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| Project Title | Screening and Selecting Non-Xtend Soybeans for Dicamba 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 | Caio Canella Vieira, MU-FDREEC |
| Research Locations (and states involved) | Portageville, Missouri |
| **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 |  | $65,499 | $ | $ |
| **Program Area (e.g., breeding, mngt.):** |
| Objectives | Identify natural tolerance to off-target dicamba damage, understand the underlying genetic and physiological basis of this tolerance trait, and deploy varieties with enhanced tolerance to U.S soybean farmers. |
| Justification | The EPA has approved the re-registration of dicamba for over-the-top applications until 2025 and it is expected non-Xtend soybeans will continue to be exposed to and suffer losses from the off target dicamba movement. |
| Exp Setup | Trials will be conducted to assess the differential responses to off-target dicamba damage, perform mapping studies, and select advanced breeding materials with enhanced tolerance. |
| Summary  | Genotypes may respond differently to off-target damage. Tolerant genotypes exposed to off-target dicamba may suffer a maximum of 10% yield penalty whereas susceptible genotypes may suffer as much as 40% yield losses. |
| Key Metrics | Field trials performance; Quality of data; Number of advanced materials in USDA regional trials with enhanced resistance; Number of publications and presentations. |
| Expected Deliverables | Elite non-Xtend soybean varieties with enhanced tolerance to off-target dicamba damage; Genes/QTLs/markers associated with dicamba tolerance; Improved understanding of dicamba and its effects (genetic and physiological) on non-Xtend soybeans. |
| Benefit to midsouth farmers | Flexibility, freedom of choice, and a layer of yield protection to off-target dicamba damage provided by genetics regulating natural tolerance and ability to recovery. |
| Progress Made | Two peer-reviewed publications were published in 2022. Many high-yielding lines with tolerance have been advanced in the breeding pipeline. Genetic mapping is getting close to completion. |
| Signature of Principle Investigator | Date: 8/12/2022 |
| Caio Canella Vieira on behalf of Grover Shannon.  |  |

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