



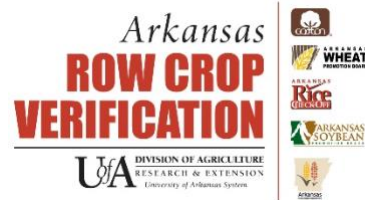
**DIVISION OF AGRICULTURE**  
**RESEARCH & EXTENSION**  
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# Corn and Grain Sorghum Research Verification Program

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University of Arkansas  
 Cooperative Extension Service  
 Agriculture Experiment Station  
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## Table of Contents

	<b>Page</b>
Authors and Acknowledgments.....	4
Introduction.....	5
Figure 1. Location of the 2024 Corn Research Verification Fields .....	6
Corn Field Reviews Arkansas County, Clay County, & Drew County.....	7
Corn Field Reviews Jefferson County, Lonoke County, & Mississippi County.....	8
Corn Field Reviews Phillips County, & White County.....	9
Irrigation information.....	9
Table 1 & 2. Agronomic information and applied fertilizer, total fertilizer, and soil classification information for the 2024 CGSRVP.....	10
Tables 3 & 4. Pesticide and irrigation information for 2024 CGSRVP.....	11
Tables 5. Corn Growth Stage with Corresponding Growing Degree Days for the 2024 CGSRVP.....	12
Economic Analysis.....	13
Table 6. Operating Costs, Total Costs, Costs per Bushel, and Returns for the 2024 Research Verification Fields.....	14
Table 7. Summary of Revenue and Expenses per Acre for the 2024 Corn Research Verification Fields.....	15

## CORN & GRAIN SORGHUM RESEARCH VERIFICATION PROGRAM, 2024

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## INTRODUCTION

The 2024 growing season was the twenty-fifth 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 aspects of corn and grain sorghum production.
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 2024 for a total of eight corn fields (Clark County was not planted due to flooding). The fields were located on commercial farms and ranged in size from 32 to 128 acres with an average field size of 66 acres.

The 2024 CGSRVP corn fields were in Arkansas, Clay, Drew, Jefferson, Lonoke, Mississippi, Phillips, 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 2024 Corn and Grain Sorghum Research Verification Fields

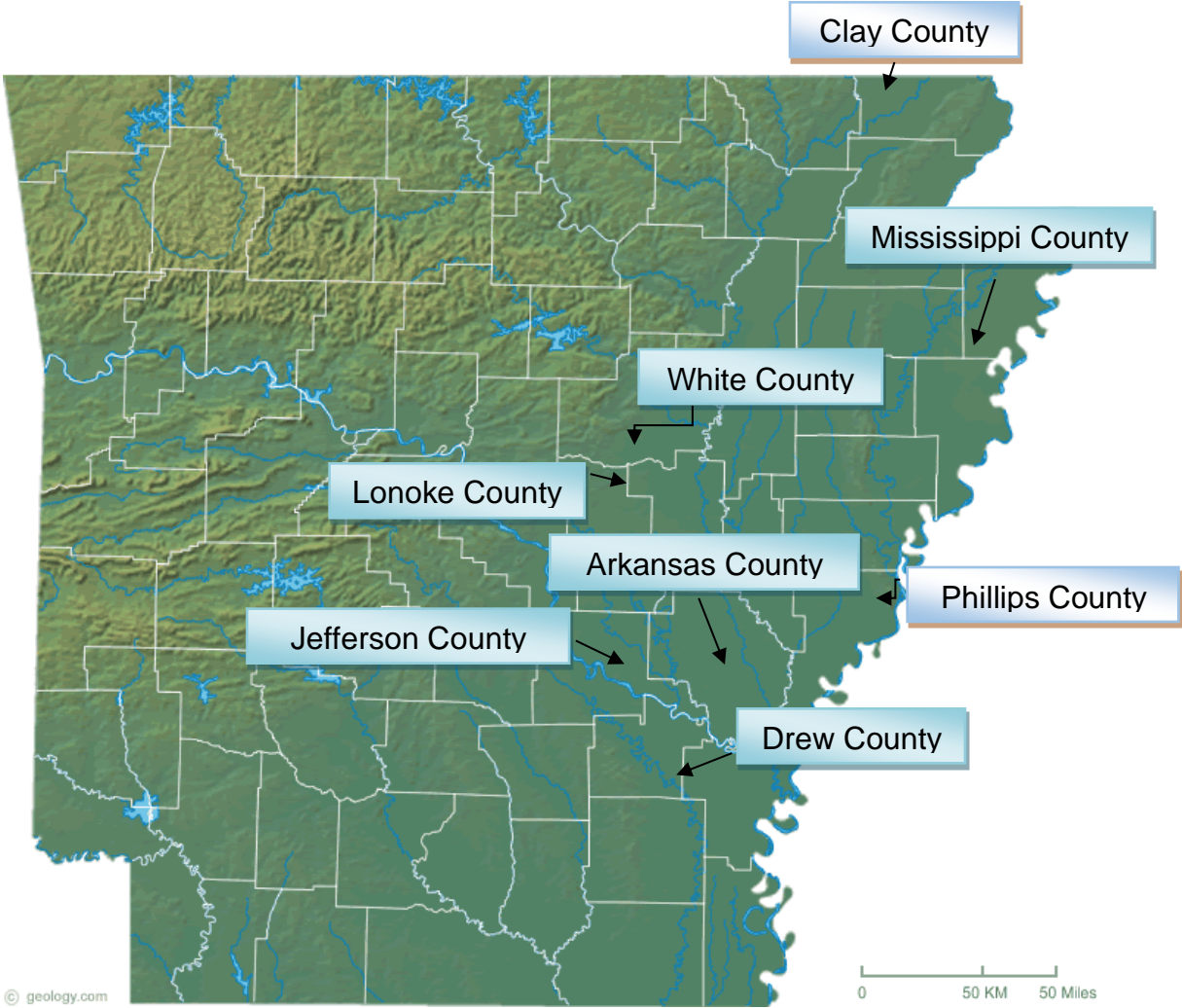


Figure 1

Corn Field

## **CORN FIELD REVIEWS**

### **Arkansas County**

The Arkansas County corn research verification field was located near DeWitt on Stuttgart Silt Loam. The field was 92 acres, and the previous crop was soybean. On April 2, the field was fertilized with 400 pounds/acre of 17-17-17, followed by a bedder/chopper. The field was planted on April 3 with DeKalb DKC 67-94 at 35,000 seeds/acre on 30-inch row spacing. The field emerged on April 13, and the final plant population was 33,000 plants/acre. On April 29, a herbicide application of 2 quart/acre of atrazine, 3.6 pint/acre of Halex GT, plus 1 pint/acre crop oil was made. A fertilizer application of 200 pounds/acre of urea plus 50 pounds/acre of ammonium sulfate was made on April 30. A pre-tassel application of urea of 100 pounds/acre was made on June 4. The total fertilizer for this field was 217-0-0-12-0. The field was furrow irrigated three times. The field was harvested on September 22 and yielded 226 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 Dexter Loam soil. The field was 32 acres, and the previous crop was soybean. On February 26, a burndown application of 28 ounces/acre of glyphosate was applied. On March 29, a preplant fertilizer of 56-0-60-21-5 was applied, followed by a bedder/roller. The field was planted to Pioneer 14830 AML at 36,000 seeds/acre on March 30. The field emerged on April 10 to a stand of 35,400 plants/acre. An application of 100 pounds/acre of urea plus 100 pounds/acre of ammonium sulfate was made on April 21 followed by 125 pounds/acre of urea on May 13. A pre-tassel application of urea of 100 pounds/acre was made on June 3. An application of 1 quart/acre of atrazine, 2.5 quarts/acre of Acuron, plus 1 pint/acre of crop oil was made on April 22. A total of 227-0-60-42-5 units of fertilizer were applied. The field was furrow irrigated just one time. The field was harvested on August 19 and yielded 279 bushels/acre adjusted to 15.5% moisture.

### **Drew County**

The Drew County corn research verification field was located near Tillar on Hebert Silt Loam. The field was 40 acres, and the previous crop was soybean. On February 27, a burndown application of 28 ounces/acre of Round-Up Power Max plus 1.5 pints/acre of 2-4,D was applied. A pre-plant fertilizer of 42-35-70-0-5 was applied on March 21. A disk bedder was used, followed by a harrow on March 21. The field was planted on April 1 with DeKalb DKC 68-35 at 33,000 seeds/acre on 38-inch row spacing. The field emerged on April 11, and the final plant population was 32,500 plants/acre. On May 1, urea was applied at a rate of 250 pounds/acre plus ammonium sulfate at 50 pounds/acre. A pre-tassel application of urea of 100 pounds/acre was made on June 4. On May 1, 1 quart/acre of atrazine, 28 ounces/acre of Round-Up Power Max, 1.5 oz/acre of Steadfast Q, plus 1 pint/acre crop oil was made. The total fertilizer for this field was 214-35-70-12-5. The field was furrow irrigated three times. The field was harvested on September 4 and yielded 165 bushels/acre adjusted to 15.5% moisture. The field was a new field for the producer and had some unknown drainage issues in areas of the field that reduced yield overall yield potential. Storms late in the year also caused approximately 15% lodging, reducing yield.

## **Jefferson County**

The Jefferson County corn research verification field was near Swan Lake on Rilla Silt Loam soil. The field was 48 acres, and the previous crop was soybean. On April 4, a pre-plant fertilizer application of 34-0-70-12-0 was made, followed by a hipper/roller. The field was planted on April 5 with Progeny 2015VT2P at 33,400 seeds/acre on 38-inch row spacing. The field emerged on April 13 with a final plant population was 30,000 plants/acre. On April 5, a pre-emerge application of 40 ounces/acre of paraquat plus one quart/acre of atrazine 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 2. The producer applied 150 pounds/acre of urea plus 50 pounds/acre of ammonium sulfate on May 2 followed by an application of urea at 125 pounds/acre on May 20. A pre-tassel application of 100 pounds/acre of urea was made on June 7. The total fertilizer for this field was 217-0-70-12-0. The field was furrow irrigated three times. The field was harvested on September 18 and yielded 222 bushels/acre adjusted to 15.5% moisture.

## **Lonoke County**

The Lonoke County corn research verification field was located about 2 miles east of Carlisle on Calloway Silt Loam soil. The field was 90 acres, and the previous crop was soybean. A burndown herbicide application of 40 ounces/acre of paraquat plus 1 quart/acre of atrazine was applied. A mixed pre-plant fertilizer of 46-60-60-0-0 was applied on April 22, followed by a bedder/roller. On April 23, the field was planted to DeKalb DK 65-92 (conventional) at 33,000 seeds per acre on 38-inch-wide rows. The field emerged on April 30 with a final plant population of 34,500 plants per acre. On May 14, the grower made a fertilizer application of 250 pounds/acre of urea plus 50 pounds/acre of ammonium sulfate, followed by a pre-tassel application of 100 pounds per acre of urea on June 8. On May 14, the grower applied a lay-by application of 3 ounces/acre of Capreno, 1 quart/acre of atrazine, 1 oz halosulfuron, plus 1 pint/acre of crop oil. The total fertilizer for the field was 218-60-60-12-0. The field was furrow irrigated three times. The field was harvested on September 10 and yielded 173 bushels/acre adjusted to 15.5% moisture. Due to irrigation issues, the initial irrigation was approximately 7 days late the week before tasseling began. This delay caused somewhat poor pollination, resulting in a lower yield than expected.

## **Mississippi County**

The Mississippi County corn research verification field was located near Whitton on Tiptonville Silt Loam soil. The field was 60 acres, and the previous crop was soybean. A pre-plant fertilizer 34-0-54-12-0 was applied on April 4, followed by hipper/roller. The field was planted on April 5 to Becks 6973 at 35,000 seeds/acre on 38-inch row spacing. The field emerged on April 15, and the final plant population was 34,167 plants/acre. On May 10, 300 pounds per acre of urea/acre 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. A pre-tassel application of 100 pounds/acre of urea was made on June 4. The total fertilizer for this field was 218-0-54-12-0. The field was harvested on October 22 and yielded 231 bushels/acre adjusted to 15.5% moisture.



## **Phillips County**

The Phillips County corn research verification field was located about 5 miles west of Helena on Dubbs Silt Loam soil. The field was 128 acres, and the previous crop was soybean. On February 27, a burndown application of 28 ounces/acre of glyphosate plus 16 ounces/acre of Latigo was applied. On March 13, a pre-plant fertilizer application of 21-50-80-24-0 was made and followed by a bedder/roller. The field was planted on March 14 with DeKalb DKC 68-35 at 32,000 seeds/acre on 30-inch row spacing. The field emerged on March 31, and the final plant population was 31,000 plants/acre. A lay-by application of 2 quarts/acre of atrazine, 3.6 pints/acre of Halex GT, plus one pint/acre of crop oil was applied on April 24. The producer applied 150 pounds/acre of urea plus 100 pounds/acre of ammonium sulfate on April 23, followed by an application of 150 pounds/acre of urea on May 11. A pre-tassel application of 100 pounds/acre of urea was made on May 28. The total fertilizer for this field was 219-40-72-22-1. The field was center pivot irrigated three times. The field was harvested on September 5 and yielded 218 bushels/acre adjusted to 15.5% moisture.

## **White County**

The White County corn research verification field was located near Russell on Calloway Silt Loam. The field was 40 acres, and the previous crop was soybean. A mixed pre-plant fertilizer of 46-40-72-22-1 was applied on April 4, followed by a hipper/roller. On April 5, the field was planted to Croplan 5550 at 34,500 seeds/acre on 30-inch row spacing. The field emerged on April 16 with a final plant population of 30,197 plants/acre. On May 13, 2 quarts/acre of atrazine, 3.6 pints/acre of Halex GT, plus 1 pint/acre of crop oil. On May 14, 275 pounds/acre of urea was applied followed by a pre-tassel application of 100 pounds/acre of urea on June 4. The total fertilizer for the field was 219-40-72-22-1. The field was furrow irrigated two times. The field was harvested on August 20 and yielded 192 bushels/acre adjusted to 15.5% moisture.

## **Irrigation**

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. Utilization of soil moisture sensors saved approximately 2 irrigations per field over what schedule the farmers typically utilize. Irrigation termination was determined by using the Soil Moisture Sensor Calculator through the AR Soil Calc app.

**Table 1. Agronomic information for the 2024 Corn Research Verification Fields.**

County	Hybrid	Trait	Maturity	Field Size (ac)	Row Space (in)	Previous Crop	Plants per acre	Plant Date	Harvest Date	Yield (bu/ac)
Arkansas	DeKalb DKC 67-94	Trecepta	117	92	30	soybean	33,000	4/3	9/22	226
Clay	Pioneer 14830	AML/LL/RR2	114	32	30	soybean	35,400	3/30	8/19	279
Drew	DeKalb DKC 68-35	VT2P	118	40	38	soybean	32,500	4/1	9/4	165
Jefferson	Progeny 2015	VT2P	115	48	38	soybean	30,000	4/5	9/18	222
Lonoke	DeKalb DKC 65-92	Conv.	115	90	38	soybean	34,500	4/23	9/10	173
Mississippi	Becks 6973	TCV2N	119	60	38	soybean	34,167	4/5	10/22*	231
Phillips	DeKalb DKC 68-35	VT2P	118	128	30	soybean	31,000	3/14	9/5	218
White	Croplan 5550	VT2P/RIB	115	40	30	soybean	30,917	4/5	8/20	192
<b>Mean</b>	---		<b>116</b>	<b>66</b>	---	---	<b>32,686</b>	<b>4/3</b>	<b>9/7</b>	<b>213</b>

\*Field was ready for harvest by September 1, but harvest was delayed due mechanical issues.

**Table 2. Fertility Program for 2024 Corn RVP Fields.**

County	Applied Fertilizer N-P-K-S-Zn <sup>1</sup> (lb/ac)			Total Applied Fertilizer N-P-K-S-Zn	Soil Classification
	Preplant	Sidedress	Pre Tassel		
Arkansas	68-68-68-0-0	103-0-0-12-0	46-0-0-0-0	217-0-0-12-0	Stuttgart Silt Loam
Clay	56-0-60-21-5	125-0-0-21-0	46-0-0-0-0	227-0-60-42-5	Dexter Silt Loam
Drew	42-35-70-0-5	126-0-0-12-0	46-0-0-0-0	214-35-70-12-5	Hebert Silt Loam
Jefferson	34-0-70-12-0	137-0-0-12-0	46-0-0-0-0	217-0-70-12-0	Rilla Silt Loam
Lonoke	46-60-60-0-0	126-0-0-12-0	46-0-0-0-0	218-60-60-12-0	Calloway Silt Loam
Mississippi	34-0-54-12-0	138-0-0-0-0	46-0-0-0-0	218-0-54-12-0	Tiptonville Silt Loam
Phillips	21-50-80-24-0	159-0-0-24-0	46-0-0-0-0	226-50-80-48-0	Dubbs Silt Loam
White	46-40-72-22-1	127-0-0-0-0	46-0-0-0-0	219-40-72-22-1	Calloway Silt Loam
<b>Mean</b>	<b>43-32-67-11-1</b>	<b>130-0-0-12-0</b>	<b>46-0-0-0-0</b>	<b>219-32-67-23-1</b>	

**Table 3. Pesticide information for the 2024 Corn Research Verification fields**

County	Herbicide	Insecticide	Fungicide
Arkansas	3.6 pt Halex GT + 2 qt atrazine + 1 pt coc	None	None
Clay	28 oz glyphosate, 2 qt Acuron + 1 qt atrazine + 1 pt coc	None	None
Drew	28 oz glyphosate + 1.5 pt 2-4,D, 28 oz glyphosate + 1 qt atrazine + 1.5 oz Steadfast Q + 1 pt coc	None	None
Jefferson	40 oz paraquat + 1 qt atrazine, 3.6 pt Halex GT+ 1 qt atrazine + 1 pt coc	None	None
Lonoke	40 oz paraquat + 1 qt atrazine, 3 oz Capreno + 1 oz halosulfuron + 1 qt atrazine + 1 pt coc	None	None
Mississippi	2 qt Acuron + 1 qt atrazine + 1 pt coc	None	None
Phillips	28 oz glyphosate + 16 oz Latigo, 3.6 pt Halex GT + 2 qt atrazine + 1 pt coc	None	None
White	3.6 pt Halex GT + 2 qt atrazine + 1 pt coc	None	None

\*All rates are per acre

**Table 4. Irrigation type, frequency, and rainfall totals for the 2024 growing season.**

County	Irrigation Type	*Number of Irrigations	**Rainfall (in) Planting to Black Layer (R6)
Arkansas	Furrow	3	20.69
Clay	Furrow	1	18.93
Drew	Furrow	3	25.44
Jefferson	Furrow	3	16.35
Lonoke	Furrow	3	20.18
Mississippi	Furrow	2	18.52
Phillips	Pivot	3	19.98
White	Furrow	2	20.34
<b>Mean</b>		<b>2.1</b>	<b>20.05</b>

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

\*\*Rainfall amount measured in verification field by weather stations.

**Table 5. Corn growth stages and corresponding Accumulated Growing Degree Days for the 2024 Corn Research Verification Fields. \***

Growth		Accumulated Growing Degree Days (GDD50)							
Stage	Arkansas	Clay	Drew	Jefferson	Lonoke	Mississippi	Phillips	White	Mean
VE	162	144	151	171	134	164	156	150	<b>154</b>
V2	282	282	284	297	268	291	279	281	<b>283</b>
V4	432	438	423	451	434	434	446	442	<b>438</b>
V6	619	629	615	615	612	634	629	602	<b>619</b>
V8	784	757	780	806	746	791	817	783	<b>783</b>
V10	934	898	945	962	906	946	967	937	<b>937</b>
V12	1067	1051	1050	1101	1064	1078	1104	1071	<b>1073</b>
V14	1176	1172	1189	1232	1171	1178	1227	1172	<b>1190</b>
V16	1309	1325	1307	1339	1298	1311	1318	1302	<b>1314</b>
R1	1464	1489	1475	1519	1472	1485	1526	1473	<b>1488</b>
R2	1639	1655	1637	1674	1652	1676	1684	1646	<b>1658</b>
R3	1811	1824	1819	1847	1828	1823	1861	1824	<b>1830</b>
R4	2019	1993	2029	2026	2029	2030	2064	2023	<b>2027</b>
R5	2165	2181	2234	2205	2233	2225	2276	2221	<b>2218</b>
R6	2841	2843	2840	2836	2885	2879	2871	2852	<b>2856</b>

\*Based on weekly field visits

## 2024 CGSRVP Economic Analysis – Dr. Brian Deaton and Dr. Bob Stark

This section provides information on production costs for the 2024 CGSRVP. Records of field operations on each field provide the basis for estimating these costs. The field records were compiled by the CGSRVP coordinator, county Extension agents, and cooperators. Production data from the 8 corn fields were applied to determine costs and returns above operating costs, as well as 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 2024.

Production expenses are expenditures that would generally require annual cash outlays and would be included on 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 2024 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. Post-harvest expenses include, as applicable for each crop, 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 the prices of new equipment. This measure differs from typical depreciation methods, as well as 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 eight corn fields in the 2024 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 \$4.32/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 2024 crop booking and cash prices from January 1 through August 31, 2024. This market price represents a \$1.30 decline from the 2023 CGSRVP price level. The average corn yield from the verification fields harvested for grain in 2024 is 213.25 bushels/acre, an increase of 4.58 bushels/acre over the 2023 CGSRVP average corn yield. Readers should note that many factors can change the annual average yield, most notably that the cooperating producers and fields in the CGSRVP change from year to year.

Average Total Operating Expenses for the corn fields harvested for grain in Table 6 are \$653.30/acre, an increase of \$0.05 from 2023, but still indicating a total operating expense increase exceeding \$121 from the 2021 level. Table 7 indicates that Fertilizer and Nutrient

Costs remain the largest expense category at \$225.78/acre, or 34.56 % of Total Operating Expenses. Fertilizer and Nutrient Costs comprised 40.47% of Input Costs in 2023.

With an average corn yield of 213.25 bushels/acre, average operating costs are \$3.13/bushel in Table 6, a decline of \$0.01/bushel from 2023. Total Operating Costs range from a low of \$602.37 in the Arkansas County field to a high of \$736.66 in Phillips County. The field with second highest Total Operating Costs was Clay County at \$699.41. Returns to Operating Costs averaged \$266.87/acre, a decrease of over \$250/acre compared to the 2023 program fields. 2024 Returns to Operating Costs have a low of \$99.43 in the Drew County field and a high of \$504.47 in the Clay County field. The Lonoke County field was the only 2024 field planted with a conventional seed corn hybrid, and its yield per acre was 173.0 bushels/acre. All 2024 fields received some type of irrigation, with seven being furrow irrigated and one field pivot irrigated. The 2024 lowest yield was 165.0 bushels/acre in Drew County.

The average Fixed Cost is \$121.78/acre in the 2024 fields, which leads to an Average Total Cost of \$775.09/acre, an increase of \$27.99/acre compared to the 2023 average. Returns to Specified Expenses (Total Cost) average \$145.09/acre, a decrease of \$280.48/acre compared to 2023 fields and over \$593.00/acre less than the 2022 fields. The low Returns to Specified Expenses value was \$3.15/acre in the Drew County field, the lowest yield field in 2024. The next lowest Returns to Specified Expenses value was \$19.81 in White County, the 2024 field with the third highest Fixed Cost per acre. Lonoke County, the only 2024 conventional hybrid field, was the third lowest at \$27.19/acre Returns to Specified Expenses. The high Returns to Specified Expenses value was \$409.27 in the Clay County field, which also had the highest yield in the 2024 program. Total Specified Expenses across all 2024 fields averaged \$3.71/bushel, with a low of \$2.85/bushel in the Clay County field and a high of \$4.30 per bushel in Drew County.

**Table 6. Operating Costs, Total Costs, and Returns per Acre, 2024 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
Arkansas	602.37	2.67	372.82	96.16	698.53	276.66	3.09
Clay	699.41	2.51	504.47	95.20	794.61	409.27	2.85
Drew	612.54	3.71	99.43	96.28	708.82	3.15	4.30
Jefferson	658.12	2.96	299.81	159.69	817.81	140.12	3.68
Lonoke	629.87	3.64	116.63	89.44	719.31	27.19	4.16
Mississippi	631.70	2.73	365.07	173.44	805.14	191.63	3.49
Phillips	736.66	3.38	204.01	111.13	847.79	92.88	3.89
White	655.76	3.42	172.72	152.91	808.67	19.81	4.21
<b>Mean</b>	<b>653.30</b>	<b>3.13</b>	<b>266.87</b>	<b>121.78</b>	<b>775.09</b>	<b>145.09</b>	<b>3.71</b>

**Table 7. 2024 Corn RVP, Summary of Revenue and Expenses per Acre <sup>(1)</sup>**

	Arkansas	Clay	Drew	Jefferson	Lonoke	Mississippi	Phillips	White	Mean
Yield: (Bu/A)	226.0	279.0	165.0	222.0	173.0	231.0	218.0	192.0	<b>213.25</b>
Price: (\$/Bu)	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32
<b>Total Crop Revenue</b>	<b>975.19</b>	<b>1203.89</b>	<b>711.98</b>	<b>957.93</b>	<b>746.50</b>	<b>996.77</b>	<b>940.67</b>	<b>828.48</b>	<b>920.17</b>
Seed	149.10	153.36	140.58	142.28	125.40	144.88	136.32	146.97	<b>142.36</b>
Fertilizers	180.07	241.96	228.97	202.31	244.01	188.19	291.58	229.12	<b>225.78</b>
Herbicides <sup>(2)</sup>	48.37	60.92	52.94	57.57	51.54	44.12	67.23	48.37	<b>53.88</b>
Fungicides	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Custom Applications	25.00	25.00	17.00	17.00	33.00	17.00	38.25	17.00	<b>23.66</b>
Diesel, Field Activity <sup>(3)</sup>	20.65	18.65	22.06	27.52	19.11	34.90	19.14	28.37	<b>23.80</b>
Irrigation Energy Costs	10.54	6.14	10.54	18.43	10.54	7.03	19.65	7.03	<b>11.24</b>
Other Inputs (Polypipe)	3.88	3.88	3.88	3.88	3.88	3.88	0.00	3.88	<b>3.40</b>
Fees	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	<b>6.00</b>
Crop Insurance	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15	<b>16.15</b>
Repairs & Maintenance inc Employee Labor	22.89	21.78	20.09	42.16	20.99	41.92	22.74	40.60	<b>29.15</b>
Labor, Field Activities	7.13	7.53	8.38	12.77	9.39	12.24	7.61	13.48	<b>9.82</b>
Interest	10.90	12.24	11.43	11.86	11.64	11.26	14.16	12.09	<b>11.95</b>
Post-harvest Expenses	101.70	125.55	74.25	99.90	77.85	103.95	98.10	86.40	<b>95.96</b>
<b>Total Operating Expenses</b>	<b>602.37</b>	<b>699.41</b>	<b>612.54</b>	<b>658.12</b>	<b>629.87</b>	<b>631.70</b>	<b>736.66</b>	<b>655.76</b>	<b>653.30</b>
<b>Returns to Operating Expenses</b>	<b>372.82</b>	<b>504.48</b>	<b>99.43</b>	<b>299.81</b>	<b>116.63</b>	<b>365.07</b>	<b>204.01</b>	<b>172.72</b>	<b>266.87</b>
Capital Recovery & Fixed Costs	96.16	95.20	96.28	159.69	89.44	173.44	111.13	152.91	<b>121.78</b>
<b>Total Specified Expenses</b>	<b>698.53</b>	<b>794.61</b>	<b>708.82</b>	<b>817.81</b>	<b>719.31</b>	<b>805.14</b>	<b>847.79</b>	<b>808.67</b>	<b>775.09</b>
<b>Returns to Specified Expenses<sup>(1)</sup></b>	<b>276.66</b>	<b>409.27</b>	<b>3.15</b>	<b>140.12</b>	<b>27.19</b>	<b>191.63</b>	<b>92.88</b>	<b>19.81</b>	<b>145.09</b>
Operating Expenses/bu.	2.67	2.51	3.71	2.96	3.64	2.73	3.38	3.42	<b>3.13</b>
Total Specified Expenses/bu.	3.09	2.85	4.30	3.68	4.16	3.49	3.89	4.21	<b>3.71</b>

(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