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| Project Title | Southern root-knot nematode in MG4 soybean: Characterization of the mechanism of resistance and breeding for resistance |
| PI’s Name | Travis Faske | E-mail | tfaske@uada.edu |
| PI’s Title | Prof. and Ext. Plant Pathologist | Institution: | Univ. of Ark System, Div. of Ag |
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| Additional PIsFor this project | Tristan Watson - LSU, Henry Nguyen and Caio Cenella – Univ. of MO, Jeff Edwards - UA |
| Research Locations (and states involved) | Baton Rough, Columbia, Portageville, Fayetteville, and Lonoke |
| **Timeline:** **Current Year - FY23** | **Multi-Year Project Information** (if applicable) |
| Year 1 | Year 2 | Year 3 |
| Start Date | Mar 1, 2023 |  |  |  |
| End Date | Feb 28, 2024 |  |  |  |
| Funds Requested | $75,000 | $ | $ | $ |
| **Program Area (e.g., breeding, mngt.): Nematode Management** |
| Objectives | 1. Characterize the mechanism of resistance (MOR) to SRKN in MG4 soy germplasm
2. Characterize and develop new markers for new sources of SRKN resistance
3. Develop MG4 varieties with resistance to the SRKN
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| Justification | SRKN is yield-limiting nematode across the Southern U.S. Currently, there are limited use of SRKN-resistance sources and availability of MG4 varieties with resistance against the SRKN. |
| Exp Setup | Depending on objectives: Hypothesis driven lab, greenhouse, and field experiments.  |
| Summary  | This project aims to identify how resistance in soybean affect SRKN development among various genotypes with differing QTL markers and utilize marker assisted selection to develop early maturing varieties with durable resistance against the SRKN. |
| Key Metrics | Characterize the MOR against SRKN and develop 3 new early maturing advanced breeding lines/varieties with SRKN resistance. |
| Expected Deliverables | Peer-review publications for each specific objective once completed. Deliver information at scientific and production meetings across the Mid-South. |
| Benefit to midsouth farmers | The SRKN is affecting many farmers and especially in years such as 2022 – hot and dry. Resistance to SRKN is limited and though farmers want to utilize genetic resistance it is often unavailable.  |
| Progress Made | Techniques to assess the MOR in soybean has been optimized in AR and LA, seed is being increased for molecular markers and several genetic crosses were conducted in MO and field evaluations are underway.  |
| Signature of Principle Investigator | Date: |
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