



**2021**  
**University of Arkansas**  
**Soybean Research Verification Program**

# Arkansas **ROW CROP VERIFICATION**

**U of A** DIVISION OF AGRICULTURE  
RESEARCH & EXTENSION  
*University of Arkansas System*



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## Table of Contents

	<b>Pag e</b>
Authors and Acknowledgements.....	2
Introduction.....	4
...	
Figure 1. Location of 2021 Soybean Research Verification Fields.....	5
Field Reviews.....	6
Table 1. Agronomic Information for the 2021 Soybean Research Verification Fields by County.....	12
.....	
Table 2. Soil Test Results, Applied Fertilizer and Soil Classification for 2021 Soybean Research Verification Fields.....	13
Table 3. Herbicide Rates and Timing for 2021 Soybean Research Verification Fields by County.....	14
...	
Table 4. Fungicide and Insecticide Applications for 2021 Soybean Research Verification Fields by County.....	15
Table 5. Irrigation and Rainfall Information for 2021 Soybean Research Verification Fields by County.....	16
Economics Analysis.....	17
Table 6. Operating Costs, Total Costs, Costs per Bushel, and Returns for 2021 Soybean Research Verification Fields.....	19
Table 7. Summary of Revenue and Expenses per Acre for 2021 Soybean Research Verification Fields.....	20



## **SOYBEAN RESEARCH VERIFICATION PROGRAM, 2021**

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## INTRODUCTION

The 2021 growing season was the thirty seventh year for the Soybean Research Verification Program (SRVP). The SRVP is an interdisciplinary effort between growers, county Extension agents, Extension specialists, and researchers. The SRVP is an on-farm demonstration of all the research-based recommendations required to grow soybeans profitably in Arkansas. The specific objectives of the program are:

To verify research-based recommendations for profitable soybean production in all soybean producing areas of Arkansas.

To develop a database for economic analysis of all aspects of soybean production.

To demonstrate that consistently high yields of soybeans can be produced economically with the use of available technology and inputs.

To identify specific problems and opportunities in Arkansas soybeans for further investigation.

To promote timely implementation of cultural and management practices among soybean growers.

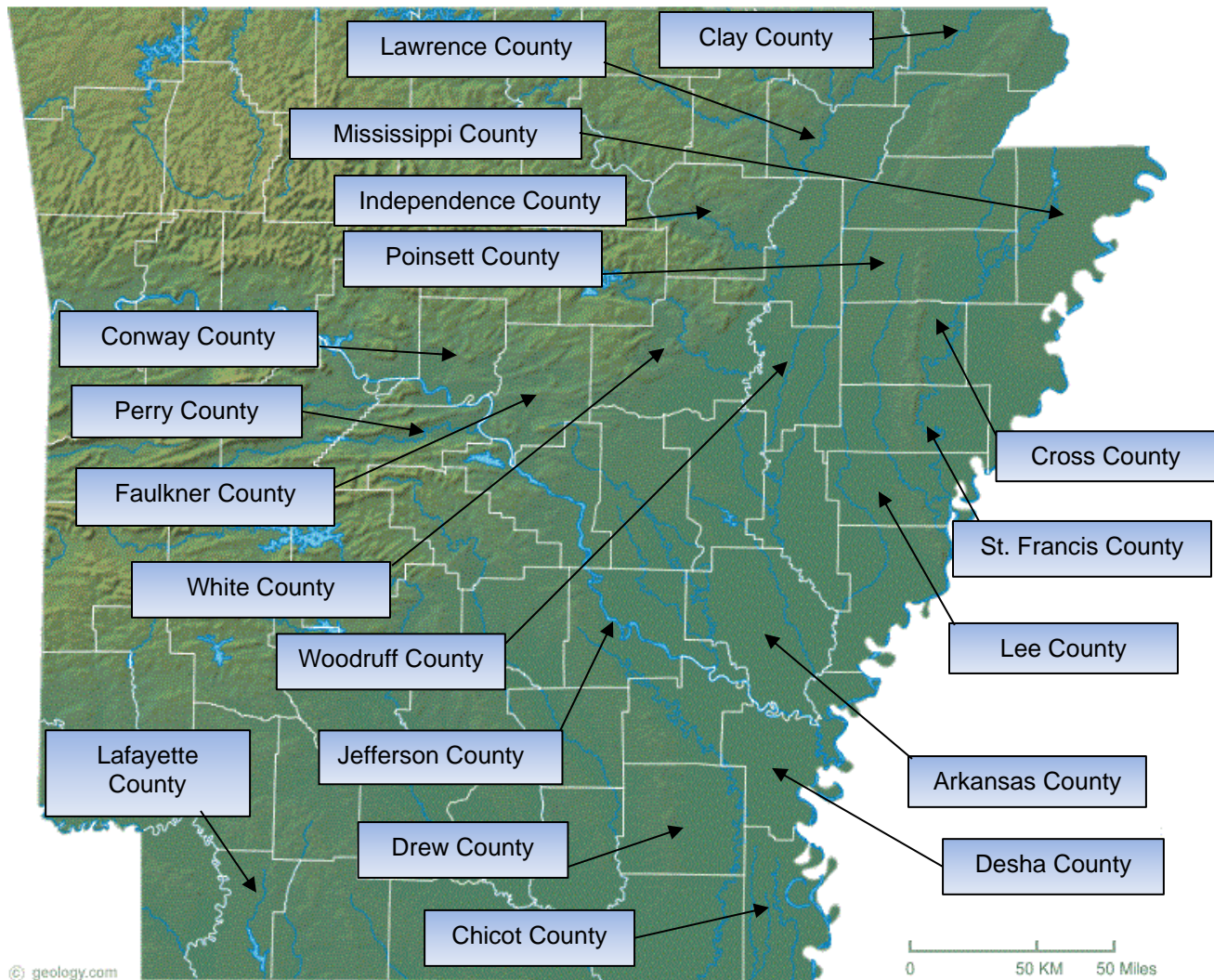
To provide training and assistance to county agents with limited expertise in soybean production.

Each SRVP field and cooperator were 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. Eighteen farms were enrolled in the SRVP in 2021. The fields were located on commercial farms ranging in size from 30 to 145 acres. The average field size was 62 acres.

The 2021 SRVP fields were conducted in Arkansas, Chicot, Clay, Conway, Cross, Desha, Drew, Faulkner, Independence, Jefferson, Lafayette, Lee, Mississippi, Perry, Poinsett, St. Francis, White, and Woodruff counties. One Roundup Ready 2® variety (Pioneer P46A16R), five different Roundup Ready 2 Xtend® varieties (Armor 46-D09, Asgrow AG46X6, Asgrow AG48X9, Norththrup King NK S44-C7X, and Pioneer P42A43X.), one LibertyLink® variety (Pioneer P49A41L), three Enlist E3® (Delta Grow DG47E20, Local Seed ZS4691E3S and Progeny P4775E3S) and five Roundup Ready Flex® varieties (Asgrow AG38XF1, Asgrow AG45XF0, Asgrow AG47FX0, Asgrow 48FX0 and Local Seed LS4606XFS) were planted. Management decisions were based on field history, soil test results, variety, and data collected from each individual field during the growing season.



**Figure 1. Location of 2021 Soybean Research Verification Fields**



## **FIELD REVIEWS**

### **Northern Fields – Christopher Elkins**

#### **Clay County**

The 32 acre field, soil type Foley Silt Loam, was located in Pollard and followed the previous year corn crop. Pre-plant fertilizer application of 0-45-120 and land preparation was conducted in the fall, the field was planted on April 3 with Asgrow AG38XF1, Innovate seed treatment at 140,000 seeds/acre on 30" beds. A pre-emerge herbicide of 1 quart/acre glyphosate plus .5 ounces/acre FirstShot plus 1 pint/acre of S-metolachlor was applied on April 3. The field emerged on April 16 to a plant stand of 131,000 plants/acre. A post emerge herbicide application of 1 quart/acre Liberty plus 3.25 ounces/acre of Zidua SC was applied on May 27. Disease and insect pressure remained below threshold and did not warrant treatment. The field was furrow irrigated 4 times. On September 3, 2 ounces/acre Sharpen was applied as a harvest aid and harvested on September 24 yielding 75.7 bushels/acre adjusted to 13% moisture.

#### **Conway County**

The 69 acre field, Gallion silt loam, was located south of Plummerville and followed the previous year corn crop. Initial burndown for the no-till field was applied on May 3 of 1 quart/acre Roundup Powermax plus 1 quart/acre Enlist One plus 2 ounce/acre Valor plus .28 pounds/acre Metribuzin. The field was planted on June 13 with Local Seed ZS4694E3S treated seed and inoculant, at 150,000 seed/acre on 15" row seed spacing. On June 13, 40 ounces/acre paraquat plus 1.25 pint/acre S-metolachlor was applied for pre-emerge weed control. The field emerged on June 19 to a plant population of 115,000 seed/acre. The first post emerge herbicide application was made on July 7 of 1 quart/acre Roundup Powermax plus 1 quart/acre Enlist One plus 1 pint/acre S-metolachlor followed by a second application on July 24 of 1 quart/acre Roundup Powermax plus 1 quart/acre Enlist One. Disease and insect pressure remained below threshold and no treatment was recommended. The field was Pivot irrigated 6 times and harvested on October 13 yielding 64.4 bushels/acre adjusted to 13%.

#### **Cross County**

The 115 acre field, Crowley and Hillemann Silt Loam, was located west of Hickory Ridge and followed the previous year rice crop. Following spring tillage and fertilizer application of 0-50-120, according to soil test recommendations, the field was drilled on May 22 with Asgrow AG48X9 treated seed, at 165,000 seed/acre on 7.5" seed spacing. On May 22, 5 ounces/acre Verdict plus 10 ounces/acre Outlook was applied for pre-emerge weed control. The field emerged on May 29 to a plant population of 113,000 seed/acre. A single post-emerge herbicide application was made on June 30 of 1 quart/acre glyphosate. Insect pressure reached threshold and on September 3, 4.5 ounces/acre Endigo was applied for stinkbug control. Disease pressure remained below threshold and no treatment was recommended. The field was flood irrigated 2 times and harvested on October 19 yielding 65.1 bushels/acre adjusted to 13%.

#### **Faulkner County**

The 50 acre field, Perry Clay, was located west of Conway and followed the previous year soybean crop. Following spring tillage, no pre-emerge fertilizer was applied, according to soil test results. A burndown application of 1 quart/acre glyphosate plus 1 ounce/acre Sharpen

plus 1.5 pints/acre Ledger on June 16 was applied. The field was planted on June 18 with Progeny P4775E3S, Cruiser Maxx treated seed, at 140,000 seed/acre on 30" row seed spacing. The field emerged on June 25 to a plant population of 104,000 seed/acre. The first post emerge herbicide application was made on July 8 of 1 quart/acre Interline plus 1 quart/acre Enlist One followed by a second application on July 25 of 1 quart/acre glyphosate plus 1 quart/acre Enlist One. Insect pressure reached threshold and on September 10, 3.84 ounces/acre Lambda Cy-Ag was applied for stinkbug control. Disease pressure remained below threshold and no treatment was recommended. The field was furrow irrigated 1 time and harvested on October 21 yielding 40.5 bushels/acre adjusted to 13%.

### **Independence County**

The 55 acre field, soil type Sturkie silt loam and Wideman Loamy fine sand, was located west of Bethesda and followed the previous year soybean crop. Following spring tillage and fertilizer application of 0-0-75, according to soil test recommendations, the field was drilled on April 19 with Progeny P4775E3S, Seed Shield seed treatment, at 160,000 seed/acre on 7.5" seed spacing. On April 19, 2 ounces/acre Valor was applied for pre-emerge weed control. The field emerged on April 30 to a plant population of 106,000 seed/acre. The first herbicide application was made on May 14 of 1 quart/acre glyphosate. The second herbicide application was made on May 31 of 1 quart/acre Liberty plus 1.25 pints/acre S-metolachlor. The final herbicide application was made on June 22 of 1 quart/acre glyphosate. Disease and insect pressure remained below threshold and no treatment was recommended. The field was dryland and harvested on September 29 yielding 47.9 bushels/acre adjusted to 13%.

### **Lawrence County**

The 72 acre field, Crowley Silt loam and Jackport Silty Clay, was located south of Walnut Ridge and followed the previous year rice crop. Following spring tillage and fertilizer application of 0-40-60, the field was planted on May 21 with Delta Grow DG47E20 treated seed, at 150,500 seed/acre on 38" twin row seed spacing. On May 21, 1 quart/acre Roundup Powermax plus 1 pint/acre S-metolachlor was applied for pre-emerge weed control. The field emerged on May 26 to a plant population of 118,000 seed/acre. The first post emerge herbicide application was made on June 19 of 1 quart/acre Liberty plus 1 quart/acre Enlist One followed by a second application on July 6 of 1 quart/acre Liberty. Disease and insect pressure remained below threshold and no treatment was recommended. The field was furrow irrigated 5 times and harvested on October 15 yielding 52.5 bushels/acre adjusted to 13%.

### **Mississippi County**

The 32 acre field, Dundee Silt Loam, was located west of Bassett and followed the previous year corn crop. Following fall tillage, the field was planted May 21 with Asgrow AG48FX0, Conquest seed treatment at 140,000 seed/acre on 38" beds. Following planting 1 quart/acre Gramoxone plus 1 quart Intimidator plus 2 ounces/acre Zidua SC was applied for spring burndown and pre-emerge weed control. The field emerged on May 28 to a plant population of 107,000 plants/acre. A single herbicide application was made on June 23 of 12.8 ounces/acre Engenia plus pH buffering agent. Defoliator insect pressure reached economic threshold and was treated with 1.92 ounces/acre Lambda-Cyhalothrin on July 24. Disease pressure remained below threshold and no treatment was recommended. The field was furrow irrigated 3 times and harvested on October 15 yielding 78.7 bushels/acre adjusted to 13% moisture.

## **Perry County**

The 52 acre field, Perry Clay, was located west of Bigelow and followed the previous year soybean crop. Following spring tillage, no pre-emerge fertilizer was applied, according to soil test recommendations. A burndown application on June 18 of 40 ounce/acre paraquat plus 1 pint/acre S-metolachlor was applied. The field was planted on June 20 with Local Seed LS4606XFS treated seed and inoculant, at 140,000 seed/acre on 30" row seed spacing. The field emerged on June 30 to a plant population of 83,000 seed/acre. The single post emerge herbicide application was made on August 2 of 1 quart/acre Liberty plus 1 quart/acre glyphosate. Insect pressure reached threshold and on September 17, 1.92 ounces/acre Lambda Cyhalothrin was applied for stinkbug control. Disease pressure remained below threshold and no treatment was recommended. The field was pivot irrigated 4 times and harvested on November 17 yielding 30.1 bushels/acre adjusted to 13%.

## **Poinsett County**

The 145 acre field, Henry and Hillemann Silt Loam, was located east of Waldenburg and followed the previous year rice crop. Following spring tillage and fertilizer application of 0-60-90, the field was drilled on May 15 with Armor 46D09, Cruiser Maxx seed treatment, at 165,000 seed/acre on 7.5" seed spacing. On May 15, 1 quart/acre glyphosate plus 5 ounces/acre Verdict was applied for burndown and 3.25 ounces/acre Zidua was applied for pre-emerge weed control. The field emerged on May 25 to a plant population of 72,000 seed/acre. The first post emerge herbicide application was made on June 19 of 8 ounces/acre Select plus 2 pints/acre Prefix followed by a second herbicide application of 8 ounces/acre Select on August 11. Disease and insect pressure remained below threshold and no treatment was recommended. The field was flood irrigated 1 time and harvested on October 9 yielding 64.3 bushels/acre adjusted to 13%.

## **St. Francis County**

The 64 acre field, Henry and Calloway silt loam, was located north of Palestine and followed the previous year rice crop. Following spring tillage and fertilizer application of 0-70-120, according to soil test recommendations, the field was planted on May 16 with Asgrow AG47XF0, Crusier Maxx Vibrance seed treatment, at 130,000 seed/acre on 30" row seed spacing. The field emerged on May 25 to a plant population of 104,000 seed/acre. The first post emerge herbicide application was made on June 17 of 1 quart/acre Liberty plus 1 quart/acre glyphosate plus 1.25 pints/acre S-metolachlor followed by 1 quart/acre glyphosate on July 8. Disease and insect pressure remained below threshold and no treatment was recommended. The field was furrow irrigated 6 times and harvested on October 13 yielding 74.7 bushels/acre adjusted to 13%.

## **White County**

The 44 acre field, Calhoun and Calloway silt loam, was located north of Griffithville and followed the previous year corn crop. Following fall tillage and fertilizer application of 0-0-120, the field was planted on May 24 with Asgrow AG48X9, Crusier Maxx seed treatment, at 120,000 seed/acre on 30" row seed spacing. The field emerged on May 31 to a plant population of 83,000 seed/acre. The first post emerge herbicide application was made on June 29 of 12.8 ounces/acre Engenia plus pH buffering agent followed by 1 quart/acre glyphosate on July 5. Disease and insect pressure remained below threshold and no treatment was recommended.

The field was furrow irrigated 5 times and harvested on October 12 yielding 65.3 bushels/acre adjusted to 13%.

### **Woodruff County**

The 59 acre field, Mc Crory fine sandy loam, was located south of Augusta and followed the previous year soybean crop. Following spring tillage and fertilizer application of 1.5 tons poultry litter, according to soil test recommendations, the field was planted on June 17 with Pioneer P49A41L treated seed, at 150,000 seed/acre on 15" seed spacing. On June 17, 5 ounces/acre metribuzin plus 3.25 ounces/acre Zidua plus 40 ounces/acre paraquat was applied for pre-emerge weed control. The field emerged on June 22 to a plant population of 117,000 seed/acre. A single post emerge herbicide application was made on July 9 of 1 quart/acre Liberty plus 1.25 pints/acre S-metolachlor. Insect pressure reached threshold and on August 12, 14 ounces/acre Prevathon was applied for control. Disease pressure remained below threshold and no treatment was recommended. The field was furrow irrigated 6 times and harvested on November 5 yielding 50.5 bushels/acre adjusted to 13%.

### **Southern Fields – Chad Norton**

### **Arkansas County**

The 30 acre field, soil types Ethel and Dewitt silt loam, was located east of Stuttgart and followed the previous year soybean crop. After spring burndown application of 1 quart/acre Cornerstone, land preparation and fertilizer application of 0-64-140, according to soil test recommendations, the field was flat planted April 19 with Pioneer P46A16, Equity seed treatment, at 125,000 seeds/acre on 30" rows. A pre-emergence application of 3 pints/acre paraquat plus 6 ounces/acre metribuzin was applied April 20 for emerged and residual weed control. The field emerged April 28 to a plant population of 114,000 plants/acre. A post-emergence application of 1.5 pints/acre Me-Too-Lachlor plus 1 quart/acre Cornerstone on May 23 was also utilized for weed control. Neither insects nor diseases reached treatment thresholds thus insecticide and fungicide applications were unwarranted. The field was flood irrigated 4 times and harvested September 6 yielding 59.5 bushels/acre adjusted to 13% moisture.

### **Chicot County**

The 40 acre field, soil types Perry clay and Gallion silt loam, was located west of Lake Village and followed the previous year soybean crop. Following spring burndown application of 1 pint/acre Select plus 18 ounces/acre 2,4-D plus 25.6 ounces/acre Cornerstone, fertilizer application of 0-74-112, according to soil test recommendations, and bedding, the field was planted April 6 with Northrup King NK S44-C7X, Cruiser Maxx seed treatment, at 140,000 seeds/acre on 38" twin-row beds. A pre-emergence application of 24 ounces/acre Antares Complete plus 1 quart/acre paraquat was applied April 7 for emerged and residual weed control. The field emerged April 18 to a plant population of 84,000 plants/acre. A post-emergence application of 1 quart/acre Prefix plus 6 ounces/acre Flexstar plus 22 ounces/acre RoundUp PowerMax May 18 was also utilized for weed control. Neither insects nor diseases reached treatment thresholds thus insecticide and fungicide applications were unwarranted. The field was furrow irrigated 2 times and harvested September 14 yielding 55 bushels/acre adjusted to 13% moisture.

## **Desha County**

The 71 acre field, soil type Sharkey and Desha clays, was located east of McGehee and followed the previous year soybean crop. After spring fertilizer application of 0-0-90, according to soil test recommendations, the field was no till planted April 19 with Asgrow AG46X6, Cruiser Maxx seed treatment, at 150,000 seeds/acre on 38" twin beds. A pre-emergence application on April 25 of 22 ounces/acre RoundUp PowerMax plus 1.5 pints/acre Me-Too-Lachlor was used for weed control. The field emerged April 27 to a plant population of 143,000 plants/acre. After plowing middles, 22 ounces/acre RoundUp PowerMax plus 1.5 pints Me-Too-Lachlor were also applied for weed control. Neither insects nor diseases reached treatment thresholds thus insecticide and fungicide applications were unwarranted. The field was furrow irrigated 3 times and harvested September 28 yielding 78 bushels/acre adjusted to 13% moisture.

## **Drew County**

The 73 acre field, soil types Rilla, Portland silt loam and Portland clay, was located southwest of Tillar and followed the previous year rice crop. Following spring land preparation, the field was planted April 20 with Armor 46-D09, Cruiser Maxx seed treatment, at 155,000 seeds/acre on 38" twin beds. The field emerged April 28 to a plant population of 137,000 plants/acre. Herbicide applications of 3.5 pints/acre Sequence April 30 and .3 ounces/acre First Rate plus 1 quart/acre Cornerstone plus 1.3 pints/acre Dual Magnum II May 30 were utilized for weed control. Neither insects nor diseases reached treatment thresholds thus insecticide and fungicide applications were unwarranted. The field was furrow irrigated 5 times and harvested October 9 yielding 75.9 bushels/acre adjusted to 13% moisture.

## **Jefferson County**

The 40 acre field, soil types Rilla, Hebert silt loam and Perry clay, was located south of Pine Bluff and followed the previous year soybean crop. Following spring burndown application of 1 quart/acre Cornerstone plus 1 pint/acre 2,4-D and fertilizer application of 0-0-75, according to soil test recommendations, the field was planted April 13 with Pioneer P42A43X, Equity seed treatment, at 125,000 seeds/acre on 38" twin-row beds. A pre-emergence application of 1 quart/acre Boundary plus 1 quart/acre Cornerstone April 17 was used for weed control. The field emerged April 26 to a plant population of 108,000 plants/acre. Post-emergence applications of 1 quart/acre Cornerstone plus 3.25 ounces/acre Zidua SC May 15 and 1 quart/acre Cornerstone plus .3 ounces/acre First Rate plus 1.2 pints/acre Dual Magnum II June 22 were also utilized for weed control. The field required an application of 6.4 ounces/acre Sniper plus .33 pounds/acre acephate for stink bug and grasshopper control. Diseases never reached treatment thresholds thus a fungicide application was unwarranted. The field was furrow irrigated 5 times and harvested September 15 yielding 76.8 bushels/acre adjusted to 13% moisture.

## **Lafayette County**

The 58 acre field, soil types Rilla and Caspiana silt loam, was located north of Gin City and followed the previous year corn crop. Following fall land preparation and no fertilizer application, according to soil test recommendations, the field was planted April 13 with Asgrow AG47XF0, Cruiser Maxx seed treatment, at 120K seeds/acre. An application of 24 ounces/acre Anteras Complete April 14 was utilized for weed control. The field emerged April 26 to a plant population of 114K plants/acre. Post-emergence applications of 1 quart/acre Cornerstone plus 3.25 ounces/acre Zidua SC May 10 and 22 ounces/acre RoundUp PowerMax plus 1.3 pints/acre Charger Basic June 1 were also utilized for weed control. Neither insects nor

diseases reached treatment thresholds thus insecticide or fungicide applications were unwarranted. The field was furrow irrigated 2 times and harvested October 1 yielding 71.6 bushels/acre adjusted to 13% moisture.

### **Lee County**

The 54 acre field, soil types Loring, Calloway and Falaya silt loam, was located south of Marianna and followed the previous year corn crop. Following fall and preparation, spring burndown application of 8 ounces dicamba plus 1 quart/acre Cornerstone plus 1 ounce/acre First Shot and fertilizer application of 0-0-90, according to soil test recommendations, the field was planted April 20 with Asgrow AG45FX0, Cruiser Maxx seed treatment, at 140,000 seeds/acre on 38" twin row beds. An application of 5 ounces/acre metribuzin plus 3.25 ounces/acre Zidua SC plus 1 quart/acre paraquat was used for emerged and residual weed control. The field emerged May 1 to a plant population of 115,000 plants/acre. Post-emergence applications of 1 quart/acre Liberty plus 12.8 ounces/acre Outlook May 25 and 1 quart/acre Cornerstone plus 1.3 pints/acre Dual Magnum II June 21 were also utilized for weed control. Neither insects nor diseases reached treatment thresholds thus insecticide and fungicide applications were unwarranted. The field was furrow irrigated 3 times and harvested October 1 yielding 68.8 bushels/acre adjusted to 13% moisture.

**Table 1. Agronomic information for the 2022 Soybean Research Verification Fields.**

County	Variety	Field size (ac)	Previous crop	Production system <sup>1</sup>	Seeding rate (seeds/acre)	Stand density (plants/ac)	Planting date	Emergence date	Harvest date	Yield adj. to 13% moisture (bu/ac)
Arkansas	Pioneer P48A60X	44	Corn	FSI	126K	115K	4/30	5/8	9/27	85.9
Ashley	Asgrow AG43X0	79	Corn	ESI	140K	116K	4/10	4/18	9/27	60.2
Chicot	Asgrow AG46X6	80	Rice	FSI	140K	113K	4/27	5/4	10/1	72.4
Conway	Local Seed ZS4694ES3	69	Soybean	FSI	160K	102K	5/11	5/17	10/4	53.3
Desha	Asgrow AG48XF2	25	Corn	FSI	132K	121K	4/28	5/7	9/19	88
Drew	Armor 46D-09	100	Corn	FSI	155K	138K	4/23	5/1	9/16	75.7
Greene	NK48-H3XFS	75	Corn	FSI	140K	88K	5/16	5/26	10/19	64.6
Independence	NK S46E3S	55	Soybean	FSNI	140K	117K	4/28	5/8	10/6	37.3
Lawrence	Becks 4443XF	40	Rice	LSI	150K	102K	6/7	6/14	10/20	51.8
Lee	Mission 4690XF	36	Corn	FSI			4/30	5/8	9/27	68.8
Lonoke	Asgrow AG46X6	75	Corn	FSI	140K	120K	5/13	5/19	10/5	68.1
Mississippi	Becks 5005XF	32	Soybean	FSI	148K	101K	5/18	5/26	10/27	57.8
Monroe	Progeny 4604XF	60	Corn	FSI	125K	95K	4/29	5/7	10/9	68.8
Poinsett	Becks 4885XF	74	Corn	FSI	120K	116K	5/12	5/18	9/30	67.3
St. Francis	Dyna-Gro 48XT56	90	Corn	FSI	130K	87K	5/17	5/23	10/13	74.5
White	NK 42T5XF	60	Rice	FSI	120K	93K	5/15	5/23	9/30	69.5
Woodruff	Armor 47E03	85	Rice	LSI	140K	133K	6/15	6/20	10/14	49.2
<b>Average</b>							<b>5/8</b>		<b>10/4</b>	<b>65.5</b>

<sup>1</sup>Production Systems: ESI = Early Season Irrigated; FSI = Full Season Irrigated; FSNI = Full Season Non-irrigated; LSI = Late Season Irrigated; LSNI = Late Season Non-irrigated

State Avg. – 50 bu/ac



**Table 2. Soil tests results, applied fertilizer and soil classification for the 2021 Soybean Research Verification Fields**

County	Soil Test Results (ppm)			Applied Fertilize N-P-K (lb/acre)	Soil Classification
	pH	P	K	Pre-plant	
Arkansas	6.0	19	62	0-64-140	Ethel, Dewitt silt loam
Chicot	6.7	17	68	0-74-112	Perry clay, Galion silt loam
Clay	6.0	31	152	0-45-120	Foley silt loam
Conway	7.1	46	138	0-0-0	Gallion silt loam
Cross	6.8	19	63	0-50-120	Crowley and Hillemann silt loam
Desha	6.5	38	92	0-0-90	Sharkey and Desha clays
Drew	6.3	34	176	0-0-0	Rilla, Portman silt loam, Portland clay
Faulkner	6.8	17	210	0-0-0	Perry Clay
Independence	7.7	26	116	0-0-75	Sturkie silt loam & Wideman loamy fine sand
Jefferson	6.4	38	96	0-0-75	Rilla, Hebert silt loam, Perry clay
Lafayette	6.7	40	182	0-0-0	Rilla, Caspiana silt loam
Lawrence	7.1	32	131	0-40-60	Crowley silt loam & Jackport silty clay
Lee	6.1	34	78	0-0-90	Loring, Falaya, Calloway silt loam
Mississippi	6.2	79	157	0-0-0	Dundee silt loam
Perry	6.2	29	236	0-0-0	Perry Clay
Poinsett	7.0	23	76	0-60-90	Henry & Hillemann silt loam
St. Francis	7.2	11	84	0-70-120	Henry & Calloway silt loam
White	7.1	54	140	0-0-120	Calhoun & Calloway silt loam
Woodruff	6.3	17	67	1.5 ton Poultry Litter	MC Crory fine sandy loam

**Table 3. Herbicide rates and timings for 2021 Soybean Research Verification Program fields by county.**

County	Herbicide	
	Burndown/Pre-emergence	Post-emergence
Arkansas	Burndown; 1 qt. Cornerstone Pre; 3 pt. gramoxone + 6 oz. metribuzin	1 qt. Cornerstone + 1.5 pt. Me-Too-Lachlor
Chicot	Burndown; 1 pt. Select + 18 oz. 2,4-D + 25.6 oz Cornerstone Pre; 24 oz. Anteras Complete + 1 pt. gramoxone	1 qt. Prefix + 6 oz. Flexstar + 22 oz. Roundup Powermax
Clay	Pre-emerge; 1 qt. glyphosate + .5 oz First Shot + 1 pt. S-metolachlor	1 <sup>st</sup> ; 1 qt. Liberty + 3.25 oz. Zidua
Conway	Burndown; 1 qt. Roundup PowerMax + 2 oz. Valor + .28lbs Metribuzin Pre-emerge; 40 oz. paraquat + 1.25 pts. S-metolachlor	1 <sup>st</sup> ; 1 qt. Roundup PowerMax + 1 qt. Enlist One + 1 pt. S-metolachlor 2 <sup>nd</sup> ; 1 qt. Roundup PowerMax + 1 qt. Enlist One
Cross	Pre-emerge; 5 oz. Verdict + 10 oz. Outlook	1 <sup>st</sup> ; 1 qt. glyphosate
Desha		1 <sup>st</sup> ; 22 oz. Roundup Powermax + 1.5 pt. Me-Too-Lachlor 2 <sup>nd</sup> ; 22 oz. Roundup Powermax + 1.5 pt. Me-Too Lachlor
Drew		1 <sup>st</sup> ; 3.5 pt. Sequence 2 <sup>nd</sup> ; 1 qt. Cornerstone + .3 oz. First Rate + 1.3 pt. Dual Magnum II
Faulkner	Pre-emerge; 1 qt. glyphosate + 1 oz. Sharpen + 1.5 pts. Ledger	1 <sup>st</sup> ; 1 qt. Interline + 1 qt. Enlist One 2 <sup>nd</sup> ; 1 qt. glyphosate + 1 qt. Enlist One
Independence	Pre-emerge; 2 oz. Valor	1 <sup>st</sup> ; 1 qt. glyphosate 2 <sup>nd</sup> ; 1 qt. Liberty + 1.25 pts. S-metolachlor 3 <sup>rd</sup> ; 1 qt. glyphosate
Jefferson	Burndown; 1 qt. Cornerstone + 1 pt. 2,4-D Pre; 1 qt. Cornerstone + 1 qt. Boundary	1 <sup>st</sup> ; 1 qt. Cornerstone + 3.25 oz. Zidua SC 2 <sup>nd</sup> ; 1 qt. Cornerstone + .3 oz. First Rate + 1.2 pt. Dual Magnum II
Lafayette	Pre; 24 oz. Anteras Complete	1 <sup>st</sup> ; 1 qt. Cornerstone + 3.25 oz. Zidua SC 2 <sup>nd</sup> ; 22 oz. Roundup PowerMax + 1.3 pt. Charger Basic
Lawrence	Pre-emerge; 1 qt. Rounup PowerMax + 1 pt. S-metolachlor	1 <sup>st</sup> ; 1 qt. Enlist One + 1 qt. Liberty 2 <sup>nd</sup> ; 1 qt. Liberty
Lee	Burndown; 8 oz. dicamba + 1 qt. Cornerstone + .6 oz. First Shot Pre; 5 oz. metribuzin + 1 qt. gramoxone + 3.25 oz. Zidua SC	1 qt. Liberty + 12.8 oz. Outlook
Mississippi	Pre-emerge; 1 qt. Gramoxone + 1 qt. Intimidator + 2 oz. Zidua	1 <sup>st</sup> ; 12.8 oz. Engenia + pH buffering agent
Perry	Pre-emerge; 40 oz. paraquat + 1 pt. S-metolachlor	1 <sup>st</sup> ; 1qt. Liberty + 1 qt. glyphosate
Poinsett	Pre-emerge; 1 qt. glyphosate + 5 oz. Verdict + 3.25 oz. Zidua	1 <sup>st</sup> ; 8 oz. Select + 2 pts. Prefix 2 <sup>nd</sup> ; 8 oz. Select
St. Francis		1 <sup>st</sup> ; 1 qt. Liberty + 1 qt. glyphosate + 1.25 pts. S-metolachlor 2 <sup>nd</sup> ; 1 qt. glyphosate
White	Pre-emerge; 1 qt. glyphosate + 1.25 pts S-metolachlor	1 <sup>st</sup> ; 12.8 oz. Engenia + pH buffering agent 2 <sup>nd</sup> ; 1 qt. glyphosate
Woodruff	Pre-emerge; 40 oz. paraquat + 5 oz. metribuzin + 3.25 Zidua	1 <sup>st</sup> ; 1 qt. Liberty + 1.25 pts Dual Magnum

**Table 4. Fungicide and insecticides applications in 2021 Soybean Research Verification fields by county.**

County	Aerial Web Blight	Frogeye	Bollworm/Defoliators	Stink Bug
Arkansas				
Chicot				
Clay				
Conway				
Cross				4.5 oz./ac. Endigo
Desha				
Drew				
Faulkner				3.84 oz./ac. Lambda Cy-Ag
Independence				
Jefferson				6.4 oz./ac Sniper + .33 lbs./ac acephate
Lafayette				
Lawrence				
Lee				
Mississippi			1.92 oz./ac. Lambda Cyhalothrin	
Perry				1.92 oz./ac. Lambda Cyhalothrin
Poinsett				
St. Francis				
White				
Woodruff			14 oz./ac. Prevathon	

**Table 5. Irrigation and rainfall information for the 2021 Soybean Research Verification Fields.**

County	Irrigation Type	Number of Irrigations	Irrigation Water Used (acre inches/acre)*	Rainfall (in)
Arkansas	Flood	4	13.32	26.8
Chicot	Furrow	2		29.7
Clay	Furrow	4	8.03"	18.8"
Conway	Pivot	6	6.37"	7.75"
Cross	Flood	2		12.45"
Desha	Furrow	3		22.6
Drew	Furrow	5		20.8
Faulkner	Furrow	1		7.77"
Independence	Dryland	N/A		20.80"
Jefferson	Furrow	5	9.85	13.2
Lafayette	Furrow	2		11.3
Lawrence	Furrow	5		10.95"
Lee	Furrow	3	9.12	22.3
Mississippi	Furrow	3	8.00"	13.00"
Perry	Pivot	4		6.24"
Poinsett	Flood	1		10.10"
St. Francis	Furrow	6	15.09"	12.99"
White	Furrow	5		14.12"
Woodruff	Furrow	6	3.20"	7.53"

\*Irrigation water use determined using flow meters installed for entire season. Not all fields had flow meters.

## ECONOMIC ANALYSIS

This section provides information on production costs and returns for the 2021 SRVP. Records of field operations on each field provided the basis for estimating production costs. The field records were compiled by the SRVP coordinators, county extension agents, and cooperators. Cooperators/county agents for 19 fields were identified for the 2021 program. Production data from the 19 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 costs type.

Operating costs are those expenditures that would generally require annual cash outlays and would be included on an annual operating loan application. Actual quantities of all operating inputs as reported by the cooperators are used in this analysis. Input prices are determined by data from 2021 Soybean Crop Enterprise Budgets published by the UA Division of Agriculture Cooperative Extension Service, Southeast Arkansas input providers, and information provided by producer cooperators. 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 provide unpaid labor for equipment maintenance.

Fixed 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 representative prices of new equipment. This measure differs from typical depreciation methods, as well as actual annual cash expenses for machinery.

Operating costs, fixed costs, total costs, operating and total costs per bushel, and returns above operating and total specified costs are presented, by field, region, and statewide in Table 6. Costs in this report do not include management, land costs, or other expenses and fees not associated with production. Averages in the final row of Table 6 are simple averages across all SRVP fields in the state program. Averages by North and South geographic areas are also provided. Operating costs per acre range from \$167.57/acre for Perry County to \$327.16/acre for Poinsett County, while operating costs per bushel range from \$2.76/bu. for Mississippi County to \$5.57/bu. for Perry County. Total costs per acre (operating plus fixed) range from \$235.23/acre for Perry County to \$426.39/acre for Poinsett County, and total costs per bushel range from \$3.45/bu. for Desha County to \$7.16/bu. for Woodruff County. Returns to operating costs range from \$216.81/acre for Perry County to \$796.57/acre for Desha County. Returns to total costs range from \$249.55 for Faulkner County to \$726.97/acre for Desha County.

A statewide summary of yield, soybean price, revenues, and expenses by expense type across all SRVP fields is presented in Table 7. Averages by North and South geographic areas are also provided in Table 7. Averages in the final three columns of the table are simple averages for the SRVP fields represented in that table. The average soybean yield for the 2021 SRVP was 62.91 bushels, but ranged from 30.1 bushels/acre for Perry County to 78.7 bushels/acre for Mississippi County. Six additional fields exceeding the 70.0 bushels/acre yield level were found in Clay, Desha, Drew, Jefferson, Lafayette and St. Francis counties. Market price for soybean used in this analysis was \$12.77/bushel, the Arkansas average cash price estimated from January through October 31 daily price quotes of the cash market price or cash booking price. The 2021 price is \$3.62/bushel above the same period average in 2020. Arkansas producers set the price for portions of their crop at various times throughout the year.

The average total operating expense for the 19 SRVP fields in 2021 was \$238.02/acre (Table 7). Seed accounted for the largest share of operating expenses on average (29.46%) followed by herbicides (18.92%), and fertilizers & nutrients (9.47%). All other categories were less than 7.00% of operating expenses. The average return to operating expenses for the 19 fields was \$565.34/acre and ranged from a \$216.81/acre for Perry County to \$796.57/acre for Desha County. The average return to total specified expenses (Total Costs) for the 19 fields was \$485.06/acre, and ranged from \$149.15 for Perry County to \$726.96/acre for Desha County.

**Table 6. Operating Costs, Total Costs, and Returns for Soybean Research Verification Program, 2021**

<b>County</b>	<b>Operating Costs (\$/acre)</b>	<b>Operating Costs (\$/bushel)</b>	<b>Returns to Operating (\$/acre)</b>	<b>Fixed Costs (\$/acre)</b>	<b>Total Costs (\$/acre)</b>	<b>Returns to Total Costs (\$/acre)</b>	<b>Total Costs per Bushel (\$/bushel)</b>
Clay	252.69	3.34	713.99	97.62	350.32	616.37	4.63
Conway	231.63	3.60	590.75	84.92	316.55	505.84	4.92
Cross	252.48	3.88	574.84	64.95	317.43	513.89	4.88
Faulkner	219.68	5.42	297.50	47.95	267.63	249.55	6.61
Independence	237.91	4.97	373.78	63.99	301.90	309.78	6.30
Lawrence	274.08	5.22	396.34	100.71	374.80	295.63	7.14
Mississippi	217.22	2.76	787.78	74.27	291.49	713.51	3.70
Perry	167.57	5.57	216.81	67.66	235.23	149.15	7.81
Poinsett	327.16	5.09	493.95	99.23	426.39	394.72	6.63
St. Francis	263.32	3.53	690.60	80.65	343.97	609.95	4.60
White	212.27	3.25	621.61	95.40	307.67	526.21	4.71
Woodruff	269.98	5.35	374.90	91.60	361.58	283.31	7.16
<b>North Avrg.</b>	<b>243.83</b>	<b>4.33</b>	<b>511.07</b>	<b>80.75</b>	<b>324.58</b>	<b>430.66</b>	<b>5.76</b>
Arkansas	204.21	4.95	555.61	79.46	283.67	476.15	4.77
Chicot	239.36	3.20	462.99	73.32	312.68	389.67	5.69
Desha	199.49	3.50	796.57	69.61	269.09	726.97	3.45
Drew	217.31	4.94	751.93	88.31	305.62	663.62	4.03
Jefferson	251.06	3.66	729.68	62.95	314.01	666.72	4.09
Lafayette	184.44	4.03	729.89	100.08	284.52	629.82	3.97
Lee	300.56	3.75	578.02	82.74	383.29	495.28	5.57
<b>South Avrg.</b>	<b>228.06</b>	<b>4.00</b>	<b>657.81</b>	<b>79.50</b>	<b>307.55</b>	<b>578.32</b>	<b>4.51</b>
<b>SRVP Program State Average 2021</b>	<b>238.02</b>	<b>4.21</b>	<b>565.13</b>	<b>80.29</b>	<b>318.31</b>	<b>485.06</b>	<b>5.30</b>

<b>Table 7. Summary of Revenue and Expenses per Acre, Soybean Research Verification Program, 2021 (1)</b>							
	Arkansas	Chicot	Clay	Conway	Cross	Desha	Drew
<b>Receipts</b>							
Yield (bu.)	59.5	55.0	75.7	64.4	65.1	78.0	75.9
Price	12.77	12.77	12.77	12.77	12.77	12.77	12.77
<b>Total Crop Revenue</b>	<b>759.82</b>	<b>702.35</b>	<b>966.69</b>	<b>822.39</b>	<b>831.33</b>	<b>996.06</b>	<b>969.24</b>
<b>Seed</b>	<b>62.05</b>	<b>68.04</b>	<b>68.04</b>	<b>79.05</b>	<b>80.29</b>	<b>77.76</b>	<b>75.33</b>
<b>Fertilizers &amp; Nutrients</b>	<b>32.01</b>	<b>29.66</b>	<b>47.25</b>	<b>0.00</b>	<b>49.03</b>	<b>13.28</b>	<b>0.00</b>
<b>Herbicides (2)</b>	<b>27.06</b>	<b>53.72</b>	<b>33.14</b>	<b>73.69</b>	<b>22.28</b>	<b>19.15</b>	<b>49.48</b>
<b>Insecticides (2)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Fungicides (2)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Other Chemicals (2)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Custom Applications</b>	<b>14.00</b>	<b>14.00</b>	<b>7.00</b>	<b>0.00</b>	<b>28.00</b>	<b>7.00</b>	<b>0.00</b>
<b>Diesel Fuel (3)</b>	<b>9.69</b>	<b>8.68</b>	<b>12.18</b>	<b>4.67</b>	<b>8.98</b>	<b>7.57</b>	<b>11.05</b>
<b>Repairs &amp; Maintenance</b>	<b>17.08</b>	<b>15.73</b>	<b>16.94</b>	<b>15.24</b>	<b>12.11</b>	<b>15.92</b>	<b>15.99</b>
<b>Irrigation Energy Costs</b>	<b>2.08</b>	<b>5.27</b>	<b>15.12</b>	<b>14.35</b>	<b>5.77</b>	<b>7.90</b>	<b>13.17</b>
<b>Labor, Field Activities</b>	<b>6.96</b>	<b>5.92</b>	<b>7.62</b>	<b>3.75</b>	<b>4.98</b>	<b>5.91</b>	<b>7.59</b>
<b>Interest</b>	<b>4.07</b>	<b>4.81</b>	<b>4.95</b>	<b>4.59</b>	<b>5.04</b>	<b>3.78</b>	<b>4.18</b>
<b>Other Inputs &amp; Fee, Pre-harvest</b>	<b>12.00</b>	<b>15.18</b>	<b>15.18</b>	<b>15.68</b>	<b>15.18</b>	<b>15.18</b>	<b>15.18</b>
<b>Post-harvest Expenses</b>	<b>17.20</b>	<b>18.36</b>	<b>25.27</b>	<b>20.61</b>	<b>20.84</b>	<b>26.04</b>	<b>25.34</b>
<b>Custom Harvest</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Operating Expenses</b>	<b>204.20</b>	<b>239.37</b>	<b>252.69</b>	<b>231.63</b>	<b>252.50</b>	<b>199.49</b>	<b>217.31</b>
<b>Returns to Operating Expenses</b>	<b>555.62</b>	<b>462.98</b>	<b>714.00</b>	<b>590.76</b>	<b>578.83</b>	<b>796.57</b>	<b>751.93</b>
<b>Capital Recovery &amp; Fixed Costs</b>	<b>79.46</b>	<b>73.32</b>	<b>97.62</b>	<b>84.92</b>	<b>64.95</b>	<b>69.61</b>	<b>88.31</b>
<b>Total Specified Expenses</b>	<b>283.66</b>	<b>312.69</b>	<b>350.31</b>	<b>316.55</b>	<b>317.45</b>	<b>269.10</b>	<b>305.62</b>
<b>Returns to Specified Expenses</b>	<b>476.16</b>	<b>389.66</b>	<b>616.38</b>	<b>505.84</b>	<b>513.88</b>	<b>726.96</b>	<b>663.62</b>
<b>Operating Expenses/Yield Unit</b>	<b>3.43</b>	<b>4.35</b>	<b>3.34</b>	<b>3.60</b>	<b>3.88</b>	<b>2.56</b>	<b>2.86</b>
<b>Total Expenses/Yield Unit</b>	<b>4.77</b>	<b>5.69</b>	<b>4.63</b>	<b>4.92</b>	<b>4.88</b>	<b>3.45</b>	<b>4.03</b>
1. Does not include land costs, management, or other expenses and fees not associated with production.							
2. Combined as Chemicals in some previous year reports							
3. Listed as Fuel & Lube in previous year reports							



<b>Table 7. Summary of Revenue and Expenses per Acre, Soybean Research Verification Program, 2021 (2) - CONTINUED</b>							
	Faulkner	Independence	Jefferson	Lafayette	Lawrence	Lee	Mississippi
<b>Receipts</b>							
Yield (bu.)	40.5	47.9	76.8	71.6	52.5	68.8	78.7
Price	12.77	12.77	12.77	12.77	12.77	12.77	12.77
<b>Total Crop Revenue</b>	<b>517.19</b>	<b>611.68</b>	<b>980.74</b>	<b>914.33</b>	<b>670.43</b>	<b>878.58</b>	<b>1005.00</b>
Seed	72.52	82.67	60.75	58.32	78.32	68.04	68.04
Fertilizers & Nutrients	0.00	18.44	11.06	0.00	30.73	13.28	0.00
Herbicides <sup>(2)</sup>	51.71	34.55	70.67	40.80	39.43	72.91	52.62
Insecticides <sup>(2)</sup>	4.19	17.37	8.01	0.00	0.00	17.37	2.09
Fungicides <sup>(2)</sup>	0.00	23.30	0.00	0.00	0.00	23.30	0.00
Other Chemicals <sup>(2)</sup>	0.00	0.00	0.00	0.00	0.00	0.00	1.60
Custom Applications	28.00	0.00	14.00	0.00	28.00	21.00	7.00
Diesel Fuel <sup>(3)</sup>	6.00	8.19	7.37	13.45	14.56	9.83	7.38
Repairs & Maintenance	15.23	14.20	14.79	15.45	17.74	15.81	14.95
Irrigation Energy Costs	2.89	0.00	13.17	5.27	18.90	7.90	11.34
Labor, Field Activities	5.46	8.67	5.51	8.57	7.62	6.93	6.59
Interest	4.49	4.88	4.91	3.49	5.58	6.04	4.16
Other Inputs & Fee, Pre-harvest	15.68	11.80	15.18	15.18	15.68	15.18	15.18
Post-harvest Expenses	13.52	13.84	25.64	23.90	17.53	22.97	26.27
Custom Harvest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Operating Expenses</b>	<b>219.69</b>	<b>237.91</b>	<b>251.06</b>	<b>184.43</b>	<b>274.09</b>	<b>300.56</b>	<b>217.22</b>
<b>Returns to Operating Expenses</b>	<b>297.50</b>	<b>373.77</b>	<b>729.68</b>	<b>729.90</b>	<b>396.34</b>	<b>578.02</b>	<b>787.78</b>
Capital Recovery & Fixed Costs	47.95	63.99	62.95	100.08	100.71	82.74	74.27
<b>Total Specified Expenses</b>	<b>267.64</b>	<b>301.90</b>	<b>314.01</b>	<b>284.51</b>	<b>374.80</b>	<b>383.30</b>	<b>291.49</b>
<b>Returns to Specified Expenses</b>	<b>249.55</b>	<b>309.78</b>	<b>666.73</b>	<b>629.82</b>	<b>295.63</b>	<b>495.28</b>	<b>713.51</b>
Operating Expenses/Yield Unit	5.42	4.97	3.27	2.58	5.22	4.37	2.76
Total Expenses/Yield Unit	6.61	6.30	4.09	3.97	7.14	5.57	3.70
1. Does not include land costs, management, or other expenses and fees not associated with production.							
2. Combined as Chemicals in some previous year reports							
3. Listed as Fuel & Lube in previous year reports							

Table 7. Summary of Revenue and Expenses per Acre, Soybean Research Verification Program, 2021 (3) - CONTINUED								
	Perry	Poinsett	St. Francis	White	Woodruff	North	South	SRVP Program State Average
<b>Receipts</b>								
Yield (bu.)	30.1	64.3	74.7	65.3	50.5	59.14	69.37	62.91
Price	12.77	12.77	12.77	12.77	12.77	12.77	12.77	12.77
<b>Total Crop Revenue</b>	<b>384.38</b>	<b>821.11</b>	<b>953.92</b>	<b>833.88</b>	<b>644.89</b>	<b>755.24</b>	<b>885.87</b>	<b>803.37</b>
Seed	68.04	80.29	62.60	58.51	63.50	71.82	67.18	70.11
Fertilizers & Nutrients	0.00	45.20	56.13	29.50	52.50	27.40	14.18	22.53
Herbicides (2)	28.37	87.65	27.39	27.06	43.79	43.47	47.68	45.02
Insecticides (2)	2.09	0.00	0.00	0.00	15.68	3.45	3.63	3.52
Fungicides (2)	0.00	0.00	0.00	0.00	0.00	1.94	3.33	2.45
Other Chemicals (2)	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.08
Custom Applications	7.00	28.00	21.00	7.00	7.00	14.00	10.00	12.53
Diesel Fuel (3)	6.04	14.38	10.78	10.92	11.59	9.64	9.66	9.65
Repairs & Maintenance	14.27	16.91	16.63	16.18	16.52	15.58	15.82	15.67
Irrigation Energy Costs	6.26	2.63	15.81	14.43	15.81	10.28	7.82	9.37
Labor, Field Activities	6.85	9.67	7.67	7.54	8.27	7.06	6.77	6.95
Interest	3.43	6.67	5.19	4.15	5.56	4.89	4.47	4.74
Other Inputs & Fee, Pre-harvest	15.18	15.18	15.18	15.18	15.18	15.02	14.73	14.91
Post-harvest Expenses	10.05	20.58	24.94	21.80	14.59	19.15	22.78	20.49
Custom Harvest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Operating Expenses</b>	<b>167.57</b>	<b>327.16</b>	<b>263.32</b>	<b>212.27</b>	<b>269.98</b>	<b>243.84</b>	<b>228.06</b>	<b>238.02</b>
<b>Returns to Operating Expenses</b>	<b>216.81</b>	<b>493.95</b>	<b>690.60</b>	<b>621.61</b>	<b>374.90</b>	<b>511.40</b>	<b>657.81</b>	<b>565.34</b>
Capital Recovery & Fixed Costs	67.66	99.23	80.65	95.40	91.60	80.75	79.50	80.29
<b>Total Specified Expenses</b>	<b>235.23</b>	<b>426.39</b>	<b>343.97</b>	<b>307.67</b>	<b>361.58</b>	<b>324.58</b>	<b>307.56</b>	<b>318.31</b>
<b>Returns to Specified Expenses</b>	<b>149.15</b>	<b>394.72</b>	<b>609.95</b>	<b>526.21</b>	<b>283.31</b>	<b>430.66</b>	<b>578.32</b>	<b>485.06</b>
Operating Expenses/Yield Unit	5.57	5.09	3.53	3.25	5.35	4.33	3.35	3.97
Total Expenses/Yield Unit	7.81	6.63	4.60	4.71	7.16	5.76	4.51	5.30
	1. Does not include land costs, management, or other expenses and fees not associated with production.							
	2. Combined as Chemicals in some previous year reports							
	3. Listed as Fuel & Lube in previous year reports							