**ARKANSAS CORN AND GRAIN SORGHUM PROMOTION BOARD**
**PROGRESS REPORT - NOVEMBER 2008**

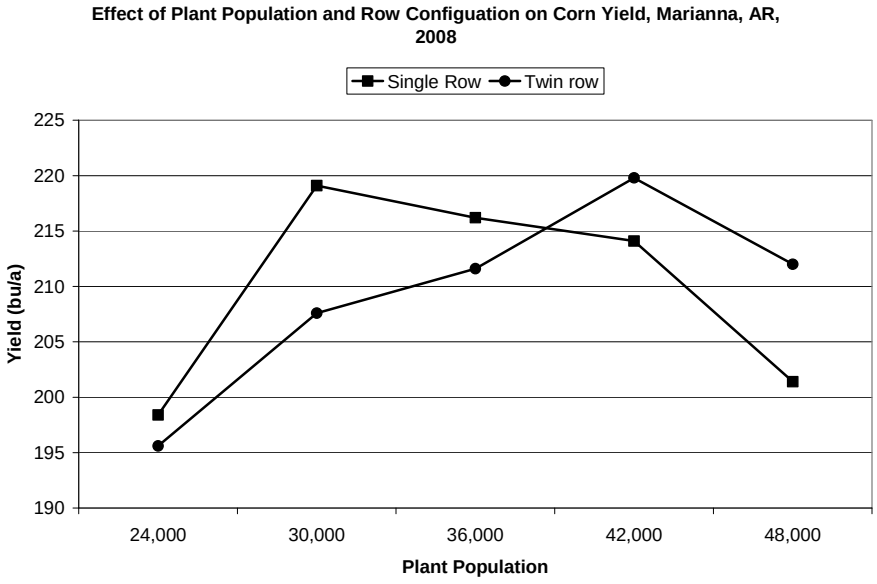
**Title:** Improving Technology Transfer for Profitable Corn and Grain Sorghum Production in Arkansas

**Investigator**: Jason Kelley - Wheat and Feed Grains Extension Agronomist

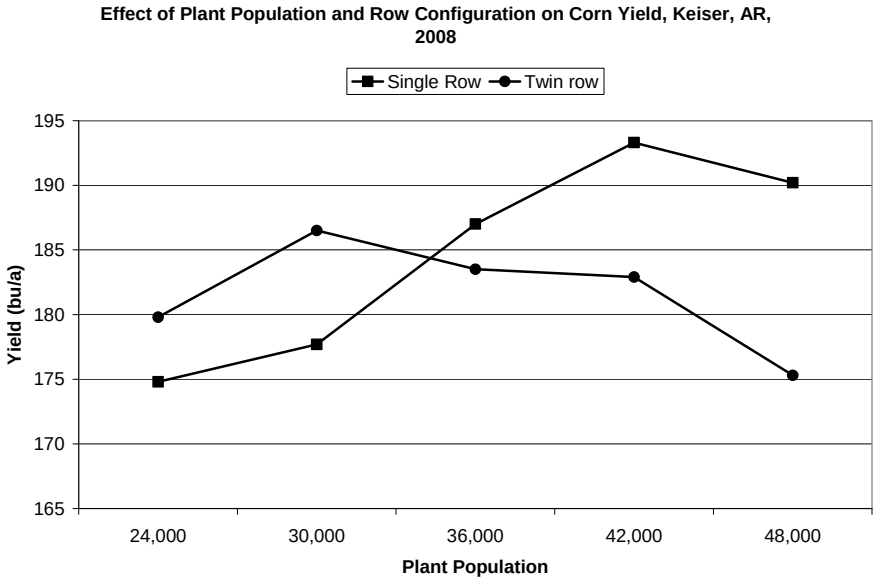
**Cooperators**: Various Extension and University Faculty in Soil Fertility, Entomology, Plant Pathology, Weed Science, Plant Physiology, Bio and Agricultural Engineering, Corn/Sorghum Research Verification Coordinator, County Extension Agents, and Corn and Grain Sorghum Producers

**Progress to Date:**

**Twin Row Corn versus Single Row Corn:** Trials were conducted to evaluate single 38 inch row spacing corn compared to twin rows (spaced 7.5 inches apart) on 38 inch wide raised beds. Trials were located on the Lon Mann Station at Marianna and the Northeast Research and Extension Center at Keiser. Pioneer 33M57 at plant populations of 24K, 30K, 36K, 42K, and 48K are evaluated under the single row and the twin row planting configuration. A Monosem twin row planter with variable rate seeding technology was used to plant the twin row corn. A standard John Deere Vacuum planter was used to plant the single row plots. Plant populations were taken soon after emergence and where needed plots were hand thinned to get equal plant populations between the single row and twin row corn. Plot size was 4 rows wide x 35 feet long and replicated four times. Plots at both sites were fully irrigated by furrow irrigation. Fertilizer was applied according to University of Arkansas recommendations and nitrogen rates were 250 lbs N at Marianna and 300 lbs N at Keiser and was split applied at both sites. Immediately prior to harvest, lodging rates were taken and the center two rows of each plot were harvest with a plot combine.



Yields at Marianna were excellent with nearly all treatments yielding 200 bu/acre or greater. Plant population had a greater impact on corn yields than row configuration. Averaged over row configurations, yields were 197, 213, 214, 217, and 207 bu/acre for plant populations of 24K, 30K, 36K, 42K, and 48K, respectively. When averaged over plant populations, yields for single 38 inch row corn was 210 bu/acre and 209 bu/acre for the twin row. Plant populations above 42K plants/acre were detrimental to yield in either row configuration. Root lodging was only evident in the single row spacing at 48K plant population.

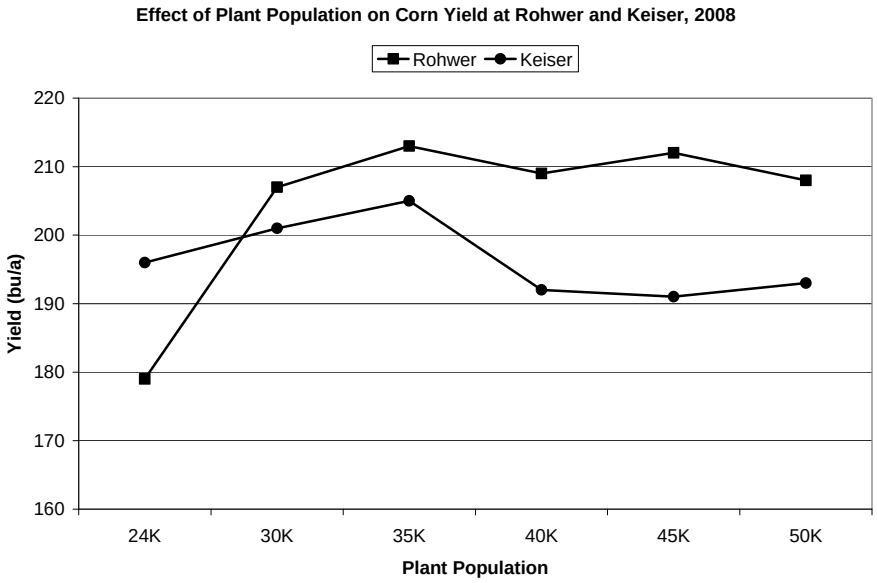



At Keiser, less response was seen for plant population than at Marianna. Averaged over row configuration, yields were 177, 182, 185, 188, and 183 bu/acre for plant populations of 24K, 30K, 36K, 42K, and 48K, respectively. When averaged over plant populations, yields were 185 bu/acre for single 38 inch rows and 182 bu/acre for twin row. Much like the trial at Marianna, plant populations above 42K reduced grain yields. One possible reason for lack of plant population response at Keiser was a late planting date of May 19$^{th}$.

On-farm trials comparing single 38 inch row spacing versus twin row corn were conducted in Desha County on the Pickens farm and in Poinsett County on the White farm. In Desha County, twin row corn yielded 186 bu/acre while single row corn yielded 183 bu/acre and was statistically different. In Poinsett County, the single row and twin row both yielded 203 bu/acre.

**Plant Population:** Plant population studies were conducted at Keiser and Rohwer evaluating 6 populations (25K, 30K, 35K, 40K, 45K, and 50K) and four hybrids (Pioneer 31P42, Dekalb 64-79, Belle 1545RY, and Dyna Gro 58P59) on single 38 inch row spacing. At both Keiser and Rohwer, plant populations above 35K did not increase yields.

An on-farm trial (Pickens Farm) evaluating four plant populations (33K, 37K, 41K, and 47K) under twin row planting configuration was also conducted in Desha County using producer equipment. Yields of 189, 197, 189, and 204 bu/acre were produced at 33K, 37K, 41K, and 47K plants/acre, respectively.




**Grain Sorghum Hopper Box Seed Insecticide Treatment:** One large plot strip trial evaluating a hopper-box seed insecticide treatment of Latitude was conducted in Lawrence County on the J.D. Beary farm. Compared to no insecticide treatment, the Latitude treatment increased final plant population 5,000 plants/acre and increased early season vigor was evident by the 6 leaf stage as treated seed was one inch taller than untreated seed. Plots were harvested at maturity, and even though yields were low due to lodging problems, the seed treatment provided an additional 2.5 bu/acre compared to the untreated grain sorghum.

**Foliar Feed Fertilizer/Yield enhancement products for corn:** Trials were conducted at Rohwer and Marianna evaluating several proprietary products designed to enhance corn yield. Data analysis is still ongoing, but it does not appear any of the treatments/products increased corn yield compared to the untreated check.