



DIVISION OF AGRICULTURE
RESEARCH & EXTENSION

University of Arkansas System

Cotton Research Verification Program

2014 Annual Report



Cotton
Incorporated

Arkansas

ROW CROP VERIFICATION



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Cotton Research Verification Program – 2014 Progress Report

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Abstract

The Cotton Research Verification Program (CRVP) trains cotton growers and County Extension Agents in all aspects of cotton production by utilizing the latest technology and research-based recommendations. The program seeks to accomplish multiple goals: to demonstrate to producers that University of Arkansas cotton management recommendations developed from small-plot research are applicable to large-scale field applications and provide optimum yields and economic returns; to evaluate the current University of Arkansas cotton management recommendations for completeness and determine where weaknesses in knowledge or information exists and further research is warranted; to train new County Extension Agents in cotton production and provide experiences that will benefit the agent in his overall county programming with respect to cotton production.

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 261 irrigated fields entered into the program. The CRVP has experienced increased irrigated cotton yields over those of the state irrigated average. While this increase could be attributed to many factors, education certainly played a role. The success of the cotton program spawned verification programs in rice, soybeans, wheat and corn in Arkansas and other states in the Mid-South.

Procedures

Six fields at two locations comprised the CRVP locations in 2014. Each field was entered into the Field to Market Fieldprint Calculator. Sustainability metrics from the 2014 season will help serve to establish benchmark for successive years as sustainability efforts will be a major part of the program for 2015.

The fields ranged in size from 11.0 acres to 41 acres. Irrigation methods included furrow, pivot and sub-surface drip. The program was conducted under various tillage systems, irrigation regimes, soil types and environmental conditions. The diversity of the fields in the program reflected cotton production in Arkansas.

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The program provided training and guidance in the areas of fertility, variety selection, pathology, weed science, entomology, engineering, and cotton physiology. Field records were maintained and economic analyses were conducted at seasons end to determine net return/A for each field and the program.

Results and Discussion

The 2014 growing season began with a cooler than normal April delayed planting across the state. Very little cotton planting occurred in April. The vast majority of the crop in the state was planted the first half of May. A cooler and wetter spring extended into July with July being one of the coolest and wettest on record. Favorable conditions extended through the remainder of the growing season. These conditions helped Arkansas producers set a new yield per acre record of 1,193 pounds of lint per acre. Plant bug numbers were moderate this year and insecticide applications were made for this pest. Fields in the verification program were treated an average of 3.2 times for plant bugs. Bollworm pressure was light and averaged 0.67 treatments per field. Glyphosate resistant pigweed pressure was present throughout the state again this year. Residual herbicides were used to deter pigweed germination and escapes were hand weeded to reduce the amount of viable pigweed seed in the soil seed bank.

Records of field operations on each field provide the basis for estimating expenses. Production data from the 6 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 costs type. 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. Price received for cotton of \$0.62/lb. is the estimated Arkansas annual average for the 2014 production year. Average cotton yield for all verification fields is 1,298 lb. per acre.

Average operating costs for cotton in Table 1 and Table 2 are \$465.73 per acre. Table 2 indicates that chemicals are the largest expense category at \$148.55/acre. Fertilizers and nutrients are the second largest expense category at \$75.29/acre. Seeds and associated technology fees average \$71.09/acre.

With average yield of 1,298 lb. per acre, average operating costs are \$0.36/lb. in Table 1. Operating costs range from a low of \$417.70 in the St. Francis-Norris field to a high of \$514.96 in the Desha-Wellcot field. Returns to operating costs average \$339.19 per acre. The range is from a low of \$176.34 in the St. Francis-Norris field to a high of \$478.31 in the St. Francis-Causey field. Average fixed costs are \$129.00 which leads to average total costs of \$594.73 per acre. The average returns to total specified costs is \$210.19 per acre. The low is \$85.68 in the St. Francis-Norris field and the high is \$361.13 in the St. Francis-Causey field. Total specified costs average \$0.46/lb.

Practical Application

This program has become a vital tool in the educational efforts of the University of Arkansas. It continues to serve a broad base of clientele including cotton growers, consultants, researchers and County Extension Agents. The program strives to obtain its goals and provide timely information to the Arkansas cotton community.

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Table 1. Operating Costs, Total Costs, and Returns for Cotton Research Verification Program, 2014.

Field	Operating Costs	Operating Costs per lb	Returns to Operating Costs	Total Fixed Costs	Total Costs	Returns to Total Costs	Total Costs per lb
St. Francis-Causey	450.32	0.30	478.31	117.18	567.49	361.13	0.38
St. Francis-Condors	447.27	0.37	305.20	155.29	602.56	149.91	0.50
St. Francis-Norris	417.70	0.44	176.34	90.66	508.36	85.68	0.53
Desha-Homeplace	483.29	0.34	409.51	134.27	617.56	275.24	0.43
Desha-Shop	480.86	0.37	327.62	132.12	612.98	195.50	0.47
Desha-Wellcot	514.96	0.37	338.16	144.46	659.42	193.70	0.48
Average	465.73	0.36	339.19	129.00	594.73	210.19	0.46

Table 2. Summary of Revenue and Expenses per Acre for Cotton Research Verification Program, 2014.

Revenue/Expenses	Field						Average
	St. Francis-Causey	St. Francis-Condors	St. Francis-Norris	Desha-Homeplace	Desha-Shop	Desha-Wellcot	
Revenue							
Yield (lb)	1,498	1,214	958	1,440	1,304	1,376	1,298
Price (\$/lb)	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Total Crop Revenue	928.62	752.47	594.04	892.80	808.48	853.12	804.92
Cottonseed Value	180.48	146.25	115.45	173.52	157.13	165.81	156.44
Expenses							
Seed	67.69	67.69	67.69	67.69	67.69	88.09	71.09
Fertilizers & Nutrients	89.89	88.12	79.53	64.74	64.74	64.74	75.29
Herbicides	68.86	66.89	92.33	60.26	60.26	60.26	68.14
Insecticides	23.43	28.91	33.44	78.76	78.76	78.76	53.67
Other Chemicals	18.52	20.84	18.37	34.23	34.23	34.23	26.73
Custom Applications	6.00	6.00	18.00	0.00	0.00	0.00	5.00
Diesel Fuel	28.07	32.73	18.54	48.71	47.33	53.68	38.18
Repairs & Maintenance	35.60	41.04	28.61	39.72	39.17	43.67	37.97
Irrigation Energy Costs	37.44	28.44	5.37	22.47	22.47	22.47	23.11
Labor, Field Activities	10.72	11.00	5.36	28.09	27.65	29.70	18.75
Other Inputs & Fees, Pre-harvest	64.08	55.62	50.46	38.63	38.58	39.37	47.79
Post-harvest Expenses	180.48	146.25	115.45	173.52	157.13	165.81	156.44
Custom Harvest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Operating Expenses	450.32	447.27	417.70	483.29	480.86	514.96	465.73
Returns to Operating Expenses	478.31	305.20	176.34	409.51	327.62	338.16	339.19
Land Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital Recovery & Fixed Costs	117.18	155.29	90.66	134.27	132.12	144.46	129.00
Total Specified Expenses ¹	567.49	602.56	508.36	617.56	612.98	659.42	594.73
Returns to Specified Expenses	361.13	149.91	85.68	275.24	195.50	193.70	210.19
Operating Expenses/lb	0.30	0.37	0.44	0.34	0.37	0.37	0.36
Total Expenses/lb	0.38	0.50	0.53	0.43	0.47	0.48	0.46

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