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| Project Title | Development of functional ultra-high stearic acid soybean germplasms |
| PI’s Name | Grover Shannon | E-mail | grantsdc@missouri.edu |
| PI’s Title | Emeritus Professor | Institution: | The Curators of the Univ of Missouri |
| Mailing Address | 147 State Hwy T |
| City/State/Zip  | Portageville MO, 63873 |
| Phone number | 573-379-5431 |
| Additional PIsFor this project | Caio Canella Vieira, MU-FDREEC |
| Research Locations (and states involved) | Portageville, MO |
| **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 |  | $25,000 | $ | $ |
| **Program Area (e.g., breeding, mngt.):** |
| Objectives | Develop soybean germplasms adapted to the mid-southern U.S with functional ultra-high stearic acid content and little or no detrimental effects on agronomic traits. |
| Justification | The industry’s standards for maximum oxidative stability consist of elevated concentrations of stearic and oleic acids and a reduction of the concentration of linolenic acid. |
| Exp Setup | Whole-genome sequencing of a set of genotypes showing extreme stearic concentrations; Yield trials and germination assays to screen for deleterious effects. |
| Summary | Overcoming the negative agronomic traits resulted from large mutation-induced deletions may allow the development of functional soybean varieties with ultra-high stearic acid content. This can give U.S soybean farmers a competitive edge in both the food and biodiesel industry by offering soybean lines with the highest achievable oxidative stability |
| Key Metrics | Capacity in molecularly characterizing genotypes; Field performance and germination assays; Number of functional genotypes advanced in the pipeline. |
| Expected Deliverables | Functional germplasms as parental lines in public and private breeding programs; enhanced knowledge in mutations and the dynamics of fatty acid profiles in soybean. |
| Benefit to midsouth farmers | Give midsouth soybean farmers a competitive edge in both the food and biodiesel industry by offering soybean lines with the highest achievable oxidative stability. This novel fatty acid profile could result in attractive premiums attached to a high-yielding soybean line with added value for the specialty niche market. |
| Progress Made | Multi-year of yield trials and selection of high-yielding, high stearic breeding lines. Identification of genotypes with extreme stearic concentration and whole-genome sequencing strategies ongoing. |
| Signature of Principle Investigator | Date: 8/12/2022 |
| Caio Canella Vieira on behalf of Grover Shannon.  |  |

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