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| Project Number:  | 2020-152-0120 |
| Project Title:  | National USDA Uniform Soybean Tests / Yield, Disease Resistance and Quality Traits Evaluation of Public Breeding Lines (Year 3 of 3) |
| Organization:  | USDA-ARS |
| Principal Investigator Name: | Anne M. Gillen |
| **National Soybean Checkoff Research Database** [**https://www.soybeanresearchdata.com/**](https://www.soybeanresearchdata.com/) **(public website funded by USB). Please include a non-technical summary along with your project status. The non-technical summary will be published to the website. If a non-technical summary is not provided, the contents of this entire report will be published.** |
| Project Status - What key activities were undertaken and what were the key accomplishments during the life of this project? Please use this field to clearly and concisely report on project progress. The information included should reflect quantifiable results (expand upon the KPIs) that can be used to evaluate and measure project success. Technical reports, no longer than 4 pages, may be included in this section.  |
| Southern Test1. All data from the 2019 trials and stem canker nursery at Stoneville were submitted in a timely fashion.
2. 2019 Seed samples for analysis from Stoneville trials were submitted on time.
3. The SAS programs and Excel files used to report the results were revised in January-March 2020 to include new seed composition tables in the Uniform Tests, and the addition of Estimated Meal Protein % to the Uniform and Preliminary Test results.
4. The first incomplete drafts of the results tables were sent January 8 to only the breeders so they would have information for winter meetings. Draft tables with complete agronomic data were sent January 11 (Prelim only), January 14 (Uniform). Final tables with protein and oil data were sent Feb 5-6, 2020.
5. The Annual Meeting of the Southern Test was held at Soybean Breeder’s Workshop on March 3, 2020.
6. Final tables were revised in the summer when an additional location reported protein and oil data. The final formatted report was distributed electronically on July 7,2020 and the hard copy was sent Sept. 24, 2020. We were unable to access a printer capable of printing this many copies until late August 2020.
7. Pedigree information from the 2019 tests was sent to Rex Nelson at Soybase.org for inclusion in the Soybean Parentage Database.
8. All 2020 seed was distributed on time and the trials were planted.
9. Seven tests were planted at Stoneville but one was lost due to planting errors. All have been harvested.
10. We are waiting for 2020 data from collaborators. Datasheets templates have been sent.
11. Stem canker testing at Stoneville, MS in 2019 was completed and final results are being prepared.

Northern Test1. 2019 field trials in our Indiana locations were successfully harvested.
2. Phytophthora root rot screening of 2019 tests were completed on time. Soybean cyst nematode testing data was received on time.
3. 2019 seed samples for composition analysis from Indiana trials were submitted on time.
4. Data were collected from Indiana trials and from collaborators. All the compiled rep data for agronomic characteristics and seed composition was analyzed.
5. The report for 2019 Uniform Soybean Tests – Northern Region was completed and an electronic version was sent to collaborators in early February, 2020. Hard copies were printed in March 2020.
6. A teleconference was hold on February 19th, 2020 to coordinate 2020 trials.
7. All 2020 seeds were collected from collaborators, packaged, and distributed on time.
8. Field trials in two Indiana locations were planted in 2020. We are in the midst of harvesting these trials.
9. We are waiting for 2020 data from collaborators. Data submission sheets were prepared and distributed to participants.
10. Phytophthora root rot screening for 2020 tests is complete.
11. We are working with Soybase to upload historic raw data into the database.
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| Did this project meet the intended Key Performance Indicators (KPIs)? List each KPI and describe progress made (or not made) toward addressing it, including metrics where appropriate.  |
| Continued participation in the testing program by public breeders indicates the value and utility of the testing program. In the 2019 Southern Test there were 15 soybean breeders who participated by growing tests and/or entering lines. These soybean breeders and collaborators are located in eleven states and represent three ARS locations and nine Universities. In the 2019 Northern Test there were 18 soybean breeders who participated by growing tests with additional breeders entering lines. These soybean breeders and collaborators are located in 10 states, two Canadian provinces and represent two ARS location, eleven Universities and three Canadian research organizations.Our two KPI were met by:1. Producing and distributing preliminary data to participants early enough to be used to make soybean line selections for the next growing season.
2. Producing and distributing the annual reports to public researchers, seed company scientists, the National Agriculture Library, the University of Arkansas Library (Southern Test only) and Purdue University Library (Northern Test only).
3. The annual reports of both tests are available to the public online at ARS websites.

Soybase.org has links to the annual reports of both tests. Data.gov has a link to the annual report of the Southern Test. |
| Expected Outputs/Deliverables - List each deliverable identified in the project, indicate whether or not it was supplied and if not supplied, please provide an explanation as to why. |
| 1. Preliminary data from 2019 trials was distributed to collaborators and participants prior to the annual meeting.
2. The Annual Meeting of the Southern Test was held in conjunction with the Soybean Breeders Workshop in St. Louis MO in March 2020. The annual meeting of the Northern Test was held virtually in Feb 2020.
3. The 2019 Annual Reports for both tests were produced and delivered to the breeders.
4. The final formatted Southern report (pdf and hard copy) was not completed on schedule due to the retirement of Gary Shelton and work restrictions due to the COVID-19 pandemic. The Northern test report was completed in Feb and hard copies were sent in March. The final formatted reports were completed and distributed as soon as was practical.
5. 2020 Trials at Stoneville were planted and harvested but one was lost due to planting errors. All Northern Test plots in Indiana are being harvested. The data will be submitted for the annual report in a timely fashion.
6. Stem canker screening for 2020 was successfully completed on time. The Phytopthora root rot screening is complete in 2020. The data will be submitted for the annual reports in a timely fashion.
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| Describe any unforeseen events or circumstances that may have affected project timeline, costs, or deliverables (if applicable.) |
| The formatted report was delayed and the final hard copy of The Southern Annual Report in the final format and the hard copy was greatly delayed due to ARS COVID-19 work restrictions. The hard copy of the southern report was not distributed until September 24, 2020. However, the southern analysis was performed and the results were distributed in a timely fashion. Dr. Gillen needs to write very detailed proposals to the ARS in order to work on station to perform the work needed to complete the 2020 tests and to move the 2021 tests forward. For example, sub-samples for protein and oil analysis need to be taken from the trials that were grown at Stoneville. It is unknown if permission to work on station to do this will be granted, or when it will be granted. It is also unknown if Dr. Gillen will be allowed to hire part-time assistance to work on this project in the next year. Gary Shelton who ran the seed distribution and field aspects of the project retired in Dec 2019. His position has not even been advertised. In the Northern tests, we lost temporary workers during the pandemic. Dr. Cai had to pull personnel from other projects who were paid by USDA/ARS to work on the time-sensitive Soybean Uniform Tests so that the project can be complete on time. As such, the salary portion of his USB funding was largely unused. This funding will be necessary in future years.  |
| What, if any, follow-up steps are required to capture benefits for all US soybean farmers?Describe in a few sentences how the results of this project will be or should be used. |
| The breeders utilize these results to make critical decisions regarding the advancement of lines and varieties towards release for commercial use. The data from these trials are used to justify releases. The 2020 data needs to be analyzed and reported.  |
| **List any relevant performance metrics not captured in KPI’s.** |
| Pedigree information for the entries in the tests was sent to Rex Nelson at Soybase.org for inclusion in the Soybean Parentage Database. This database is an ongoing project which makes pedigree information available online to everyone. It is very helpful for writing release notices and registration articles.  |
| **Non-technical summary:** |
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