

SOYBEAN STEM PESTS: SURVEY, IMPACT AND EDUCATION

PROJECT SUMMARY

Continuing work already underway across Illinois' soybean fields, this project aims to identify new and emerging stem diseases and insect pests that negatively impact soybean production and yield. It will assess management practices and help prioritize future research to determine best management practices.

INSIGHTS GLEANED TO-DATE

- 🔍 During the 2023 growing season, we observed a much higher diversity of stem disease pathogens compared to 2022. In addition to *Phomopsis* and *Anthraco*, we saw much higher levels of Phytophthora stem rot, sudden death syndrome, charcoal rot, and red crown rot. Farmers should keep these diseases in mind as they select varieties and when considering fungicide seed treatments and foliar applications where appropriate.
- 🔍 Through surveying Illinois soybean fields for dectes stem borer larval tunneling, we have found the highest population densities in south-central Illinois. In addition, Kelly Estes' statewide survey has collected observations of adults throughout Illinois, with the highest numbers generally found in southern Illinois.
- 🔍 To-date, the potentially invasive soybean gall midge has not been found in Illinois.

QUESTIONS THIS PROJECT WILL ADDRESS

- ❓ Which insect pests and diseases are most detrimental to soybean stem health in Illinois?
- ❓ How prevalent are they in the various Illinois soybean geographies?
- ❓ How do they impact crop yield?

HOW THIS RESEARCH BENEFITS THE FARMER

- 🎯 This project will inform farmers of the most prevalent pathogens and insect pests impacting soybean production fields across Illinois. It will also identify potential environmental and geographic factors that affect their incidence and distribution.
- 🎯 By better understanding these pathogens and pests, researchers and Extension staff can help farmers identify management practices that may minimize the impact of these pathogens and pests on yield.

WHY THIS RESEARCH IS IMPORTANT

- ⚠️ Not all soybean stem pests and diseases are well documented throughout the state, nor are their symptomology, yield impact, alternative hosts and conducive conditions well understood. Red crown rot, stem canker, dectes stem borer and soybean gall midge are of particular interest.
- ⚠️ This multi-year research project is using a combination of approaches to assess perceived and actual occurrence and impact throughout the state. Grower surveys are helping gauge presence and population levels of stem pests and diseases. Samples are being collected from fields and evaluated within a lab environment to accurately identify pests and pathogens, as well as document symptoms. This information will be used to assess priorities for future research around management options.

ABOUT THE LEAD RESEARCHERS



DR. JASON BOND

Professor of Plant Pathology, Southern Illinois University (SIU)

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Dr. Bond divides his time at SIU between research, teaching and service appointments. His research and teaching programs focus on disease management in Midwestern row crops. He also serves as the advisor for the Agronomy Society, which provides leadership and professional development opportunities for undergraduate and graduate students. His perfect weekend is when he can enjoy some of his favorite foods: chicken and sausage jambalaya, seafood gumbo, Midwestern steaks and Oberweis ice cream.



DR. NICHOLAS SEITER

Assistant Professor & Field Crops Entomologist, University of Illinois Urbana-Champaign (UIUC)

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Dr. Seiter is dedicated to helping Illinois' farmers more effectively and economically manage insect pests. His research focus includes developing decision-making tools, identifying natural enemies of insect pests, and assessing the effectiveness of insect control methods. He hopes to provide farmers with reliable guidance to address the unpredictable nature of pest management year-to-year and field-to-field across Illinois. To unwind, he and his wife enjoy hiking and recently checked off Sedona from their bucket list.

RESEARCH TEAM

- **Dr. Ahmad Fakhoury**, Professor, SIU
- **Kelly Estes**, State Survey Coordinator, Illinois Cooperative Agriculture Pest Survey Program (CAPS), UIUC
- **Ashley Decker**, Senior Research Specialist, UIUC
- **Grayce Montano**, Senior Research Specialist, UIUC
- **Danillo Leite**, PhD Student, SIU
- **Will Foulke**, Master's Student, UIUC

TRIAL LOCATIONS

- **Statewide**



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