

**ARKANSAS CORN AND GRAIN SORGHUM PROMOTION BOARD**  
Progress Report December 2005

- Title:** Corn and Grain Sorghum Research Verification Program
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- Crop:** Corn and Grain Sorghum
- Value to the Grower:** During the 2005 growing season Arkansas producers planted 230,000 acres of corn and 66,000 acres of grain sorghum. Statewide average yields were 131 bu/a for corn and 80 bu/a for grain sorghum. Acreage was near the 10-year average production of 223,000 acres for corn, and lower than the 10-year average production of 168,000 acres for grain sorghum. With many Arkansas producers considering growing corn or grain sorghum for the first time, many are unfamiliar with current production practices. The Corn and Grain Sorghum Research Verification Program provides growers with an opportunity to learn proper agronomic practices that produce a high yielding, economical corn or grain sorghum crop.
- Objectives:**
- (1) Verify research-based recommendations for profitable corn and grain sorghum production in Arkansas
  - (2) Develop a database for economic analysis of all aspects of corn and grain sorghum production
  - (3) Demonstrate that consistently high yields of corn and grain sorghum can be produced economically with the use of available technology and inputs
  - (4) Identify specific problems and opportunities in Arkansas corn and grain sorghum production for further investigation
  - (5) Provide training for county extension agents, consultants, and producers
  - (6) Promote timely implementation of cultural and management practices amount corn and grain sorghum producers

**Justification:**

Many Arkansas corn and grain sorghum producers can improve yields and profit by implementing research-based practices in a timely manner. Likewise, extension recommendations are designed to improve yields and profits based on the results of unbiased research. The research verification program integrates all of the available information and technology together into a comprehensive demonstration of profitable corn and grain sorghum production in Arkansas.

Additionally, the verification program provides advanced training for county extension agents and cooperating producers. The information gained by county extension agents can then be applied to corn and grain sorghum producers statewide. Cooperators participate in the verification program for two successive years to obtain multi-year data and increase the agents and cooperators confidence in the program.

**Results:**

Each CGSRVP field and cooperator was selected prior to planting. Cooperators agreed to pay production expenses, provide crop expense data for economic analysis and implement the recommended production practices in a timely manner from seedbed preparation to harvest. Eleven growers were enrolled in the CGSRVP in the spring of 2005, nine corn and two grain sorghum fields. The fields were located on commercial fields ranging in size from 18 to 67 acres for corn, and 65 and 80 acres for grain sorghum fields. The average field size was 44 and 73 acres for the corn and grain sorghum fields, respectively.

The 2005 CGSRVP corn program was conducted in Ashley, Chicot, Clay, Greene, Lafayette, Little River, Miller, Poinsett and Woodruff Counties and grain sorghum fields were in Lincoln and Prairie Counties. Nine different corn hybrids (Croplan 1167 RR, DeKalb DK64-10 RR, DeKalb DK64-11 RRYG, Garst 8270 RR, Terral TV26BR10 RRYG, Pioneer 31G96, Pioneer 31N27, Pioneer 33D99, and Pioneer 33P67 YG) and one grain sorghum hybrid (Pioneer 84G62) were planted. Management decisions were based on field history, soil test results, hybrids, and data collected from each individual field during the growing season.

The hybrid, field size, and total fertilizer for each CGSRVP field are listed in Table 1. Hybrids for each field were selected from the past years performance in the University of Arkansas Corn and Grain Sorghum Hybrid Trials. A hybrid must have two or three year averages in the Hybrid Trials to be considered for the CGSRVP. Also, agronomic characteristics, such as relative maturity, disease and insect resistance of each hybrid is considered depending on specific situations of each field.

The preplant fertilizer was applied according to soil test recommendations. A third of the total nitrogen was applied for both the corn and grain sorghum fields preplant. The remainder of the total nitrogen was applied at approximately the 6-leaf stage for corn and grain sorghum. Most corn fields in the CGSRVP received an additional application of nitrogen a week prior to tassel emergence.

Grain yields in the 2005 CGSRVP averaged 173 bu/acre with a range of 85 to 203 bu/acre for corn, and averaged 117 bu/acre with a range of 89 to 145 bu/acre for grain sorghum (Table 2). The 2005 CGSRVP corn yield was 32% greater, and the grain sorghum yield was 46% greater than the

estimated Arkansas state average of 131 bu/acre and 80 bu/acre for corn and grain sorghum, respectively. The highest corn yield (203 bu/ac) was in Chicot County. The lowest corn yield (85 bu/ac) was in Lafayette County, which was in a dryland cropping system. Eight of the corn fields and both of the grain sorghum fields were irrigated in the 2005 CGSRVP.

Several producers and county agents have commented that the CGSRVP was very successful due to the emphasis on variety selection, timely fertilization and herbicide application, and timely irrigation using the irrigation scheduler. Several area field days were held at many of the counties to educate local producers on hybrid selection, fertilization, herbicide programs, irrigation requirements, harvesting and grain storage.

**Table 1. County, Hybrid, Field Size, and Preplant Fertilizer, CGSRVP Fields 2005.**

<b>County</b>	<b>Hybrid</b>	<b>Field Size (Acres)</b>	<b>Fertilizer (N-P-K-S-Zn pounds/acre)</b>
<b>Corn</b>			
Ashley	Terral TV26BR10 RRYG	67	250-90-100-20-3
Chicot	Pioneer 32D99	52	265-60-60
Clay	Pioneer 33P67 YG	36	240-50-100-7-12
Greene	Pioneer 33P67 YG	18	192-90-90
Lafayette	Garst 8270 RR	33	200-70-0-0-1
Little River	Pioneer 32D99	50	240-90-120-0-1
Miller	Croplan 1167 RR	36	210-46-90-12-1
Poinsett	DeKalb 64-10/64-11	60	240-30-120-10
Woodruff	Pioneer 31G96/31N27	43	240-90-90-10
<b>Grain Sorghum</b>			
Lincoln	Pioneer 84G62	80	182-60-60
Prairie	Pioneer 84G62	65	120-40-40

**Table 2. Hybrid, Field Size, Previous Crop, and Yield, CGSRVP 2005.**

<b>County</b>	<b>Irrigation</b>	<b>Hybrid</b>	<b>Field Size (Acres)</b>	<b>Previous Crop</b>	<b>Yield (bu/A)</b>
<b>Corn</b>					
Ashley	Yes	Terral TV26BR10 RRYG	67	Soybean	193
Chicot	Yes	Pioneer 32D99	52	Soybean	203
Clay	Yes	Pioneer 33P67 YG	36	Soybean	180
Greene	Yes	Pioneer 33P67 YG	18	Soybean	160
Lafayette	No	Garst 8270 RR	33	Corn	85
Little River	Yes	Pioneer 32D99	50	Soybean	193
Miller	Yes	Croplan 1167 RR	36	Soybean	155
Poinsett	Yes	DeKalb 64-10/64-11	60	Soybean	189
Woodruff	Yes	Pioneer 31G96/31N27	43	Soybean	197
<b>Average</b>			<b>44</b>	<b>CGSRVP Average</b>	<b>173</b>
					<b>State Average Yield</b>
					<b>131</b>
<b>Grain Sorghum</b>					
Lincoln	Yes	Pioneer 84G62	76	Grain Sorghum	89
Prairie	Yes	Pioneer 84G62	85	Soybean	145
<b>Average</b>			<b>73</b>	<b>CGSRVP Average</b>	<b>117</b>
					<b>State Average Yield</b>
					<b>80</b>