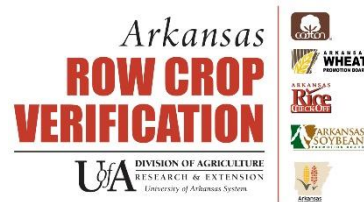




2023 University of Arkansas Corn and Grain Sorghum Research Verification Program

The Corn and Grain Sorghum Research Verification Program is funded by Arkansas corn and grain sorghum producers through checkoff monies administered by the Arkansas Corn and Grain Sorghum Promotion Board.

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CORN & GRAIN SORGHUM RESEARCH VERIFICATION PROGRAM, 2023

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INTRODUCTION

The 2023 growing season was the twenty-fourth year for the Corn and Grain Sorghum Research Verification Program (CGSRVP). The CGSRVP is an interdisciplinary effort between growers, county Extension agents, Extension specialists, and researchers. The CGSRVP is an on-farm demonstration of all the research-based recommendations required to grow corn and grain sorghum profitably in Arkansas. The specific objectives of the program are:

1. To verify research-based recommendations for profitable corn and grain sorghum production in all corn and grain sorghum-producing areas of Arkansas.
2. To develop a database for economic analysis of all corn and grain sorghum production aspects.
3. To demonstrate that consistently high yields of corn and grain sorghum can be produced economically with the use of available technology and inputs.
4. To identify specific problems and opportunities in Arkansas corn and grain sorghum production for further investigation.
5. To promote timely implementation of cultural and management practices among corn and grain sorghum growers.
6. To provide training and assistance to county agents with limited expertise in corn and grain sorghum production.

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. Nine growers enrolled in the CGSRVP in the spring of 2023 for a total of nine corn fields. The fields were located on commercial farms and ranged in size from 32 to 86 acres, with an average field size of 56 acres.

The 2023 CGSRVP corn fields were in Clark, Clay, Drew, Faulkner, Independence, Jefferson, Lonoke, Mississippi, and White Counties. Management decisions were based on field history, soil test results, hybrids, and data collected from each individual field during the growing season.

An electronic copy of this publication can be found at the following web addresses:

<https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/corn/>
<https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/verification/>
<https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/verification/corn-grain-sorghum-verification.aspx>
<https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/grain-sorghum/>

Figure 1. Location of 2023 Corn and Grain Sorghum Research Verification Fields

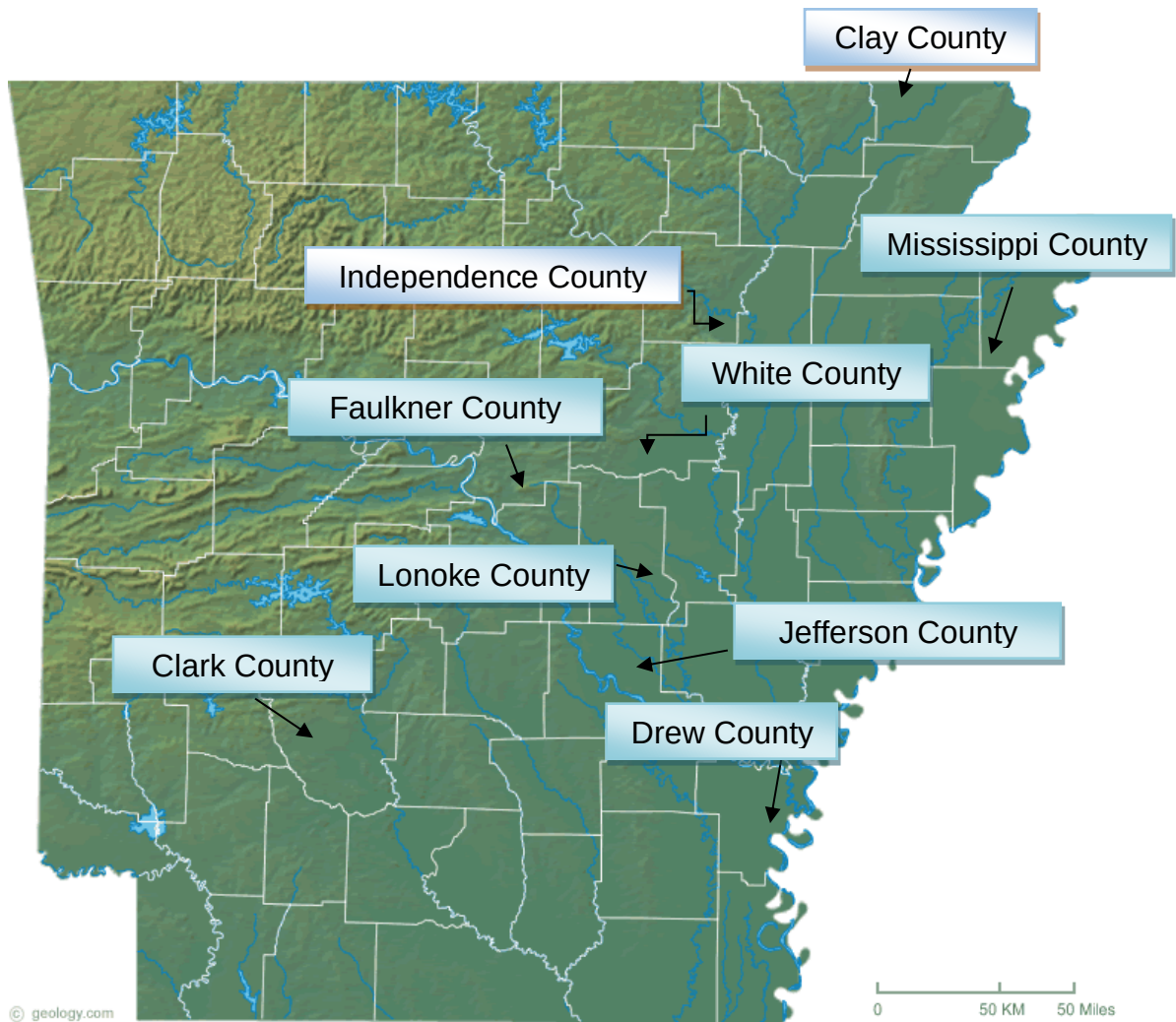


Figure 1

Corn Fields

CORN FIELD REVIEWS

Clark County

The Clark County corn research verification field was located near Arkadelphia on a Sardis Silt Loam. The field was 32 acres, and the previous crop was soybeans. This field was tile-drained, an uncommon occurrence in Arkansas. On April 22, the field was chisel plowed, followed by an application of chicken litter at 2 tons per acre. A Case turbo till was used to work the field, followed by a hipper roller on April 24. The field was planted on April 25 with DeKalb 67-44 at 29,000 seeds per acre on 36-inch row spacing. The field emerged on May 5, and the final plant population was 25,500 plants/acre, lower than anticipated due to some bird feeding. On May 25, urea was applied at a rate of 300 pounds/acre. On May 26, an herbicide application of 1 quart/acre of atrazine, 3.6 pint/acre of Halex GT, plus 1 pint/acre crop oil was made. The total commercial fertilizer applied to the field was 184-0-0-0. The field was planned to be irrigated but was not due to timely rains. The field was harvested on September 15 and yielded 168.4 bushels/acre adjusted to 15.5% moisture.

Clay County

The Clay County corn research verification field was located about 7 miles north of Corning on a Dexter and Foley Silt Loam soil. The field was 40 acres, and the previous crop was soybeans. On February 27, a burndown application of 32 ounces/acre of glyphosate plus 0.6 ounces/acre of First Shot was applied. On March 29, a preplant fertilizer of 45-100-100-12-5 was applied, followed by a bedder/roller. The field was planted to Pioneer 1718VYHR at 32,000 seeds/acre on April 1. The field emerged on April 12 to a stand of 31,500 plants/acre. An application of 100 pounds/acre of urea plus 50 pounds/ac of ammonium sulfate was made on May 1, followed by 175 pounds/acre of urea on May 20. A pre-tassel application of urea of 100 pounds/acre was made on June 8. An application of 1 quart/acre of atrazine, 2.5 quarts/acre of Acuron, plus 1 pint/acre of crop oil was made on May 1. A total of 228-100-100-24-5 units of fertilizer was applied. The field was furrow irrigated 3 times. The field was harvested on September 28, yielding 214.4 bushels/acre adjusted to 15.5% moisture.

Drew County

The Drew County corn research verification field was located near Tillar on a Hebert and Rilla Silt Loam. The field was 82 acres, and the previous crop was soybeans. On February 27, a burndown application of 28 ounces/acre of Round-Up Power Max, 1.5 pints/acre of 2-4,D, plus 1.5 ounces/acre Lead-Off was applied. A pre-plant fertilizer of 37-35-69-0-5 was applied on March 21. A disk bedder was used, followed by a harrow on March 22, and was planted on March 23 with DeKalb 65-99 at 34,000 seeds/acre on 38-inch row spacing. The field emerged on April 2; the final plant population was 32,500 plants/acre. On May 3, urea was applied at a rate of 240 pounds/acre plus ammonium sulfate at a rate of 100 pounds/acre plus potassium at 50 pounds/acre. A pre-tassel application of urea of 100 pounds/acre was made on May 30. On May 3, 1 quart/acre of atrazine, 3.6 pint/acre of Halex GT, plus 1 pint/acre crop oil was made. The total fertilizer for this field was 214-35-99-24-5. The field was furrow irrigated two times. The field was harvested on August 19 and yielded 245.2 bushels/ac adjusted to 15.5% moisture.

Faulkner County

The Faulkner County corn research verification field was located south of Conway, near Lollie Bottoms on a Gallion Silt Loam soil. The field was 65 acres and the previous crop was soybeans. A mixed pre-plant fertilizer of 39-0-60-18-0 was applied on April 14 and incorporated with a field cultivator. On April 15, the field was planted to Stine 9818 at 32,000 seeds/acre on 30-inch wide rows. The field emerged on April 24 to a final plant population of 30,625 plants/acre. On May 16, the grower applied 175 pounds/acre of urea plus 75 pounds/acre of ammonium sulfate, followed by a 150-pound/acre pre-tassel application of urea on June 12. On May 16, a lay-by herbicide application of 3.6 pints/acre of Halex GT, 1.5 quarts/acre of atrazine, plus 1 pint/acre of crop oil. The total fertilizer for the field was 204-0-60-36-0. The field was center pivot irrigated three times. The field was harvested on August 28 and yielded 197 bushels/acre adjusted to 15.5% moisture.

Independence County

The Independence County corn research verification field was located near Oil Trough on a Egam Silt Loam soil. The soil electrical conductivity reading from the soil test showed that the soil type had more clay content than the soil map shows, which may be explained by the fact that the field was leveled for furrow irrigation about five years ago with deep cuts in areas. The field was 40 acres, and the previous crop was soybean. On April 12, a pre-plant fertilizer application of 39-46-36-24-0 was made and followed by a hipper/roller. The field was planted on April 13 with conventional corn DeKalb 65-92 at 35,000 seeds/acre on 30-inch row spacing. The field emerged on April 22; the final plant population was 34,800 plants/acre. On April 13, a pre-emerge application of Dual II Magnum at 1 pint/acre was made by the grower, followed by a lay-by application of 1.5 quarts/acre of atrazine plus one pint/ac Dual II Magnum on May 15. The producer applied 300 pounds per acre of urea on May 15, followed by a pre-tassel application of 150 pounds/ac of urea on June 18. The total fertilizer for this field was 246-46-36-24-0. The field was furrow irrigated three times. The field was harvested on September 5 and yielded 176 bushels/acre adjusted to 15.5% moisture.

Jefferson County

The Jefferson County corn research verification field was near Swan Lake on a Rilla Silt Loam (65%) and Portland Clay (35%) soil. The field was 86 acres, and the previous crop was soybean. On March 30, a pre-plant fertilizer application of 34-0-72-12-3 was made, followed by a hipper/roller. The field was planted on April 12 with Progeny 2118VT2P at 34,000 seeds/acre on 38-inch row spacing. The field emerged on April 19 with a final plant population of 33,250 plants/acre. On April 12, a pre-emerge application of 11 ounces/acre of Verdict was made by the grower, followed by a lay-by application of 1 quart/acre of atrazine, 3.6 pints/acre of Halex GT, plus 1 pint/acre crop oil on May 17. The producer applied 280 pounds/acre of urea plus 50 pounds/acre of ammonium sulfate on May 18, and a pre-tassel application of 100 pounds/acre of urea was made on June 7. The total fertilizer for this field was 219-0-72-24-3. The field was furrow irrigated 3 times. The field was harvested on September 21 and yielded 215.9 bushels/acre adjusted to 15.5% moisture.

Lonoke County

The Lonoke County corn research verification field was located about 8 miles southeast of Lonoke on a DeWitt Silt Loam soil. The field was 80 acres, and the previous crop was soybeans. A mixed pre-plant fertilizer of 51-71-69-0-0 was applied on April 17, followed by a bedder/roller. On April 18, the field was planted to DeKalb DKC 65-99 at 35,000 seeds/ac on 30-inch-wide rows. The field emerged on April 30 to a final plant population of 35,000 plants/acre. On May 15, the grower applied 250 pounds/acre of urea plus 50 pounds/acre of ammonium sulfate, followed by a pre-tassel application of urea of 150 pounds/acre of urea. On April 19, a pre-emerge herbicide application of one pint/acre of Dual II Magnum was made, followed by a lay-by application of 3.6 pints/acre of Halex GT, 1.5 quarts/acre of atrazine, plus 1 pint/acre of crop oil. The total fertilizer for the field was 223-71-69-12-0. The field was furrow irrigated three times. The field was harvested on August 25 and yielded 225 bushels/acre adjusted to 15.5% moisture.

Mississippi County

The Mississippi County corn research verification field was located near Whitton on a Dundee Silt Loam soil. The field was 42 acres, and the previous crop was soybeans. A pre-plant fertilizer 40-45-60-6-0 was applied on March 28, followed by a hipper/roller. The field was planted on March 29 to Becks 6774 at 34,000 seeds/acre on 38-inch-wide rows, followed by a pre-emerge application of Verdict at ten ounces/acre. The field emerged on April 10 with a final plant population of 34,000 plants/acre. On May 1, 125 pounds/acre of urea plus 75 pounds/acre of ammonium sulfate was applied, and 2 quarts/acre of Acuron, 1 pint/acre of atrazine, plus 1 pint/acre of crop oil was applied by the producer for weed control. An application of 150 pounds/acre of urea plus 60 pounds/acre of potassium was made on May 21, followed by a pre-tassel application of 100 pounds/acre of urea on June 7. The total fertilizer for this field was 229-45-96-24-0. The field was furrow irrigated two times during the season. The field was harvested on August 27, yielding 234.1 bushels/acre adjusted to 15.5% moisture.

White County

The White County corn research verification field was located near Russell on a Calloway Silt Loam. The field was 40 acres, and the previous crop was soybeans. A burndown application of 32 ounces/acre of paraquat was made on April 1. A mixed pre-plant fertilizer of 46-0-54-0-0 was applied on April 13, followed by a hipper/roller. On April 14, the field was planted to Progeny 2118VT2P at 34,500 seeds/acre on 30-inch row spacing. The field emerged on April 23 with a final plant population of 31,900 plants/acre. On May 11, the grower applied 3 ounces/acre of mesotrione, 28 ounces/acre of glyphosate, 1 pint/acre of Dual II Magnum, 2 quarts/acre of atrazine, plus 1 pint/acre of crop oil. On May 19, 225 pounds/acre of urea plus 100 pounds/acre ammonium sulfate was applied, followed by a pre-tassel application of 120 pounds/acre of urea was made on June 15. The total fertilizer for the field was 217-0-54-0-0. The field was furrow irrigated three times. The field was harvested on September 30 and yielded 201.9 bushels/acre adjusted to 15.5% moisture.

Irrigation Management

All the CGSRVP fields utilized Watermark soil moisture sensors along with AgSense telemetry units to help schedule irrigations. At approximately the V2 growth stage, Watermark sensors were installed at depths of 6, 12, 18, and 30 inches. AgSense telemetry units were installed once fertilizer and spraying operations were done. The AgSense app allowed county agents and growers to observe and record soil moisture levels during the growing season and

assist with irrigation timing. The Arkansas Online Irrigation Scheduler was also utilized to compare irrigation projections to infield use of the Watermark sensors. Utilization of soil moisture sensors saved approximately 2 irrigations per field. Irrigation termination was determined by corn growth stage using the soil moisture sensor calculator through the AR soil calc app.

Table 1. Agronomic information for the 2023 Corn Research Verification Fields.

County	Hybrid	Relative Maturity (days)	Field Size (ac)	Row Space (in)	Previous Crop	Plants/acre	Plant Date	Harvest Date	Yield (bu/ac)
Clark	DeKalb DKC 67-44	117	32	36	soybean	25,500	4/25	9/15	168.4
Clay	Pioneer 1718VYHR	117	40	30	soybean	31,500	4/1	9/28	214.4
Drew	DeKalb DKC 65-99	115	82	38	soybean	32,500	3/23	8/19	245.2
Faulkner	Stine 9818-12 RR/LL	116	65	30	soybean	30,625	4/15	8/28	197.1
Independence	DeKalb DKC 65-92	115	40	30	soybean	34,800	4/13	9/5	176.0
Jefferson	Progeny 2118VT2P	118	86	38	soybean	33,250	4/12	8/21	215.9
Lonoke	DeKalb DKC 65-99	115	80	30	soybean	35,000	4/18	8/25	225.0
Mississippi	Becks 6774	117	42	38	soybean	34,000	3/29	8/27	234.1
White	Progeny 2118VT2P	118	40	30	soybean	31,900	4/14	9/30	201.9
Mean	---		56.3	---	---	32,199	4/10	9/5	208.7

Table 2. Fertility Program for 2023 Corn RVP Fields.

County	Applied Fertilizer N-P-K-S-Zn ¹ (lb/ac)			Total Applied Fertilizer N-P-K-S-Zn	Soil Classification
	Preplant	Sidedress	Pre Tassel		
Clark	2 tons of litter	138-0-0-0-0	-	184-0-0-0-0	Sardis Silt Loam
Clay	45-100-100-12-5	137-0-0-12-0	46-0-0-0-0	228-100-100-24-5	Dexter Silt Loam
Drew	37-35-69-0-5	131-0-30-24-0	46-0-0-0-0	214-35-99-24-5	Hebert

					Silt Loam
Faulkner	39-0-60-18-0	96-0-0-18-0	69-0-0-0-0	204-0-60-36-0	Gallion Silt Loam
Independence	39-46-36-24-0	138-0-0-0-0	69-0-0-0-0	246-46-36-24-0	Egam Silt Loam
Jefferson	34-0-72-12-3	139-0-0-12-0	46-0-0-0-0	219-0-72-24-3	Rilla Silt Loam
Lonoke	51-71-69-0-0	126-0-0-12-0	46-0-0-0-0	223-71-69-12-0	Dewitt Silt Loam
Mississippi	40-45-60-6-0	143-0-36-18-0	46-0-0-0-0	229-45-96-24-0	Dundee Silt Loam
White	46-0-54-0-0	125-0-0-0-0	46-0-0-0-0	217-0-54-0-0	Calloway Silt Loam
Mean	41-37-65-9-2	130-0-8-11-0	52-0-0-0-0	223-37-73-20-2	

Table 3. Pesticide information for the 2023 Corn Research Verification fields.

County	Herbicide	Insecticide	Fungicide
Clark	3.6 pt Halex Gt + 1 qt atrazine + 1 pt coc	None	None
Clay	32 oz glyphosate + 0.6 oz First Shot, 2.5 qt Acuron + 1 qt atrazine + 1 pt coc	None	None
Drew	28 oz glyphosate, 1 pt 2-4,D + 1.5 oz Lead-Off, 3.6 pt Halex Gt + 2 qt atrazine + 1 pt coc	None	None
Faulkner	3.6 pt Halex GT + 1.5 qt atrazine + 1 pt coc	None	None
Independence	1 pt Dual II, 1 pt Dual II + 1 qt atrazine + 1 pt coc	None	None
Jefferson	11 oz Verdict, 3.6 pt Halex GT + 1 qt atrazine + 1 pt coc	None	None
Lonoke	1 pt Dual II, 3.6 pt Halex GT + 1.5 qt atrazine + 1 pt coc	None	None
Mississippi	10 oz Verdict, 2 qt Acuron + 1 qt atrazine + 1 pt coc	None	None
White	32 oz paraquat, 3 oz mesotrione + 28 oz glyphosate + 2 qt atrazine + 1 pt coc	None	None

*All rates are per acre

Table 4. Irrigation type, frequency, and rainfall totals for the 2023 growing season.

County	Irrigation Type	*Number of Irrigations	**Rainfall (in) Planting to Black Layer (R6)
Clark	Furrow	0	23.83
Clay	Furrow	3	10.69
Drew	Furrow	2	16.92
Faulkner	Pivot	3	15.63
Independence	Furrow	3	14.48
Jefferson	Furrow	3	17.19
Lonoke	Furrow	3	14.31
Mississippi	Furrow	2	20.32

White	Furrow	3	13.84
Mean		2.4	16.36

*Each furrow irrigation provided approximately 2 acre/inches of water.

**Rainfall amount is measured in the verification field by weather stations.

Table 5. Corn growth stages and corresponding Accumulated Growing Degree Days for the 2023 Corn Research Verification Fields. *

Growth Stage	Accumulated Growing Degree Days (GDD50) from planting									
	Clark	Clay	Drew	Faulkner	Indepen	Jeffer	Lonoke	Miss	White	AVG
VE	144	149	149	134	160	138	155	155	155	149
V2	258	289	285	248	252	241	250	275	259	262
V4	409	444	457	433	448	426	448	421	450	437
V6	598	629	626	602	609	620	607	612	610	613
V8	754	804	793	770	811	786	808	770	786	787
V10	939	948	958	929	945	913	934	934	973	941
V12	1072	1111	1090	1034	1074	1071	1098	1050	1100	1078
V14	1181	1234	1213	1196	1195	1183	1206	1177	1204	1199
V16	1309	1354	1310	1324	1320	1316	1338	1326	1330	1325
R1	1474	1526	1488	1511	1509	1469	1528	1500	1492	1500
R2	1637	1685	1673	1650	1641	1635	1644	1661	1653	1653
R3	1811	1850	1832	1829	1793	1838	1828	1848	1838	1830
R4	2002	2047	2033	2026	1992	2019	2025	2031	2003	2020
R5	2198	2265	2239	2226	2238	2225	2238	2219	2174	2225
R6	2820	2894	2870	2878	2898	2847	2860	2858	2827	2861

*Based on weekly field visits

2023 CGSRVP Economic Analysis – Brian Deaton and Bob Stark

This section provides information on production costs for the 2023 CGSRVP. Records of field operations on each field provide the basis for estimating these costs. The CGSRVP coordinator, county Extension agents, and cooperators compiled the field records. Production data from the 9 corn fields were applied to determine costs and returns above operating costs and total specified costs. Operating costs and total costs per bushel indicate the commodity price needed to meet each cost type. No grain sorghum fields were managed through research verification in 2023.

Production expenses are expenditures that would generally require annual cash outlays and would be included in an annual operating loan application. Actual quantities of all production

inputs, as reported by the cooperators, are used in this analysis. Input prices are determined by data from the 2023 Crop Enterprise Budgets published by the Cooperative Extension Service, information provided by the producer cooperators, input data files from the Mississippi State Budget Generator, and communications with input company representatives. Fuel and repair costs for machinery are calculated using a budget calculator based on parameters and standards established by the American Society of Agricultural and Biological Engineers. Machinery repair costs should be regarded as estimated values for full-service repairs, and actual cash outlays could differ as producers utilize employee labor or provide unpaid labor for equipment maintenance.

Operating expenses include production expenses, as well as interest paid on operating capital and all post-harvest expenses. As applicable for each crop, post-harvest expenses include hauling, drying, check-off fees, and other expenses typically incurred after harvest. Post-harvest expenses increase or decrease with yield.

Ownership costs of machinery are determined by a capital recovery method, which determines the amount of money that should be set aside each year to replace the value of equipment used in production. Machinery costs are estimated by applying engineering formulas to represent new equipment prices. This measure differs from typical depreciation methods and actual annual cash expenses for machinery but establishes a benchmark that estimates farm profitability.

Operating costs, total costs, costs per bushel, and returns are presented in Table 6 for the nine corn fields in the 2023 program. Costs in this report do not include land costs, management or other expenses and fees not associated with production. Budget summaries for corn are presented in Table 7. The price received for corn of \$5.62/bushel was calculated from Arkansas Daily Grain reports published by the Agricultural Marketing Service-U.S. Department of Agriculture. The price is a simple average of Arkansas 2023 crop booking and cash prices from January 1 through August 31, 2023. This market price represents a \$1.61 decline from the 2022 CGSRVP price level. The average corn yield from the verification fields harvested for grain in 2023 was 208.67 bushels/acre, an increase of 13.64 bushels/acre over the 2022 CGSRVP average corn yield.

Average Total Operating Expenses for the corn fields harvested for grain in Table 6 are \$653.25 per acre, an increase of \$69.25 from 2022 and the second straight year with an annual expense increase exceeding \$60. Table 7 indicates that Fertilizer and Nutrient Costs is the largest expense category at \$264.37 per acre, or 40.47 % of Total Operating Expenses. Fertilizer and Nutrient Costs comprised 35.27% of Input Costs in 2022.

With an average corn yield of 208.67 bushels/acre, average operating costs are \$3.14/bushel in Table 6, an increase of \$0.08/bushel over 2022. Total Operating Costs range from a low of \$528.90 in the Clark County field to a high of \$771.85 in Clay County. The field with the second highest Total Operating Costs was Mississippi County at \$722.49. Returns to Operating Costs averaged \$519.46 per acre. This value decreased by over \$300 per acre compared to the 2022 program value. 2023 Returns to Operating Costs have a low of \$369.58 in the Independence County field and a high of \$593.15 in the Mississippi County field. The Independence County field was the only 2023 field planted with a conventional corn hybrid, and its yield was 176.0 bushels/acre. The 2023 lowest yield was 168.4 bushels/acre in Clark County, the only non-irrigated field in the program.

The average Fixed Cost is \$93.89 per acre, which leads to an Average Total Cost of \$747.14 per acre, an increase of over \$76.00 per acre compared to the 2022 average. Returns to

Specified Expenses (Total Cost) average \$425.57 per acre, a decrease of over \$300.00 per acre compared to 2022 fields. The low Returns to Specified Expenses value was \$270.23 per acre in the conventional variety Independence County field. The next lowest Return to Specified Expenses value was \$349.37 per acre in Clay County. The high Returns to Specified Expenses value was \$613.08 in the Drew County field, which also had the highest yield in the 2023 program. Total Specified Expenses across all 2023 fields averaged \$3.60/bushel, with a low of \$2.70 per bushel in the Drew County field and a high of \$4.08 per bushel in Independence County.

Table 6. Operating Costs, Total Costs, and Returns, 2023 Corn RVP in dollars

Fields	Operating Costs	Operating Costs/Bu	Returns to Operating Costs	Total Fixed Costs	Total Costs	Returns to Total Costs	Total Costs/Bu
Clark	528.90	3.14	417.51	81.19	610.09	336.32	3.62
Clay	771.85	3.60	433.08	83.71	855.56	349.37	3.99
Drew	662.87	2.70	715.15	102.08	764.95	613.08	3.12
Faulkner	593.42	3.01	514.28	90.24	683.66	424.04	3.47
Independence	619.54	3.52	369.58	99.35	718.89	270.23	4.08
Jefferson	673.57	3.12	539.78	96.21	769.78	443.58	3.57
Lonoke	682.34	3.03	582.16	87.94	770.28	494.22	3.42
Mississippi	722.49	3.09	593.15	113.73	836.22	479.43	3.57
White	624.27	3.09	510.41	90.58	714.85	419.83	3.54
Mean	653.25	3.14	519.46	93.89	747.14	425.57	3.60

Table 7. 2023 Corn RVP, Summary of Revenue and Expenses per Acre ⁽¹⁾

	Clark	Clay	Drew	Faulkner	Independence	Jefferson	Lonoke	Mississippi	White	Mean
Revenue \$/acre										
Yield: (Bu/A)	168.4	214.4	245.2	197.1	176.0	215.9	225.0	234.1	201.9	208.67
Price: (\$/Bu)	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62
Total Crop Revenue	946.41	1204.93	1378.02	1107.70	989.12	1213.36	1264.50	1315.64	1134.68	1172.71
Expenses \$/acre										
Seed	111.94	123.52	123.52	120.00	104.00	131.24	135.10	131.24	133.17	123.75
Fertilizers	215.04	371.31	234.99	214.28	286.39	257.55	272.07	298.29	229.39	264.37
Herbicides ⁽²⁾	46.66	62.71	80.72	67.23	27.40	63.49	58.25	60.64	56.45	58.17
Fungicides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom Applications	0.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	15.11
Diesel, Field Activity ⁽³⁾	22.99	20.45	21.29	16.47	20.05	20.78	20.98	28.64	20.11	21.31
Irrigation Energy Costs	0.00	7.03	7.03	8.61	18.43	18.43	11.54	7.69	11.54	10.03

Other Inputs (Polypipe)	0.00	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.45
	Input Costs \$/acre									
Fees	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Crop Insurance	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15
Repairs & Maintenance inc Employee Labor	17.66	16.65	20.26	19.64	18.63	18.71	16.83	22.54	17.47	18.71
Labor, Field Activities	6.82	8.97	10.67	5.48	11.65	11.65	11.65	12.64	11.65	10.13
	Production Expenses \$/acre									
Interest	9.86	14.70	12.03	10.99	11.76	12.55	12.65	13.43	11.61	12.18
Post-harvest Expenses	75.78	96.48	110.34	88.70	79.20	97.16	101.25	105.35	90.86	93.90
Total Operating Expenses	528.90	771.85	662.87	593.42	619.54	673.57	682.34	722.49	624.27	653.25
Returns to Operating Expenses	417.51	433.08	715.15	514.28	369.58	539.78	582.16	593.15	510.41	519.46
Capital Recovery & Fixed Costs	81.19	83.71	102.08	90.24	99.35	96.21	87.94	113.73	90.58	93.89
Total Specified Expenses	610.09	855.56	764.95	683.66	718.89	769.78	770.28	836.22	714.85	747.14
Returns to Specified Expenses₍₁₎	336.32	349.37	613.08	424.04	270.23	443.58	494.22	479.43	419.83	425.57
Operating Expenses/bu.	3.14	3.60	2.70	3.01	3.52	3.12	3.03	3.09	3.09	3.14
Total Specified Expenses/bu.	3.62	3.99	3.12	3.47	4.08	3.57	3.42	3.57	3.54	3.60
	(1) Does not include land costs, management or other costs associated with production (2) Combined as Chemicals in some previous reports; (3) Listed as fuel and lube in previous reports									