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WITH UP-TO-DATE SOYBEAN PRODUCTION INFORMATION

MISSISSIPPI SOYBEAN PROMOTION BOARD PROJECT NO. 29-2016 (CONT.) 2016 ANNUAL REPORT

Title: Delta Agricultural Weather Project

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BACKGROUND/OBJECTIVES

Agricultural weather data are needed by producers, researchers, and policy makers to make decisions daily. Producers utilize the data for critical management decisions about tillage, planting, crop protection applications, irrigation, fertilization, and harvesting. Researchers require agriculture weather data to analyze test products, verify field data, and compare different data sets to each other. Policy makers use agricultural weather data in reports ranging from county agriculture statistics to worldwide agriculture supply and demand estimates.

Producers and researchers in the intensive agricultural region of the Mississippi Delta have a tremendous need for weather information to develop critical research and management strategies for planting, irrigating, fertilizing, and harvesting, as well as the timing of other critical production practices on soybeans planted in the Delta. This project's goals are to continue data collection and dissemination of pertinent agriculture weather data and products that are required by researchers and farmers and to increase the availability and quality of the data and products available.

PROGRESS/ACTIVITY

The Delta Agricultural Weather Center has continued to supply weather data to researchers and growers throughout the 2016 growing season through the center's website. The center obtained eight weather stations that were put in various locations throughout Mississippi for the Mississippi soybean variety trials. Programs were written for each station by the center to measure hourly temperature, humidity, and rainfall, as well as twenty-four-hour readings at each of the locations. The program was set up to monitor the data with consistent downloads to be conducted by the center. The program was written to store data in time so that extreme temperature events as well as rainfall will be noted during the time of day it has occurred.

The Center has maintained the eight weather stations throughout the growing season. The Center has finalized the collection of data sets for the MSU soybean variety trials. This information will be submitted to the researchers for publication. The Center has updated the new 30-year normals for Stoneville on the DREC Weather Website.

The Center is also involved in Project 2234 "Effect of Planting Date, Latitude, and Environmental Factors on Choice of Maturity Group in Mid-South Soybean Production" (Year 4 of 4). The Center has supplied temperature and rainfall data for this project. Without these data, this project could not be carried out.

The Center is also involved with supplying weather data for the following projects:



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Title: Weed Management Program for Mississippi Soybean Production.

Principal Investigator: Jason Bond

Weather data are essential for calculating ET values for the following studies here at Stoneville:

- 1) Row-Crop Irrigation Science Extension and Research (RISER) Program
- 2) Developing Sustainable and Profitable Deficit Irrigation Programs
- 3) Improving Irrigation Application Efficiency
- 4) Screening Irrigation Scheduling Tools
- 5) Cover Crop and Tillage Effects on Irrigation Application Efficiency, irrigation Scheduling, Soil Physical Properties, Run-Off, Soybean Yield and Economic Return.

IMPACT AND BENEFITS TO THE MISSISSIPPI SOYBEAN PRODUCERS

The data are used for research to indicate the amount of rainfall the crop receives throughout the growing season. This info is beneficial in making management decisions, such as when to schedule irrigations to supplement the lack of rainfall the crop might need in order to achieve maximum yields. Also, it can be helpful in justifying harvest dates that might be later than the norm due to heavy rains late in the season. Also, at a location that has both irrigated and non-irrigated tests, these rainfall data are important to show the crop's yield potential when compared to one that was only rain-fed vs. rainfall in addition to supplemental irrigations.

The Center is making data collections that will be sent to the appropriate person(s). Each weather station that was purchased will be put into storage for future use in Soybean Variety Trial Research.

The Center will continue to maintain the nineteen stationary stations located throughout the Mississippi Delta and beyond to ensure data will be available for soybean growers and researchers across the State of Mississippi.

A system to automatically download the weather data from NRCS website of SCAN stations in Mississippi has been developed to replace the email/ftp system which the NRCS will no longer support. Currently all hourly and daily sensor data are acquired and archived; only the daily data are processed and formatted for web page deployment. Direct data transfer to the web page is being implemented.

Programs have been implemented to automate the processing of the DREC weather stations for transfer to the web page. The website format will be updated and enhanced upon completion of the automatic transfer of data to the web pages. Enhancements will include the automated data acquisition of USDA online weather stations in Mississippi, planting risk/timing maps, and evapotranspiration calculations/maps for irrigation scheduling. The transferring of data to the website has been finalized. With the transfer of these data, soybean planting recommendations are active this spring on the DREC-AG Weather website.