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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 climate-smart high-yield practices associated with high-end biological treatment and soybean-related microbiome resiliency. |
| Organization: | University of Texas- Arlington |
| Project Lead Name: | Woo-Suk Chang |
| Report Date: | June 15, 2023 |
| **In the Progress Summary section below, please provide a brief summary of project progress in lay language that will be shared publicly in the** [**National Soybean Checkoff Research Database**](https://www.soybeanresearchdata.com/)**. Do not include any confidential or proprietary information. If no lay language is provided, the contents of this entire report will be published in the** [**National Soybean Checkoff Research Database**](https://www.soybeanresearchdata.com/)**.** | |
| Progress Summary (in non-proprietary lay language suitable to be shared publicly): | |
| As the first-year trial of this project, we have planted soybeans in both a conventional tillage field and a no-till field in the states of AR, LA, and MS. Also, three treatments are considered for inoculation: TXVA strain (the drought-tolerant inoculant), TagTeam (a commercial inoculant), and no inoculant (control). All fields are to be kept non-irrigated (rainfed conditions). For the research sites (Corpus Christi and Portageville) in TX and MO, we were unable to prepare no-tilled fields due to tillage occurring right after harvesting the previous crops. However, we will sample the rhizosphere soils from a no-tilled soybean field for the microbiome analysis in different locations for TX and MO. These sites will be announced in the next quarterly report. | |
| Detailed Progress Status – Expand upon the above section. 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. | |
| **Table 1.** Summary of 2023 field work.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Location** | **Collaborators** | **Planting Date** | **Sampling Date** | **Cultivar Used** | **MG** | **No-till field** | | Corpus Christi, TX | Dr. James Grichar | 3/28 | 5/30 | Pioneer, Lynda, Pamela | 4L, INDT, INDT | NO | | Portageville, MO | Dr. Grover Shannon | 5/23 | 7/5\* | Ellis | 4L | NO | | Colt, AR | Dr. Shawn Clark | 5/24 | 7/6\* | Ellis, S14 | 4L, 5 | YES | | Winnsboro, LA | Dr. Trey Price | 5/26 | 7/7\* | Ellis | 4L | YES | | Leland, MS | Dr. Tessie Wilkerson | 6/9 | 7/24\* | Ellis | 4L | YES | | TBA, MO | Dr. Eric Oseland | TBA | TBA | TBA | TBA | YES |   \*Projected dates; TBA, To Be Announced in the next quarterly report.  **Table 1** shows the current summary of the 2023 fieldwork, including location, planting date, cultivar information, and planting in no-till fields.  The research site in Colt, AR was planted on May 24th, and each plot consisted of an RCBD with 4 x 20’rows and a seeding rate of 10 seeds per foot. The conventional tillage field consisted of 2 soybean cultivars (Ellis and S14-9017R) and 3 inoculant treatments with 6 replicates. The no-tilled field is composed of one soybean variety Ellis and 3 inoculant treatments with 4 replicates.  The research site in Winnsboro, LA was planted on May 26th, and both the conventional tillage field and the no-till field consisted of one soybean variety Ellis. Each plot consisted of 4 x 25’ rows with a seeding rate of 8 seeds per foot. Three inoculant treatments with five replicates for the conventional tillage field, while four replicates for the no-tilled field.  The research site in Stoneville, MS was planted June 9th; however, we only planted the conventional tillage field due to the recent rainfall. The no-tilled field will be planted anytime within a week. Each plot consisted of 4 x 20’ rows with a seeding rate of 9 seeds per foot. Three inoculant treatments were prepared with 5 replicates.  The sampling sites in TX and MO will be announced and described in detail in the next quarterly report.  **Figures 1 and 2** show an example of the RCBD map and field images for the conventional tillage and no-till in Colt, AR.  **A**  A picture containing outdoor, sky, cloud, tree  Description automatically generated  **B**  **Figure 1.** The RCBD plot map (A) and a field image (B) of the conventional tillage field in Colt, AR.  A picture containing outdoor, cloud, field, tree  Description automatically generated  **B**  **A**  **Figure 2.** The RCBD plot map (A) and a field image (B) of the no-till field in Colt, AR. | |