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| Please use this form to clearly and concisely report on project progress. The information included should reflect quantifiable results that can be used to evaluate and measure project success. Comments should be limited to the designated boxes. Technical reports, no longer than 4 pages, may be attached to this summary report. |
| Project Number: | 00085154 |
| Project Title:  | Development of Functional ultra-high stearic acid soybean germplasms  |
| Organization:  | University of Missouri |
| Principal Investigator Name: | Feng Lin, PhD |
| Report Period: |  [ ]  December [ ]  March [ ]  June [ ]  September [x]  Final |
| Project Status: |
| Our team has dedicated in working on the development of high-yielding lines, ensuring that we maintain a continuous emphasis on achieving breeding lines with high stearic acid (HS) content. Table 1 provides an overview of the University of Missouri’s current breeding pipeline for HS project.Table 1. Breeding Pipeline for HS Project.

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| **Test/Line/Population** | **Description** | **# of Entries/Population/Crosses** |
| Regional Trial | Uniform Preliminary Trial | 1 line |
| AYT | Advanced Yield Trial  | 2 lines |
| PYT | Preliminary Yield Trial | 7 lines |
| Progeny Rows | Visual Selection  | 4 populations |
| Population Development | F1 to F4 generation | 5 populations |

**Regional Trial.** One advanced breeding line, S22-23421HS (MG 4L) is planned to be tested in the 2025 Uniform Preliminary Trial, with stearic acid content of 7.1%. This line may be considered for release given satisfactory yield performance.**AYT.** Two advanced breeding lines (MG 3L and 4E, respectively) were selected based on their performance in 2024 PYT and will be retested in 2025 AYT. The stearic acid content is 11.8% and 13.8%, respectively.**PYT.** Seven preliminary breeding lines belonging to MG 3L, MG 4E, and MG 4L have been selected based on their maturity and phenotypic appearance from our 2024 progeny row nursery. These lines will be entered in the 2025 PYT, with stearic acid content varying from 8.6% to 16.6%.**Progeny Rows.** We will continue to evaluate the four HS populations in the progeny row nursery in Portageville, MO in 2025. **Population Development**. In the 2024 season, a total of five populations were developed which included both elite breeding lines and HS lines. The F1 seeds derived from these crosses were sent to the winter nursery in Costa Rica to advance the generations from F1 to F4. |