

THREE YEARS EXPERIENCE WITH ULTRA-NARROW-ROW COTTON PRODUCTION IN MISSISSIPPI, 1999-2001

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Abstract

A three-year study of 36 commercial ultra-narrow row cotton producers found that the ultra-narrow row cotton system of production generated less total revenue than Mississippi's standard method of production, but produced larger net returns.

Introduction

Researchers in the Department of Agricultural Economics, Mississippi State University, in cooperation with scientists at other locations and other agencies began investigating alternative systems of cotton production during the 1999 production season [Parvin and Cooke 1999; Parvin, Cooke, and Martin]. Initial research efforts focused on no-till cotton production [Parvin and Cooke 2000] and ultra-narrow row cotton (UNRC) production systems [Parvin, Cooke, and Molin].

During the 1999, 2000, and 2001 production season, detailed information on every "trip-over-the-field" was taken from 36 commercial cotton operations that employed UNRC production methods. Actual yields were recorded. The information was utilized to construct per acre budget tables for each of the operations by employing the Mississippi State Budget Generator [Laughlin and Spurlock]. Readers interested in the details of every "trip-over-the-field" are referred to the annual publications [Parvin, Cooke, and Molin; Stephens, et al; Parvin, Martin, and Cooke]. The purpose of this report is to summarize the results of the three-year study.

Methodology

The Department of Agricultural Economics, Mississippi State University, releases estimates of the per acre cost of producing cotton on an annual basis. The department's standard cotton budget is labeled "Solid cotton, sandy soil, 8-row equipment, usual practices, Delta area". During the three-year period, estimated total direct expenses per acre have ranged from \$460.92 to \$485.63. Estimates of equipment fixed costs (labeled fixed expenses) varied from \$78.40 to \$83.91 per acre. The standard budget for 2001 (price of lint = \$0.58 per lb.) is employed to compare net returns above total specified expenses for the standard system of production (8 row-40" solid) [Parvin, et al] and the three-year average for UNRC with the price of lint 4¢/lb. less than the standard or \$0.54. The price of seed is fixed at \$0.05 per pound (1.55 pounds of seed per pound of lint).

Results

Variety type and tillage system is summarized in Table 1 for the sampled UNRC growers. Stacked or BtRR varieties seem to be the current choice of UNRC growers. All UNRC is grown no-till after emergence. In 1999, six of the 13 growers tilled the soil prior to planting. In 2000, three of 11 growers tilled, and in 2001, only one of the growers sampled tilled prior to planting.

Yield

The standard system yield is 825 pounds of lint per acre. In 1999, two of the 13 growers experienced UNRC yields larger than the standard. In 2001, only one UNRC grower outyielded the standard. In 2001, ten of the 12 growers sampled had yields in excess of 825.

Direct Cost

In 1999 and 2001 none of the sampled growers had direct cost as large as the standard. In 2000, one of the 13 UNRC growers experienced direct cost greater than the standard.

Net Returns

In 1999, at \$0.60 per pound of lint, all UNRC growers (13 of 13) had net returns greater than the standard. In 2000, with price of lint = \$0.61, ten of the 13 growers experienced net returns larger than the standard. In 2001, with price of lint = \$0.58 for the standard and \$0.54 for the UNRC, all UNRC growers (12 of 12) had net returns larger than the standard.

Table 2 reports average yield, selected cost items, and net returns for the sampled growers for the three-year period and compares the three-year average to the 2001 standard system of production at \$0.58 per pound of lint for the standard, and \$0.54 for UNRC. On average, the UNRC yield was 47 pounds of lint per acre less than the standard.

When insect control cost is defined as seed cost plus seed technology fee plus insecticide material cost; on average, the UNRC grower spent \$6.86 or 6.9% less than the standard. UNRC growers spent \$17.74 or 35.4% less per acre on fertilizer than the standard.

The trend in herbicide cost per acre is negative for the UNRC growers sampled. In 2001 they spent less per acre on herbicides than the standard. However, over the study period, they spent \$4.72 or 13.2% more per acre on herbicides than the standard.

On average the UNRC system of production spent 45.4% less on operation labor and 71.1% less on fuel. The UNRC system reduced direct expenses by 24.0% and fixed expenses by 46.7% per acre. On average, net returns per acre were \$93.53 per acre larger for the UNRC system than the standard system.

Summary

Even though the UNRC system generated 47 fewer pounds of lint per acre and total revenue was decreased by \$62.02 per acre, it improved net returns per acre by \$93.53 because direct cost and fixed costs were lowered by more than \$150 per acre.

References

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Table 1. Variety type and tillage system, sampled UNRC growers, Mississippi, 1999-2001.

	1999	2000	2001
Variety Type			
BtRR	7	8	9
Bt	2	-	2
RR	-	2	-
BXN	3	-	1
Conv.	1	1	-
Tillage System			
Tilled	6	3	1
No-Till	7	8	11
Sum	13	11	12

Table 2. Yield, selected cost items and returns, two production systems, Mississippi.

Production System	Year	Yield	Seed +		Op.			Fuel	Direct Exp.	Fixed Exp.	Net Returns
			Tech.	Ins.	Fert.	Herb.	Labor				
UNR	1999	697	63.89	18.20	35.23	44.22	9.49	5.33	362.18	50.94	
	2000	704	68.99	31.89	21.62	43.38	10.59	4.47	357.18	43.26	
	2001	934	81.06	11.95	40.47	33.86	7.66	6.92	388.38	40.03	
	Av.	778	71.31	20.68	32.44	40.49	9.25	5.57	369.25	44.74	66.43
Std.	2001	825	9.70	89.15	50.18	35.77	16.94	19.24	485.63	83.91	-27.10