
University of Arkansas Division of Agriculture

Cotton Research Verification

2010 Annual Report



Arkansas **ROW CROP VERIFICATION**



Table of Contents

Authors and Acknowledgments	1
Location of 2010 Cotton Research Verification Program Fields	2
Introduction and Objectives	3
Methods and Materials	4
2010 Field Information	4
2010 Growing Season	5
Individual Field Reviews	
Clay County	5
Desha County	6
Lincoln County	7
Mississippi County	9
Phillips County	10
Economic Analysis	11
Appendix – Tables	13

Cotton Research Verification Program 2010 Annual Report

Authors

Blake McClelland	Program Associate - Cotton	<i>CRVP Coordinator</i>
Dr. Tom Barber	Extension Agronomist - Cotton	<i>CRVP Leader</i>
Dr. Archie Flanders	Agricultural Economist	<i>Economic Analyst</i>

Acknowledgments

Cooperating Producers

Russ Brewer
Jim Hicks
Gary Dejarnette
Shaun Simpson
Donnie Edwards

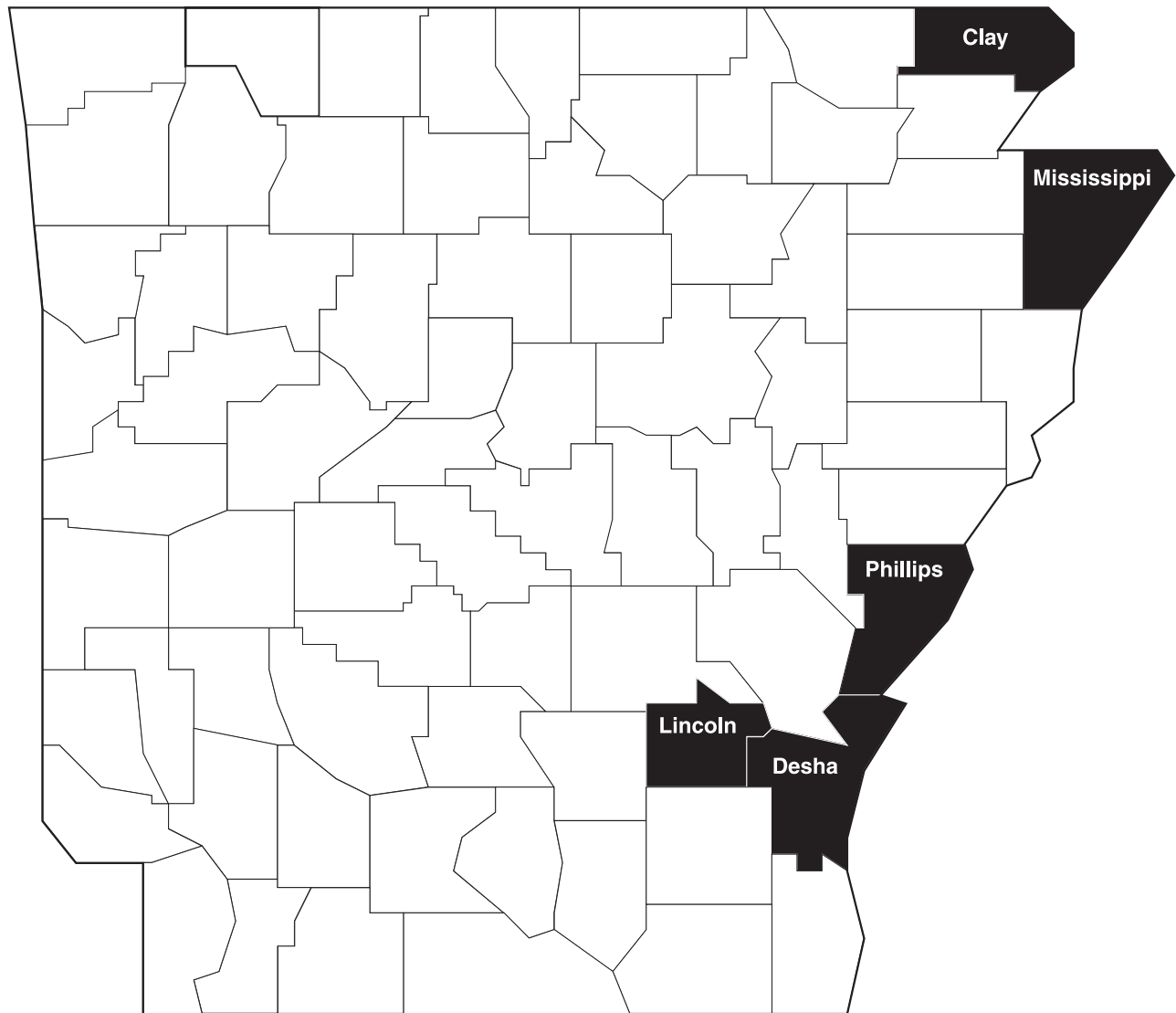
Participating Extension Agents

Andy Vangilder – Clay County
Tyson Privett – Mississippi County
Robert Goodson – Phillips County
Andrew Hood – Desha County
Steven Stone – Lincoln County

Cooperative Extension Service

Tom Barber – Extension Cotton Agronomist
Ken Smith – Extension Weed Scientist
Gus Lorenz – Associate Department Head/Extension Entomologist
Glenn Studebaker – Extension Entomologist
Scott Akin – Extension Entomologist
Scott Monfort – Extension Plant Pathologist
Cliff Coker – Extension Plant Pathologist
Archie Flanders – Extension Economist
Martha Sartor – Delta District Director
Leo Espinoza – Extension Soil Scientist

FIGURE 1. Location of 2010 Cotton Research Verification Fields



Cotton Research Verification Program 2010 Annual Report

Introduction

The University of Arkansas Division of Agriculture has been conducting the Cotton Research Verification Program (CRVP) since 1980. This is an interdisciplinary effort in which recommended Best Management Practices and production technologies are applied in a timely manner to a specific farm field. Since the inception of the CRVP in 1980, there have been 241 irrigated fields entered into the program. Producers are asked what they would like to improve in their current operation and then a field is chosen that fits a standard model of the producer's operation and requires the necessary recommendations to improve the farm. Proven research recommendations are provided by university researchers. The producer agrees to apply the necessary recommendations in a timely manner. There were five fields enrolled in the 2010 CRVP; one was pivot irrigated and the other four were furrow irrigated. The fields were located from Desha County in the southeast part of the state to Clay County in the northeast part of the state.

The field size for the 2010 CRVP ranged from 40 acres (Clay, Lincoln) to 75 acres (Mississippi). The average yield of the five fields in this year's CRVP was 1,324.6 pounds of lint per acre. The average yield in Arkansas in 2010, according to the USDA, was 1,049 pounds/acre, and the average U.S. yield in 2010 was 814 pounds/acre.

Warm temperatures in the spring resulted in an earlier planted crop. The average planting date for the CRVP was May 4 with planting dates ranging from April 15 in Desha County to May 15

in Mississippi County. A hot, dry summer resulted in early maturity for the state's crop. The average date of cut-out (Node-Above-White-Flower 5) in the CRVP was July 27. The dry weather persisted into the fall, allowing for good harvest weather. All of the verification fields were harvested by the end of October. The hot, dry weather did have an impact on the cotton quality, particularly in the area of micronaire (mic) with some fields reaching the discount range.

Objectives

The Cotton Research Verification Program objectives are to:

1. Conduct on-farm field trials to verify the utility of research-based recommendations with the intent of optimizing potential for profits.
2. Educate cotton producers with timely management decisions through Best Management Practices and Integrated Pest Management.
3. Develop an on-farm database for use in economic analyses and computer-assisted management programs.
4. Aid researchers in identifying areas of production requiring further study and improve or refine existing recommendations which contribute to profitable cotton production.
5. Increase county Extension agents' expertise in cotton production.

- Utilize and incorporate data and findings from the CRVP into Extension educational programs at the county and state levels.

The CRVP is a highly successful demonstration of the importance of timely management decisions and incorporation of new technology into cotton production. It also serves as an excellent training tool for county Extension agents to learn more about cotton production. Contributing to the success of the program is the commitment of Extension and Research personnel, grower cooperation, the program organization, planning and implementation, and the close attention to program objectives. The CRVP allows participants to manage field situations that are not always conducive to maximum economic yield. The program also allows demonstration of alternative production systems for problem or yield-limiting situations encountered in grower fields.

Methods and Materials

Annually, a committee comprised of University of Arkansas Research and Extension personnel meet and agree on recommended programs and management options to be used in the current program. The committee is broad based with Research and Extension each having at least one representative from each subject-matter area. The committee members also serve as advisors during the growing season. The CRVP coordinator is responsible for implementing recommendations on the CRVP demonstrations in-season.

Cooperators are chosen by the county Extension staff and approved by the CRVP coordinator. The cooperator agrees to manage the field for two years using research-based recommendations as directed by the CRVP coordinator and county Extension agent. Field visits are conducted weekly by the verification coordinator and the county agent during the production and harvest period. A designated

county Extension agent in each county collects field data twice weekly and maintains regular contact with the CRVP coordinator and cooperator. An area farm management specialist summarizes the economic analysis on each field through use of field operations data collected during the season.

Twice weekly insect scouting is performed during the season using the Cooperative Extension Service whole plant search method. Irrigation scheduling and plant monitoring data are collected and updated at least once a week. Plant monitoring is evaluated through the use of COTMAN.

2010 Field Information

General information regarding location, variety, soil series, planting date, previous crop, acres per field and yield are included in the following table. The average field size was 57 acres over the five fields in the 2010 verification project.

Soil type varied across all five locations. Three locations (Desha, Lincoln and Mississippi) had lighter silt and sandy loam type soils while the other two locations (Clay and Phillips) had heavier soils with increased clay content. Soil analysis was performed for each location to gain information about the fertility program needed for each field. Nematode analysis was also performed to gather information on the species and number of nematodes in each field.

The University of Arkansas recommends a final plant density of 3 to 3.5 plants per row foot. Each of the verifications achieved a final plant population of 3 except for Mississippi County, which had a plant density average of 2.87 plants per row foot, and Desha County, which had a lower plant density average of 2.37 plants per row foot. However, it should be noted that the Desha County verification field was planted with a variable rate planter.

Variety, Soil Series, Previous Crop, Acreage and Lint Yield in the 2010 Cotton Verification Program by County

County	Variety	Soil Series	Previous Crop	Acreage	Lint Yield
Clay	ST 4288B2F	Falaya-Amagon	Soybeans	40	1194
Desha	DPL 0912 B2RF	Sharkey-Desha	Cotton	60	1599
Lincoln	DPL 0912 B2RF	Rilla-Herbert	Cotton	40	1236
Mississippi	DPL 0912 B2RF	Amagon-Dundee	Cotton	75	1399
Phillips	DPL 0912 B2RF	Calloway-Loring	Soybeans	70	1070
Average				57	1299.6

2010 Growing Season

Ideal growing conditions existed throughout the state during planting. Warm temperatures and good soil moisture during the month of April encouraged early planting in the southern part of Arkansas. By May 14, 56 percent of Arkansas cotton acres had been planted according to the Arkansas Agricultural Statistics Service. At this time, all of the cotton verification fields had been planted except for the Mississippi County field, which was planted on May 15. Soon after planting, dry weather set in, and some fields did not receive any rainfall for several weeks. Irrigation started early with most fields having their first irrigation by June 20. As the hot weather persisted into the summer, cotton developed quickly, and many fields were cut-out (NAWF 5) by the end of July. This allowed for early maturity of cotton fields across the state and in the verification program. Harvest was also completed early this year with all of the verification fields being harvested by the end of October.

Plant bug numbers were high this year, and insecticide applications were made starting around June 15. Fields in the verification program were treated an average of three times for plant bugs. Bollworm pressure was high and caused a problem in some parts of the state, so treatments had to be made to control the high populations. The Lincoln County verification field had to be sprayed for bollworms twice, with an application

made solely for bollworms even though Bollgard technology was planted.

Glyphosate-resistant pigweed pressure was present throughout the state again this year. The Phillips County field had the worst pigweed pressure of all of the verification fields. However, the field was managed by using residual herbicides. Glyphosate-resistant horseweed (aka Marestalk) was not a problem in any of the verification fields this year due to an appropriate burndown program with the use of residual herbicides. Morningglory was also present and was difficult to control in many of the fields.

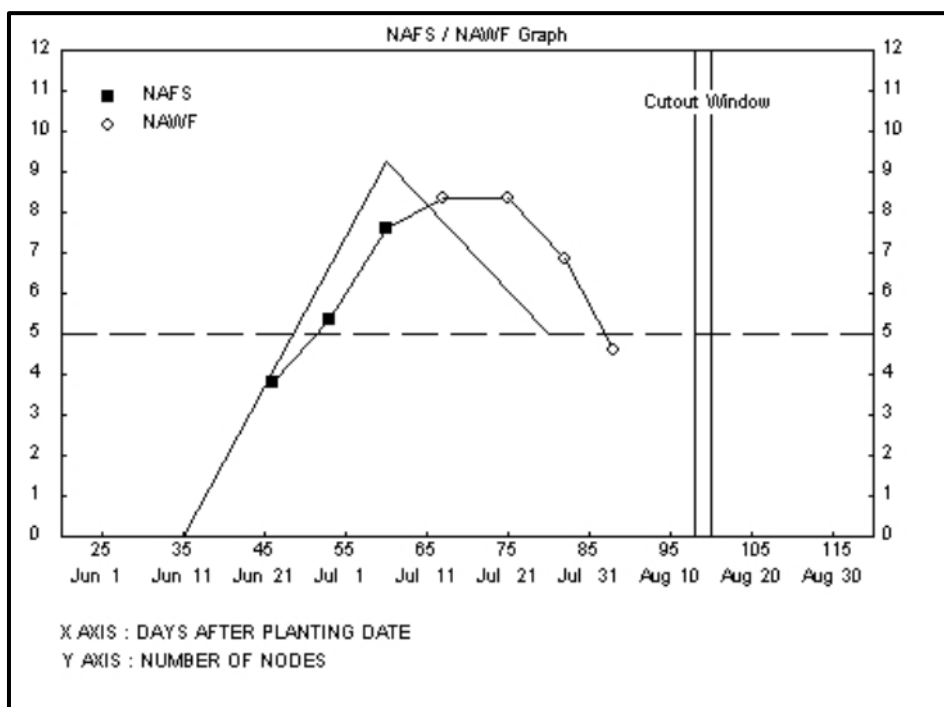
Results and Discussion

Clay County

The Clay County field involved a relatively new producer with an experienced county agent. The county agent wanted to work with the producer on using University of Arkansas recommendations in his management decisions. The producer was also interested in learning the best times for irrigation and insecticide termination.

The field had previously been planted in soybeans. A springtime burndown of glyphosate was applied followed by tillage and bed establishment. Preplant fertilizer was applied (0-20-80-5_S-1.5_P). The field was planted with ST 4288B2F on May 7 and was fully emerged by

Clay County (COTMAN Curve)



May 16. The final plant population was 43,101 plants per acre. Two hundred pounds of urea (46-0-0) were applied to the field to give a total of 92 units of nitrogen.

The field was off to a good start, and an application of 32 oz of Sequence was applied to control the growing weeds and to provide residual protection from pigweed as well as other weeds. This application worked well, and only one application of Roundup Powermax and one additional application of Roundup Powermax and Staple were needed the rest of the season.

Insect pressure in this field was moderate and consisted of three applications to control plant bugs throughout the season. This field responded well to the fertilizer and timely irrigations that it received.

Moving into the fall the field looked good and yielded 1,194 lint lbs/A, which was about 100 lbs

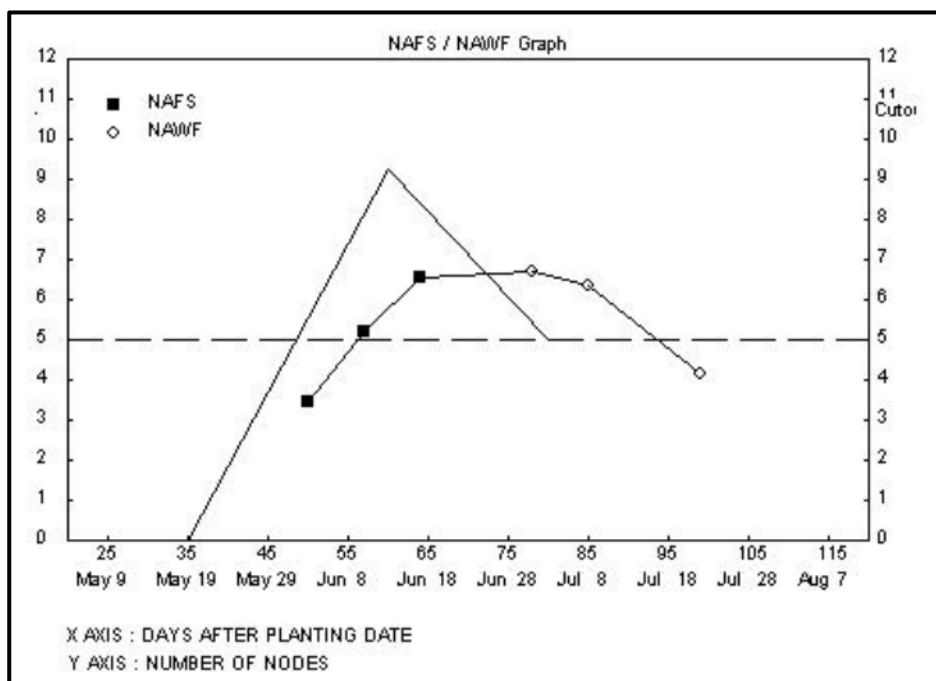
less than the mean for the 2010 verification program. The Clay County field had the highest total costs of the five verification fields with a total of \$662.68 per acre. Total returns were \$232.82.

Desha County

Fall tillage disked under the entire residue from the previous year's cotton crop. The beds were re-established and then rolled prior to planting. Preplant fertilizer was applied consisting of 0-30-90-10_s. Good weather provided for early planting, and the crop was planted in DPL 0912 B2RF on April 14. Due to no burndown being used, there was some ryegrass present in the field, and to prevent any damage to cutworms, Ammo was applied at planting.

The crop got off to an excellent start thanks to the continuing warm weather and some rain that was received soon after planting. An application of 32 oz of glyphosate was used to control weeds

Desha County (COTMAN Curve)



early in the growing season. Another application of glyphosate plus Dual was applied about three weeks later, which suppressed the weed pressure until the crop could reach full canopy.

Two hundred lbs/A of urea (46-0-0) were applied to the field to give a total of 92 units of nitrogen. It was applied in a split application of 100 lbs each two weeks apart. A small rain shower occurred immediately after the first application, and the cotton was able to take up the nitrogen in a timely manner. Irrigation followed the second application of urea.

Insect pressure was also moderate in this field compared to cotton fields in the surrounding area. Only three insecticide applications had to be made, and all were for plant bugs.

The crop was in excellent condition going into the month of August thanks to the warm weather and timely irrigations. The field reached cut-out

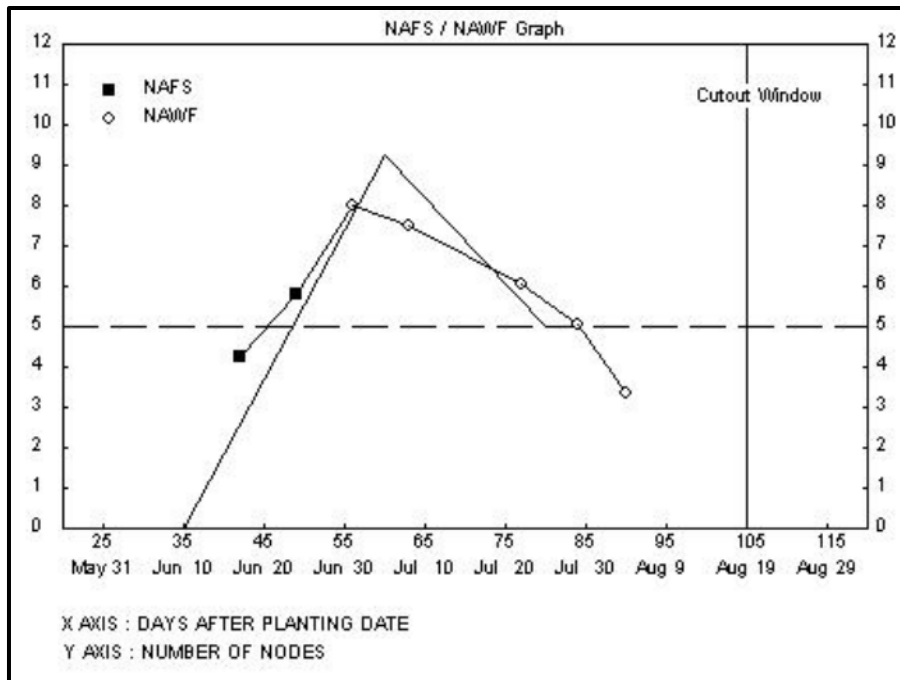
on July 17. It was defoliated on August 19 and August 28 using a tank-mix of Dropp, Folex and Prep for the first application and Folex and Prep for the second application. The Desha County field was the highest yielding field in the program, reaching 1,599 lint lbs/A. The Desha County verification field had the lowest total costs of \$531.34 and also the highest total return of \$667.91.

Lincoln County

The producer who farmed the Lincoln County field wanted to use the verification program as a way to gauge his current management practices to the cotton production recommendations of the University of Arkansas Division of Agriculture.

The Lincoln County field was worked in the early spring to reduce the amount of winter weeds, and new beds were established. Preplant fertilizer was applied consisting of 0-30-90. The

Lincoln County (COTMAN Curve)



field was planted in DPL 0912 at a rate of 43,000 seed/A. The final plant population was 41,725. The field received split applications to a total 97 units of nitrogen in a timely manner. The first application consisted of 75 pounds of urea and 50 pounds of ammonium sulfate. The second application came 12 days later and consisted of 115 pounds of urea.

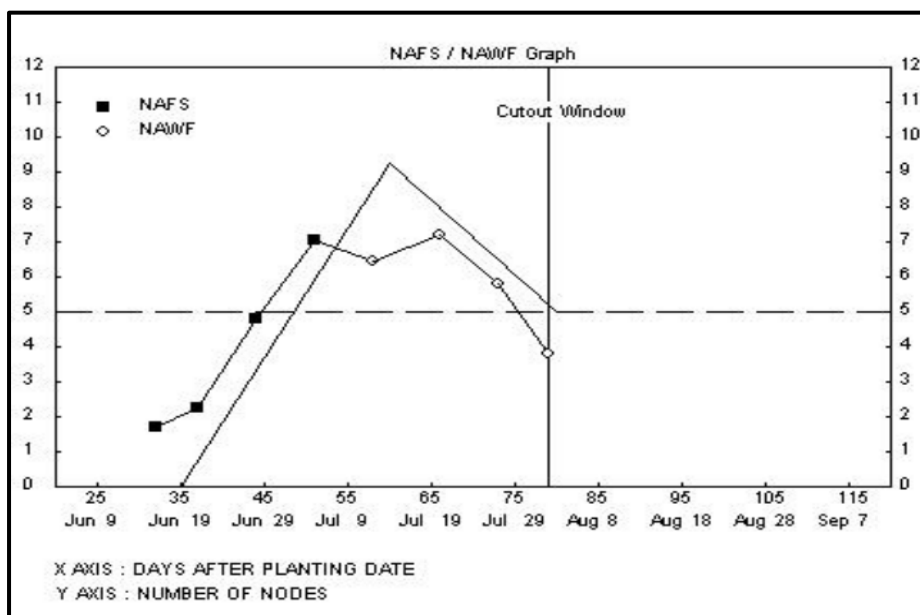
Roundup Ultramax (22 oz/A) and Me-Too-Lachlor (32 oz/A) were sprayed at rates of contact and residual weed control. A second application of Roundup Ultramax (22 oz/A) and Staple (1.5 oz/A) was applied for grass and morning-glory control. A final application of glyphosate (32 oz/A) and Envoke (0.15 oz/A) was applied at lay-by to control some morningglory that had emerged.

Insect pressure was high in the Lincoln County field and heavier than all of the other fields in the verification program. The field had to

be treated three times for plant bugs alone, once for plant bugs and bollworms, and once for bollworms alone. Although each application reduced plant bug pressure, overwhelming plant bug numbers caused the need for repeated applications. The heavy plant bug numbers were high given the fact that the field was not in close proximity to a corn field, which can increase plant bug populations.

The field was extremely dry, and no rain was received from planting until several weeks into the growing season. Irrigations were made in a timely manner, and the field produced an average of 1,236 lbs/A, which was only 63 lbs/A off the verification average of 1,299 lint lbs/A. The grower was pleased with the results and determined that the recommendations provided by the university were not far off the practices he was using. The Lincoln County verification field had total costs of \$638.57. The field had a total return of \$ 288.43.

Mississippi County (COTMAN Curve)



Mississippi County

The Mississippi County field combined an experienced cotton farmer who had a desire to improve his management practices to achieve maximum yield while controlling costs and a new county agent with little cotton experience. The effort in this field was to teach the new agent and the farmer about the university's recommendations.

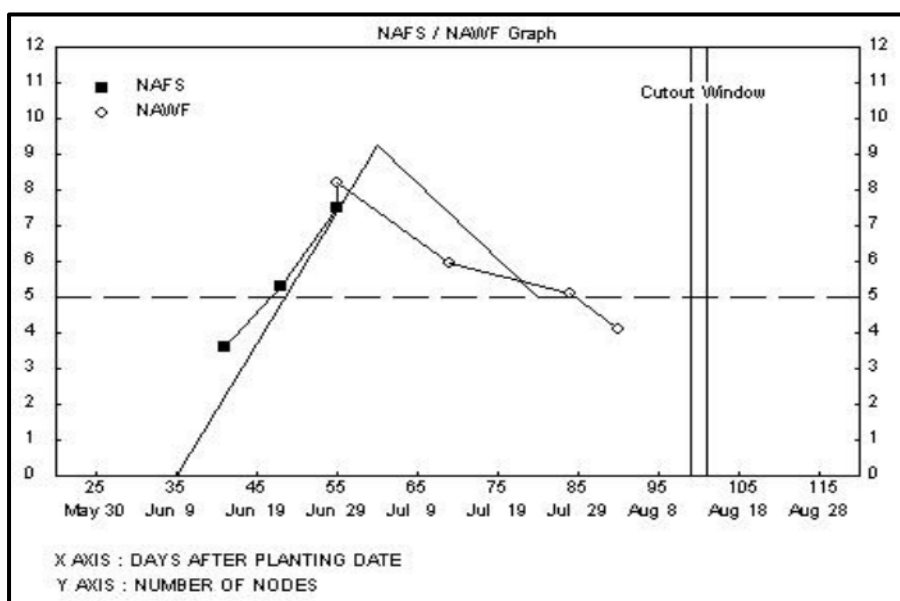
The field was bedded, ripped and re-bedded. Preplant fertilizer was applied consisting of 205 lbs of 6-10-29-7_s. The field was planted in DPL 0912 at a rate of 9 lbs of seed/A. The final plant population was 39,433 plants per acre. A total of 93 units of nitrogen was applied to the field.

Cotoran (20 oz/A) and Parallel (metolachlor) (20 oz/A) were applied at planting for weed control. The field was very sandy, and the potential for nematodes was high, so 3.5 lbs/A of

Temik was also applied at planting for nematode suppression. An application of glyphosate (32 oz/A) and Parallel (20 oz/A) followed about two weeks later. Ignite was applied under row hoods to control some glyphosate-resistant pigweed that had emerged. A lay-by application of glyphosate (32 oz/A) and Valor (1.33 oz/A) was applied at lay-by, and the field was hand-weeded to remove the Palmer pigweed escapes.

Plant bug pressure was moderate in this field, only reaching treatment threshold three times. Two of the applications came later in the season during the bloom period. Overall this field got off to a good start and received a couple of timely rains early followed by an extended dry and hot period. The nitrogen was applied in liquid form, but there was not enough moisture to activate it and move the nitrogen into the soil solution. Irrigation was started to alleviate some of the stress; however, the water furrows were not consistent with furrows in which the nitrogen was placed. The cotton was unable to take up the

Phillips County (COTMAN Curve)



nitrogen for almost a month before a rain moved the nitrogen into the soil solution. Growth regulator was held off until the plants were able to take up the nitrogen and recover from the stress.

This field matured quickly due to the great amount of heat units that were accumulated in a short amount of time. Most days at least 25 heat units were collected with as many as 32 recorded. Cotton cannot efficiently use more than 25 heat units a day, so only that amount was used when making decisions that were based on heat unit accumulation such as insecticide and irrigation termination. The field looked good going into the month of September and was defoliated using 8 oz/A of Setup (ethephon) and 1.5 oz/A of Detach (thidiazuron) on the first trip and 8 oz/A Folex and 40 oz/A Setup on the second trip. The field yielded well with an average yield of 1,399 lint lbs/A, which was 100 lbs over the verification program average.

Phillips County

The Phillips County field was an opportunity to teach a relatively new cotton farmer about the University of Arkansas' cotton production recommendations. The Phillips County agent wanted to work with the producer on timeliness of herbicide applications with a focus on resistant pigweed management.

The field was disked twice, and new beds were established. Reflex was applied after the beds were knocked down; however, heavy rains washed much of the herbicide off the beds and into the middles. Eighty units of nitrogen and 60 units of potassium were applied to the field preplant. The field was planted in DPL 0912 B2RF. The final plant population was 47,381 plants/A. This field was pivot irrigated, so some of the dry corner areas suffered during the hot, dry periods of the summer.

Weed control was a challenge in this field due to timing issues. Glyphosate was recommended for control of pigweed, sicklepod and emerged grasses; however, before any applications could be made, a heavy rain came into the area and the field was too wet to spray. Another rain followed before the field dried enough for an application to be made, and weed pressure became heavy. The field was beginning to get out of control when the grower was finally able to get the whole field sprayed with Roundup Powermax at a rate of 22 oz/A. The producer plowed the field twice and sprayed a tank mix of Roundup Powermax (22 oz/A) and Direx (24 oz/A). The field canopied over soon after, and the weeds were finally under control. The grower stated that he didn't know he had such a glyphosate resistance issue and that he now knows the advantages of timely applications to control the resistant pigweed problem. Although most of the resistant pigweed was controlled, some did make it to seed and will have to be managed in the following year.

An increase in the COTMAN curve was noticed between the last NAFS (Node Above First Square) and the first NAWF (Node Above White Flower) measurement. The last NAFS count was taken during a dry period that was followed by a rain. The first NAWF measurement was then taken. The increase was correlated with some sudden growth in the field and was managed by an application of Mepex.

Insect pressure was moderate in this field, and it was only sprayed three times, all for plant bugs. Table 5 in the Appendix shows the materials and the rates used for all insecticide applications that were made. The field looked good going into September and was defoliated using the two-shot method. The first shot consisted of Dropp (1.6 oz/A) and Prep (8 oz/A), and the second was a tank mix of Prep (32 oz/A) and Aim (1 oz/A). The field yielded 1,070 lbs/A, which was the lowest in the verification program, but can be attributed to the early-season weed pressure that

competed for water and nutrients. The total costs for the Phillips County verification field was \$592.00, and the total return was \$210.50.

Economic Analysis

This section provides information on production costs for the 2010 CRVP. Records of field operations on each field provide the basis for estimating these costs. The field records were compiled by the CRVP coordinator, county Extension agents and cooperators. Production data from the five fields were applied to determine costs and returns above operating costs as well as total specified costs. Operating costs and total costs per pound indicate the commodity price needed to meet each cost type.

Operating expenses 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 the 2010 Crop Enterprise Budgets published by the Cooperative Extension Service and information provided by the 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.

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

Operating costs, total costs, costs per pound and returns are presented in Table 1. Costs in this report do not include land costs, management or other expenses and fees not associated with production. Budget summaries for cotton are presented in Table 2. The price received for cotton of \$0.75/lb is the Arkansas average based on industry contacts. The average cotton yield for verification fields is 1,300 lbs/acre.

The average operating cost for cotton in Table 1 is \$483.54 per acre. Table 2 indicates that seed and associated technology fees are the largest expense category at \$111.12/acre. Chemicals are the second largest expense category at \$97.68/acre. Fertilizers and nutrients average \$91.85/acre.

With average yield of 1,300 lb/acre, average operating costs are \$0.38/lb in Table 1. Operating costs range from a low of \$417.03 in Desha County to a high of \$534.74 in Clay County. Returns to operating costs average \$491.16 per acre. The range is from a low of \$301.22 in Phillips County to a high of \$782.22 in Desha County. Average fixed costs are \$113.11, which leads to average total costs of \$596.65 per acre. Returns to total specified costs average \$378.05 per acre with a low of \$210.50 in Phillips County and a high of \$667.91 in Desha County. Total specified costs average \$0.47/lb.

APPENDIX

TABLE 1.
Operating Costs, Total Costs and Returns for the
2010 Cotton Research Verification Program

County	Operating Costs	Operating Costs Per Lb	Returns to Operating Costs	Total Fixed Costs	Total Costs	Returns to Total Costs	Total Costs Per Lb
Mississippi	445.18	0.32	604.07	113.51	558.69	490.56	0.4
Desha	417.03	0.26	782.22	114.31	531.34	667.91	0.33
Clay	534.74	0.45	360.76	127.93	662.68	232.82	0.56
Lincoln	519.46	0.42	407.54	119.1	638.57	288.43	0.52
Phillips	501.28	0.47	301.22	90.71	592	210.5	0.55
Average	483.54	0.38	491.16	113.11	596.65	378.05	0.47

TABLE 2.
Summary of Revenue and Expenses in Dollars Per Acre for the
2010 Cotton Research Verification Program

Receipts	County					Average
	Mississippi	Desha	Clay	Lincoln	Phillips	
Yield (lb)	1399	1599	1194	1236	1070	1300
Price Received	0.75	0.75	0.75	0.75	0.75	0.75
Total Crop Revenue	1049.25	1199.25	895.5	927	802.5	974.7
Cottonseed Value	170.68	195.08	145.67	150.79	130.54	158.55
Operating Expenses						
Seed & Technology Fees	110.84	112.5	99.77	107.50	125.00	111.12
Fertilizers & Nutrients	85.18	96.70	91.90	103.46	82.00	91.85
Chemicals	106.41	79.01	102.39	122.69	77.91	97.68
Custom Applications	3.73	13.00	55.00	26.00	104.4	40.43
Fuel & Lube	24.85	27.84	33.24	30.81	19.34	27.22
Repairs & Maintenance	26.10	24.72	29.83	27.39	11.52	23.91
Irrigation Energy Costs	41.34	23.62	70.87	59.06	53.82	49.74
Labor, Field Activities	16.90	16.46	19.85	17.01	7.66	15.57
Other Inputs & Fees, Pre-Harvest	29.83	23.17	31.91	25.55	19.63	26.02
Post-Harvest Expenses	170.68	195.08	145.67	150.79	130.54	158.55
Net Operating Expenses	445.18	417.03	534.74	519.46	501.28	483.54
Returns to Operating Expenses	604.07	782.22	360.76	407.54	301.22	491.16
Capital Recovery & Fixed Costs	113.51	114.31	127.93	119.1	90.71	113.11
Total Specified Expenses¹	558.69	531.34	662.68	638.57	592.00	596.65
Returns to Specified Expenses	490.56	667.91	232.82	288.43	210.5	378.05
Operating Expenses/lb	0.32	0.26	0.45	0.42	0.47	0.38
Total Expenses/lb	0.40	0.33	0.56	0.52	0.55	0.47

¹Does not include land costs, management or other expenses and fees not associated with production.

TABLE 3.
Variety, Soil Series, Previous Crop, Acreage, Lint Yield in the
2010 Cotton Verification Program by County

County	Variety	Soil Series	Previous Crop	Acreage	Lint Yield
Clay	ST 4288B2F	Falaya-Amagon	Soybeans	40	1194
Desha	DPL 0912 B2RF	Sharkey-Desha	Cotton	60	1599
Lincoln	DPL 0912 B2RF	Rilla-Herbert	Cotton	40	1236
Mississippi	DPL 0912 B2RF	Amagon-Dundee	Cotton	75	1399
Phillips	DPL 0912 B2RF	Calloway-Loring	Soybeans	70	1070
Average				57	1299.6

Summary of Revenue and Expenses per Acre, Cotton Research Verification Program, 2010

TABLE 4.
Stand Density, Seeding Rate, Planting Date, Emergence Date, Cut-Out Date in the
2010 Cotton Research Verification Program by County

County	Stand Density (plants/ row foot)	Plants/ acre	Planting Date	Emergence Date	Cut-Out Date
Clay	3.13	43101	5/7	5/14	8/2
Desha	2.37	32555*	4/15	4/22	7/17
Lincoln	3.03	41725	5/6	5/12	7/30
Mississippi	2.87	39433	5/15	5/20	7/30
Phillips	3.47	47381	5/8	5/16	7/29
Average	2.97	42910	5/4	5/10	7/27

*Desha County field was planted with a variable rate planter.

TABLE 5.
Soil Test Results and Total Applied Fertilizer in the
2010 Cotton Research Verification Program by County

County	pH	P	K	S	Total Applied Fertilizer
	----- Lbs/Acre -----				N-P-K-S-B ¹
Clay	6.4	88*	274*	18	92-20-80-5-1.5
Desha	6.3	78*	286*	18	92-30-90-10-0
Lincoln	6.3	134*	294*	12	97-30-90-12-0
Mississippi	6	77*	283*	13	93-21-60-14-0
Phillips	6.4	56	130	24	80-0-60-0-0

¹Nitrogen-Phosphorus-Potassium-Sulfur-Boron

*Denotes an optimum level according to soil tests.

TABLE 6.
Herbicide, Rates and Timings in the
2010 Cotton Research Verification Program by County

County	Herbicide	Rate (oz/acre)	Timing
Clay	Glyphosate	32 oz	Burndown
	Sequence	32 oz	In-Season
	Round-Up PMX	22 oz	In-Season
	Round-Up PMX	22 oz	In-Season
	Staple	1.5 oz	In-Season
Desha	Glyphosate	32 oz	In-Season
	Glyphosate	32 oz	Lay-By
	Metolachlor	16 oz	Lay-By
Lincoln	Round-Up UMX	21.3 oz	In-Season
	Metolachlor	32 oz	In-Season
	Round-Up UMX	21.3 oz	In-Season
	Staple	1.5 oz	In-Season
	Glyphosate	32 oz	Lay-By
	Envoke	0.15 oz	Lay-By
Mississippi	Parallel	20 oz	Pre-Emerge
	Cotoran	20 oz	Pre-Emerge
	Glyphosate	32 oz	In-Season
	Parallel	20 oz	In-Season
	Ignite	24 oz	In-Season
	Glyphosate	32 oz	Lay-By
	Valor	1.33 oz	Lay-By
Phillips	Reflex	16 oz	Pre-plant
	Round-Up PMX	22 oz	In-Season
	Round-Up PMX	22 oz	Lay-By
	Direx	24 oz	Lay-By

TABLE 7.
Insecticides and Rates in the
2010 Cotton Research Verification Program by County

County	Insecticide	Rate (lbs/oz/acre)
Clay	Centric	2 oz
	Acephate	0.75 lbs
	Bifenthrin	5.3 oz
	Acephate	0.75 lbs
	Bifenthrin	6.4 oz
Desha	Ammo	1.28 oz
	Bidrin	3.2 oz
	Diamond	7 oz
	Vydate	12.8 oz
	Centric	2 oz
	Vydate	12.8 oz
	Diamond	3 oz
Lincoln	Centric	2 oz
	Diamond	6 oz
	Bidrin	6.4 oz
	Tundra	5.12 oz
	Tundra	5.12 oz
	Bracket	1 lb
	Tundra	6.4 oz
Mississippi	Temik	3.5 lbs
	Imidacloprid	1.75 oz
	Acephate	0.75 lbs
	Acephate	0.5 lbs
	Mustang Max	3.2 oz
Phillips	Centric	1.5 oz
	Bidrin	8 oz
	Orthene	0.75 oz

TABLE 8.
Defoliation and Rates in the
2010 Cotton Research Verification Program by County

County	Defoliant	Rates (oz/acre)
Clay	Finish	5 oz
	Dropp	2 oz
	Def	6 oz
	Prep	32 oz
Desha	Dropp	2 oz
	Folex	6 oz
	Prep	6 oz
	Folex	8 oz
	Prep	32 oz
Lincoln	Dropp	2.1 oz
	Folex	4 oz
	Prep	5.3 oz
	Dropp	1.6 oz
	Prep	42.7 oz
Mississippi	Prep	8 oz
	Dropp	1.5 oz
	Prep	40 oz
	Folex	8 oz
Phillips	Dropp	1.6 oz
	Prep	8 oz
	Prep	32 oz



Printed by University of Arkansas Cooperative Extension Service Printing Services.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.