

# ADAPTIVE MANAGEMENT FOR MAXIMIZING SOYBEAN PRODUCTION FOLLOWING CEREAL RYE TERMINATION

## PROJECT SUMMARY

Trials in this multi-year project will help researchers better understand 1) how cereal rye influences nitrogen (N) and sulfur (S) availability and soybean uptake, and 2) evaluate soybean yield response to N and S fertilization, alone and in combination, after a cereal rye cover crop.

## INSIGHTS GLEANED TO-DATE

- 🔍 Collected data from the 2023 growing season will be analyzed during winter 2023-2024

## QUESTIONS THIS PROJECT WILL ADDRESS

- ❓ How does cereal rye influence soil N and S availability and uptake by soybean after termination?
- ❓ Does supplemental N and S impact soybean yield response and seed quality?

## WHY THIS RESEARCH IS IMPORTANT

- ⚠️ Incorporating more cover crops is a key tool to meet Illinois' nutrient loss reduction goals. While the impact of cereal rye on corn production has been well studied, there is minimal research around managing soybeans after a cereal rye cover crop. In particular, little is known about how cereal rye affects soil N and S availability for soybean uptake after cereal rye termination. In addition, there are questions about soybean yield response to supplemental N and S fertilization.

## HOW THIS RESEARCH BENEFITS THE FARMER

- 🎯 Agronomists and researchers will gain a better understanding of the situations that could impede soybean development and yield following cereal rye and be better equipped to provide farmers with management recommendations.
- 🎯 Farmers will gain management strategies that mitigate N and S deficiencies across different soil types and environments so they can better maintain or improve soybean yield and quality when coupled with cereal rye.

## ABOUT THE LEAD RESEARCHER

Published November 2023



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Dr. Preza Fontes leads the Field Crops Extension & Research Program where he focuses research on enhancing the agronomic and environmental performance of field crops in Illinois. This involves evaluating and refining multiple management practices with the goal of increasing grain yield and nutrient use efficiency while reducing environmental outcomes like nitrate leaching and greenhouse gas emissions. When he's not in research plots or fields consulting with farmers, you might find Dr. Preza Fontes spending time with family outdoors. They enjoy a wide range of activities from playing soccer and grilling to hiking and camping.

## RESEARCH TEAM

- **Dr. Shalamar Armstrong**, Associate Professor of Agronomy, Purdue University
- **Dr. Shaun Casteel**, Associate Professor of Agronomy, Purdue University
- **Kristin Greer**, Senior Research Specialist, UIUC

## TRIAL LOCATIONS

- **On-farm location in Effingham County (Year 1)**
- **University of Illinois Crop Sciences Research & Education Center, Urbana (Years 1 & 2)**
- **University of Illinois Northwestern Illinois Agricultural Research & Demonstration Center, Monmouth (Year 2)**
- **University of Illinois Orr Agricultural Research & Demonstration Center, Perry (Year 2)**
- **University of Illinois Ewing Demonstration Center, Ewing (Year 2)**



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See updates and learn more about this project, the research team and other projects at [ILSoyAdvisor.com](https://ILSoyAdvisor.com) and [@ILSoyAdvisor](https://www.facebook.com/ILSoyAdvisor) on Facebook and X.

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The Illinois Soybean Association (ISA) checkoff and membership programs represent more than 43,000 soybean farmers in Illinois. The checkoff program funds market development, soybean production and government relations efforts, while the membership program, Illinois Soybean Growers (ISG) and the ISG Political Action Committee actively advocates for positive and impactful legislation for farmers at local, state and national levels. ISA upholds the interests of Illinois soybean farmers through promotion, advocacy, research and education with the vision of becoming a trusted partner of Illinois soybean farmers to ensure their profitability now and for future generations. For more information, visit the websites [www.ilsoy.org](https://www.ilsoy.org) and [www.ilsoygrowers.com](https://www.ilsoygrowers.com).