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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: |  |
| Project Title:  | Development of functional ultra-high stearic acid soybean germplasm |
| Organization:  | University of Missouri |
| Principal Investigator Name: | Feng Lin, PhD |
| Other investigators: | Dongho Lee |
| Report Period: | March 15, 2024 |
| **Research updates**:**Advanced Yield Trial for High Stearic Acid.** We will have one advanced line in our 2024 AYT with high stearic (HS) parental line in the pedigree.Table 1. Yield performance of S22-23421 versus widely grown commercial checks in the 2023 preliminary yield trial.

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| **Line** | **Pedigree** | **Mean Yield (bu/ac)** | **Stearic acid (%)** |
| **Portageville, MO** | **COOP1** |
| S22-23421HS | S19-19712 x S16-7922 | 52.2 | 65.6 | 7.11 |
| XT Check2 | - | 69.9 | 65.9 |  |
| NXT Check3 | - | 43.9 | 71.6 |  |

1COOP: AR, MO2XT Check (Xtend): AG 43XF23NXT Check (non-Xtend): P42A84E**Preliminary Yield Trial for High Stearic Acid.** Approximately, we will have 6 preliminary lines from HS crosses in our 2024 PYT, with stearic acid content ranging from 3.5 – 20.8%.**Progeny Rows for High Stearic Acid.** Currently, we have 12 HS populations and were advanced from the F1 to the F4 generation in the winter nursery in Costa Rica and will be planted in our progeny rows in 2024.**Breeding Population Advancement.** Four new HS populations were sent to the Costa Rica winter nursery for generation advancement from the F1 to the F4 generation and will be planted in our progeny rows in 2025 (Table 1). Table 1. List of four HS populations in 2023.

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| **Cross** | **Pedigree** |
| S23-502 | S22-23407 x S19-10701 |
| S23-503 | S22-23407 x S19-14797 |
| S23-506 | S22-23373 x S16-7922 |
| S23-507 | S22-23373 x S16-11644 |

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