a. Agronomic Management of Cover Crops:
    1. Identify the best combination of cover crop species to use depending on crop to follow and geographic location within the state.
    2. Provide options for farmers to consider when selecting product and times to use to kill cover crops.
    3. Pest management and tillage options
b. Nitrate Loss Reduction:
    1. Identify factors that effect when and how much N is released from cover crop to the following year crop.
    2. Identify what pool of inorganic N was used by cover crops.

4. Evaluate the agronomic and environmental benefits of tillage and the placement and timing of phosphorus applications.

5. Conduct an exhaustive literature review of published research focused on management of phosphorus loss. Review should include the publication of a white paper as well as a gap analysis outlining where additional research may be needed.

6. Practices to reduce phosphorus losses in unglaciated areas of the state.

Tile and Conservation Systems

7. Drainage: Evaluate drainage water management and erosion control practices from both a nutrient management and agronomic standpoint. Study the impact of tile spacing and depth on nutrient loss from a field

8. Edge of Field Practices (Bioreactors, Buffers, Saturated Buffers, Constructed Wetlands): An evaluation of practical approaches to installing these systems in areas where drainage ditches are the conduit for tile drainage. Focus should be on ways to utilize these systems to provide the most practical benefit while limiting the amount of land taken out of production.

Outreach and Education

9. Conduct a literature review of peer reviewed research that studies farmer decision making in relation to the adoption of conservation practices.

In addition, we ask that all projects, both new and continuing, contain an economic cost/benefit analysis as to the practicality of the adoption or utilization of these practices in a farming operation. NREC will entertain requests for supplemental funding to employ other scientists to conduct the economic analysis.

NEW for 2018 – NREC has identified a need for on-farm demonstration/research and encourage all applicants to consider whether an on-farm demonstration, data collection, or research element is appropriate for the project. If you are submitting a renewal request from a previously funded project, consider how the research may be expanded to on-farm or how it may include an on-farm outreach component.

While these study areas will be viewed as a priority for the funds available, NREC also welcomes other innovative proposals for consideration.

We encourage you to submit well defined proposals that will endure peer review (for research based proposals) and that will also be useful to crop producers and the agribusiness industry in their quest for higher yields, while minimizing the environmental impact of crop production practices in Illinois. In addition to detailed mid-year and year-end project reports, we also require that each project identify at year-end any critical observations learned from the study that can be shared with the industry and the general public.

NREC is currently funding 23 projects and many of these will be considered for continued funding in 2018. Please go to www.illinoisnrec.org to view a summary of these projects as well as the 2016 Annual Report.

Attached is an outline for submitting a project to NREC, a standard cover sheet and the project budget template. Please limit your proposal to ten pages total and the synopsis to one page. You can modify the budget template accordingly to best reflect your project's unique or specific budget items. Please be succinct but descriptive with your project titles and include an email and telephone number where the lead investigator can be reached.

Please submit your proposals in PDF format via email to the NREC Executive Director Julie Armstrong at julie.armstrong@illinoisnrec.org by September 29, 2017. Julie will acknowledge receipt of your proposal. The NREC Council will consider the proposals and will announce in December 2017 the projects NREC will fund in the 2018 calendar year. If you have questions, please direct them to Julie, who can also be reached at 309-212-0047.

Thank you for your interest in NREC and helping us pursue research and educational projects to advance Illinois agriculture and protect our natural resources.