Partnership Matters

PARTNER
IOWA STATE UNIVERSITY
CORN AND SOYBEAN
INITIATIVE

June 2005

RESEARCH BRIEF—

More potassium, higher yields

What's new. The increase of potassium (K) deficiency symptoms that surfaced in corn and soybean fields across Iowa during the 1990s motivated researchers to implement more effective nutrient measurement practices. A large research project began in the late 1990s to re-evaluate Iowa State University's soil-test K and fertilizer recommendations.

ISU research. ISU's Professor of Agronomy Antonio Mallarino and his researchers have conducted about 150 field trials across Iowa since 1990. About one-half of the strip trials have been developed in cooperation with producers, dealers and field extension specialists in research and demonstration farms across the state.

ISU results. The early results indicated a need for change in traditional K recommendations, and the adjustments were made during the 2003 growing season. Researchers now advise growers to increase the recommended soil-test K level for optimum yield and to place K fertilizer deep into the soil for ridge-till and no-till corn and soybean production. Funding has been provided by the Iowa Soybean Promotion Board, the Foundation for Agronomy Research (FAR), the Iowa Corn Promotion Board, and the Leopold Center for Sustainable Agriculture.

What's next. Ongoing research is evaluating the effectiveness of variable-rate technology and management zone soil sampling to apply K fertilizer, reduce soil-test spatial variability and increase yield profits. This study also evaluates the capabilities of new soil-test methods to determine fertilization needs. Researchers are striving to maintain optimum K levels all year long by reassessing their current estimates of K removal from fields during the corn and soybean harvests. About 30 trials are being conducted this year.

Learn more. Mallarino suggests that producers re-evaluate their practices to ensure appropriate fertilization rates are used. Log on to **http://extension.agron.iastate.edu/faculty/mallarino** to learn more.

RESEARCH BRIEF—

We're vigilant!

What's new. Soybean producers and breeders are constantly striving to increase soybean yields. Diseases can substantially decrease the yield of crop plants. In recent years, Iowa has seen more soybean diseases caused by pathogens typically associated with southern states, for example, frogeye leaf spot and Cercospora leaf blight. There have been noticeable increases in sudden death syndrome and severe crop losses in some Iowa counties. Severe crop losses also have been witnessed due to white mold. Information on the prevalence and geographic locations of pathogens is useful for prioritizing research to understand the ecology of economically important pathogens, improve disease resistance in breeding programs, and to develop disease management options.

ISU research. This growing season Alison Robertson, extension field crops pathologist, will be coordinating a survey to determine the presence and distribution of soybean diseases in Iowa. ISU extension field crop specialists will collect plant samples from a number of fields in each county. Robertson and staff will assess the incidence and severity of more than 15 diseases. Forrest Nutter, plant disease epidemiologist, will help map the data using geographic information

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Researchers examine soybean plant samples for disease

We're vigilant! *(continued)—*

systems (GIS). Mapping where and how diseases occur over a specific period of time will provide valuable insight into the epidemiological processes of the pathogens and a better understanding of the interaction of host, pathogen and environmental factors (e.g., soil type, temperature and leaf wetness duration, etc.) on disease risk factors. This research is funded by soybean checkoff funds administered through the Iowa Soybean Promotion Board.

What's next. The data collected during this project will be used to help prioritize future soybean research by providing quantitative information on the presence, impact and geographic distribution of soybean diseases in Iowa and will be useful to growers and soybean researchers in the private and public sector.

Learn more. A website, which will contain the results of this research, will be constructed over the next few months.

ISU BY THE NUMBERS—

A Year's Worth of Iowa State Agribusiness Education Programs (AEP)

Number of participants at AEP events:	4,448
Number of meetings, conferences, clinics and events:	49
Certified Crop Adviser credit hours offered:	400
Acres of teaching demonstrations at Field Extension Education Laboratory (FEEL):	43
Number of crop and forage species planted at FEEL:	73
Pounds of ice used in the hail machine for the Soybean Hail Workshop:	3,000
Number of publications in Crop Diagnostic Notebook:	134
Number of people attending Crop Advantage Series:	1,634
Percentage of Crop Advantage Series participants who said the information was useful for their operations:	98
Number of attendees at the Integrated Crop Management (ICM) Conference:	843
Number of workshop topics at ICM:	38

PARTNER PROFILE—

John Holmes

Extension field crop specialist (10-county area)
Corn and Soybean Initiative partnership manager, Heart of Iowa Cooperative

Origin

- born in Clarion, Iowa
- raised near Goldfield (9 miles west of Clarion)

Training

- B.S. in agricultural business, 1973, Iowa State
- M.S. in agronomy/agricultural education, 1981, Iowa State
- served in the U.S. Navy, 1973–1977

Background

- extension crop specialist from 1981–1984 and from 1986–present
- served as a crop specialist in Fort Dodge from 1981–1986
  in Mason City (15-county area) from 1986–1992
  in Clarion (10-county area) from 1992–1994, and from 1996–present
- senior agronomist, Latham Seed Company, 1994–1996
- responsible for assisting agricultural chemical dealers, seed dealers and farmers with problems in corn, soybean and forages
- works with cultural practices, pest management (weeds, insects, plant diseases) and soil fertility
- conducts applied research in manure management and demonstrations for the Iowa Learning Farm Project (on conservation tillage)
- conducts about 25 private pesticide applicator training sessions and several crop production meetings annually
- writes *CROP HAPPENINGS Newsletter* (1981–present)

Notable Achievements

- widely known crop specialist throughout northern and central Iowa
- has conducted applied research in weed, insect, nitrogen and manure management and soil fertility
- recipient of the National Association of County Agricultural Agents Distinguished Service Award in 2002
- often recognized as someone who "says it the way it is."

Personal Interests

- Family, church, travel, computers, and very occasionally, fishing

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To learn more about the Corn and Soybean Initiative contact

Greg Tylka	**gltylka@iastate.edu**	515-294-3021
Malcolm Robertson	**malcolmr@iastate.edu**	515-294-7192
Rich Pope	**ropope@iastate.edu**	515-294-5899

For questions or comments about the newsletter, contact

Keven Arrowsmith	**karrows@iastate.edu**	515-294-2405