

## Subcontractor Quarterly Report

<b>Project Number:</b>	1620-732-7237
<b>Project Title:</b>	Enhanced Pest Control Systems for Mid-South Soybean Production
<b>Organization:</b>	LSU AgCenter
<b>Principal Investigator Name:</b>	Trey Price
<b>Report Period:</b>	3 <sup>rd</sup> Quarter 2016

**Project Status:** Active

### Louisiana

**Hollier:** In south Louisiana (Crowley and Baton Rouge), planting was delayed due to heavy rains. However, satisfactory plant stands were achieved. During the August floods, both locations were under several feet of water, and very few plants survived. Unfortunately, no disease ratings were possible in these locations. **Price:** In central Louisiana the 30 entry variety trial has been rated for iron deficiency chlorosis, Cercospora blight, frogeye leaf spot, aerial blight, and soybean rust. In northeast Louisiana the trial has been rated for target spot and Cercospora blight. CLB seems to be more severe in NELA than in CENLA this year. Both locations will be rated at least once more for CLB. Some varieties are nearing maturity. **Buckley: No report received. Davis: No report received.**

### Arkansas

**Chen/Orazaly:** Ten cultivars and six advanced lines from University of Arkansas, including high-yielding conventional, high-yielding Roundup Ready 1 and 2, and high protein were entered in the 2016 CLB variety trial which has been planted. 565 PIs were planted in three AR locations (Stuttgart, Marianna, and Fayetteville) with one rep and 520 of which were also planted in LA and MS with one rep. These PIs will be screened for CLB, FLS, and additional foliar diseases. PIs will also be evaluated for Purple Seed Stain (PSS) to study interaction between CLB and PSS. **Faske:** The majority of the soybeans range in maturity from R5 to R6. As a casual observation, there was some CLB in a few plots as of 9 Sept (Fig. 1) and plots will be rated next week (Sept 12) for CLB. Overall, CLB symptoms are very low to none in the majority of the plots. **Spurlock: No report received. Rupe: No report received.**

**Mississippi Allen:** Ratings for multiple diseases have commenced at the Verona variety trial location. Plots for the Stoneville variety trial will be rated in the next week to ten days.

**Missouri Shannon/Jones:** Stink bug data collection began on Aug. 5<sup>th</sup> and has continued weekly. No stink bug activity recorded until Sep. 2<sup>nd</sup>, with very low numbers of green and brown stink bugs. Still observing very small numbers as of Sep. 12<sup>th</sup>. Some plots are beginning to move toward maturity yet later varieties are still green. There is still potential for buildup of stink bugs. Plots have been observed since flowering season for buildup of Cercospora leaf blight. The last observation of the plots was September 8th and only slight evidence of the disease was observed and still too low in symptoms and signs to take ratings.

**Tennessee Kelly: No report received.**

**Texas Zhou:** Soybean plants are at R1 to R2, and no symptoms of any diseases have been observed. Monitoring will continue. In the stink bug trial, soybean plants also are at R1 to R2 stage with and no harmful insects.

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.

<b>Project Number:</b>	
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<b>Project Title:</b>	Cercospora blight project
<b>Organization:</b>	
<b>Principal Investigator Name:</b>	T.W. (Mississippi State University subcontractors)
<b>Report Period:</b>	July 1 - September 15, 2016
<b>Project Status: on-going</b>	
<p>Fungicide trial plots have been sprayed and rated in Stoneville, MS. Due to inclement weather, one of the applications on one of the varieties, the R5, was not able to be made. Three weeks of wet weather can make it difficult to get in the field. Ratings have been made on the fungicide trial plots multiple times. In addition, ratings have commenced at the Verona variety trial location. Plots for the Stoneville variety trial will be rated in the next week to ten days.</p>	

**Enhanced Pest Control Systems for Mid-South Soybean Production**  
University of Arkansas

Project Update Report Period: June 15 to September 15, 2016

**Cultivars/advanced lines in Cercospora Leaf Blight Variety Trial:** Ten cultivars and six advanced lines from University of Arkansas, including high-yielding conventional, high-yielding Roundup Ready 1 and 2, and high protein lines (Table 1), were entered in the 2016 Cercospora Leaf Blight (CLB) Variety Trial which are currently being evaluated in 15 locations in seven different states (MO, TN, AR, MS, AL, LA, and TX). CLB and FLS screening for these cultivars/lines will be performed and yield data will be analyzed.

**PI screening for CLB and PSS:** In 2015, a total of 565 PIs (maturity group IV to VI) selected from GRIN with available 50 K SNP Chip data, were increased in Costa Rica Winter Nursery to produce enough seed subsequently to test in multiple environments. In 2016, 565 PIs were planted in three AR locations (Stuttgart, Marianna, and Fayetteville) with one rep and 520 of which were also planted in LA and MS with one rep. These PIs will be screened for CLB, FLS, and additional foliar diseases. PIs will also be evaluated for Purple Seed Stain (PSS) to study interaction between CLB and PSS.

**New Crosses:** New cross combinations were made to integrate CLB resistance to our high-yielding lines. For this purpose, our high-yielding CLB resistant varieties, UA 5014C and UA 4805, were crossed with high-yielding AR and MO lines. To develop mapping populations for QTL studies, two new crosses were made combining CLB susceptible variety, UA 5615C, with CLB resistant varieties, UA 5014C and UA 4805. True hybrid seeds will be harvested in fall and will be advanced in 2017.

*Project title:* Enhanced Pest Control Systems for Mid-South Soybean Production

*Date:* September 10, 2016

*PI:* Travis Faske, University of Arkansas, Extension Plant Pathologist

*Project Period:* June 15 to September 15

*Quarterly report:* Thirty soybean germplasm lines were planted on 7 June at Newport Extension Center near Newport, Arkansas. The majority of the soybeans range in maturity from R5 to R6. As a casual observation, there was some CLB in a few plots as of 9 Sept (Fig. 1) and plots will be rated next week (Sept 12) for CLB. Overall, CLB symptoms are very low to none in the majority of the plots.



Fig. 1. *Cercospora* leaf blight symptoms on two entries in September located near Newport, AR.

## **Quarterly Report of Soybean Trials in Texas**

Xin-Gen (Shane) Zhou  
Texas A&M AgriLife Research  
Beaumont, TX  
September 8, 2016

As arranged in the subcontract, Dr. Zhou has taken the responsibility of conducting the soybean trials in Beaumont, TX for the project “Enhanced Pest Control for Mid-South Soybean Production” led by the LSU AgCenter, Winnsboro, LA. The Sponsor Research Service Office of Texas A&M University, College Station, TX completed the process of establishing an account for the subcontract funds and made the funds available on August 24, 2016. We are in the process of using up all the funds in the account by September 30, 2016 as instructed.

### **Soybean Disease Resistance Trial**

A field trial was established at the Texas A&M AgriLife Research and Extension Center, Beaumont, TX to evaluate the performance of 30 soybean cultivars and elite lines on the resistance against *Cercospora* leaf blight and other diseases. These cultivars and elite lines were arranged in a randomized complete block design with four replicates. Plots consisted of four 20-ft rows spaced 30 in. between two rows. Soybean was planted on July 25, 2016 using a planter at the rate of 8 seed per ft of row. On July 26, all plots were sprayed with a mix of First Rate (0.75 oz/A) and Dual II Magnum (2.5 pt/A) for control of weeds. On August 25, all plots were applied with 50 lb N/A of urea. Irrigation followed local recommendations. At the time of writing this report, soybean plants were at the R1 to R2 stages (Fig. 1) and no symptoms of any diseases were observed. We will continue monitoring the development of any diseases in the trial. We will rate the symptoms of diseases as proposed in the project. The data on the incidence of purple stain seeds will also be collected as needed.

### **Soybean Stink Bug Resistance Trial**

A second trial evaluating soybean stink bug resistance was also established at the Beaumont Center, TX. The trial consisted of four elite lines, TX1034, TX1035, TX1041 and TX1061. These elite lines were arranged in a randomized complete block design with four replicates. Plots consisted of four 30-ft rows spaced 30 in. between two rows. Soybean was planted on July 25, 2016 using a planter at the rate of 8 seed per ft of row. On July 26, all plots were sprayed with a mix of First Rate (0.75 oz/A) and Dual II Magnum (2.5 pt/A) for control of weeds. On August 25, all plots were applied with 50 lb N/A of urea. Irrigation followed local recommendations. At the time of writing this report, soybean plants were also at the R1 to R2 stages and no symptoms of any harmful insects or disease were observed. We will continue monitoring the development of stink bugs and any other harmful insects in the trial. We will take 25 sweeps per plot to assess the number of insect pests when plants reach R5 through R7 as described in the protocol. This separate trial has been arranged in support of the research of Dr. Davis (soybean entomologist) at the LSU AgCenter.

**Fig. 1.** A soybean plot (Left) showing the stage of growth of soybean plants (Right) on September 8, 2016 in Beaumont, TX

