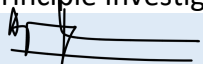




MID SOUTH SOYBEAN BOARD

ONE PAGE SUMMARY

| | | | | |
|---|---|---|---------------------------|--------|
| Project Title | Enhanced Synthetic Microbiome Communities to Managed Sudden Death Syndrome | | | |
| PI's Name | Asela J. Wijeratne, Ph.D. | E-mail | awijeratne@astate.edu | |
| PI's Title | Associate Professor of Bioinformatics | Institution: | Arkansas State University | |
| Mailing Address | P.O. Box 2760 | | | |
| City/State/Zip | State University, AR 72467-2760 | | | |
| Phone number | 870-972-2694 | | | |
| Additional PIs For this project | Scott A. Mangan, PhD, Associate Professor, Arkansas State University Phone: 870-972-3783; Email: smangan@astate.edu | | | |
| Research locations (states involved) | Arkansas | | | |
| Timeline: | | Multi-Year Project Information (if applicable) | | |
| Current Year - FY23 | | Year 1 | Year 2 | Year 3 |
| Start Date | 04/01/2025 | 04/01/2025 | 04/01/2026 | - |
| End Date | 03/31/2027 | 03/31/2026 | 03/31/2027 | - |
| Funds Requested | \$43,218 | \$18,109 | \$25,109 | \$0 |
| Program Area: | | | | |
| Other related funding: | None | | | |
| Objectives: | 1). Isolate and identify beneficial bacteria and fungi from the soybean rhizosphere that can enhance plant health and disease resistance. 2). Evaluate these bacteria and fungi for their ability to inhibit <i>F. virguliforme</i> , <i>in vitro</i> . 3). Assemble selected beneficial bacteria into Synthetic Microbial Communities (SynComs) and test them in the greenhouse to assess their effectiveness in suppressing Sudden Death Syndrome. | | | |
| Justification: | SDS in soybeans, caused by <i>Fusarium virguliforme</i> , leads to yield losses in the Mid-South. Traditional control methods are inconsistent. This research explores using beneficial microbes in SynComs to improve soybean resistance. | | | |
| Exp Setup: | Identifying and assembling a microbial community that work against <i>Fusarium virguliforme</i> . | | | |
| Summary: | SDS in soybeans causes significant yield losses in the Mid-South, with traditional controls often ineffective. This study investigates using SynComs to enhance soybean resistance to SDS. In Year 1, beneficial microbes will be isolated and tested. In Year 2, SynComs will be evaluated in greenhouse conditions. | | | |
| Benefit to midsouth farmers: | SDS can lead to up to 40% yield loss in soybeans, costing around \$350 per acre. Effective SynComs could mitigate these losses by delaying SDS symptoms, potentially saving about 3.5 bushels per acre. SynComs also promote better growth, nutrient uptake, and stress resilience in soybeans, reducing reliance on synthetic fertilizers and pesticides. This results in improved yields, cost savings, and environmental benefits. | | | |
| Progress Made: | NA | | | |
| Signature of Principle Investigator | | | Date: | |
|  | | | 07/29/2024 | |

This document should remain as a SINGLE PAGE for the BOARD MEMBER'S QUICK REFERENCE. Email form to midsouthsoybean@gmail.com and swsoy@aristotle.net.