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| **Reporting Period** | September 2014 - December 2014 |
| **Proposal** | [1420-732-7231 Effects of the Introduction of Feed Grains into Mid-South Soybean Production Systems (Year 1 of 3)](http://moss.unitedsoybean.org/Lists/Proposals/DispForm.aspx?ID=3689&RootFolder=*) |
| **Committee** | Production |
| **Target Area** | Supply |
| **Project Start Date** | 10/1/2013 |
| **Project End Date** | 9/30/2014 |
| **Project Number** | 1420-732-7231 |
| **Project Status** | **Mississippi State University (Stoneville)**  – *Bobby R. Golden*  Similar to most research locations mentioned below. Grain Sorghum suffered many issues in the first year of the trial.  By the time of this report all plots have been harvested at the Stoneville location.  Fall soil samples were collected from all plots shortly after the final soybean harvest on Sept 29. Residue burning was achieved over a two week period due to rainfall hampering initial attempts to impart burning treatments. After burning the entire field was rehipped on top of the previous year’s rows to minimize error with plot integrity. Wheat planting was initiated on October 23, for designated plots.  Wheat were seeded on beds and a great stand was achieved.  Currently we are in the process of gathering all the soil samples from participating cooperators for analysis.    Preliminary yield information from each crop is presented below and Tables are presented in accompanied document file.  Because this is the first year of the project, a rotation effect was not included in the analysis because rotations have not been completed. For soybean, as expected yield was significantly influenced by the location x irrigation interaction (Table 1).  In general, most locations achieved statistically greater yields when irrigation was applied.  Alternatively, the St. Joseph location produced statistically similar yields regardless of irrigation.  Soybean yield average overall all locations and treatments was 57 bu/ac, which is greater than the state average in all states. The greatest irrigated yields were achieved in Arkansas (72 bu/ac), with the lowest irrigated yields also in Arkansas (26 bu/ac; Table 1).  Averaged across all locations irrigated beans produced 58 bu/ac in comparison with 54 bushels achieved in rainfed production systems.  If we do not consider the extremely low yielding Newport site, overall mean soybean yield averages 62 bu/ac, with irrigated bean averages of 64 bu/ac and rainfed averages of 58 bu/ac (data not presented tabular).    For corn, only the main effect of location influenced corn grain yield (Table 2).  Averaged across irrigation regime, the greatest mean corn grain yields were produced at the Stoneville (248 bu/ac) and Portageville (239 bu/ac), followed by St joseph (194 bu/ac), Pine Tree (167 bu/ac), Newport (110 bu/ac) and Brooksville (103 bu/ac). First year mean corn yield were very respectable for the early season weather conditions faced by most of the Midsouth.    For grain sorghum, Stoneville had no data to present. The complete stand at the Stoneville location was lost to white sugarcane aphid damage. Pesticide application for both insect pest were made, but were not timely due to wet soil conditions restricting field entry.  For the remaining locations yield seemed to follow latitude. With the greatest yields produced at the northern most latitudes (Table 3). This trend may partially be attributed to insect pressures.  The extremely low yield at the Newport location can be attributed to harvest delays and pest damage.      **Mississippi State University (Starkville)** – *Trent Irby*  Corn was successfully harvested on September 18th, followed by soybean and grain sorghum on the 22nd and 25th of September. The grain sorghum plots required a harvest aid, thus glyphosate was applied at 44 fl oz per acre approximately two weeks prior to harvest. Data including yield, test weight, and seed moisture have been measured and are currently being summarized. Treatments requiring wheat were planted on November 6th at 90 pounds per acre. A delayed Preemergence application of metribuzin was applied at 2.5 oz/A.    **University of Arkansas** – *Jeremy Ross*  Pine Tree yields and data look good. Due to equipment constraints and late harvest the Newport data and yields are very low. Wheat was planted at Pine Tree on November 3rd. Newport was late with harvest and the field needs to be reworked to remove the dips in the field that holds water.    **University of Missouri** – *Gene Stevens*  Before planting wheat plots on October 31 (Halloween) we burned the corn residue based on the field plans. Then we tilled and planted the wheat. It was windy that day so we waited until November 10 to burn the rest of the corn residue designated for residue management on the field plan. The wheat emerged and we have a good stand.    **LSU AgCenter** – *Josh Lofton*  Since the previous report, all crops have been harvested and yield results have been submitted to Dr. Golden.  Even though the all crops, especially corn and grain sorghum, were planted later than typically recommended for northeast Louisiana, yields were good, overall.  However, grain sorghum yields were diminished during due to heavy infestation of sugarcane aphid and black birds.  Two transform applications were used to minimize the impact aphids.  Sodium chlorate was used as a desiccant, which allowed for harvest of the plots.  All fall soil and residue samples have been collected and are either being processed or waiting to be processed.  Residue burning was carried out 3 days following harvest.  Following burning an inline sub-soiler and a bed reforming tool were used, under the guidance of Dr. Golden, to prepare trial for the following season.  No disease pressure was noted throughout the growing season.  Only light insect pressure was noted in the soybeans (mostly stinkbugs); however, these were controlled prior to reaching thresholds.  Only two irrigation events were carried out in 2014.  However, these events could have potentially been removed as irrigated and dry-land treatments yielded similarly.  The only thing currently ongoing with the trial is the winter wheat crop, which has been planted; however, only a minimal stand has been established due to dry conditions and cooler temperatures.  For 2015, it is intended for the corn to be planted much earlier than during 2014 as to similar typical culture activities of the region.    ***Texas-A&M –*** *Clark Neely and Ronnie Schnell*  As of November 30, College Station was exactly on average for rainfall for the year with near normal rainfall for September through November (36.8 cm). Temperatures were near normal for September and October and well below normal for November. All plots were harvested prior to this quarter and soil samples taken from each plot on August 28 which were then sent to Dr. Golden’s lab. Residue was shredded on October 2, followed by an application of glufosinate to control grassy weeds. Burning of corn and sorghum residue took place on November 25 using a propane torch and will be followed by wheat (‘Cedar’ variety) planting in early December.  NOTE: Report Uploaded by Katie Williams on behalf of Bobby Golden on 12/12/14.  Report emailed on 12/11/14. |
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| **Attachments** | |  | | --- | | [2014 Q4 Report Tables.doc](http://moss.unitedsoybean.org/Lists/ProjectStatusReports/Attachments/9014/2014%20Q4%20Report%20Tables.doc) | |

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Table 1. Mean soybean yield as influenced by the location x irrigation interaction for research trials managed at six locations in 4 states in the initial year of the Mid-South soybean rotation project.

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| --- | --- | --- | --- |
| Location | Latitude | Mean corn grain yield | |
| Irrigated | Rainfed |
|  |  | - - - - - - - - - - - - -Bushels/acre- - - - - - - - - - - - - | |
| Stoneville | 33.4 | 67 | 58 |
| Portageville | 36.4 | 68 | 64 |
| St. Joseph | 32.0 | 63 | 66 |
| Pine Tree | 35.0 | 72 | 54 |
| Newport | 35.3 | 28 | 18 |
| Brooksville | 33.1 | 51 | 50 |
| *LSD0.5* | | *4.0* | |
| *P-value* | | *<0.0001* | |

Table 2. Mean corn grain yield averaged across irrigation as influenced by location for research trials managed at six locations in 4 states in the initial year of the Mid-South soybean rotation project.

|  |  |  |
| --- | --- | --- |
| Location | Latitude | Mean corn grain yield |
| Bushels/acre |
| Stoneville | 33.4 | 248 |
| Portageville | 36.4 | 239 |
| St. Joseph | 32.0 | 194 |
| Pine Tree | 35.0 | 167 |
| Newport | 35.3 | 110 |
| Brooksville | 33.1 | 103 |
| *LSD0.5* | | *9.0* |
| *P-value* | | *<0.0001* |

Table 3. Mean grain sorghum yield averaged across irrigation as influenced by location for research trials managed at six locations in 4 states in the initial year of the Mid-South soybean rotation project.

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| --- | --- | --- |
| Location | Latitude | Mean corn grain yield |
| Bushels/acre |
| Portageville | 36.4 | 118 |
| Pine Tree | 35.0 | 91 |
| Brooksville | 33.1 | 65 |
| St. Joseph | 32.0 | 57 |
| Newport | 35.3 | 18 |
| *LSD0.5* | | *13.0* |
| *P-value* | | *<0.0001* |