

AN ECONOMIC EVALUATION OF THE IMPACTS OF SITE-SPECIFIC MANAGEMENT FOR INCREASING SOYBEAN PRODUCTION IN SOUTHERN ILLINOIS

PROJECT SUMMARY

To help close the soybean yield gap between average and record yields, this project will break down management practices based on the specific needs of different areas within a field. It will define the yield variability within a field as high, medium and low; identify seeding rates that can help optimize yield; better understand the role biologicals can play in crop nutrient utilization; and evaluate the economics of site-specific management compared to whole-field management practices.

QUESTIONS THIS PROJECT WILL ADDRESS

- ① How does the variability within a soybean field impact crop yield?
- ① What management adjustments can be implemented to address site-specific variability and help achieve more stable yield production across the field?

WHY THIS RESEARCH IS IMPORTANT

- ⚠ Yield variability within a field is a contributing factor to the soybean yield gap between the average and record yield. In Illinois in 2022, the yield gap was about 46 bu/A.
- ⚠ To close the gap, it is important to understand where there are differences within a field, what those differences are, and what specific management practices can be deployed within each site or zone to help equalize soybean crop performance.
- ⚠ The initial economic analysis of site-specific management will be focused on variable-rate seeding and applying biologicals to help make nutrients more readily available to the soybean crop.

HOW THIS RESEARCH BENEFITS THE FARMER

- 🎯 Conducting an economic analysis of select site-specific management practices impacting yield will help define management adjustments that can help farmers across southern Illinois reduce the yield gap.
- 🎯 By incorporating these insights into their own operations, farmers can continue building upon their own findings to further evolve site-specific management and close the yield gap on their farms.

ABOUT THE LEAD RESEARCHER

Published November 2023



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With specialties in beef cattle nutrition, forage production and beef cattle management, Dr. Nair is focused on improving the production efficiency of cattle while reducing their environmental footprint. Despite the variability of soybean yields within fields, Dr. Nair sees great potential in using soybean meal as a protein source for ruminants. Insights gleaned from this research will enable him to develop site-specific management recommendations that increase soybean yields. Dr. Nair enjoys the combination of teaching, research and innovation at SIU, as well as meeting and learning from leading scientists.

RESEARCH TEAM

- **Dr. Amir Sadeghpour**, Associate Professor, SIU
- **Dr. Jebaraj Asirvatham**, Associate Professor, SIU
- **Ann Mary Kodackal Stanley**, Master's Student, SIU

TRIAL LOCATIONS

- **3 soybean fields on the SIU Beef Center, Carbondale**



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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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