Crop Production Costs in Missouri Bootheel

Cotton
Corn
Soybeans
Wheat

MP 482 1976
Extension Division
University of Missouri-Columbia

ACKNOWLEDGMENTS

E. B. Nace and John G. Yount, Area Farm Management Specialists
U. U. Alexander, Floyd Wright, Sam Atwell, George Wright, John Garrett, and Thomas A. Brown, Area Agronomy Specialists

AUTHORS

Richard F. McIntosh, Area Farm Management Specialist
Herman E. Workman, Professor of Agricultural Economics
Carrol L. Kirtley, Associate Professor of Agricultural Economics

COVER PICTURE

This 20-inch row cotton harvester is being field tested at the UMC Delta Center. Scientists there are also developing new breeds of cotton and improved growing systems, because they believe narrow row cotton would produce much more lint per acre than conventional rows.

CONTENTS

Crop Production Costs in Missouri Bootheel

Enterprise records of Bootheel Area farmers enrolled in the University's Mail-In Record program indicate that the average total cost of producing an acre of cotton increased from $177.48 to $235.75 between 1972 and 1974. The cost of producing an acre of corn increased from $150.34 to $201.30. Per acre soybean production cost increased from $89.89 to $113.14, and that of wheat, from $82.43 to $95.82.

These farmers' records also indicate there has been a gradual reduction in the trips across fields with machinery and equipment. It is not completely clear whether this is because of the substitution of another input (herbicides) for labor and machinery or because of weather conditions or both.

If the herbicide substitution is a factor, it may be several years before the net effect of the change is realized because variable cost inputs are being substituted for fixed cost inputs as well as variable cost inputs.

The continuation of enterprise records of crop production cost and returns is highly important. They are essential to the managerial decision-making process.

Most farms in the Bootheel Area are equipped to produce cotton, corn, soybeans, and wheat. Farmers' decisions about which crop(s) they produce in a given year are influenced by many factors. However, one of the primary factors is their expectations of the cost of producing each crop and the returns (price x yield) from each crop.

To select the enterprises which offer the greatest potential net income, farm managers must have accurate production cost and return information available.

In 1972, the decision was made to update the Bootheel Area's data on cotton production cost. The previous such study was completed in 1961.

The University of Missouri Mail-In-Record program was used to measure the cotton production cost and returns of a group of volunteer cooperators in the Bootheel. Twenty-two started with the project in 1972 and 13 continued through 1974. Since the Mail-In-Record program was designed for enterprise analysis, it was possible to obtain data on the other major cash crops besides cotton. Thus, costs were also figured for soybeans, wheat, and corn. Information was also available from this computer record program for studying trends in tillage practices, reflected in number of trips across the field.

OBJECTIVES AND METHOD OF STUDY

One of the Bootheel's three University of Missouri farm management specialists was assigned the responsibility of coordinating this program effort. However, all area agronomy and farm management specialists were involved. They accepted the major responsibility of identifying prospective program

participants and explaining the over-all program objectives. Farmer cooperators from each of the six Bootheel counties participated in this study. The six counties are Dunklin, Mississippi, New Madrid, Scott, Pemiscot, and Stoddard. The specific objectives of this study were:

1. To obtain the cost and returns in producing cotton and the other major crops being produced.
2. To obtain data on the number of trips across fields with different types of equipment.

PRODUCTION CONDITIONS DURING PERIOD OF STUDY

From the standpoint of yields, this three-year period was unusual in many respects. Weather conditions in the fall of 1972 caused tremendously high field losses, particularly on cotton and soybeans. In 1973, cotton acreages were reduced because of excessive rainfall and flooding in the spring. Wheat yields were also affected by these weather conditions. A late freeze in the spring of 1974 lead to a reduction in wheat yields. A summer drought coupled with an early frost reduced cotton and soybean yields. The drought conditions also affected non-irrigated crops, particularly corn. Consequently, harvested yields were highly correlated with weather conditions during these three years. It would be misleading to try to draw any conclusions about yields without first acknowledging the effect of weather.

AVERAGE COST AND RETURNS

The average costs of producing an acre of all four crops — cotton, soybeans, corn, and wheat—increased each year. The increase largely reflected the effect of inflation, rather than increased use of inputs. See Tables I, II, III, and IV.

Table I

BOOTHEEL AREA CROP PRODUCTION COST FOR COTTON

	1972	1973	1974
Number of Farms	22	15	13
Average Acreage	249	133	154
Cost Item	XXXX	XXXX	XXXX
Plant Food	12.21	15.50	30.00
Crop Chemicals	8.29	10.63	11.97
Crop Insurance	1.05	1.49	2.51
Seed	4.33	5.61	6.55
Labor	27.30	32.71	38.24
Machinery and Equipment Operation	30.51	25.03	38.32
Ginning and Marketing	25.08	30.00	25.88
Miscellaneous Overhead	4.21	3.46	5.94
Operating Interest	3.95	4.35	5.58
TOTAL VARIABLE COST	116.93	128.78	164.99
Machinery & equipment Depreciation and Interest	15.82	17.62	21.45
Total (excluding land)	132.75	146.40	186.44
Real estate taxes, depreciation, and interest	44.73	46.75	49.31
Total Cost Per Acre	177.48	193.15	235.75
Yield (pounds lint per acre)	543	423	389
Harvest time price 1/	27¢/lb.	48¢/lb.	45¢/lb.

1/ Harvest time price is the average price farmers received or could have received for a pound of lint cotton at harvest.

NOTE: Cottonseed is another source of revenue to the cotton enterprise. However, the decision was made to omit cottonseed production and price data because of problems encountered in obtaining complete and accurate information on the quantity produced and the price received.

Table II

BOOTHEEL AREA CROP PRODUCTION COST FOR CORN

	1972	1973	1974
Number of Farms	10	7	9
Average Acreage	130	124	173
Cost Item	XXXX	XXXX	XXXX
Plant Food	22.30	27.63	46.91
Crop Chemicals	2.87	4.68	5.68
Crop Insurance	.10	.80	1.13
Seed	7.40	9.17	9.21
Labor	22.31	20.21	22.83
Machinery and Equipment Operation	17.23	17.06	28.94
Miscellaneous Overhead	6.55	7.00	9.15
Operating Interest	2.76	3.03	4.34
TOTAL VARIABLE COST	81.52	89.85	128.19
Machinery & Equipment Depreciation and Interest	21.58	12.67	23.40
Total (excluding land)	103.10	102.25	151.59
Real Estate Taxes, Depreciation, and Interest	47.24	45.80	49.71
Total Cost Per Acre	150.34	148.05	201.30
Yield (bushels per acre)	115	102	110
Harvest Time Price Per Bushel	$1.25	$2.13	$3.08

Table III

BOOTHEEL AREA CROP PRODUCTION COST FOR SOYBEANS

	1972	1973	1974
Number of Farms	20	16	13
Average Acreage	457	554	510
Cost Item	XXXX	XXXX	XXXX
Plant Food	1.42	2.41	3.16
Crop Chemicals	3.50	4.79	5.21
Crop Insurance	.07	.39	.38
Seed	3.25	9.00	9.10
Labor	15.25	15.92	17.38
Machinery and Equipment Operation	11.27	16.60	17.49
Miscellaneous Overhead	2.40	3.63	4.66
Operating Interest	1.30	1.84	2.01
TOTAL VARIABLE COST	38.36	54.58	59.39
Machinery & Equipment Depreciation and Interest	13.81	12.29	15.16
Total Cost (excluding land)	52.17	66.87	74.55
Real Estate Taxes, Depreciation, and Interest	37.72	42.48	38.59
Total Cost Per Acre	89.89	109.35	113.14
Yield (bushels per acre)	26	26	22
Harvest Time Price Per Bushel	$3.48	$4.90	$7.23

Table IV

BOOTHEEL AREA CROP PRODUCTION COST FOR WHEAT

	1972	1973	1974
Number of Farms	18	12	11
Average Acreage	145	192	258
Cost Item	XXXX	XXXX	XXXX
Plant Food	11.97	8.88	25.08
Crop Chemicals	.75	.12	1.44
Crop Insurance	.28	.46	1.50
Seed	4.18	6.74	10.50
Labor	10.95	7.38	7.18
Machinery and Equipment Operation	11.08	7.23	10.01
Miscellaneous Overhead	3.03	3.35	3.06
Operating Interest	1.48	1.20	2.06
TOTAL VARIABLE COST	43.72	35.36	60.83
Machinery & Equipment Depreciation and Interest	11.70	8.33	10.50
Total Cost (excluding land)	55.42	43.69	71.33
Real Estate Taxes, Depreciation, and Interest	27.01	25.45	24.49
Total Cost Per Acre	82.43	69.14	95.82
Yield (bushels per acre)	50	28	30
Harvest Time Price Per Bushel	$1.30	$2.44	$3.61

It is difficult to draw many conclusions about yields for the period of this study without considering the effect of weather. However, more meaningful conclusions can be drawn about the crop production cost data because of the nature of costs and when they are incurred. Most of these costs are incurred prior to harvest. Once incurred, production costs are fixed for that particular year. In general, inputs used by most producers are those they believe are necessary to produce at least normal yields, Although the results on many farms varied tremendously from expectations, the input usage or costs still indicate expected requirements for a normal year.

Not all crop production costs are incurred prior to harvest. Cotton ginning and marketing costs are illustrations. If a crop is harvested by a custom operator, harvesting cost is another example. Although these costs increase in total as yields increase, they normally are constant on a per unit of production basis.

Per acre cost did vary from farm to farm for all major crops. But the variation of individual farmers' per acre costs from the average for the group was not as great as might be expected. This is especially true of those costs incurred prior to harvest. As indicated earlier, harvesting and marketing costs often vary directly with yields.

Although not obvious from the tables of average cost and returns, net profit varied tremendously from farm to farm. Much of the variation was the result of yield differences and differences in prices received for crops produced. For example, in 1973, one producer sold his cotton for over 75 cents per pound of lint. The same year many other producers received less than 35 cents per pound of lint. In 1974, prices varied tremendously. For most crops, the variation in price was greater than the price received for that crop four or five years ago.

Crop yields varied substantially from farm to farm. In many instances, these variations were the result of different weather conditions.

From the standpoint of net profit, price and yield variations overshadowed per acre cost variations.

It is doubtful that total cost can be reduced significantly on a per acre basis. This is particularly true if inflation continues at a high rate.

COST PER UNIT

Crop production cost, when viewed on a per unit of production basis, varies inversely with yields. Herein lies the greatest opportunity for cutting the cost of producing a pound of cotton or a bushel of soybeans, wheat, or corn. A farm manager can reduce the year to year variation in per unit production cost if he can control the factors causing these variations.

Variations caused by drought can be partially eliminated by irrigation. The effects of excessive rainfall can be reduced by land grading and drainage improvement. Proper fertilization, variety selection, and weed, disease, and insect control may also offer possibilities. However, all efforts to increase yields require at least minimal cooperation of mother nature. Without this cooperation, many of man's efforts are quite ineffective.

The costs of producing a pound of lint cotton, a bushel of corn, soybeans, and wheat, as well as the percent change from 1972 to 1974 are given in Table V. This table does dramatically illustrate what happens to per unit production cost when both inflation and reduced yields are experienced.

Per unit crop production cost increased substantially during the three-year period. Inflation was a major factor, but yields were also significant. From 1972 to 1974, wheat yields declined 40 percent, cotton yields declined 28 percent, soybean yields declined 15 percent, and corn yields declined about 4 percent.

TABLE V

CROP UNIT	COST PER UNIT OF PRODUCTION 1972	1973	1974	% Change 1972 to 1974
Cotton (cents/lb.)	32.7¢	45.7¢	60.6¢	+85
Corn (dollars/bu.)	$1.31	$1.45	$1.83	+40
Soybeans (dollars/bu.)	$3.46	$4.21	$5.14	+48
Wheat (dollars/bu.)	$1.65	$2.47	$3.19	+93

LABOR, MACHINE AND CROP CHEMICAL COST

Historically, labor and machine costs have been major cost items on row crop farms. Since one can readily be substituted for the other, more emphasis has been placed on the combined cost of both than either individually. However, on row crop farms, herbicides are being extensively substituted for labor and machinery. Therefore, the usage of these three inputs will be discussed collectively.

Labor, machine, and crop chemical costs as a percentage of total cost (land cost excluded) are given in Table VI.

TABLE VI

LABOR, MACHINE AND CROP CHEMICAL COST AS A PERCENTAGE OF TOTAL COST (LAND COST EXCLUDED) BY CROPS ON BOOTHEEL AREA FARMS

CROP	LABOR, MACHINE AND CHEMICAL AS PERCENT OF TOTAL COST 1972	1973	1974
Cotton	61.7	58.0	60.5
Corn	62.1	52.8	55.2
Soybeans	84.0	73.3	74.8
Wheat	62.2	52.2	42.7

Soybeans were the major crop on most cooperator farms as well as most farms in the Bootheel Area. From the standpoint of acreage, soybeans are followed by cotton, wheat, and corn.

Table VI indicates the cost of labor, machine, and chemicals did not increase as rapidly as other inputs or else the actual usage of these three inputs declined. It is doubtful that input usage declined.

A partial explanation of what actually occurred and implications for the future are embodied in the nature of machine costs and how they are computed.

Machine costs include a charge for depreciation. The depreciation charge is based upon original cost of the machine. Much of the machinery and equipment on farms in 1973 and 1974, was purchased before rapid inflation occurred. Consequently, the full effects of inflation on machine cost will not be reflected

until all old items are replaced at inflated price. If inflation were to stop today, machinery cost logically would continue to increase for the next several years.

FERTILIZER COST

Fertilizer cost increased tremendously in terms of total dollars as well as percentage increase. Again, inflation, not increased input cost, was the primary factor.

Cotton fertilizer cost increased from $12.21 to $30.00 per acre from 1972 to 1974. Fertilizer cost on corn increased from $22.30 to $46.91 per acre during the three-year period. Wheat fertilizer cost increased from $11.97 to $25.08 per acre.

Historically, farmers have not fertilized land planted in soybeans. In 1972, the average fertilizer cost on soybeans was only $1.42 per acre. In 1974, the average cost had only increased to $3.16 per acre.

This level of fertilization will not replace the nutrients removed by the soybean crop. Therefore, one or two things must be happening. One possibility is soybeans are using residual fertilizer applied to preceding crops. If this is not occurring, the natural fertility level of the soil is being depleted. The latter is occurring on many acres in the Bootheel Area because soybeans are grown continuously on many acres. The continuation of this practice can only result in yield decreases in the long run.

However, correction of the fertilizer depletion problem will cause the cost of producing an acre of soybeans to increase at a faster rate than that of other crops.

GINNING, MARKETING, AND PROMOTION COST

Cotton ginning and marketing costs have also increased. Examination of individual producers' records for 1974 indicate some producers did not report all ginning, marketing, and promotion costs. The billing practices of many cotton gins make it difficult to determine these charges accurately. Historically, these charges have been deducted from the value of the cotton seed. Even when ginning charges are listed and the value of the cotton seed is given, it is difficult to determine actual ginning and marketing cost accurately. Actual ginning charges specified by one firm may be lower than those of another firm; however, the firm with the lowest ginning and marketing charges may also pay $20 or $30 a ton less for cotton seed. Farm records do not give an accurate account for these hidden charges.

Consequently, cotton ginning, marketing, and promotion cost data should be considered incomplete for the three-year period.

SEED COST

Seed cost increased for each crop. These increases are primarily the result of higher commodity prices.

MISCELLANEOUS OVERHEAD COST

Miscellaneous overhead costs include utilities, insurance, personal property, and sales taxes, real estate repairs, maintenance and other incidental items such as soil testing.

OPERATING INTEREST

Operating interest is a calculated cost. Interest is charged at the rate of 7 percent for 6 months for all other variable costs.

CROP INSURANCE

Crop insurance represents a small charge since many producers do not purchase such coverage. These costs increased but part of the increase was from higher premium rates and not an increase in acreages insured.

LAND AND OTHER CHARGES

Land charges include real estate taxes, depreciation of buildings, storage, conservation structures, and implicit interest on the investment in land. The interest rate used was 7 percent.

The value of most land increased during this three-year period. Consequently, land charges increased. Since a high percentage of the corn acreage could have been irrigated, the added capital improvement on land is reflected by the higher land charge. These charges ranged from $47.24 per acre in 1972 to $49.71 per acre in 1974 for corn. The next highest average land charge was on cotton. It ranged from $44.73 to $49.31. The land charge on soybean acreage ranged from a low of $37.72 to a high of $42.48.

There are two reasons for the lower land charges on soybeans. One is the land itself and the other is double cropping soybeans with wheat. The land charge on wheat was the lowest. It ranged from $27.01 in 1972 down to $24.49 in 1974. If the wheat acreage was double-cropped, each crop was charged with half of the land charge. If wheat was the only crop produced, the total land charge was allocated to wheat.

HARVEST TIME PRICES

Average harvest time prices are prices farmers received or would have received if they had sold their crop at harvest.

For some farmers it was the actual cash market price. For others, it was the price at which they had booked their crop. However, not all farmers sold at harvest time. Some stored their crops for sale at a later date. Therefore, their actual return depended upon commodity price changes and their marketing ability. In some instances, actual prices received were twice as high as harvest time prices.

Ideally, the production of a crop is one enterprise. If the crop is to be stored and marketed at a later date, it could be considered as a separate activity or enterprise. However, to get accurate cost and return data on both a crop production activity and on a storage, drying, handling, and marketing activity, additional records would have to be kept. In practice, this would be very difficult.

Many producers indicate fewer trucks and drivers are required to transport crops to on-the-farm storage facilities than to commercial elevators. One of the major reasons is they don't have to "wait in line" to get unloaded. Consequently, they made the decision to invest in on-the-farm grain storage, drying, and handling facilities rather than in transportation equipment.

Farmers with on-the-farm grain storage facilities have also indicated their harvest yield has increased because of increased harvesting efficiency.

Some farmers regularly harvest high moisture soybeans to reduce shattering losses which occur at the combine header when soybeans are dry. These high moisture soybeans are dried in bins on the farm with natural air drying. The reduced shattering losses often increase yields one to three bushels per acre.

Because of the many interrelationships that exist between the crop production and the crop storage and marketing activities, no attempt has been made to separate the activities.

However, one should be cognizant of the fact that storage cost, if incurred, was reported as crop production cost.

TRIPS ACROSS FIELDS

Cooperators were asked to record the number of trips they made across their fields with machinery and equipment. They were also asked to record the size of the equipment used, total acreage it was used on, as well as the number of men required to perform the operation. Operations performed by custom operators were also reported; however, they were noted as such.

The data on trips across fields, equipment size, acres covered, and men required were used as the basis for computing direct machine hours and direct labor hours. The direct machine and man hour data were used to help allocate machinery and equipment operating cost as well as labor cost.

In 1972, twenty cooperators kept detailed records on trips across cotton fields with machinery and equipment. There were 4,490 acres of cotton on these farms in 44 fields. Since seedbed preparation methods of some producers varied from field to field, they kept records on each field. Other producers kept only one record sheet for their total cotton acreage because all fields were handled essentially the same way.

Data collected on the number of trips across cotton fields in 1972 are given in Tables VII, VIII, and IX. Table VII lists the average number of trips associated with each phase of the production process.

Approximately one-third of the trips were associated with seedbed preparation and one-third with cultivation. As a group, these producers averaged 14 trips across their cotton fields during the year. Although the average number of trips was 14, there was a wide range from the producers with the fewest trips to those with the most trips. Table VIII groups the cotton fields according to number of trips across fields.

Some producers were able to keep the number of trips across fields down to 10 or 12 but a few made over 20 trips across fields. The average size of fields did not seem to be a factor.

TABLE VII

AVERAGE NUMBER OF TRIPS ACROSS 4,490 ACRES OF COTTON ON 20 MISSOURI BOOTHEEL AREA FARMS IN 1972

PURPOSE OF OPERATION	NUMBER OF TRIPS ACROSS FIELD
Seedbed preparation and pre-plant herbicide incorporation	5.0
Fertilizing	1.0
Pre-emerging, fertilizing, planting	1.1
Spraying (herbicides and insecticides)	.7
Cultivating and/or post-emerging and flaming	5.0
Defoliating	.1
Harvesting	1.1
TOTAL	14.0

TABLE VIII

COTTON FIELDS GROUPED BY NUMBER OF TRIPS ACROSS THE FIELD WITH MACHINERY AND EQUIPMENT IN MISSOURI BOOTHEEL AREA IN 1972

NUMBER OF TRIPS	NUMBER OF FIELDS	AVERAGE ACREAGE
10 to 12	8	149
12.1 to 14	20	96
14.1 to 16	7	82
16.1 to 18	4	126
18.1 to 20	2	48
Over 20	3	71

TABLE IX

TRIPS ACROSS 44 COTTON FIELDS ON 20 MISSOURI BOOTHEEL AREA FARMS IN 1972

PURPOSE OF OPERATION	NUMBER OF TRIPS ACROSS FIELDS					
	10 to 12	12.1 to 14	14.1 to 16	16.1 to 18	18.1 to 20	Over 20
Seedbed preparation and pre-plant herbicide incorporation	4.5	4.7	5.2	5.9	6.5	8.4
Fertilizing	1.0	1.0	1.1	0.6	1.0	1.2
Planting, pre-emerging, fertilizing	1.0	1.1	1.1	1.0	1.0	1.4
Spraying (herbicides & insecticides)	0.4	0.7	1.4	1.2	0.5	0.5
Cultivating and/or post-emerging and flaming	3.3	4.2	4.8	6.1	8.0	10.0
Defoliating	0.0	0.1	0.3	0.5	0.0	0.0
Harvesting	1.0	1.1	1.1	1.2	1.5	1.3
TOTAL	11.2	12.9	15.0	16.5	18.5	22.8

Why were so many more trips required across some fields than others? This question is partially answered in Table IX which breaks down the number of trips across fields by purpose of trip.

Extra trips for seedbed preparation and cultivation accounted for most of the increase in the number of trips across fields. Replanting is a partial explanation for these extra trips. Fields requiring the fewest trips were not replanted.

Of the fields requiring the greatest number of trips, approximately 40 percent were replanted. On the basis of incidence of replanting, a 40 percent increase in seedbed preparation trips might be expected. However, the increase was more than 86 percent. There was also a three-fold increase in trips for cultivation, post-emergence, and/or flaming.

Two of the remaining four groups of fields did not require replanting. However, more trips were required over these fields than the other two groups of fields that required 10 percent replanting.

If the reasons for the extra trips were related to weather, efficiency could be expected to increase with normal weather conditions. However, if the extra trips were caused by poor management decisions, the results would be additional production cost.

Regardless of the reason(s) why some producers made 50 to 100 percent more trips over their cotton fields, it is obvious that their variable machine cost would be higher than those of producers who made fewer trips. Since labor cost on most farms is a fixed cost in the short run, it is doubtful that labor cost would actually increase.

Additional trips across fields have implications in other areas that may be more significant than increased variable machine cost. These areas are timeliness, labor cost, and fixed machine cost.

Failure in timely performance of any operation in the crop production process often reduces yields or total returns. It is logical to assume that producers who consistently go over their fields 50 to 100 percent more than their neighbors will have not only higher variable machine cost, but also higher labor and fixed machine cost.

Most machinery and equipment has a useful life of several years. Consequently, if additional machinery is required because of poor management, then it will normally require several years to correct the problem of high fixed machine cost.

Producers should carefully analyze their production practices. Sometimes an extra trip or two across a field is necessary. However, when added machinery and equipment must be purchased to perform these extra trips, it will be difficult to keep production cost from rising the year the machinery purchase is made and in subsequent years.

The average numbers of trips across cotton fields on cooperators' farms for 1972, 1973, and 1974, are given in Table X.

This table indicates that cotton producers have reduced the number of trips across cotton fields with machinery and equipment. It also suggests that over time, there may be a reduction in labor and machinery inputs.

However, before concluding that production cost has been reduced on a per acre basis, and particularly on a per pound of lint basis, other factors must be considered.

Input substitution is one of these factors. Are producers substituting herbicides for labor and machinery? If so, has total input usage (total cost) actually been reduced? In the short run, variable cost changes more rapidly than fixed cost. Consequently, the potential impact on total cost from input substitution may not be realized until producers actually reduce fixed machinery and equipment inputs as well as labor inputs.

TABLE X

TRIPS ACROSS COTTON FIELDS IN BOOTHEEL AREA 1972-74			
	NUMBER OF TRIPS		
PURPOSE OF OPERATION	1972	1973	1974
Seedbed preparation	5.0	4.5	4.3
Fertilizing	1.0	0.9	0.8
Planting	1.1	1.0	1.1
Cultivating	5.7	4.6	4.8
Aerial Spraying	.1	.3	.1
Harvesting	1.1	1.8	1.6
TOTAL	14.0	13.1	12.7

Yield changes are another factor that must be considered before any conclusions can be reached about per unit cost. Lint yields during the three-year period have declined. If weather conditions were ignored, it might be concluded that the reduction in trips across fields and/or the substitution of other inputs has caused yields to decline. Few Bootheel Area cotton producers would agree with this conclusion because weather conditions were far from normal.

In 1973 and 1974, data were collected on the number of trips across corn, single crop soybeans, double crop soybeans, and wheat fields. These data are presented in Tables XI, XII, and XIII.

These tables indicate producers made slightly fewer trips across fields for each of these crops in 1973 than 1974. Again weather was a major factor. In 1973, most field operations were delayed. In some instances, they were delayed two or three months.

TABLE XI

TRIPS ACROSS CORN FIELDS IN BOOTHEEL AREA 1973-74		
PURPOSE OF OPERATION	NUMBER OF TRIPS	
	1973	1974
Seedbed preparation	3.2	3.1
Fertilizing	1.3	1.8
Planting	1.2	1.0
Cultivating	2.0	2.0
Aerial spraying	0.0	0.0
Harvesting	1.0	1.0
TOTAL	8.7	8.9

The fact that farmers ultimately performed almost as many operations in 1973 as in 1974 indicates two things: (1) Sufficient labor, machinery, and equipment exists on most farms to compensate for adverse weather conditions (some might call this excess capacity) and (2) farmers exhibit willingness to work long hours in order to catch up.

TABLE XII

TRIPS ACROSS SOYBEANS FIELDS IN BOOTHEEL AREA 1973-74

PURPOSE OF OPERATION	NUMBER OF TRIPS			
	SINGLE CROP SOYBEANS		DOUBLE CROP SOYBEANS	
	1973	1974	1973	1974
Seedbed preparation	3.3	3.6	2.1	2.6
Fertilizing	0.2	0.3	0.0	0.0
Planting	1.0	1.0	1.0	1.0
Cultivating	3.7	3.6	3.2	3.1
Aerial spraying	0.0	0.0	0.0	0.0
Harvesting	1.0	1.0	1.0	1.0
TOTAL	9.2	9.5	7.3	7.7

TABLE XIII

TRIPS ACROSS WHEAT FIELDS IN BOOTHEEL AREA 1973-74

PURPOSE OF OPERATION	NUMBER OF TRIPS	
	1973	1974
Seedbed preparation	1.5	2.0
Fertilizing	1.5	1.8
Planting	1.0	1.0
Aerial spraying	0.0	0.2
Harvesting	1.0	1.0
TOTAL	5.0	6.0

Issued in furtherance of cooperative extension work, acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Carl N. Scheneman, Vice President for Extension, Cooperative Extension Service, University of Missouri, Columbia, Mo. 65201. The University of Missouri is an equal employment and educational opportunity institution.

University Libraries
University of Missouri

Digitization Information Page

Local identifier	MP482-1976

Source information

Format	Book
Content type	Text with images
Source ID	Gift Copy not added to the Collection
Notes	

Capture information

Date captured	9/23/2019
Scanner manufacturer	Fujitsu
Scanner model	fi-7460
Scanning system software	ScandAll Pro v. 2.1.5 Premium
Optical resolution	600 dpi
Color settings	8 bit grayscale
File types	tiff
Notes	

Derivatives - Access copy

Compression	Tiff: LZW compression
Editing software	Adobe Photoshop CC
Resolution	600 dpi
Color	8 bit grayscale
File types	pdf created from tiff
Notes	Images cropped, straightened