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| Project Title | Screening soybean germplasm and breeding soybeans for flood tolerance |
| PI’s Name | Grover Shannon | E-mail | grantsdc@missouri.edu |
| PI’s Title | Emeritus Professor | Institution: | The Curators of the Univ of Missouri |
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| Additional PIsFor this project | Liakat Ali, University of Missouri; Caio Canella Vieira, University of Missouri; Jeff Edwards, University of Arkansas; David Moseley, Louisiana State University; Tessie Wilkerson, Mississippi State University |
| Research Locations (and states involved) | Portageville, Missouri; Stuttgart and Rohwer, Arkansas; Stoneville, Mississippi State University; Alexandria and Bossier City, Louisiana. |
| **Timeline:** **Current Year - FY23** | **Multi-Year Project Information** (if applicable) |
| Year 1 | Year 2 | Year 3 |
| Start Date |  | **April 1, 2023** |  |  |
| End Date |  | **March 31, 2024** |  |  |
| Funds Requested |  | $175,440 | $ | $ |
| **Program Area (e.g., breeding, mngt.):** |
| Objectives | 1. Screening soybean germplasm and commercial cultivars for flooding tolerance.2. Incorporation of flood tolerance into elite cultivars and lines. |
| Justification | Flooding causes a big yield reduction to the US soybean. |
| Exp Setup | **Screening of soybean germplasm**: breeding lines, commercial cultivars and exotic PIs will be subjected to flooding stress for 7-10 days during R1/R2 stage to identify flood tolerant germplasm. **Incorporation of flood tolerance**: crossing between highly flood-tolerant and elite soybean lines, selection of high-yield potential breeding lines and evaluation of flooding tolerance and yield under flooded and non-flooded conditions. |
| Summary  | Identify flood-tolerant genetic resources to accelerate development of high-yielding flood-tolerant soybeans to combat yield reduction from water-logging conditions. The research strategies include screening of state commercial varieties, advanced breeding lines and exotic soybeans, and incorporate the tolerance into elite high-yielding soybean lines. |
| Key Metrics | Identification of advanced breeding lines with high yield and flooding tolerance with potential for release; 2. New highly flood tolerant genetic resources. |
| Expected Deliverables | Flooding tolerance genetic resources for breeding purposes and enhanced genetic diversity on flooding tolerance in mid-south US cultivars. |
| Benefit to midsouth farmers | Yield losses up to 50% due to waterlogging are common. There is no flood tolerant cultivar growing in this area. Using a flood tolerant variety to maintain a good yield under stress is most desirable. |
| Progress Made | Multiple materials with high-yielding and flood tolerance have been identified; multiple breeding populations developed and being tested/advanced. |
| Signature of Principle Investigator | Date: 8/10/22 |
| Caio Canella Vieira on behalf of Grover Shannon. |  |

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