

# EVALUATING LEAF NUTRIENT TISSUE TESTING AND RELATION TO SOYBEAN GRAIN YIELD

## PROJECT SUMMARY

Because soybeans are able to remobilize, or redistribute, nutrients from lower to newly developing nodes, more information is needed to understand which nutrients and in what quantities are made available to new nodes. This project will use tissue testing to gain these insights and help establish more accurate and timely in-season nutrient recommendations to maximize soybean yield.

## QUESTIONS THIS PROJECT WILL ADDRESS

- ❓ How do soybean plants accumulate and remobilize nutrients from leaves to pods?
- ❓ Which nutrients remobilize when, and at what rates?
- ❓ When is the best time during the crop's growth stages to do tissue testing, and which leaves should be sampled to understand the nutritional needs of the plant?

## WHY THIS RESEARCH IS IMPORTANT

- ❗ Current methods of in-season tissue testing of targeting the most-recently opened trifoliolate may not accurately determine nutrient needs of soybean plants to guide in-season nutrient application decisions.
- ❗ This is because lower nodes on a soybean plant start to remobilize nutrients to developing pods at the same time new nodes and leaves are still emerging at the top of the plant.
- ❗ It is also unclear if different nutrients remobilize at the same rates.

## HOW THIS RESEARCH BENEFITS THE FARMER

- 🎯 An improved understanding of how soybean plants accumulate and remobilize nutrients from their leaves can provide a timeline of soybean nutrient uptake and remobilization. This timeline can help determine when, where, and at what rate different nutrients cycle through the soybean growth stages.
- 🎯 Based on these insights, farmers will know when and where on the plant to take tissue samples to more accurately assess nutritional needs of their soybean crop.
- 🎯 As a result, they can design a nutrient management plan better aligned to the nutritional needs throughout the soybean growth stages.

## ABOUT THE LEAD RESEARCHERS



### DR. FRED BELOW

Professor, University of Illinois Urbana-Champaign (UIUC)

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Dr. Below is committed to teaching farmers and agricultural professionals the value of their individual crop management decisions. He leads a research team focused on understanding factors that limit crop productivity, especially in corn and soybeans.



**DR. CONNOR SIBLE**

Postdoctoral Research Associate, University of Illinois Urbana-Champaign (UIUC)

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Through an internship with an agricultural chemical company, Dr. Sible discovered how rewarding agronomic research is and decided to pursue a graduate degree. This path led him to study with Dr. Below in the Crop Physiology Laboratory. Now he helps conceptualize, implement and manage research studies for the Crop Physiology program; trains undergraduate and graduate students; and co-advises the Field and Furrow organization. He enjoys walking his dogs... or having them walk him.

**RESEARCH TEAM**

- Juliann Seebauer**, Principal Research Specialist, UIUC
- Jared Fender**, Senior Research Specialist, UIUC
- Gabriela Frigo Fernandes**, Master's Student, UIUC

**TRIAL LOCATIONS**



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**YOUR ISA AGRONOMY TEAM CONTACTS**



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