

SOYBEAN PROMOTION BOARD PROJECT UPDATE DECEMBER 07

Title: Improving Yield and Yield Stability for Irrigated Soybean

Principle Investigators: P.L. Tacker, BAE - CES; P Francis, Agronomy – UAM

Priority Area: I. Improving Soybean Profitability

Status: Revise and Renew (year 1 of 3)

Objectives:

The objective of this project is to investigate methods for improving yield and yield stability of irrigated soybean, allowing more profitable production for Arkansas conditions. Specific objectives include:

1. Determine the effect of delaying the initial irrigation on soybean.
2. Evaluate and revise the Irrigation Scheduling Computer Program.
3. Conduct on-farm irrigation demonstrations with interested county agents and producers.

Status:

Objective 1: The study on the effect of delaying the initial irrigation was successfully planted on May 15th at the SEBES in Rohwer. A good stand was achieved on all three of the cultivars (III, IV, V) included in the test. The “0” day delay treatment was irrigated on schedule but rain followed just 3 days later which made the 5 day delay treatment impossible. The 15 day delay was changed to a 3 day delay to account for this so that the three delay treatments would then be 3, 5 and 10 days. Unfortunately, at the time of the next irrigation rain again occurred and this time during the evening of the day that the irrigation was applied. At this stage in the season there was no reasonable option for changing the study so that an irrigation delay effect could be determined. The test was taken to harvest with each cultivar being irrigated as needed. The average yield for each cultivar was 70 bu/ac and as expected the rains negated any yield difference due to a delay in irrigation. Soil moisture and plant growth data are still being evaluated. An irrigation delay demonstration with two Greene county producers resulted in an average reduction of approximately 3 bu/ac on the part of field that was irrigated 7 days later than the rest of the field.

Objective 2: The Irrigation Scheduler was used at Rohwer and is being compared to data on soil moisture and plant growth during the season. It was used on the Verification fields so a decision can be made on releasing a new version to the public for next season.

Objective 3: Several county agents and producers were assisted with irrigation demonstrations. The demonstrations include; border irrigation, surge irrigation, furrow irrigation using Phaucet Program and multiple inlet levee irrigation. Comments from the agents and producers indicate that the demonstrations were successful in improving one or more aspects of irrigation water management. A demonstration involving the Phaucet Program and a surge valve on furrow irrigation resulted in the producer saying he was able to reduce his pumping time by almost 50%.