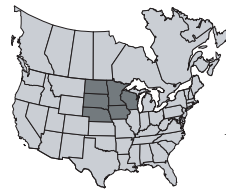


NEWS & VIEWS

A regional newsletter published by the
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Dr. T. Scott Murrell
Northcentral Director
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Northcentral Phosphorus and Potassium Research Funded by the Foundation for Agronomic Research (FAR)

THE Foundation for Agronomic Research (FAR) is a non-profit research and education organization. Its mission is to improve the economic vigor and sustainability of agriculture while protecting and enhancing the environment. FAR is supported through cooperation with the Potash & Phosphate Institute (PPI) and numerous contributors involved in North American agribusiness. Each year, FAR helps fund research projects with universities, colleges, and government agencies, and develops agronomic educational materials. The following projects have received financial support from FAR and have been conducted in the Northcentral Region.



The summaries that follow provide a brief overview of each project. For more details, please consider contacting the research project leader. You can also view the full annual reports of each project (current and past), when available, at the website:

>www.ppi-far.org/research<.

Iowa



Evaluation of Site-Specific Precision Farming Systems for Soybeans

Initial field-average soil test phosphorus (P) values were within the "low" interpretation class in two fields and within the "optimum" or "high" classes in the two other fields; however, all fields had areas testing from "low" to "very high." Variable-rate P fertilization reduced soil test P variability by raising lower soil tests to a greater degree

than the uniform rate application. Also, the uniform rate application method increased soil test P of high-testing areas while the variable-rate method did not. The variable-rate application method applied significantly less P fertilizer than the uniform application method in three fields and produced essentially the same yields as the uniform-rate method in all fields. *IA-08F*



Variability in Soil Test Potassium and Crop Yield

Based on the results to date, potassium (K) recommendations were changed in November 2002. Recommended rates of K were increased and categories shifted upward, reflecting crop responsiveness to K fertilization observed at higher levels where once little was expected. The new recommendations have been published and are being shared with producers and crop advisers at meetings. The recommendations are available as Publication PM 1688 at >www.extension.iastate.edu/Publications/PM1688.pdf<. *IA-09F*

Nebraska



Ecological Intensification of Irrigated Corn and Soybean Systems

Current fertilizer recommendations that are based on a yield goal that is well below the yield potential threshold do not allow expression of full attainable yield that is possible at higher plant densities and more intensive nutrient management. Compared to current recommendations, high corn yields require higher plant density (35,000 to 40,000 plants/A) and greater nitrogen (N) and K uptake per unit yield. More dynamic real-time approaches to N management are required to improve the congruence of N supply and crop N demand, thereby avoiding accumulation of residual soil nitrate and high peak rates of nitrous oxide emission under intensive management. *NE-11F*



Agronomic market development information provided by:
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Wisconsin



Evaluation of Site-Specific Precision Farming Systems for Soybeans

The study includes use of a modeling tool, termed the Precision Agricultural Landscape Model System (PALMS), that integrates management practices, plant growth, basic soil properties, weather measurements, and yield. Ideally, a producer or consultant could use the tool to maximize productivity, while limiting environmental risk from soil erosion and nutrient movement off the land. At 1-acre grid spacings in both fields, plant samples were taken for yield estimation and determination of P and K concentration in grain (both soybean and corn). On both the corn and soybean fields, P and K nutrient removal were closely related to yield. *WI-21F*

New Educational Materials Available on the Web

New educational materials were developed through a USDA-CSREES grant from the Initiative for Future Agriculture and Food Systems (IL-24F: Soil and Crop Management Systems Information Management and Outreach).

These modules provide step-by-step instructions for analyzing site-specific data and have been field-tested at numerous workshops. The following materials are available for free at www.ppi-ppic.org/toolbox.

- PKalc: Nutrient Budget Estimator

This Microsoft Excel spreadsheet makes it easy to examine current and historical P and K nutrient budgets, using local data. Determine if crop removal of P and K has been exceeding, keeping up with, or falling behind P and K applications on fields or field areas.

- Finding Trends in Soil Test Data

Learn to use Microsoft Excel to examine how site-specific soil test results have been changing over time.

- On-Farm Research

Learn how to lay out simple experiments and analyze results statistically using Microsoft Excel. ■

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