

ECONOMIC ANALYSIS OF ULTRA NARROW ROW COTTON A CASE STUDY, PANOLA COUNTY, MISSISSIPPI, 2000

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Abstract

The popularity of Ultra-narrow row (UNR) cotton due to its potential for higher yields and its reduction on machinery costs has forced this production practice into the spot light of late. Numerous studies have been undertaken comparing UNR cotton to conventional cotton as related to yields, economic feasibility, production, and maintenance. The objective of this study was to compare whole farm returns of Ultra-narrow row no-till cotton, Ultra-narrow row conventional tillage cotton, and an alternative crop of soybeans. Utilizing the MSU Budget Generator program, a case study was conducted in Panola County, Mississippi evaluating costs and yields of these particular crops. With minimal rainfall during the 2000 growing season, both cotton and soybean yields were drastically reduced. Results from these varied crops demonstrated that the soybean crop had a slightly higher net farm income than the UNR cotton crops, although all crops had a negative net return.

Introduction

Secondary to rising production costs and decreasing efficiency, producers are finding it imperative to examine whole farm returns of various crops. Lower cotton prices during the past two seasons combined with the increased costs of inputs, has caused local cotton growers to seek out means to improve profit margins. Recent studies have demonstrated conflicting findings on the economic sustainability of UNR cotton.

The purpose of this project is to evaluate the costs and returns of Ultra-narrow row cotton and develop comparisons between the cost and returns of UNR conventional, UNR no-till, and an alternative crop of soybeans. Results from two field tests in 2000 of UNR cotton conducted throughout Panola County, Mississippi are used to complete the analysis. 1999 production costs and 2000 average yields of soybeans in Panola County, Mississippi were utilized to evaluate the comparison to UNR cotton.

Methods

During the 2000 growing season, cooperating growers kept detailed records of every trip across the field. Information on each operation performed from fall 1999 land preparation through the 2000 harvest was collected on both the conventional UNR field and the no-till UNR field. This information consisted of the type of operation, such as disking, planting, spraying, equipment used in the operation, products used in the operation, and date which the operation was performed. Actual yields were recorded from both UNR no-till and UNR conventional tillage fields. Panola County's 2000 average soybean yield along with 1999 average soybean production costs were utilized to make comparisons for this study. A direct comparison was made between the UNR conventional and the UNR no-till although the crops were planted in different fields on different days. The information collected was used to generate budgets for both UNR conventional cotton and UNR no-till cotton, as well as soybeans.

Findings

2000 was a year with very minimal rainfall. Total rainfall in Panola County during the months of May through October 2000 was 19.87 inches. As a result, crop yields were substantially lower than normal. Estimated cost and expected yield for UNR no-till, UNR conventional till, and soybeans are

listed in Table 1. This chart shows an average yield of 345 pounds per acre for the UNR no-till, 367 pounds per acre for the UNR conventional till, and 15 bushels per acre for the soybeans.

Table 2 summarizes the estimated direct expense, fixed expense, and total specified expense per acre. The direct expense for UNR no-till was \$297.21 per acre, for UNR conventional tillage was \$361.62 per acre, and for soybeans was \$84.40 per acre. Fixed expense is \$34.63 for UNR no-till, \$44.14 for UNR conventional tillage, and \$25.59 for soybeans. The total specified expense was \$331.85 for UNR no-till, \$405.77 for UNR conventional tillage, and \$110.00 for soybeans.

The final table, table 3 reports the returns above total specified expense. They are as follows: UNR no-till \$ - 91.47, UNR conventional tillage \$ - 150.07, and soybeans\$ -31.10.

Conclusions

Budgets for UNR cotton in this particular study indicates a negative per acre return over direct and fixed costs for UNR cotton, while the budget for soybeans also demonstrates a negative per acre return. The results appear to suggest that under less than ideal conditions, UNR cotton may not be as profitable as soybeans. Although the yield for UNR conventional tillage was 367 pounds per acre compared to 345 pounds per acre for the UNR no-till, the returns above total specified expense are less for UNR no-till (-91.47 versus -150.07). This is a result of the higher cost of production made necessary by the increased number of trips over the field for tillage.

Budgets for UNR cotton in Panola County, Mississippi indicate a negative per acre return over direct and fixed costs for UNR cotton. The results also seem to suggest that under sub-optimal conditions, UNR cotton can be less profitable than an average soybean crop. The per acre return over direct and fixed costs for UNR cotton was lower than the per acre return over direct and fixed costs for the average soybean crop in Panola County. Fixed costs per acre appear to be \$10 to \$20 lower for soybeans than for UNR no-till and conventional cotton. However, fixed cost per acre may be as much as \$10 higher for UNR conventional versus UNR no-till cotton.

This study represents only 1 year's data at 2 locations on a particular farm in Panola County, Mississippi. The Panola County average bushels per acre of soybeans was utilized to formulate comparisons for this study. Thus, it is difficult to draw specific long-term meaningful comparisons.

It is also a conclusion of this study that the success and profitability of UNR cotton may be more dependent on the management skills and production techniques employed. Environmental conditions and individual farmer management can have a profound effect on yields.

Cotton growers are looking for ways to increase profitability. Under more optimal growing conditions previous studies have found UNR cotton to offer a viable and profitable alternative to a soybean crop.

This study should not be viewed as conclusive concerning the comparison between net returns for UNR no-till cotton, UNR conventional cotton and soybeans. In this study, UNR cotton costs and returns for field tests are compared against average costs and returns for soybeans. Future research should include a comparison of cost and returns for UNR conventional and UNR no-till cotton under controlled and similar testing conditions in order to formulate a more accurate comparison.

Table 1. Estimated cost and expected yield, UNR no-till cotton, UNR conventional cotton, and soybeans.

ITEM	UNIT	UNR	UNR	SOYBEANS
		NO-TILL COTTON	CONV COTTON	
Yield	lb or bu/ acre	345 lbs	367 lbs	15 bu
Direct Expense	\$/acre	\$297.21	\$361.62	\$84.40
Fixed Expenses	\$/acre	\$34.63	\$44.14	\$25.59
Total Expenses	\$/acre	\$331.85	\$405.77	\$110.00
Direct Exp/Yield	\$/lb or bu	\$.86	\$.99	\$5.63
Total Exp/Yield	\$/lb or bu	\$.96	\$1.11	\$7.33

Table 2. Estimated Direct, Fixed, and Total Specified Expenses per Acre, UNR No-till Cotton, UNR Conventional Cotton, and Soybeans.

INPUT	UNR	UNR	SOYBEANS
	COTTON NO-TILL (RR)	COTTON CONV	
Seed	\$40.00	\$37.60	\$20.80
Fertilizer	\$35.86	\$68.51	\$17.01
Herbicide	\$29.94	\$56.71	\$14.97
Fungicide	\$11.77	\$1.74	\$0.57
Insecticide	\$40.21	\$50.30	\$0.77
Operator Labor	\$6.51	\$9.32	\$4.70
Diesel Fuel	\$3.03	\$4.76	\$3.08
Repairs & Maintenance	\$16.32	\$20.24	\$11.55
Direct Expenses	\$297.21	\$361.62	\$84.40
Fixed Expenses	\$34.63	\$44.14	\$25.59
Total Specified Expenses	\$331.85	\$405.77	\$110.00

Table 3. Returns above total specified expenses.

Production System	Net Returns
UNR No-Till	-\$91.47
UNR Conventional	-\$150.07
Soybeans	-\$31.10

Table 4. Estimated Direct, Fixed and Total Specified Expenses per Acre, UNR No-till Cotton and UNR Conventional Cotton.

INPUT	UNR NO-TILL	UNR
	COTTON (ROUNDUP READY)	CONVENTIONAL COTTON
Seed	\$40.00	\$37.60
Fertilizer	\$35.86	\$68.51
Herbicide	\$29.94	\$56.71
Fungicide	\$11.77	\$1.74
Insecticide	\$40.21	\$50.30
Operator Labor	\$6.51	\$9.32
Diesel Fuel	\$3.03	\$4.76
Repairs & Maintenance	\$16.32	\$20.24
Harvest Aids	FROST	\$3.50
Gin	\$27.60	\$29.36
Growth Regulators	\$24.00	\$24.00
Direct Expenses	\$297.21	\$361.62
Fixed Expenses	\$34.63	\$44.14
Total Specified Expenses	\$331.85	\$405.77