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| Project Number:  |  |
| Project Title:  | Enhancing Stink Bug Resistance in Midsouth Soybean |
| Organization:  | LSU AgCenter |
| Project Lead Name: | Jeffrey A. Davis |
| Reporting Period:*Please select the appropriate reporting period for this report.* |  [x]  December [ ]  March [ ]  June [ ]  September [ ]  Final |
| The information included in this detailed report should reflect quantifiable results that can be used to evaluate and measure project success.If Progress Report – What key activities were undertaken and what were the key accomplishments during this reporting period? List each key deliverable from the proposal and describe progress made (or not made) toward achieving it, including metrics were appropriate.If Final Report – What were the key accomplishments during the life of the project? List each deliverable from the proposal and describe progress made (or not made) toward achieving it, including metrics where appropriate. |
| Below is a report for the period of September 16, 2024 to December 15, 2024.***University of Missouri (Dr. F. Lin)***Crosses continue to be made. These F1 seeds, once matured, will be sent to Puerto Rico for advancing generation and should return in April 2026 to be tested as progeny rows.***Louisiana State University AgCenter (Dr. J. A. Davis)***This season, in 2024, we planted 100 F2 lines for genomic screening. The screening of these lines will allow us to conduct a rough mapping of stink bug resistance. Leaves were collected and sent to the University of Missouri for genotyping in August. Once the results are in, we will be able to have preliminary results from some genomic regions responsible for resistance.Overall, for 2024, we screened 37 breeding lines and 20 commercial varieties for resistance based on yield and seed damage (Damage Index, DI). Due to the small number of seeds available for breeding lines, population estimates were not taken. However, for commercial varieties, population estimates plus yield and DI were taken.Soybean lines S18-3722 and S21-21192 had a DI of 1.5, half that of any other of the lines we saved seed from 2023 and retested in 2024. The highest yield came from S18-6328, which also had a DI of 1.8. Typical values of susceptible soybean had a DI of 2.0 or greater. We are actively evaluating the rest of the lines for seed damage and yield and will have an update in March 2025. These lines are listed in the table below.

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| Soybean lines awaiting results of damage index scoring and 100 seed wt |
| S20-2227 | S21-11105 | S21-11102 | S21-11972HP |
| S20-5669 | S21-9052 | S21-11840HP | S21-7836HP |
| S20-15411GT | S21-22067 | S21-17588LL55 | S22PR-329E3 |
| S20-14129GT | S21-23246HOLL | S21-11211 | S22-24366 |
| S20-7117 | S20-25654 | S21-6008GT-HOLL | S22-24344 |
| S20-1492 | S21-20276 | S21-18696LL55 | S22-24401 |
| S20-4428 | S20-25571 | S21-15672 | S22-24339 |
| S20-13179LL55 | S22PR-383E3 | S21-20065 |  |

From the commercial varieties, DG48X45 RR2X had the lowest stink bug populations in the field while P46X86X had the highest. Yield, DI, and 100 seed wt are forthcoming and will be reported in March 2025. A peer-reviewed journal article with all varieties over the last three years is being prepared for publication in 2025. |