

**THE ECONOMICS OF GROWING COTTON IN  
THE COTTON RESEARCH VERIFICATION  
TRIALS (CRVT), ARKANSAS COOPERATIVE  
EXTENSION SERVICE, 1992-1996;  
A FIVE YEAR REVIEW  
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**Abstract**

The Cooperative Extension Service, University of Arkansas, has conducted Cotton Research Verification Trials (CRVT) since 1980 in cooperator fields across the state. Since 1985 economic analysis have been made for each CRVT field enrolled in the program. With the changes made in the farm bill of 1995, many cotton producers have had to re-think their economic justification for growing cotton.

A comparison of the five year economic analysis of the CRVT program is being shown here to show the trend in economics Arkansas (and possibly nationally) cotton producers are currently facing.

**Introduction**

Changes in the 1995 Farm Bill have made deficiency payments to cotton producers a thing of the past. With these changes have come lower prices for cotton lint from buyers. Therefore, lenders and cotton producers are more aware and more concerned about the cost of cotton production.

A yearly comparison is made in the CRVT economic analysis of both per acre costs and break-even costs per pound of lint for each field and for the average of all fields.

The CRVT trials in Arkansas have historically had higher yields than the state-average cotton yield and irrigated CRVT fields have also yielded higher than the state-average for irrigated cotton. Even though this is true, a comparison of year-to-year economic analysis can show the trend of Arkansas cotton profitability.

The economic analysis each year is made on all CRVT fields-both irrigated and non-irrigated. The weighted average analysis includes both irrigated and non-irrigated production except in 1992 and 1993.

**Discussion**

**Irrigated CRVT Fields**

The 1992 growing season was unusual and even toward mid-September looked to be disastrous. By the end of harvest, however, a new state record yield of 823 pounds lint per acre was recorded. The CRVT weighted average yield was calculated to be 917 pounds lint per acre on eight irrigated fields. The 1992 CRVT yields ranged from 525 pounds to 1300 pounds lint/A.

Total specified costs ranged from \$326.57 to \$489.47/A with an average of \$413.39 on the eight fields (Table 1). Break-even price above total specified cost ranged from \$0.31 to \$0.62 per pound with an average of \$0.47 (Table 2).

The 1993 CRVT yield average was the lowest in the history of the program but exceeded state average yields by almost 200 pounds of lint per acre. Per acre costs on the nine irrigated fields ranged from \$391.44 to \$497.24 with an average of \$449.82 per acre. Break-even costs ranged from \$0.34 to \$0.76 per pound of lint with an average of \$0.46 per pound.

**Irrigated and Non-irrigated CRVT Fields**

In 1994 another new state record cotton yield was harvested at 876 pounds lint per acre. The ten fields in the CRVT program averaged 1057 pounds per acre. Total specified expenses of the CRVT fields ranged from \$320.24 to \$462.92 per acre with an average of \$371.01. Break-even cost averaged \$0.35 per pound of lint with a range from \$0.28 to \$0.43 per pound.

By the end of 1995 Arkansas cotton growers had faced a disastrous state average yield of only 635 pounds per acre. The state average irrigated yield was calculated to be only 758 pounds per acre while the CRVT yields across nine irrigated fields averaged 842 pounds. The low yields were compounded by high insecticide costs in many fields and especially those in Southern Arkansas and one in Central Arkansas where tobacco budworms became a problem in August.

Per acre cost of production in 1995 averaged \$423.05 and had a range of \$309.82 up to \$481.11. The breakeven costs ranged from \$0.36 to \$0.67 per pound with an average of \$0.53

Cotton got off to a rapid start in 1996 due to an unusually warm spring. At harvest time the state averaged 793 pounds of lint per acre and irrigated acres averaged 841 pounds. In the CRVT program an average of 903 pounds of lint was reported in the ten fields, which included an 847 pound average in the only non-irrigated field in the program.

Total specified expenses for the 1996 CRVT fields ranged from \$345.79 to \$462.96 with a per acre average of \$392.83

across all irrigated and dryland fields. Break-even cost per pound of lint averaged \$0.44 with a range of \$0.36 to \$0.70.

### Variation in Cost of Production

The data in Table 2 indicates no clear trend in cost of production. However, a substantial variation in the cost of production per pound is apparent. In four of the five years, the range between the low and the high is at least 30 cents per pound. In many cases the highest cost of production is almost twice that of the lowest. This is due primarily to agronomic factors such as soil type, insect pressure, irrigation and climate. It is also due to differences in management style such as farm equipment, land improvements and timely applications.

Across years, the average cost of production was in the 44 to 47 cent range in three of the five years. Still, when all five years are considered, there is an 18 cent per pound difference between the high (1995) and the low (1994). Extra income gained in the high profit years must be used to make up for income lost in the low profit years.

### Summary

By comparing the 5-year history of the CRVT program in Arkansas it would appear that the per pound costs of production per pound of lint produced has been stable. A significant cost change did occur in 1994 when cotton yield was high and production costs low as compared to other years. Also the 1995 crop with higher than normal input costs and a lower than average yield showed a significant jump in breakeven costs per pound of lint yield.

This supports the premise that “the higher the yield, the lower the cost per pound of production.”

Growers and lenders, however, may be more interested in the per acre costs of production needed to make a cotton crop now that government payments are being phased out. A comparison of the average costs per acre of the 5-year analysis suggests a year effect exists. In years when insect pressure is low, per acre costs are lower than in years when insect costs are higher.

It is interesting to note that of the the low cost fields in this comparison, 40 percent of years non-irrigated fields had the lowest cost per acre.

Table 1. Per Acre Cost of Production <sup>1</sup>; CRVT Fields 1992-1996.

Year	Number of fields	Cost per acre			C R V T yield
		Low	High	Average	
1992	8	362.51	489.47	413.39	917
1993	9	391.44	497.24	449.82	771
1994	10 <sup>2</sup>	320.24 <sup>3</sup>	462.92	371.01	1057
1995	11 <sup>2</sup>	309.82 <sup>3</sup>	481.11	423.05	793
1996	10 <sup>4</sup>	345.79	462.86	392.83	903

1. Excluding land charges.
2. 2 fields were non-irrigated.
3. Field was non-irrigated.
4. One field was non-irrigated.

Table 2. Costs Per Pound of Production <sup>1</sup>; CRVT Fields, 1992-1996.

Year	Costs Per Pound		
	Low	High	Average
1992	\$0.31	\$0.62	\$0.47
1993	\$0.34	\$0.76	\$0.46
1994	\$0.28	\$0.43	\$0.35
1995	\$0.36	\$0.67 <sup>2</sup>	\$0.53
1996	\$0.36	\$0.70	\$0.44

1. Excluding land charges.
2. Non-irrigated field.

### References

- Wells,R.G. and Bonner,C.M., 1992. Results of the Irrigated Cotton Research Verification Trials. AGR 03.
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