



PARTNER
IOWA STATE UNIVERSITY
CORN AND SOYBEAN
INITIATIVE

Partnership Matters

February 2006

RESEARCH BRIEF —

Partnering for potassium

What's new. A main function of the Corn and Soybean Initiative is to establish industry-directed, on-farm applied research, and 2006 will see the initiation of this facet of the initiative. One collaborative research project to be established with our partners this season is aimed at assessing the within-field variation of corn and soybean response to potassium (K) fertilizer.

The frequent K-deficiency symptoms expressed both in corn and soybean are possibly indicative of a more widespread problem rather than a localized one. These hidden deficiencies affecting crop yields and farm profitability have led to important questions being asked about the effectiveness of K fertilization practices and the associated soil-testing approaches currently in use.

In addition, potassium has been shown to have a significant influence on the effects of crop diseases, and interactions between K nutrition and pest incidence have been well documented in some cases.

This research will assess the within-field variation of corn and soybean response to K fertilizer applied with custom application equipment in relation to soil-test K spatial and sampling date variability and the incidence of pests and diseases.

ISU and partner research. Because this aspect of the Corn and Soybean Initiative is a collaborative effort, both parties are providing monetary and in-kind support, which takes advantage of both party's resources and specialized expertise. Antonio Mallarino, ISU Extension agronomist, is the project leader and will combine his expertise with the expertise of five Corn and Soybean Initiative partners around the state.

The retail partners involved in this research are C-S Agrow, Golden Furrow Fertilizer Inc., Heart of Iowa Cooperative, River Valley Cooperative, and West Central Cooperative.

Specific objectives of the study are:

- to study the within-field variation of crop response to potassium by using a simple field-scale design based on strip-trials methodology, GPS, dense soil sampling, and yield monitors.

—continued

ANNOUNCEMENT —

Lamkey named interim chair of agronomy

Kendall Lamkey has been named the interim chair of Iowa State University's Department of Agronomy, effective Feb. 1. Lamkey's appointment will be for two years. He has been a faculty member in ISU's Agronomy department for 20 years and worked as a United States Department of Agriculture research geneticist from 1984 to 2002. Lamkey will continue to serve as director of ISU's Raymond F. Baker Center for Plant Breeding and hold the Pioneer Distinguished Chair in Maize Breeding. He succeeds Steven Fales, who has been named associate director of ISU's Office of Biorenewable Programs. Fales will assist research, teaching and extension related to ISU's Bioeconomy Initiative.



Lamkey is an ISU alumnus who earned a doctorate in plant breeding and cytogenetics in 1985. He earned a master's degree in plant breeding and genetics and a bachelor's degree in agronomy from the University of Illinois. Lamkey's research focuses on the application of quantitative genetics to plant breeding problems in corn. He runs an inbred line development program and conducts several recurrent selection programs. The 104-year-old Agronomy department at Iowa State educates about 350 undergraduate and graduate students each year. The department has about 50 faculty and 120 staff members.



Potassium (K) deficiency symptoms occur when plants cannot extract enough K from the surface soil. Symptoms are yellowing of the leaf margins, and in severe cases, leaf edges may become brown.

Partnering for potassium, *continued*—

- to calibrate commonly used soil-test K methods with yield response and study the variation of soil-test K values and yield to determine possible differences for soil types and (or) topographic positions.
- to study variability of soil-test K results over time and its relationship to the capacity of soil tests to predict crop response to K fertilization.
- to study the interaction between K nutrition and incidence of pests and diseases.

What's next. The project will be conducted over two growing seasons. Results will be made immediately available to the research cooperators. After the 2007 season, the cumulative data from the two-year project will be analyzed and production recommendations for various regions will be developed and released to the public.

Learn more. Data will be presented to growers and agribusinesses at extension meetings, in extension publications, and by the partners involved in the research.

ISU PROFILE —

Alison Robertson

Assistant professor of plant pathology and extension field crops pathologist

Origin

Harare, Zimbabwe

Training

- Ph.D., Plant Pathology, Clemson University, South Carolina, 2003
- M.S., Plant Pathology, University of Zimbabwe, 1999
- B.S., Plant Pathology, University of Natal, South Africa, 1991



At ISU

- Joined the Department of Plant Pathology, May 2003
- Research interests include Phytophthora stem rot of soybean and the effects of *Fusarium* fungi on corn
- Member of the Iowa Soybean Rust Team

Notable achievements

- Mother
- Zimbabwe triathlon team, 1994–1999
- Zimbabwe swimming team, 1984–1988
- Zimbabwe swimming team captain, 1985

Personal

- Married to Malcolm and have one daughter, Kirsti, 3½ years

Quotable quote

“Never say ‘never.’ I said I would never go to grad school. Malcolm said he would never live in Iowa. Now I look back with 20/20 hindsight and am thankful for the opportunities that I was given, and more important, those that I took. I’m here because of those breaks, and I’m happy to be where I am.”

ISU BY THE NUMBERS —



Rashelle Matthiesen-Anderson, part-time assistant in the Plant Disease Clinic.

Plant Disease Clinic

Total samples (including telephone, e-mail, plant and soil samples) received, 2005	3,967
Number of field crop samples, 2005	183
County submitting the most samples (Polk)	153
Most distant sample submission, in miles (Huron, CA)	1,907
Plant samples received that were decayed beyond recognition (follow-up sample requested)	21
Peak 2005 month for receipt of samples (August)	625
Lowest month for samples both January and December	5
Samples submitted through the Asian Soybean Rust Fast Track, 2005	4
Samples positive for Asian soybean rust in Iowa, 2005	0
Number of campus-based staff assisting with diagnoses	46

For more information, e-mail sickplant@iastate.edu, visit the website at www.plantpath.iastate.edu/pdc/, or call 515-294-

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... and justice for all

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