

HARVESTING METHODS

**As Related To Yield, Quality,
And Net Returns From
COTTON**

W. E. CATHCART and W. B. BACK
Department of Agricultural Economics

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HARVESTING METHODS

As Related To Yield, Quality, And Net Returns From COTTON

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Cotton growers in Oklahoma may choose to harvest the crop by hand pulling, by mechanical stripper, or by a combination of these two methods. They may choose to use a defoliant to permit early machine harvesting, or choose not to defoliate. The growers also may make a special effort to harvest the crop as early in the season as permissible.

An economic study was made to determine whether the choice of harvesting methods and practices affects the income from the crop. The major objective of this study was to estimate the effects of defoliation, methods of harvesting, and time of harvesting upon yield, quality, and net income per acre of cotton.

How the Study Was Made

Data on the 1956 crop were collected in three Western Oklahoma production areas (Elk City, Hobart, and Willow). Three similarly equipped gins were selected, one in each of the three areas, in order to control the effect of ginning. A random sample of 30 producers was taken from each gin's customer list. These producers were interviewed to obtain the information upon preharvest practices and upon harvesting and marketing methods.

Information was then collected on each individual bale of cotton marketed by these producers—a total of 1,351 bales. This included the

date ginned,¹ method of harvesting, variety, gross weight of seed cotton, weight of cotton seed, weight of cotton lint, grade and staple length as assigned by the government classing service, and disposition of the cotton lint.

The cotton was all classed by the government classing service under the Smith-Doxey Act.

To facilitate comparisons of the value of cotton lint harvested by different methods, the government loan rate for 1956 was assigned to each bale according to its grade and staple length.

An effort was made to collect the same type of data from the same 90 producers in 1957. However, because of the unusual weather during the harvest season of 1957, the data were inappropriate.

Data for estimating the costs of the different methods of harvesting were obtained from the farmers interviewed and from secondary sources. In general, the costs were based upon 1956 prices for labor, machinery, and other expenses.

Effect of Harvesting Methods Upon Yield and Quality

The survey data were analyzed to determine the effect of different methods of harvesting on yield, gin turnout, staple length, and grade of cotton as a basis for economic analysis of harvesting practices.

Methods of Harvesting

The cotton farms studied during the 1956 season showed one-half of the cotton acreage harvested by hand pulling the first time over (Table 1). Thirty-three percent of the acreage was hand pulled only,

¹The time interval between harvesting and ginning was determined from data, but, in the judgment of the gin managers, this interval was very short during 1956.

while another 19 percent was hand pulled the first time over and machine stripped the second time over.

Cotton hand pulled ranged from 38.6 percent in the Hobart area to 59.2 percent in the Willow area. Nearly 48 percent of the cotton acreage was mechanically stripped, with 30 percent defoliated before stripping and 18 percent stripped after frost. In the Hobart area, over 40 percent was defoliated before stripping. Only 17 percent was defoliated in the Willow area.

Hand pulling had an apparent advantage over machine stripping in 1956. This was probably due to the timeliness of hand pulling in that the time interval between the opening of the boll and harvesting was reduced. However, this advantage was eliminated by those who hand pulled once over before frost and then machine stripped. The practice

DIFFERENT METHODS OF HARVESTING

TABLE 1. Number of growers, acres, and percent of cotton harvested by different methods in three areas of western Oklahoma, 1956.

Method of Harvesting	Elk City Area	Hobart Area	Willow Area	Total ¹
Hand Pulled				
Number of Growers	12	13	20	45
Acres	469	264	856	1589
Percent of Cotton	23.4	22.0	53.4	33.1
Hand and Stripping				
Number of Growers	11	8	9	28
Acres	458	199	254	911
Percent of Cotton	22.9	16.6	15.8	19.0
Defoliated and Stripped				
Number of Growers	10	8	4	22
Acres	647	513	274	1434
Percent of Cotton	32.3	42.7	17.1	29.8
Stripped After Frost				
Number of Growers	7	9	5	21
Acres	427	225	219	871
Percent of Cotton	21.4	18.7	13.7	18.1

¹ Number of growers exceed 90 since some used two or more methods.

of defoliating prior to machine stripping produced a quality of cotton about equal to that hand pulled before frost.

Yields

Yields of lint per acre did not differ significantly among the harvesting methods and practices. All growers in the three study areas had low yields because of drought.

Gin Turnout

Average gin turnout was significantly higher for the hand pulled cotton than for either of the other two methods of harvesting (defoliated or desiccated and machine stripped; or machine stripped after frost without defoliation).

The turnout for hand pulled cotton averaged 27.19 percent lint and 41.76 percent seed (Table 2). Thus, it required about 1,760 pounds of hand pulled cotton to produce a 500-pound gross weight bale of lint. Gin turnout of cotton lint from hand pulled cotton ranged from 25.07 percent in the Hobart area to 28.43 percent in the Elk City area. The turnout of cotton seed averaged from 41.24 percent in the Elk City area to 42.31 percent in the Willow area.

The defoliated and stripped cotton required 1,840 pounds of harvested material to produce a 500-pound gross weight bale of lint. The machine stripped cotton (without defoliation) required 1,832 pounds. The gin turnout for both the defoliated and stripped averaged approximately 26 percent compared with 27.19 percent for the hand pulled. Thus, about 80 pounds more yield of machine stripped cotton was required to produce a 500-pound gross weight bale.

Staple Length

The staple length of cotton did not differ significantly among harvesting methods. There was considerable variation in staple length among areas, but within the areas these differences were unrelated to production practices and harvesting methods employed by the farmers.

TURNOUT FROM DIFFERENT HARVESTING METHODS

TABLE 2. Percent of lint, seed, and trash turnout from different methods of harvesting cotton in three areas of western Oklahoma, 1956-57 season.

Area and Method Of Harvesting	Cotton Seed ¹ %	Lint %	Trash %
Elk City			
Hand Pulled	41.24	28.43 ²	30.33
Defoliated and Stripped	41.65	26.95 ²	31.40
Stripped	41.80	27.41 ²	30.79
Hobart			
Hand Pulled	41.46	25.07	33.47
Defoliated and Stripped	38.90	24.63	36.47
Stripped	41.68	24.22	34.10
Willow			
Hand Pulled	42.31	26.80 ²	30.89
Defoliated and Stripped	39.71	25.73 ²	34.56
Stripped	39.58	25.81 ²	34.61
Three Areas Combined			
Hand Pulled	41.76	27.19 ²	31.05
Defoliated and Stripped	40.34	25.97 ²	33.69
Stripped	41.08	26.09 ²	32.83

¹ The effect of method of harvesting on the cotton seed was not considered in this study.

² A statistically significant difference among methods at the five percent level of probability.

Grade and Time of Harvesting

Since staple length did not differ significantly among harvesting methods within the same area, differences in support price largely reflected variation in grades. The grade of cotton as measured by color and support price did differ significantly among the methods of harvesting. However, the grade of cotton also was related to time of harvesting, and it was necessary to determine whether the methods or timeliness of harvest accounted for the difference in grades.

In order, to allow for difference in time of harvesting, the harvest season was divided into 15-day periods. An analysis of grades of cotton harvested by different methods was made within the same intervals of

time. This analysis resulted in no significant effects of harvesting methods upon grade of lint. However, there was a significant relation between grade of lint and the time of harvesting.

Effect on Color

Each 15-day delay in harvesting resulted in about a 20 percent decrease in proportion of cotton grading white (Figure 1). Over 80 percent of the cotton lint harvested in September graded white as compared to less than 15 percent of that harvested in November.

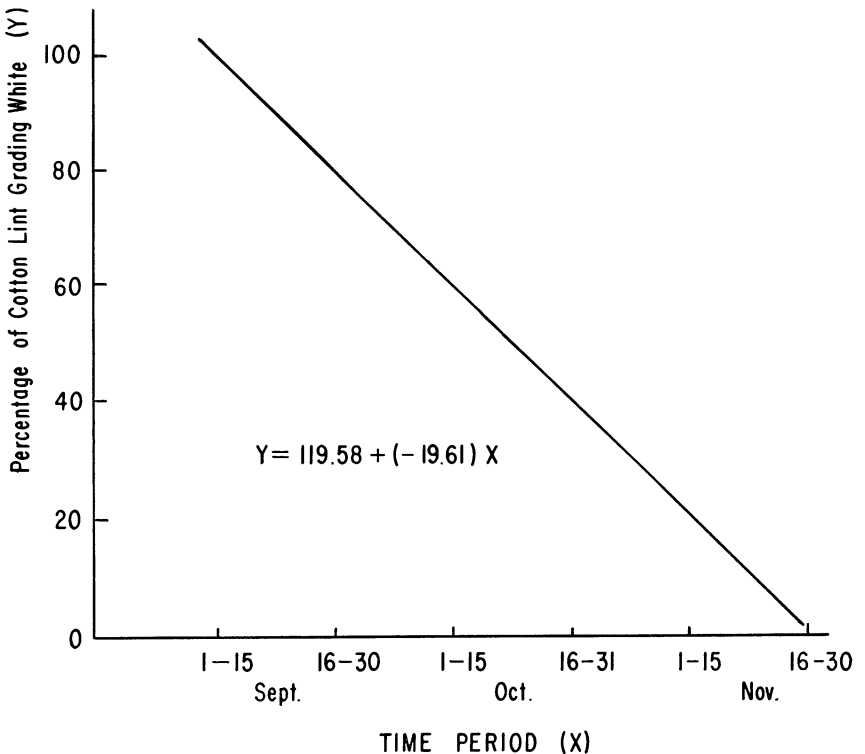


FIGURE 1. Average relationship between the time of harvesting in three western Oklahoma areas and the percent of cotton lint grading white in 1956.

Although data indicate that the color of lint varies with the year, the percentage grading white decreased from early to late harvested cotton (Table 3).

UPLAND COTTON GRADING WHITE

TABLE 3. Estimated proportion of upland cotton ginned in Oklahoma grading white for the 1955, 1956, and 1957 crop years.¹

Period of Harvest Within Years	1955 %	1956 %	1957 ² %
September 1-15	81.7	40.7	³
September 16-30	88.6	41.8	60.2
October 1-17	66.5	46.2	67.9
October 18-31	59.3	22.8	63.7
November 1-13	37.2	30.6	31.2
November 14-30	8.7	15.4	2.3
After November 30	4.6	6.9	0.3
Total for Year	46.6	32.5	16.6

¹ USDA, AMS, Cotton Quality Report for Ginnings.

² 1957 figures are preliminary.

³ No figures reported for this period.

Effect on Lint Value

The value of lint declined significantly with delay in harvesting. This decline from September to the latter part of November amounted to about three cents per pound in 1956 (Table 4).

Analyses were made to determine whether size of farm, varieties of cotton grown, or preharvest cultural practices affected the quality of lint or contributed to the measured effect of harvesting methods or timeliness. No significant effects of size of farm or varieties of cotton could be detected. The plant population and other cultural practices believed to be related to quality and to effects of harvesting methods did not vary sufficiently among the farms to provide significant results of an analysis.

LOAN VALUE OF LINT

TABLE 4. Average loan value in cents per pound of cotton lint harvested in three areas of western Oklahoma, 1956, by 15-day time periods.¹

Time Period	Elk City Area	Hobart Area	Willow Area	Average
September 16-30	30.18	29.94	29.13	29.69
October 1-15	30.02	29.14	29.81	29.66
October 16-31	29.54	26.39	27.88	28.12
November 1-15	28.14	25.49	26.87	27.02
November 16-30	28.05	24.70	25.92	26.65

¹ The statistical analysis resulted in regression coefficients significantly different from zero for the individual areas and the total of the three areas. The computed regression equations were as follows:

$$\text{Elk City area: } \hat{Y} = 31.17 - .63X$$

$$\text{Hobart area: } \hat{Y} = 31.70 - 1.52X$$

$$\text{Willow area: } \hat{Y} = 31.11 - 1.08X$$

$$\text{All areas: } \hat{Y} = 31.24 - 1.01X$$

where \hat{Y} was value per pound and X was period of harvest indicated by the numerals 1 through 5 to represent the periods September 16-30 through November 16-30. The indicated one cent per pound decrease per period delay in harvesting in the last equation differs from the amount of the decrease in the last column of the table. This difference was due to the weighting of the averages in the above table by pounds of cotton, whereas, for the statistical analysis, the weights were based on individual farmer production.

Costs and Returns From Different Methods of Harvesting

The returns above harvesting and ginning costs were estimated to depict the relative effects of harvesting methods in 1956 upon net returns per acre. Gross returns were estimated from yield, gin turnout, and price data obtained in the survey. The costs used were those generally prevailing during 1956 in the three areas.

Harvesting and Yields

In making the comparisons, estimated returns were calculated for (1) hand pulling only, (2) hand pulling the first time over and machine stripping the second time over, (3) defoliating and stripping, (4) stripping after frost without defoliation, and (5) a combination of methods.

The same per acre yield of cotton lint was used for each method of harvesting in each area (Table 5). An average yield was used because earlier analyses indicated that no significant difference in yield could be attributed to the method of harvesting.

BASIS USED IN COMPARING RETURNS

TABLE 5. Yield, prices, and harvesting material needed as used in comparing returns from different cotton harvesting methods in three areas of western Oklahoma, 1956.

Item	Unit	Elk City Area	Hobart Area	Willow Area	Three Area Average
Yield	lb. lint/acre	170	110	150	145
Average Price of Cotton Lint	cents/lb.				
Hand Pulled		30.37	26.69	28.51	28.82
Hand Pulled and Stripped Second Time Over		29.50	27.58	28.38	28.88
Defoliated and Stripped		28.86	28.82	27.60	28.50
Stripped		27.46	25.95	25.91	26.73
Combination of Three Methods		29.08	28.80	29.29	29.09
Harvested Material Required per 500 lb. Gross Weight Bale	lbs.				
Hand Pulled		1681	1906	1783	1753
Hand Pulled and Stripped Second Time Over		1690	1915	1772	1766
Defoliated and Stripped		1774	1941	1858	1841
Stripped		1744	1974	1852	1832
Combination of Three Methods		1724	1934	1810	1809

In the three western Oklahoma areas, the yields required to produce a 500-pound bale of lint were 1,832 pounds for machine stripped cotton and 1,758 pounds for hand pulled cotton.

Harvesting and Ginning Costs

The average loan value of cotton harvested in the different areas during 1956 was the price used in the economic comparisons. These prices depended upon the time of harvesting. The largest percentage of the cotton was harvested in October for all methods except machine stripping (Figure 2 and Appendix Table I). About 85 percent of the machine stripped cotton was harvested in November.

The usual charge for hand pulling cotton was \$2.00 per hundredweight of harvested material (Table 6). For machine stripping, the usual charge was \$1.00 a hundredweight, for the first time over in average cotton. Where the cotton was exceptionally poor, and for the second time over, charges were higher.

COSTS USED IN COMPARING RETURNS

TABLE 6. Wage, machine, ginning, and other costs used in comparing returns from different cotton harvesting methods in three areas of western Oklahoma, 1956.

Item	Unit	Cost
Hand Pulling Wage Rate	dollars/cwt. harvested material	\$2.00
Machine Stripping First Time Over	dollars/cwt. harvested material	1.00
Machine Stripping Second Time Over	dollars/cwt. harvested material	1.50
Ginning Rates	dollars/cwt. harvested material	.60
Bagging and Ties	dollars per bale	3.50
Cost of Defoliating	dollars per acre	2.00

Ginning charges for 1956 were 60 cents per hundredweight, for both hand pulled and machine stripped cotton, and \$3.50 for bagging and ties. The heavier weights of machine stripped cotton results in an additional charge per bale of lint ginned.

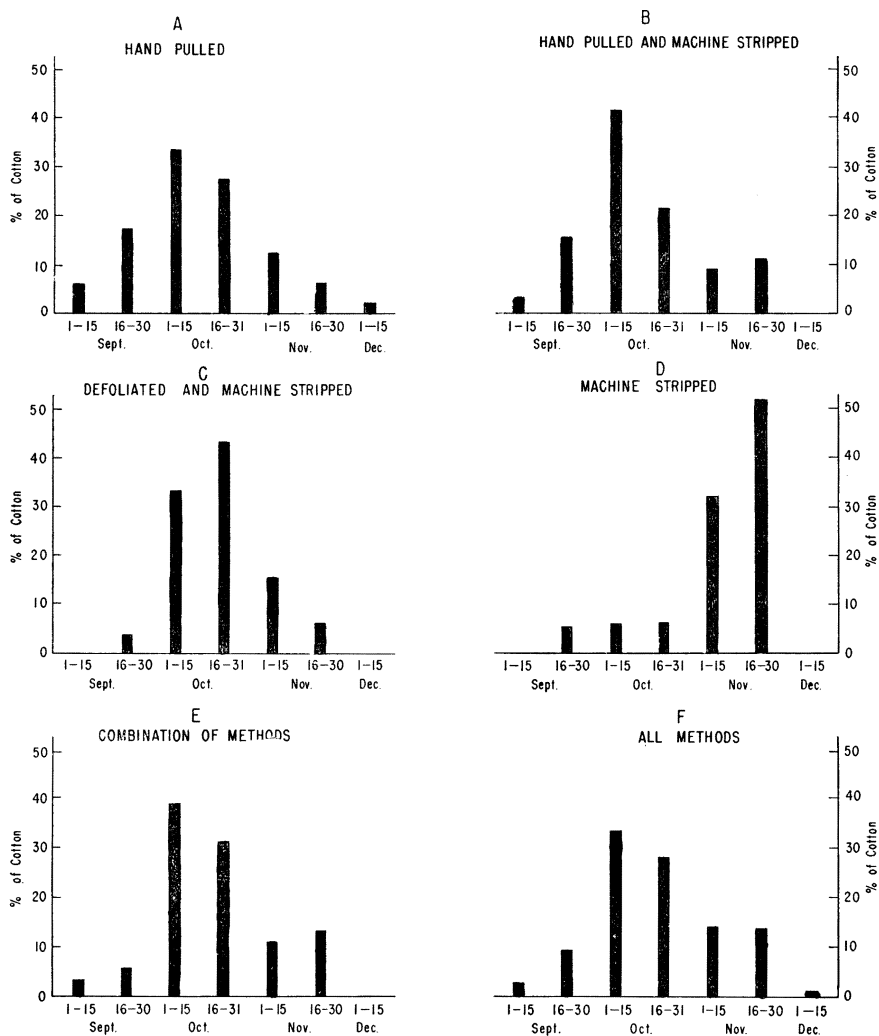


FIGURE 2. Distribution of cotton harvested by different methods into time periods.

Returns Above Harvesting and Ginning Costs

The estimate of returns per acre above harvesting and ginning costs indicates that, over all, machine stripping did have an economic advantage over hand pulling in 1956 (Table 7).

For the three areas combined, the average return per acre was \$29.34 for the defoliated and stripped cotton. This was 41 cents higher than for the stripped cotton. Both practices in machine stripping, when combined, had an advantage over the hand pulled of more than \$2.00 per acre.

The return per acre above harvesting and ginning costs varied largely among the three areas (Appendix Tables II, III, and IV). In the Elk City area, the returns for the stripped cotton were slightly higher than for the hand pulled; however, the defoliated and stripped gave the lowest returns above harvesting and ginning costs. Defoliated and stripped cotton brought the highest returns above costs in the Hobart and Willow areas.

Costs of Owning and Operating A Mechanical Stripper

The preceding estimates of stripping costs, from \$5 to \$6 per acre, were based upon custom rates. Custom rates may differ from the costs experienced by owners of mechanical strippers. Therefore, average costs for owning and operating a mechanical stripper were estimated for varying acreages of cotton harvested (Table 8).

Operating Costs

Operating costs shown in Table 8 include labor, power, and machinery charges. The only charges included for the tractor were for fuel and lubricants.

ESTIMATED RETURNS ABOVE COSTS

TABLE 7. Comparison of the estimated returns above harvesting and ginning costs per acre of cotton from different methods of harvesting in three areas of western Oklahoma, 1956.

Item	Unit	Hand Pulled	Hand Pulled and Stripped	Defoliated and Stripped	Stripped	Combination of Three Methods
Harvested Material	lbs./acre	533	538	558	549	545
Cotton Lint	lbs./acre	145	145	145	145	145
Average Price	cents/lb.	28.82	28.88	28.50	26.73	29.09
Gross Returns	dollars/acre	41.79	41.88	41.32	38.76	42.18
Harvesting Costs						
Defoliation	dollars/acre				2.00	.68
Hand Pulling	dollars/acre	10.66				
Machine Stripping	dollars/acre		1.14	5.58	5.49	2.94
Ginning Costs	dollars/acre	3.20	3.23	3.35	3.29	3.27
Bagging and Ties	dollars/acre	1.05	1.05	1.05	1.05	1.05
Returns Above Harvesting and Ginning Costs		26.88	27.20	29.34	28.93	29.22

¹ The amount of cotton and the date harvested by the different methods varied among individual producers.

OWNING AND OPERATING A STRIPPER

TABLE 8. Estimated annual cost of owning and operating a cotton stripper in dollars per acre and on different numbers of acres harvested.¹

Item	Annual Cost	50 A.	100 A.	150 A.	200 A.	250 A.	300 A.	350 A.	500 A.
Fixed Costs									
Depreciation ²	120.00	2.40	1.20	0.80	0.60	0.48	0.40	0.34	0.24
Interest ³	48.00	.96	.48	.32	.24	.19	.16	.14	.10
Taxes ⁴	14.00	.28	.14	.09	.07	.06	.05	.04	.03
Shelter ⁵	20.00	.40	.20	.13	.10	.08	.07	.06	.04
Total Fixed Costs	202.00	4.04	2.02	1.34	1.10	.81	.68	.58	.41
Total Operating Costs ⁶		1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Total Cost Per Acre		5.05	3.03	2.35	2.02	1.82	1.69	1.59	1.42

¹ Based on average yield of 200 pounds of cotton lint per acre.² Based on \$1400 cost of new stripper, estimated life of 10 years, and salvage value \$200 at end of 10-year period.³ Six percent of one half of new value, plus trade-in value.⁴ Based on assessed value of ¼ new value and a 40 mill levy.⁵ If no shelter is used this cost may be reflected in slightly higher depreciation and maintenance costs.⁶ Per acre operating costs are made up of fuel (1 gal. per acre) 20 cents, lubricant (tractor and stripper) 6 cents, repairs and maintenance 25 cents, labor (one man \$1.00 hour) 50 cents.

Fixed costs of tractors were excluded because all the growers had tractors and they would bear this cost regardless of whether or not they owned and operated mechanical strippers. Also, no fixed trailer costs were included, as the trailer is also needed for hand pulling.

Labor costs were calculated at \$1.00 per hour. Only one man was required to operate a stripper. In some instances a second man was used to load the trailer; however, no allowance was made for this second man in estimating costs of machine stripping. The cost of hauling cotton to the gin was considered equal for all harvesting methods, so this cost was ignored.

Fixed Costs

The fixed costs of the stripper were based on the new value of \$1,400 and an interest charge of six percent of one-half of the new value plus the trade-in value at the end of 10 years. The cost items for repair and maintenance were based on relatively new machines.

It is apparent that the number of acres harvested per year will largely determine the economic feasibility of individual farmers owning and operating a mechanical stripper (Figure 3).

Summary

The major objective of this study was to estimate the effects of different cotton harvesting methods upon yield, quality, and net returns per acre. This report is limited to analyses of farmer experience during 1956.

Information for this study was collected from 90 cotton producers in the three western Oklahoma producing areas of Elk City, Hobart, and Willow. To facilitate the making of economic comparisons, the government loan rate for 1956 was used to value the cotton harvested by different methods.

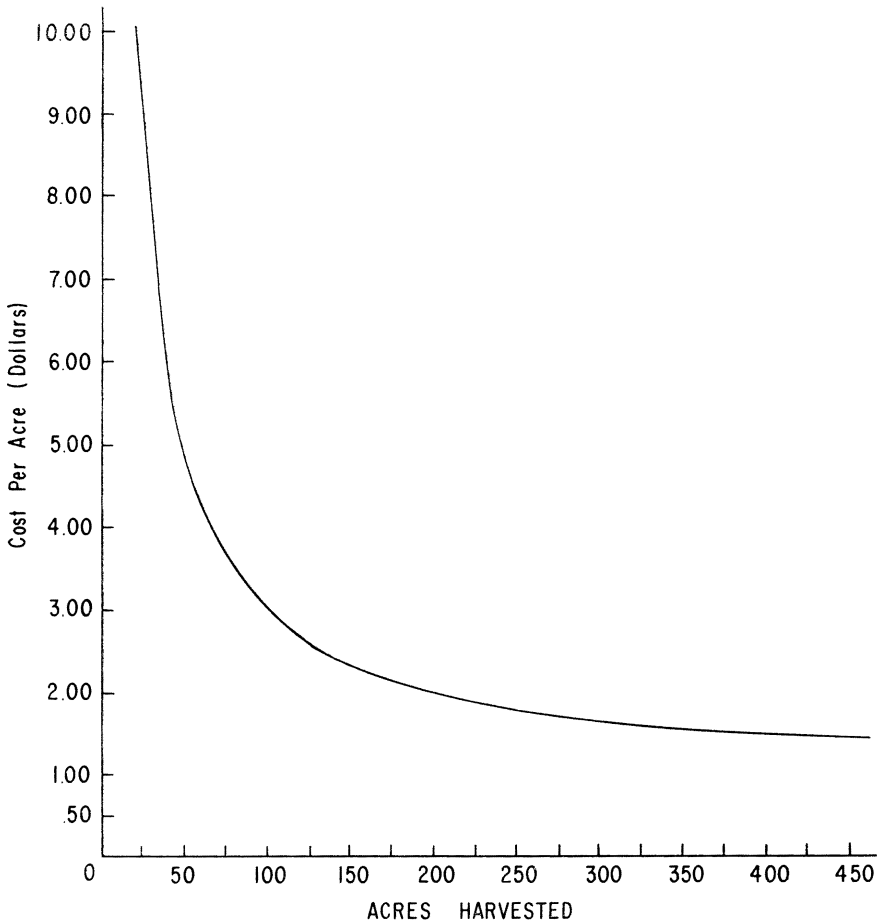


FIGURE 3.—Average relationship between numbers of acres machine stripped and costs per acre.

Yields and Variations in Grades

Lint yields per acre did not differ significantly among the harvesting methods and practices used by the farmers. Average lint turnout was higher for the hand pulled than for machine stripped cotton. For the three areas combined, hand pulled cotton averaged 27.19 percent lint; cotton stripped after frost averaged 26.09 percent lint; and cotton defoliated and stripped averaged 25.97 percent lint.

An analysis was made of grades for 1,351 bales of lint harvested by different methods in 1956. Since staple lengths did not differ significantly, differences in loan values largely reflected variation in grades. The grade of cotton differed among the methods of harvesting, but the time of harvesting also differed.

When the harvest season was divided into 15-day periods and the grades compared within the same time interval, harvesting methods did not affect the grade of lint significantly. However, there was a significant relationship between the grade and the time of harvesting.

The analysis indicated that, on the average, each 15-day delay in harvesting resulted in about a 20 percent decrease in the proportion of lint grading white.

Value of Lint and Estimates of Returns

The value of lint, based on grade and staple length, did not differ significantly during any given time period among harvesting methods. However, the value of the lint did decline with a delay in harvesting. This decline amounted to about three cents per pound from September to the latter part of November in 1956.

Estimates of returns per acre above harvesting and ginning costs were calculated using yield, gin turnout, and price data obtained in the survey. The costs used were those generally prevailing during 1956. These estimates indicate that, overall, machine stripping had an economic advantage over hand pulling.

For the three areas combined, the cotton defoliated and stripped, or stripped after frost, returned about \$2.00 per acre more than the hand pulled cotton.

Appendix

APPENDIX TABLE I. Distribution of different cotton harvesting methods by time periods in the Elk City, Hobart, and Willow areas in 1956.

Area and Time Period	Hand Pulled %	Hand Pulled and Stripped %	Defoliated and Stripped %	Stripped %	Combination %
Hobart					
September 1-15		6.03			
September 16-30	4.74	20.93			
October 1-15	21.64	29.95	77.90	33.44	69.78
October 16-31	36.46	15.24	22.10	22.71	8.60
November 1-15	31.51	19.87		30.48	11.78
November 16-30	5.65	7.99		13.37	9.84
December 1-15					
Willow					
September 1-15	7.09	6.17			8.24
September 16-30	15.02	22.12		17.83	14.19
October 1-15	30.02	36.04	19.32		50.92
October 16-31	29.05	15.08	49.47	5.62	21.53
November 1-15	12.43	1.84	21.49	71.40	3.77
November 16-30	5.32	18.75	9.72	5.15	1.35
December 1-15	1.07				
Elk City					
September 1-15	1.50				
September 16-30	22.25	8.80	9.62		3.32
October 1-15	43.45	47.78	22.26		20.79
October 16-31	19.70	27.88	48.69	1.53	43.50
November 1-15	4.28	7.94	15.44	13.80	12.89
November 16-30	4.67	7.60	3.99	84.67	19.50
December 1-15	4.15				

APPENDIX TABLE II. Elk City Area: Comparison of the estimated returns above harvesting and ginning costs per acre of cotton by different methods in 1956.

Item	Unit	Hand Pulled	Hand Pulled and Stripped	Defoliated and Stripped	Stripped	Combination of Three Methods ¹
Returns						
Seed Cotton	lbs./acre	598	601	630	620	613
Cotton Lint	lbs./acre	170	170	170	170	170
Average Price	cents/lb.	30.37	29.50	28.86	27.46	29.08
Gross Returns	dollars/acre	51.63	50.15	49.06	46.68	49.44
Harvesting Costs						
Defoliating	dollars/acre			2.00		.66
Hand Pulling	dollars/acre	11.96	10.70			4.04
Machine Stripping	dollars/acre		.99	6.30	6.20	4.10
Ginning Costs	dollars/acre	3.59	3.61	3.78	3.72	3.68
Bagging and Ties	dollars/acre	1.24	1.24	1.24	1.24	1.24
Returns above Harvesting and Ginning Costs		34.84	34.82	33.61	35.52	35.72

¹ The amount of cotton and the date harvested by the different methods varied among individual producers.

APPENDIX TABLE III. Hobart Area: Comparison of the estimated returns above harvesting and ginning costs per acre of cotton by different methods in 1956.

Item	Unit	Hand Pulled	Hand Pulled and Stripped	Defoliated and Stripped	Stripped	Combination of Three Methods ¹
Returns						
Seed Cotton	lbs./acre	439	441	447	454	445
Cotton Lint	lbs./acre	110	110	110	110	110
Average Price	cents/lb.	26.69 ²	27.58	28.82	25.95	28.80
Gross Returns	dollars/acre	29.36	30.34	31.70	28.54	31.68
Harvesting Costs						
Defoliating	dollars/acre			2.00		1.02
Hand Pulling	dollars/acre	8.78	7.24			2.67
Machine Stripping	dollars/acre		1.20	4.47	4.54	3.12
Ginning Costs	dollars/acre	2.63	2.65	2.68	2.72	2.67
Bagging and Ties	dollars/acre	.80	.80	.80	.80	.80
Returns above Harvesting and Ginning Costs		17.15	18.45	21.75	20.48	21.40

¹ The amount of cotton and the date harvested by the different methods varied among individual producers

² The relatively low price of hand pulled cotton in the Hobart area can be partly explained by the time of harvesting. Seventy-four percent of the hand pulled cotton in this area was harvested after October 15 in comparison with 48 percent in the Willow area and 33 percent in the Elk City area (Appendix Table 4). A larger percent of the hand pulled cotton was harvested after October 15 in the Hobart area than for any of the other methods of harvesting.

APPENDIX TABLE IV. Willow Area: Comparison of the estimated returns above harvesting and ginning costs per acre of cotton by different methods in 1956.

Item	Unit	Hand Pulled	Hand Pulled and Stripped	Defoliated and Stripped	Stripped	Combination of Three Methods ¹
Returns						
Seed Cotton	lbs./acre	560	563	583	581	568
Cotton Lint	lbs./acre	150	150	150	150	150
Average Price	cents/lb.	28.51	28.38	27.60	25.91	29.29
Gross Returns	dollars/acre	42.76	42.57	41.40	38.86	43.94
Harvesting Costs						
Defoliating	dollars/acre			2.00		.50
Hand Pulling	dollars/acre	11.20	9.68			8.64
Machine Stripping	dollars/acre		1.19	5.83	5.81	1.36
Ginning Costs	dollars/acre	3.36	3.38	3.50	3.49	3.41
Bagging and Ties	dollars/acre	.98	.98	.98	.98	.98
Returns Above Harvesting and Ginning Costs		27.22	27.34	29.09	28.58	29.05

¹ The amount of cotton and the date harvested by the different methods varied among individual producers.