



MSSB Research One Page Summary

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|---|---|-----------------------|------------------------------|---------|
| Project Title | LADDER (Large Agricultural Database that Drives Extension and Research) | | | |
| PI's Name | Zach Reynolds | E-mail | zach.reynolds@msstate.edu | |
| PI's Title | Research Project Manager | Institution: | Mississippi State University | |
| Mailing Address | 129 Etheredge Hall, 449 Hardy Road | | | |
| City/State/Zip | Mississippi State, MS 39762 | | | |
| Phone number | 662-418-6620 | | | |
| Additional PIs For this project | Dave Spencer, Brian Mills | | | |
| Research Locations (and states involved) | Mississippi, Louisiana, Arkansas, Missouri | | | |
| Timeline: | Multi-Year Project Information (if applicable) | | | |
| Current Year - FY23 | Year 1 | Year 2 | Year 3 | |
| Start Date | April 1, 2023 | April 1, 2024 | April 1, 2025 | |
| End Date | March 31, 2024 | March 31, 2025 | March 31, 2026 | |
| Funds Requested | \$ 85,394 | \$85,394 | \$85,394 | |
| Program Area (e.g., breeding, mngt.): Irrigation, Fertility, Rotations using soybeans, Research Validation, Producer Communications, Economics | | | | |
| Objectives | Using a large agricultural geodatabase, determine the effects of environment, i.e., CEC, pH, slope, climatic data, and agronomic practices including irrigation, precision ag technology, nutrient management, planting systems, and tillage systems on soybean productivity and profitability at the farm scale. Also, deliver research-based, Extension programming to soybean producers in the Mid-South to stimulate the adoption and proper implementation of geospatially specific agronomic practices that improve grain yield, net returns, and sustainability. | | | |
| Justification | Analysis of large-scale, agricultural data can be used to determine the effects of agronomic practices, management philosophies, and environment on crop productivity and profitability. | | | |
| Exp Setup | We propose to collect, process, and securely store geospatially specific agronomic and environmental data for the purpose of addressing the MSSB's primary research and Extension concerns. Data will be subject to ANOVA, ANCOVA, and regression techniques. | | | |
| Summary | An aggregated geospatial database can help expedite answers to agronomic issues by collecting and analyzing large quantities of data across a variety of management practices in the Mid-South. | | | |
| Key Metrics | Data approved for collection by producers, will be stored, cleaned, and analyzed for purposes of providing information that will help influence decisions that are economically beneficial for growers in the Mid-South. | | | |
| Expected Deliverables | Deliverables for this project include but are not limited to: one on one interactions with producers examining their data, and presentations of data at meetings, digital media, or other means. | | | |
| Benefit to midsouth farmers | Growers at times can be hesitant to adopt research practices done in small-plot settings. The LADDER program will help alleviate this by validating results at a landscape level. A database such as this also gives universities another tool to provide insight on what agronomic issues have the most economical impact and need to be further investigated. | | | |
| Progress Made | Conversations with growers have been initiated to express the importance of collecting and analyzing data across the landscape. | | | |
| Signature of Principle Investigator | | Date: | | 8/10/22 |