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Cost of Producing Cotton in Southeast Missouri; 1941

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COLUMBIA, MISSOURI

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DESCRIPTION OF REGION

The lowlands and delta of the Mississippi River, reaching from a short distance south of Cape Girardeau to the Gulf of Mexico, constitute one of the most important cotton districts in the world. The rich river bottom land and the climate are both ideally suited to cotton which has long been the principal crop of this district. Seven counties in Southeast Missouri are in the district. Table 1* shows the relative importance of cotton production in these seven counties.

TABLE 1.—COTTON PRODUCTION IN THE LOWLANDS OF SOUTHEAST MISSOURI.

County	Acres of Cotton	Production (Bales)	Per Cent of Farm Land in Cotton
Pemiscot	107,660	109,370	38.6
New Madrid	99,010	87,690	28.9
Dunklin	85,360	83,540	27.2
Stoddard	44,210	37,120	10.5
Mississippi	35,480	31,590	17.2
Scott	18,470	18,920	7.5
Butler	13,220	12,230	6.2

Several other South Missouri counties produce some cotton, especially after a year or two of high cotton prices but the production of all of these other counties combined does not equal the production of Butler County which is the least important of the seven.

The district chosen for this study is located in the west part of New Madrid County principally between Malden and Risco. A few of the records were slightly east of Risco. United States Highway 62 runs west through Risco to Malden and the record farms were located on or within three miles of each side of the highway. The soil varied from slightly sandy loam to a dark silt loam. All the fields except three had been in cultivation several years. These three fields of newly cleared land were small and, since their effect on the total would be slight, were included among the other records. The entire district is flat, slightly wooded with large drainage ditches running from north to south located one mile apart. The ditches are all numbered, and persons giving directions for locating a farm generally say: "It is on ditch No. , so

*Missouri Farm Census by Counties, 1940: Mo. State Board of Agriculture.

many miles north or south of the main highway." If it were not for these ditches most of this district would be a swamp.

Eighty-eight records were secured in this district, of which 34 were owner operators, 38 were tenant operators and 16 sharecroppers. For the purposes of this bulletin, these three tenure classes are defined as follow:

Owner Operators.—A man who actively operates, either with his own or hired labor, a farm whose title is in his own name. None of the owner operators included in this sample used hired managers. Many of them did all of the labor themselves except part or all of the hoeing and picking. Some hired all labor. Some of these owners rented part of their land to tenants or sharecroppers but such land was not included in the owner's land.

Tenant Operator.—An operator who rented the farm which he operated. The tenant operator owned his power and equipment and paid his hired hands. If he needed any financial aid he either went to a loan agency or individual and made the necessary arrangements the same as an owner would. In many cases the tenant has one or more sharecroppers. A tenant may or may not grow any cotton himself. To the extent that he sharecrops the land out he is a managerial and financial middle man between the landlord and sharecropper. All the tenant operators in the study actually grew some cotton themselves with either their own or hired labor.

Sharecropper.—An operator who owns neither the land which he operates nor the power and equipment which he uses. The land owner may rent out the land directly to the sharecropper or he may rent to a tenant who in turn lets it out to the sharecropper. The power and equipment may be owned by the landowner or by a tenant but never by the sharecropper. Thus the one feature distinguishing the tenant and the sharecropper is the ownership of the power and equipment. The sharecropper generally bears no part of the cash cost (seed, horse feed, fuel, equipment, repairs, etc.) except for labor and his part of the cost of fertilizer when used. Ginning costs are deducted from his share of the receipts. The sharecropper's landlord, either owner or tenant, in addition to paying all cash cost of producing the crop except for labor and part of the fertilizer frequently finances the sharecropper's living cost, reimbursing himself from the sharecropper's share of the receipts. About the only difference between the sharecropper and a hired hand is that the sharecropper does not receive his pay until the crop is harvested and generally receives a higher return because of the risk. This tends to create a more dependable labor

supply since it is generally in the interest of both parties to keep their contract until the crop is harvested although the sharecropper sometimes, if he gets too deep in debt to his landlord, leaves before the end of the season. Sharecroppers frequently move each year.

Description of Farms

The farms included in the sample were not "picked" except that two blocks of sharecropper farms were excluded because of the complexity of securing the power and equipment costs on these farms. To that extent the sharecropper farms may not be quite representative. With the above exception the farms were taken by the enumerator as he came to them. Those that were omitted were left out either because the operator was not at home or declined to cooperate.

That these farms were not the "twenty acres and a mule" farms so typical of some parts of the cotton belt will be seen by an examination of Tables 2 and 3. That the average size of the farms in the sample is too large even for New Madrid County is evident

TABLE 2.—LAND USE ON COTTON FARMS.

Crop	All Farms		Owner Farms		Tenant Farms		Sharecropper Farms	
	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent
Cotton	28.2	26.6	28.8	22.8	31.1	27.4	20.0	44.8
Corn	22.4	21.2	23.5	18.6	27.5	24.2	8.1	18.2
Lespedeza	14.3	13.5	13.9	11.0	18.8	16.6	4.5	10.1
Soybeans	8.4	7.9	10.7	8.5	8.8	7.8	2.7	6.0
Small grains	6.0	5.6	12.2	9.6	3.2	2.9	None	None
White Clover	2.3	2.2	5.7	4.5	0.3	0.3	None	None
Other Crops	2.8	2.7	3.9	3.1	2.4	2.1	1.2	2.7
Pasture	11.7	11.1	18.4	14.6	9.7	8.5	2.0	4.5
Garden	1.0	0.9	1.2	0.9	0.9	0.8	0.6	1.3
Homestead	1.5	1.4	2.1	1.7	1.2	1.0	0.8	1.8
Woods	1.5	1.4	0.9	0.7	2.4	2.1	0.3	0.7
Waste	5.8	5.5	5.0	4.0	7.1	6.3	4.4	9.9
Totals	105.9	100.0	126.3	100.0	113.4	100.0	44.6	100.0

by comparison with the 1940 census figures which gives 86.0 acres as the average size in the county. However, the average size of the owned farms as given in the census was 127.4 acres compared to 126.3 in the sample. This is remarkably close for such a small sample. It is impossible to compare the sample average for the tenant operated and sharecropper operated farms with the census figures for the same classes because the census lists share renters and sharecroppers in the same class. Share renters would approximately correspond to the class "tenant operators" of the bulletin. It is believed that the average size of all farms in the sample is larger than the county average because of the fact that sharecroppers did not constitute as large a per cent of the sample as actually exists in the county.

Cotton was the most important crop in acreage making up 26.6% of all land in farms compared to 28.9% for the entire county. Owners had the smallest per cent of their land in cotton; 22.8% as compared to 27.4% for tenant operators and 44.8% for sharecroppers. Other crops in order of importance for the entire sample were corn, lespedeza, soybeans, and small grains. On the owned farms small grains were more important than soybeans but the importance of these two were reversed on the tenant farms while the sharecroppers had no small grains at all. The white clover was combined for sale and was reported to be very profitable. Pasture constituted only 11.1% of the total acreage for the entire sample, ranging from 14.6% for the owners to 8.5% for the tenants and 4.5% for the sharecroppers. No hay, as such, is listed. Part of "other crops" were hay crops of various kinds and while a considerable proportion of the lespedeza was cut for hay, most of the remaining part was utilized for pasture. Gardens are more important than is indicated by the percentage of the area they occupy but they should be much more important than they are from the standpoint of both the amount of food purchased and a better diet. This region was formerly heavily wooded but most of the land has been cleared, woods being only 1.4 of the total area in the sample. Table 2 shows the size of these farms and how the land was utilized.

With a non-feed crop taking up over 25% of the total land area it would not be expected that these farms would be intensive livestock farms. Table 3 shows the farms to be rather lightly stocked but much heavier than one expects to find in many other parts of the cotton belt. The three tenure classes are presented on a per farm basis and were also all converted to 100-acre farms to make the comparative intensity of their livestock operation clearer. The

TABLE 3.—LIVESTOCK ON COTTON FARMS.¹

Kind of Stock	All Farms		Owner Farms		Tenant Farms		Sharecropper Farms	
	No. Head	Per 100 Acres	No. Head	Per 100 Acres	No. Head	Per 100 Acres	No. Head	Per 100 Acres
Work horses ²	3.33	3.14	3.79	3.00	4.10	3.60	0.5	1.00
Other horses ²	0.50	0.47	0.65	0.51	0.58	0.51	None	None
Milk cows	3.36	3.17	3.97	3.14	3.66	3.23	1.38	3.09
Other dairy stock	1.60	1.51	1.56	1.24	2.08	1.83	0.56	1.20
Beef cows	0.65	0.61	1.65	1.31	0.03	0.03	None	None
Other beef cattle	1.00	0.90	2.41	1.91	0.16	0.14	None	None
Brood sows	2.33	2.20	3.26	2.58	2.29	2.02	0.44	0.99
Other hogs	11.89	11.23	16.00	12.67	11.97	10.56	2.94	6.59
Ewes	0.67	0.63	1.38	1.09	0.32	0.28	None	None
Other sheep	0.01	0.009	0.03	0.02	None	None	None	None
Chickens	64.46	60.87	101.00	79.97	53.16	46.88	13.69	30.70
Other Poultry	1.65	1.56	1.18	0.93	2.47	2.18	0.69	1.55

¹Owned by operator. Does not include horses owned by landlord but used by operator.
²Includes mules.

intensity of livestock was less on the sharecropper farms than on the other farms, as was to be expected. A few of the sharecroppers had horses, which is not usual. The intensity of dairy cows was more nearly the same for all tenure classes than for other livestock. The sharecroppers had no other horses, beef cattle or sheep, the tenants had very few beef cattle and no other sheep and the owners had very few sheep. In fact, one rarely sees any sheep in New Madrid County. The per-hundred-acre base obscures the fact that the owner families had an average of 3.97 milk cows, the tenant families had an average of 3.66 milk cows, while the sharecropper families had an average of only 1.38 milk cows. The same comparison of chickens per family shows 101.00 for the owner families, 53.16 for the tenant families, and 13.69 for the sharecropper families. Since the milk cows and chickens are not usually very high quality, it is doubtful if many of the families, even of the owners, have more dairy and poultry products than is conducive to a healthful diet. Certainly the sharecropper families could consume far more eggs although they are not quite so deficient in dairy products. Possibly the reason why chickens are so scarce on the sharecropper farms is because they have no poultry fences and chickens are destructive to gardens and field crops if allowed to range.

Table 4 shows the estimated real estate valuations given by the cooperators. Sharecroppers were omitted from the table because very few of them cared to give an estimated valuation. The difference in the per acre valuation of the land (\$57.91 for the owners and \$60.68 for the tenant) was probably not significant—due to errors natural to sampling and estimations. This is probably also true of differences in the valuations of the horse barn and equipment shed but there seems to be a real difference in the value of the dwelling house and other improvements. This is very apparent from observation alone. Owners' homes are larger and in better repair and owners' farms have more and better fences and more service buildings.

TABLE 4.—REAL ESTATE VALUATION AND LAND TAX.¹

Item	Owners	Tenants
All real estate	\$9,702	\$8,256
Dwelling	1,217	714
Horse barn	183	162
Equipment shed	69	71
Other Improvements	919	428
Land	7,314	6,881
Land per acre (all)	58	61
Land in cotton per acre	58	68
Land tax per acre	1.12	1.18

¹Sharecroppers not included because of smallness of sample. Many sharecroppers declined to answer some of these questions.

Table 5 shows the rent rates paid by the tenants and sharecroppers. The universal rate for cotton land in Southeast Missouri is $\frac{1}{4}$ by tenants and $\frac{1}{2}$ by sharecroppers. Sharecroppers furnish only labor and frequently their family expenses and necessary hired labor have to be financed by the landlord until the crop is harvested. The usual rate for corn land is $\frac{1}{3}$ by tenants and $\frac{2}{3}$ by sharecroppers, although one sharecropper said he paid only $\frac{1}{2}$ on corn. Data on other crops was not sufficient to draw any conclusions but the usual rates for tenants are $\frac{1}{3}$ for small grain and $\frac{1}{2}$ for hay. There seems to be no good reason for sharecroppers paying a high pasture rent than tenants, and the apparent difference is probably partly due to the smallness of the

TABLE 5.—RENT RATES PAID.

Land Use	Tenant		Sharecroppers	
	Number of Replies	Rate	Number of Replies	Rate
Cotton	38	$\frac{1}{4}$	16	$\frac{1}{2}$
Corn	23	$\frac{1}{3}$	4	$\frac{2}{3}$
Corn	..	..	1	$\frac{1}{2}$
Wheat	1	$\frac{1}{3}$	..	..
Soybeans	1	$\frac{1}{3}$	..	..
Hay	1	$\frac{1}{2}$	4	$\frac{2}{3}$
Hay	1	$\frac{1}{3}$	1	$\frac{1}{2}$
Pasture	28	\$3.93	4	\$5.50

sharecropper sample, but mainly to the fact that the true rent paid for pasture is not very definite because in addition to the definite share rent paid on crops, the renter, (tenant or sharecropper) usually pays a lump sum for the remainder of the farm which includes pasture, house rent, garden, etc. Although there may be no mention of the house and garden they are implicitly included in the lump figure. The average tenant gets a house and garden plus 9.7 acres of pasture, while the sharecropper gets a house, garden, plus 2 acres of pasture. Even though the sharecropper gets a poorer house and smaller garden, if in both cases the value of the house and garden is nominally assessed against the pasture, as it partly is, it makes it appear that the sharecropper is paying a higher pasture rent when as a matter of fact he may be paying about the same.

The size of families is a rather important factor in production. Without the use of hired labor the number in the family of working age definitely limits the acreage of cotton grown. Table 6 shows the average size of the family in the three tenure classes and also gives an indication of the living conditions so far as the dwelling is concerned. The tenant families were the largest, having an average of 5.10 persons in the household as compared to

4.72 for the sharecropper and 4.16 for the owners. This is rather logical. Many sharecroppers, if they are ambitious and frugal will eventually become tenants and later landowners. Some of the sharecroppers are too young to have as many children as the tenants and by the time the tenant has reached the ownership stage his older children are beginning to leave home. This is supported by the number in the different age classes. The sharecroppers have the most children under ten but the tenants have the most from 10 to 16 years of age. The tenants are also high in the 17 to 21 year age group although there is no significant difference between tenant and owners in this age group.

There is quite a difference in the dwelling houses of the three tenure classes. The value varies much more than the size, the value of the houses of owners and tenants being 391% and 230% respectively of the value of those of the sharecropper, while the number of rooms indicate their respective sizes to be 144% and 128% of the sharecroppers'. When the valuations and sizes are put on a per

TABLE 6.—FAMILIES AND LIVING CONDITIONS.

	Owners	Tenants	Sharecroppers
Number in family	4.16	5.10	4.72
Under 10 years	.70	1.26	1.29
10 to 16 years	.64	1.11	.93
17 to 21 years	.52	.53	.29
Over 21 years	2.30	2.20	2.21
Value of dwelling house	\$1217.	\$714.	\$311.
Value of house per person	293.	140.	66.
Number of rooms in house	5.32	4.72	3.70
Number of rooms per person	1.28	.93	.78

persons instead of a per family basis, the owner' homes are 444% of the value of the sharecroppers' homes, and the tenant homes are 212% of the value of the sharecroppers', while in size (as indicated by number of rooms) the percentages are 164 and 119 respectively.

The Operating Cost of Producing Cotton

Man Labor.—The most important factor in the operating cost of producing cotton is man labor. In this study the cost of man labor constituted 57.9 per cent of the total operating cost and the man labor given did not include that of hauling to the gin or ginning, these costs being given in total. The total hours of man labor required to grow and harvest an acre of cotton is more than that for any other common field crop grown in Missouri, being exceeded only by some truck and fruit crops. Moreover, this labor requirement has not decreased much since the land was cleared and freed of stumps. There has probably been less im-

provement in the efficient utilization of labor in the production of cotton than in the production of any other widely grown crop. Man labor requirements for cotton production which the Department of Agricultural Economics of the University of Missouri have been using for 20 years are still approximately correct. During this period there has been some saving effected by the use of larger tillage tools but the bulk of man labor consists of hoeing (chopping and hoeing) and picking, both of which are still done by hand. Another factor, besides total amount, which makes labor important, is its time distribution. It has been said that cotton is a 13-months crop. While this is not exactly true, nevertheless, some will start cleaning the land of the old cotton or corn stalks in preparation for the next year's crop while others will still be picking last year's crop. Normally, work will begin on this crop in January or February and there will be cotton labor each month from then until picking is finished in December or later. But the big peak of man labor will be the hoeing in May and June and picking in September, October and November. In July and August there is comparatively little man labor required.

The amount of labor required is more important in a study of this kind than the cost because cost fluctuates violently from year to year with changing economic conditions while the hour requirements remain about the same from year to year. During 1941, the per hour cost of man labor was lower than usual in the spring and summer but rose sharply in the fall during the picking season. The lowest wage paid in the spring and summer by these 88 cotton growers was 10 cents per hour, reported by 12 men, and the highest was 17.5 cents, reported by only one man. Seven reported paying 15 cents per hour while 47 reported 12.5 cents. The average reported was 12.35 cents.

Table 7 shows the 15 different operations performed by these 88 men in growing 2478.7 acres of cotton. Some used horse power, some used tractor power while others used both horse and tractor power on the same operation. There were three operations, ditching, chopping or hoeing,* and picking on which no power was required. That is, chopping or hoeing, and picking was done entirely by man, and of 18 doing some ditching, 10 did it by man labor alone. Of all the 15 operations, only five, planting, cultivating, chopping or hoeing, picking and hauling to gins was done by all the growers. Fertilizing (as a separate operation) was done by

*Chopping and hoeing are listed together because both are done at the same time. Usually the first time over is mostly chopping and subsequent times over mostly hoeing but there is always some chopping and some hoeing at each time over.

TABLE 7.—FIELD OPERATIONS IN GROWING COTTON. (88 records—2478.7 acres)

Operation	Man Alone		Man With Horses		Man With Tractor		Man With Horses & Tractor		Total Performing Operation			
	Growers	Acres	Growers	Acres	Growers	Acres	Growers	Acres	Growers	Acres	Per Cent of Growers	Per Cent of Acres
Ditching	10	255.0	4	127.1	4	106.7	0	0	18	488.8	20.5	19.7
Cutting Stalks	0	0	58	1505.1	15	657.0	0	0	73	2162.1	83.0	87.2
Plowing	0	0	31	821.8	14	348.5	2	102.0	47	1272.3	53.4	51.3
Disking	0	0	44	1039.3	28	1010.5	0	0	72	2049.8	81.8	82.7
Listing or bedding	0	0	70	1803.1	7	354.0	3	87.1	80	2244.2	90.9	90.5
Harrowing—												
before planting	0	0	62	1524.8	19	709.2	2	24.1	83	2253.1	94.3	91.1
Dragging	0	0	11	224.4	4	103.5	1	9.1	16	337.0	13.2	13.6
Rolling	0	0	5	106.8	3	66.0	0	0	8	172.8	9.1	7.0
Fertilizing	0	0	7	186.4	0	0	0	0	7	186.4	8.0	7.5
Planting	0	0	86	2430.0	2	48.7	0	0	88	2478.7	100.0	100.0
Harrowing—												
after planting	0	0	13	377.8	1	7.0	0	0	14	384.8	15.9	15.5
Cultivating	0	0	70	1824.5	7	208.2	11	446.0	88	2478.7	100.0	100.0
Chopping & hoeing	88	2478.7	0	0	0	0	0	0	88	2478.7	100.0	100.0
Picking	88	2478.7	0	0	0	0	0	0	88	2478.7	100.0	100.0
Hauling to Gin	0	0	26	548.3	60 ¹	1779.4	2 ¹	151.0	88	2478.7	100.0	100.0

¹Hauling to gin was done mostly with trucks or automobile with trailer but some hauled with tractors.

only 8% and rolling was done by only 9.1%. Hauling to gins is listed in the table as a tractor operation but actually most of it was done by truck or by automobile and trailer.

The various kinds of operations done in producing cotton gives only a faint idea of the amount of labor involved in producing cotton. Some of these operations are performed many times. Table 8 shows this more in detail. Ditching, picking and hauling to gins were not included in the table. Ditching does not cover the entire field; no record of the number of pickings performed was secured, while hauling to gins was done only once by all. The number of records for each operation generally exceeds the total number of growers (88) because frequently a man would perform a certain operation a different number of times on different fields or on different parts of the same field. The per cent of total is based on total acres (2478.7). The number of times some of the fields were covered will probably be amazing to the farmer in the corn belt who produces good crops of corn with a minimum of labor—plowing, one or two diskings, planting, three cultivations and picking. The records showed fields disked four times; harrowed four times before planting; harrowed three times after planting; hoed seven times; and cultivated nine times. These were extreme cases. The typical field was covered once with a stalk cutter, disked once, listed once, harrowed once before planting, planted, hoed twice and cultivated five times. More than 50% of the land was not plowed, (listing takes its place) dragged, rolled, fertilized or harrowed after planting. The number shown in the table as fertilizing does not represent the total number using fertilizer, because some used planters with fertilizer attachments. The average times over for all operations was 15.04.

TABLE 8.—NUMBER OF TIMES VARIOUS FIELD OPERATIONS WERE PERFORMED.
(88 records—2478.7 acres)

Operations	Times Over	Number of Records	Acres	Per Cent of Total	Average Times Over
Cutting Stalks	0	14	297.5	12.0	0.92
	1	73	2085.3	84.1	
	2	4	95.9	3.9	
Plowing	0	48	1243.4	50.2	0.50
	1	45	1235.3	49.8	
Disking	0	18	422.9	17.1	1.31
	1	43	1059.7	42.7	
	2	26	834.7	33.7	
	3	5	121.7	4.9	
	4	2	39.7	1.6	
Listing or Bedding	0	10	303.6	12.3	0.97
	1	71	1933.6	78.0	
	2	11	241.5	9.7	
Harrowing before Planting	0	7	237.8	9.6	1.28
	1	52	1461.1	58.9	
	2	27	661.3	26.7	
	3	3	89.0	3.6	
	4	1	29.5	1.2	
Dragging	0	73	2143.8	86.5	0.15
	1	13	287.0	11.6	
	2	2	47.9	1.9	
Rolling	0	81	2305.9	93.0	0.10
	1	6	108.8	4.4	
	2	2	64.0	2.6	
Fertilizing	0	82	2292.3	92.5	0.08
	1	7	186.4	7.5	
Planting	1	87	2458.7	99.2	1.01
	2	1	20.0	0.8	
Harrowing after Planting	0	74	2093.9	84.5	0.24
	1	8	181.1	7.3	
	2	5	186.0	7.5	
	3	1	17.7	0.7	
Chopping or Hoeing	1	2	31.9	1.3	2.61
	2	43	1195.1	48.2	
	3	40	1070.9	43.2	
	4	5	142.8	5.8	
	7	1	38.0	1.5	
Cultivating	3	2	65.0	2.6	5.87
	4	7	175.9	7.1	
	5	27	768.9	31.0	
	6	27	739.6	29.8	
	7	19	515.4	20.8	
	8	6	152.4	6.2	
	9	2	61.5	2.5	
Average times over for all operations except picking					15.04

TABLE 9.—TIME REQUIREMENTS FOR HORSE POWER OPERATIONS.

Operation	No. Records	Total Hours		Acres Treated	Acres Over Once	Average Times Over	Average Acres per 10-Hour Day			
		Man	Horse				Treated		Over Once	
							Man	Horse	Man	Horse
Cutting Stalks	59	2137	4304	1545.1	1563.0	1.01	7.25	3.58	7.30	3.64
Plowing	31	4495	9025	821.8	821.8	1.00	1.83	.91	1.83	0.91
Listing or Bedding	70	3477	7292	1893.1	2044.6	1.13	5.18	2.48	5.88	2.80
Disking	44	2227	6332	1039.3	1429.6	1.38	4.67	1.63	6.41	2.24
Harrowing before										
Planting	62	1926	5002	1524.8	2238.5	1.47	7.94	3.05	11.63	4.48
Dragging	11	249	418	224.4	253.3	1.15	9.01	5.38	10.42	6.17
Planting	86	2392	4594	2430.0	2450.0	1.01	10.20	5.29	10.20	5.32
Harrowing after										
Planting	13	600	1368	377.8	599.2	1.59	6.29	2.76	10.00	4.39
Cultivating—1st Time	73	4036	7924	2080.0	2080.0	1.00	5.15	2.62	5.15	2.62
Cultivating—2nd Time	76	3255	6345	1913.0	1913.0	1.00	5.88	3.01	5.88	3.01
All Later Cultivating	74	11201	21924	1952.0	7501.2	3.84	1.74	0.89	6.71	3.42
Hauling to Gin	26	1391	2914	548.3	548.3	1.00	3.94	1.88	3.94	1.88

Table 9 shows the time requirement for all the operations performed by horse power except rolling, fertilizing, and ditching. The number of records for these operations were too few (less than 10) to give a reliable average. Most of the operations were performed with two-horse teams as can be seen by comparing the total number of man hours with the total number of horse hours. For instance, the average size of team used in plowing was 2.01 horses which means that there were only a few three-horse teams, while the average size team used for the first cultivation was 1.96, which means that there were a few who used a double shovel. The operation which took the most time per once over was plowing, but the hours spent in cultivating showed that this operation was by far the most important operation from the standpoint of total time. Out of a total of 37,386 man hours working with horses, 18,492 hours, almost 50 per cent of the total, was for cultivating. This does not include chopping and hoeing. It is very important from the standpoint of yield that cotton be kept free of grass and weeds.

Table 10 shows the time requirement for operations performed with a tractor with the additional column "Time Advantage of Tractor Over Horses" as a per cent of the requirement with horses. One man plowing with a tractor averaged 6.02 acres per 10-hour day, whereas one man plowing with the average number of horses (2.01) averaged only 1.83 acres, giving a 229.0 per cent advantage to the tractor insofar as time of man labor and the time of finishing the operation are concerned. One might wonder why cotton farmers do not use larger teams for soil preparation operations. As a matter of fact, the peak of their man labor requirement comes at the time of chopping and picking which does not coincide with the peak

TABLE 10.—TIME REQUIREMENTS FOR TRACTOR POWER OPERATION.

Operations	Number Man and of Tractor Records Hours		Acres Treated	Acres Over Once	Average Times Over	Average Acres Per 10- Hour Day		
						Time Advantage of Tractors Over Horses Once (Per Cent)	Time Advantage of Tractors Over Horses Once (Per Cent)	Time Advantage of Tractors Over Horses Once (Per Cent)
Cutting Stalks	18	365	676.1	754.1	1.12	18.52	20.83	185.3
Plowing	16	688	413.5	413.5	1.00	6.02	6.02	229.0
Listing & Bedding	12	288*	397.7	397.7	1.00	13.89	13.89	136.2
Disking	28	1096	1010.5	1817.4	1.80	9.26	16.67	160.1
Harrowing before Planting	21	375	731.2	930.2	1.27	19.61	25.00	115.0
Cultivating— 1st Time	12	375	398.7	398.7	1.00	10.64	10.64	106.6
Cultivating— 2nd Time	15	463	565.7	565.7	1.00	12.20	12.20	107.5
All Later Cultivating	19	1323	692.2	2129.6	3.03	5.24	16.13	140.4

*One record of one tractor pulling two listers. Tractor hours 268 instead of 288.

of their power requirement in soil preparation. With so small a man labor requirement on crops other than cotton and with the peak of their man labor requirement on cotton not coinciding with the peak of their power requirement in soil preparation, the matter of efficient utilization of man labor in soil preparation is not so serious a problem.

The man labor, horse and tractor power used in producing the 2,478.7 acres of cotton is summarized in Table 11. An average of 115.38 hours of man labor, 31.5 hours of horse labor and 2.08 hours of tractor power per acre were used. Picking the crop required 61.54 per cent of the man labor while chopping and hoeing required 21.52 per cent leaving only 16.94 per cent for all other operations. Cultivating required 48.10% of the horse labor and 41.83 per cent of the tractor use while 42.88% of horse labor and 57.69% of the tractor use was for soil preparation.

TABLE 11.—SUMMARY OF LABOR USED IN PRODUCING 2478.7 ACRES OF COTTON IN NEW MADRID COUNTY, MISSOURI, IN 1941.

Operation	Hours of Man Labor		Hours of Horse Labor		Hours of Tractor Use	
	Per Acre	% of Total	Per Acre	% of Total	Per Acre	% of Total
Soil Preparation	7.49	6.49	13.32	42.28	1.20	57.69
Planting	.99	.86	1.85	5.87	.01	.48
Chopping & Hoeing	24.83	21.52	..	..	..	..
Cultivating (other than chopping and hoeing)	8.57	7.43	15.15	48.10	.87	41.83
Picking	71.01	61.54	..	..	..	..
Hauling to Gin	2.49	2.16	1.18	3.75	..	..
Total	115.38	100.00	31.50	100.00	2.08	100.00

Horse Labor.*—The amount of horse labor used in producing the 2,478.7 acres of cotton has been shown in the preceding tables, the average number of hours being 31.50 per acre.

Seventy-one records on the cost of horse labor were secured. Seventeen cotton records were from sharecroppers who used their landlords' horses and operators who hired or borrowed horses, or used tractor power altogether. One used only tractor power. The total cost and the average cost per head and per hour is shown in Table 12. The cost of horse labor was higher than one would expect in North Missouri. There are two reasons for this. Prices of both horses and feed are higher in Southeast Missouri than in North Missouri. This makes the annual cost per head higher. The average per head cost, as shown in Table 12, was \$76.19 of which 75.6% was feed cost, 11.6% depreciation, 5.1% barn charge and 7.7% interest

*Horse or mule.

and taxes. The average percentage of the total horse labor which was used on cotton was estimated to be 56.0, making the average cost to cotton \$5.27 per acre or 16.14c per hour.

TABLE 12.—THE COST OF HORSE LABOR ON COTTON FARMS.
(297 Head of Horses or Mules)

Cost of Item	Total Cost	PerCent of Total	Cost Per Horse	Per Cent to Cotton	Total Cost to Cotton	Cost Per Acre of Cotton ¹	Cost Per Hour on Cotton ²
Feed	\$17109.09	75.6	\$57.61	56.0	{ \$9584.09 1466.59 651.60 973.27	{ \$3.99 .61 .27 .40	{ 12.20c 1.87 .83 1.24
Depreciation	2618.09	11.6	8.81				
Barn Charge	1163.36	5.1	3.92				
Interest & Taxes	1737.45	7.7	5.85				
Total	\$22627.99	100.0	\$76.19	56.0	\$12675.64	\$5.27	16.14c

12403.5 acres. 75.2 acres farmed entirely by tractors or horses hired or borrowed for a few days only.

278,526 hours excluding hours borrowed or hired.

The most important factor causing high horse labor cost is the factor of horse labor distribution. Corn and cotton are the principal crops (almost 50% of their total land) with very small acreages of fall sown grain. The horse labor requirement of these two crops has practically the same seasonal distribution. During the spring and early summer, horse labor requirements are high but the rest of the year (about 7 months) horses are practically idle. In other parts of the state fall sown grain, corn harvest in the late fall, and grain and hay harvest after the spring and early summer peak is over, furnish a more evenly distributed horse labor requirement throughout the year, resulting in much lower per hour cost. The effect of hours of labor per horse is shown in Table 13. As the hours of labor per horse increased, there was a distinct tendency for cost per hour to decrease until the number of records falling in a class became so small as to make the average unreliable.

TABLE 13.—EFFECT OF HOURS OF LABOR PER HORSE ON COST OF LABOR PER HOUR.

Hours of Labor per Horse	Number of Records	Number of Horses	Average Hours per Horse	Average Cost per Hour
150-240	9	35	212	37.3c
250-349	12	41	306	26.6
350-449	13	37	408	18.5
450-549	13	51	509	16.5
550-649	10	73	585	13.1
650-749	8	32	705	12.3
750-849	1	4	750	6.7
850-949	2	8	899	9.8
950-1049	2	6	1016	7.4
Over 1050	1	10	1750	3.3

equipped probably as well as corn belt farms of the same size as measured by crop acres. They averaged, Table 16, one or more breaking plows, listers, harrows, cultivators, sets of harness, picking bags and hoes. An operator and his sharecroppers or all the sharecroppers of a landlord (if he isn't an operator) share tools so that actually most of the important tools were available to all. A few men borrowed or hired tools.

TABLE 16.—EQUIPMENT OWNED AND USED ON COTTON CROP.

Kind of Equipment ¹	Total Pieces	Average Per Farm ²
Cultipackers	1	.01
Cultivators	160	1.82
Disks (harrows)	73	.83
Drags	3	.03
Harness—sets	144	1.64
Harrows (spike)	92	1.05
Hoes	410	4.66
Listers	90	1.02
Picking bags ³	225	2.56
Planters	79	.90
Plows (breaking)	101	1.15
Rollers	4	.05
Rotary Hoes	1	.01
Stalk Cutters	50	.57
Trailers	34	.39
Wagons	31	.35

¹Includes both horse and tractor equipment.

²All growers (88).

³Many pickers furnish their own bags.

Table 17 shows the average cost of equipment on these farms. Depreciation, cash repairs, and interest are the most important items of cost. Less than one-half (33 out of 76) had sheds or other shelter for their equipment. This may be the reason why the depreciation rate is rather high in most cases. On the average 54.7% of the total equipment cost was chargeable to cotton making an average acre cost of \$2.43.

TABLE 17.—THE COST OF FIELD EQUIPMENT ON COTTON FARMS.¹

Class of Expense	Average Total Cost	Per Cent of Total	Per Cent to Cotton	Average Cost to Cotton	Cost Per Acre ²
Depreciation	\$73.33	49.9	54.7	\$40.11	\$1.21
Cash Repair	43.11	29.3		23.58	.71
Home Labor	8.10	5.5		4.43	.14
Interest	16.42	11.2		8.98	.27
Taxes	1.64	1.1		.90	.03
Building Charge	4.40	3.0		2.41	.07
Total	147.00			80.41	\$2.43

¹Does not include cost of tractor, truck, wagon or trailers. The cost of trucks, wagons and tractors is included in cost of hauling to gin.

²Weighted by acres. That is, each grower's per acre cost was weighted by his acres.

That the number of crop acres on which the equipment is used is an important factor in determining the cost of equipment per acre and, therefore, the cost per unit of product, is shown in

Table 18. Since the proportion of the total equipment cost chargeable to cotton by different growers was a widely variable factor, the acres in cotton in each area were adjusted for the equipment use on other crops. For instance, if on a particular farm 25 acres were in cotton and only 50% of the total equipment cost was judged by the grower to be chargeable to cotton, the adjusted acres would be 50. But if on another farm on which 25 acres of cotton were grown there were more acres of other crops so that only 40% of the total equipment cost was judged to be chargeable to cotton, the adjusted acres would be 62.5. All the equipment records were divided into three equal size groups on the basis of adjusted acres. As the adjusted acres increased from 26.8 to 49.6 to 111.1 the cost

TABLE 18.—EFFECT OF SIZE OF CROP ACRES ON EQUIPMENT COST.

Group	Average Acres of Cotton	Average Adjusted Acres	Per Cent Chargeable To Cotton	Cost Per Adjusted Acre
1	15.3	26.8	57.1	\$3.48
2	26.7	49.6	53.8	2.46
3	57.1	111.1	51.4	2.32

per acre decreased from \$3.48 to \$2.46 to \$2.32. The per cent of the equipment cost chargeable to cotton in the three groups indicates that the larger farms had a smaller per cent of their crop acres in cotton. This was to be expected because the sharecroppers occupied the smaller farms and most of their crop acres were in cotton. Another noticeable fact was that an increase in adjusted acres from 26.8 to 49.6 decreased the per acre cost by \$1.02 while an increase from 49.6 acres to 111.1 acres decreased the per acre cost by only 14 cents. Each particular tool has a rather definite optimum upper limit of crop acres. To go beyond this limit is to risk loss by not being able to do the work properly in unfavorable seasons. Therefore, as crop acres increase, the tools have to be duplicated. The optimum point is different for different tools. This results in a rapid decrease in the per acre cost at first, and a gradual slowing up in the decreasing cost, as acres continue to increase and as more tools have to be duplicated.

Miscellaneous Costs

The cost of man labor, horse labor, tractor power and equipment constitute 77.5 per cent of the cost of producing cotton.* Other costs include seed, fertilizer, hauling to the gin and ginning. The amount of seed used per acre varied from 10 pounds to 66 pounds and averaged 33.4 pounds. Most growers reported using

*Not including the part which these factors contribute to the cost of hauling to the gin and ginning.

one bushel per acre. As a matter of fact, they buy their seed by the hundred weight and use 100 pounds on three acres whereas a bushel of cotton seed weighs only 32 pounds. The viability of cotton seed is very sensitive to weather conditions and the loss resulting from a poor stand is so great as compared to the cost of seed that more seed is used than is needed, assuming good germination conditions, and the excess plants are later eliminated by chopping out. The cost of seed varied widely with an average of 3.95 cents. One would expect that those who bought the higher priced seed would use less seed per acre, but such did not seem to be true until the cost per pound was considerably above the average after which there seemed to be a slight negative relationship between the cost per pound and the amount used per acre. Twenty-four pounds of the 12.5 cents per pound seed were used per acre, while three others who paid 8 and 9 cents per pound used an average of 21.1 pounds per acre. There seemed to be no definite relationship between the acre yield and either the price of seed per pound or the pounds used per acre.

Exactly 25% of the growers (22 out of 88) used fertilizer on all or part of their cotton acreage. Most of them used fertilizer on only part of their crop. The use of fertilizer on cotton is a comparatively recent practice in this district and it seems that it is being tried out only in an experimental way at present. The yields were not reported separately for the fertilized and unfertilized acres, so it was impossible to get a very accurate measure on the effect of the fertilizer treatment. Tabulating by the three tenure groups, it was found that 32.4% of the owners used fertilizer at the average* rate of 139 pounds per acre fertilized, 23.7% of the tenants used fertilizer at the average* rate of 140 pounds per acre, and 12.5% of the sharecroppers used fertilizer at the average* rate of 150 pounds per acre. Only 2 sharecroppers, both with the same landlord, used fertilizer.

It appears from Table 19 that of the three tenure classes, the sharecroppers used more seed than either the owners or tenants

TABLE 19.—AVERAGE SEED AND FERTILIZER USED ON COTTON FARMS.

Item	Owners	Tenants	Sharecroppers
Seed—pounds per acre ¹	32.8	32.7	39.4
Seed—cost per pound ¹	3.83c	3.70c	3.12c
Seed—cost per acre ¹	\$1.26	\$1.21	\$1.23
Fertilizer ² —Lbs. per Acre	139	140	150
Fertilizer—cost per ton	\$33.71	\$40.61	\$38.00
Fertilizer—cost per acre	\$2.34	\$2.84	\$2.85

¹Unweighted average.

²Unweighted average of acres fertilized.

*Unweighted.

but it was lower priced seed, making the cost per acre about the same for all three classes. It also appears, from the same table, that the tenants used about the same quantity of fertilizer per acre as the owners while the sharecroppers used more, but that both tenants and sharecroppers used higher priced fertilizer, making the cost per acre considerably higher than for the owners. However, the fertilizer users constituted such a small sample, especially of sharecroppers, that any such comparisons are rather inconclusive.

The cost of hauling the seed cotton to the gin was the most difficult part of the study. Some hauled with horses and wagons, some with trucks with and without trailers, some with ordinary automobile with wagons or trailers, some with tractors and wagons or trailers, and a few hired their hauling done. The time required and the cost of man labor, horse labor and wagon and trailer use could be determined fairly accurately. But most trucks and automobiles were used not only for many other business purposes, but also as a family car to go to town, to church, for visits and pleasure trips. After consulting other studies on the costs of farm trucks and taking into consideration local practices and conditions, a flat charge of 10c per mile was charged for the use of an automobile, truck or tractor. Thus the cost of hauling was composed of man labor, at the same rate per hour as pickers were averaging on the farms in question, horse labor where used, the use of wagon or trailer where used, plus 10c per mile for automobile, truck or tractor where used. The total cost of hauling to gin averaged* \$1.94 per acre or .401c per pound of lint.

Cost of Ginning

In some cases, the cost of ginning was obtained from the gin tickets given to the grower, but in most cases it was quicker to obtain the data direct from the ginners' records. The ginners cooperated with our field man 100% in furnishing the desired information. So far as the cost to the grower was concerned, the gin records were complete but were sometimes lacking in certain other respects. For most of the 1941 crop, ginners charged 30c per 100 pounds of seed cotton plus the cost of bale ties and wrapping. The cost of bale ties and wrapping varied from \$1.75 to \$2.80 per bale. Thus the cost per pound of lint cotton varied with the ginning per cent (the per cent of lint per unit of seed cotton), the ties and wrapping charge, and the weight per bale. The intention is to make

*Unweighted.

the bales weigh 500 pounds, but where the grower brings in a load of seed cotton, it may gin out from 400 to 600 or more pounds. The ginning per cent for picked cotton was about 35. However, not all the crop is picked. During the last part of the picking season, weather conditions are such that the bolls do not open in the normal way and the rest of the crop is snapped—bolls and all. This part of the crop is of very poor quality; the fibers are broken in ginning and it is full of trash. It is also hard to gin and therefore the cost of ginning is much higher than for the picked crop. Ginners are not anxious to gin these "bollies," as they are called, and the charges vary considerably. Sometimes the ginner buys these bollies outright at so much per pound of seed cotton but more frequently he takes the seed for the ginning. This is the more common method and all ginning charges for these records were based on that method. Sometimes the gin record included these bollies with the picked cotton so that the ginning per cent for the picked cotton was impossible to obtain.

The Value of Seed

Although the cotton seed is a by-product, it materially reduces the cost of growing cotton. The type of cotton grown in Southeast Missouri gins out about 35 per cent lint, the other 65% being seed and trash. In all cases, except when the ginner actually buys the bolls, each grower's seed cotton and lint cotton is weighed separately. But each grower's seed is not kept separate so that it is impossible to tell just what part of the remaining 65%, after the lint is deducted, is seed and what part trash. The common practice is to allow 10% of the weight of seed cotton for trash and the weight of seed is calculated by first deducting 10% of the seed cotton for trash and then subtracting the actual weight of lint from the remainder to get the weight of seed. For instance, a typical record showed 1540 pounds of seed cotton which ginned 560 pounds of lint. Ten per cent of 1540 amounted to 154 pounds of trash. The 154 pounds of trash plus 560 pounds of lint left 826 pounds of seed. However, in the cost of snapped cotton the customary arbitrary rule is to allow only 25% for lint and 45% for seed. This means that 30% is allowed for dirt, hulls, etc. On the entire sample consisting of 3,575,106 pounds of seed cotton, 1,955,561 pounds of seed were credited to the grower, 54.7% of the gross weight. The price of seed varied considerably, averaging \$41.61 per ton.

TABLE 20.—SUMMARY OF COSTS OF PRODUCING COTTON IN SOUTHEAST MISSOURI.¹—1941.

Items of Cost	% of Gross Cost of all Records	Cost Per Acre				Cost per Pound of Lint Cotton			
		All Records	Owner Operators	Tenant Operators	Share-Croppers	All Records ³	Owner ⁴ Operator	Tenant ⁵ Operator	Share-Croppers
Man Labor ²	11.7	\$ 5.22	\$ 5.29	\$ 5.19	\$ 5.11	1.03c	1.12c	1.00c	0.91c
Horse Labor ²	11.0	4.92	4.72	4.95	5.39	.97	1.00	.95	.96
Tractor Use ²	3.2	1.43	1.79	1.28	.88	.28	.38	.25	.16
Equipment Use ²	5.4	2.43	2.31	2.59	2.25	.48	.49	.50	.40
Seed	2.7	1.23	1.25	1.21	1.23	.25	.27	.23	.22
Fertilizer	.9	.39	.50	.32	.31	.08	.10	.06	.05
Cost Up to Harvest	34.9	\$15.62	\$15.86	\$15.57	\$15.17	3.09c	3.36c	2.99c	2.70c
Picking	46.2	20.71	19.97	20.94	22.16	4.09	4.23	4.04	3.95
Hauling to Gin	3.8	1.74	1.58	1.76	1.90	.33	.33	.34	.34
Cost of Harvesting	50.0	\$22.42	\$21.55	\$22.70	\$24.06	4.42c	4.56c	4.38c	4.29c
Ginning	15.1	\$ 6.75	\$ 6.54	\$ 6.80	\$ 7.19	1.33c	1.39c	1.31c	1.28c
Gross Cost	100.0	\$44.79	\$43.95	\$45.04	\$46.42	8.84	9.31	8.68	8.27
Value of Seed	37.5	16.81	15.82	16.88	19.53	3.31	3.35	3.25	3.48
Net Cost	62.5	\$27.98	\$28.13	\$28.16	\$26.89	5.53	5.96	5.43	4.79

¹All figures are weighted averages.

²Does not include hauling to gin or ginning.

³506 average yield of lint per acre.

⁴472 average yield of lint per acre.

⁵519 average yield of lint per acre.

⁶561 average yield of lint per acre.

Summary of Cost of Producing Lint Cotton

Table 20 presents the cost figures in summary form for all records for owner-operators, tenant-operators and sharecroppers. All figures are on a per acre basis and are weighted averages; i.e., the total cost on the entire acreage was divided by the total acres. Thus, each operator exerted an influence on the result in proportion to his acreage. It is interesting that the gross cost per acre was lowest for the owner-operators and highest for the sharecropper but that the relative gross cost per pound of lint was exactly reversed for the three tenure classes. This was due to the acreage yields of the three tenure classes. Just why it was that the acre yields of the sharecroppers were higher than both the tenant operators and owner operators, it is impossible to say unless it was that both owners and tenants were more interested in other crops than the sharecropper and therefore used both better land and care on these other crops at some detriment to cotton compared to the sharecropper. Man labor constituted considerably more than half of the total cost, 57.9%, besides part of the cost (3.8%) of hauling to the gin. The high man labor requirements of producing cotton accounts for the comparatively dense rural population in good cotton regions.

The value of the seed reduced the cost of producing lint cotton quite materially, being 37.5% of the gross cost. Due to this credit, the net cost per acre was about the same for owners and tenants but about \$1.25 lower for the sharecroppers. That is, the tenant's extra credit for the seed, over that received by the owner, just about offset his increased cost of producing the higher yield while in the case of the sharecropper, this extra credit more than offset his extra cost by \$1.27. The net cost per pound of lint was 6.28c for the owner, 5.43c for the tenant and 4.79c for the sharecropper.

Effect of Acre Yield on Cost of Production

The effect of more economic use of various factors on the cost of producing cotton has been discussed. It was shown that an increase in the per unit use of horses, tractors, and equipment decreased the unit cost of these factors which, provided the increased use was not on the same area of cotton itself, would be reflected in the decreased cost of producing cotton. Perhaps though there is no one factor which affects the cost per unit of product quite so much as an increase in the acre yield. Table 21 shows this quite strikingly. Up to harvest time, the increase in the cost of producing a higher yield is not in proportion to the increase in yield.

The cost of picking, hauling to gin and ginning is practically in direct proportion to the yield.* The credit for value of the seed is greater the larger the yield. Therefore, the decrease in the pound cost, for higher yields, occurs in producing the crop up to harvest and in the increased seed credit.

TABLE 21.—EFFECT OF ACRE YIELD ON COST OF PRODUCING A POUND OF LINT COTTON.

Yield per acre (in pounds)	Number of Growers	Cost Per Pound
250-324.9	11	8.22c
325-399.9	15	7.51
400-474.9	13	6.53
475-549.9	20	5.77
550-624.9	13	5.06
625-699.9	6	4.93
700-774.9	7	3.98
775 or more ¹	3	4.17

¹These yields were 786 lbs., 934 lbs., and 1000 lbs.

The per acre profit in cotton production varies widely from year to year. A combination of circumstances in 1941 made this a more profitable year than is probably normal. In the early part of the season, up to picking time, hired labor was cheap. Cheap labor is an important factor in the profitable production of cotton since practically all growers, even sharecroppers, hire a considerable amount of labor in the chopping and picking season. The yield in 1941 was fair and prices were high. This combination of favorable factors resulted in a per acre net income of \$52.95 for the owner operators, \$35.45 for the tenant operator and \$27.58 for the sharecropper (Table 22). These figures allow for all operating

TABLE 22.—NET OPERATING INCOME FROM COTTON PER ACRE AND PER FAMILY.

Items	Owner Operator		Tenant Operator		Sharecropper	
	Per Acre	Per Family	Per Acre	Per Family	Per Acre	Per Family
Income from Lint	\$81.08	\$2331.10	\$88.16	\$2738.61	\$97.62	\$1956.72
Income from Seed	15.82	454.86	16.88	524.49	19.53	391.50
Gross Income	96.90	2785.96	105.04	3263.10	117.15	2348.22
Gross Income to Operator	96.90	2785.96	78.78	2447.32	58.58	1174.11
Operating Cost to Operator	43.95	1263.71	43.33	1345.95	31.00	621.33
Net Income to Operator	52.95 ¹	1522.25 ¹	35.45	1101.37	27.58	552.78
Hours of Family Labor	22.4	645	38.3	1191	61.9	1240
Credit for Family Labor	4.34	124.95	7.94	246.65	11.47	229.84
Net Family Income ²	\$57.29	\$1647.20	\$43.39	\$1348.02	\$39.05	\$ 732.62

¹Does not include land charge.

²From cotton crop only.

*More cotton can be picked in a given time when the yield is heavy, but generally pickers are paid the same per pound regardless of yield so that to the extent that the picking is hired, the benefit accrues to the pickers rather than to the operator.

costs, including the labor of the operator and his family at current labor rates but does not include any land charge in the case of the owner operators. The land charge necessarily depends on the profitability of farming and to attempt to include it as a cost of production involves one in a vicious circle. Therefore, to compare the net income of the owner operator with those of the tenant and sharecropper, one must allow for taxes and other current land upkeep costs and interest on his investment in land. The per acre net income of the tenant compared to that of the sharecropper shows that it pays well to finance one's own power, equipment, and other current costs if one can do so.

Although the per acre profit in cotton production is frequently high, the area that a family can handle without hired labor is limited. This results in either a rather low average income or the assumption of the risk involved in hiring labor. Fortunately, most of the hired labor consists in picking when the crop is already assured. It will be noticed, in Table 22, that the owner operator and his family did significantly less of the actual labor of producing the crop than either the tenant or sharecropper. The tenant and his family worked on the cotton crop almost as much as the sharecropper family, but less per acre because of larger acreage. Aside from the cost of ginning, the labor of the sharecropper and his family constituted 41.9% of his operating cost, while the same figures for the tenant and owners are 20.8% and 11.6% respectively. Adding this part of the cost, which is contributed by the operator and his family, to the net profit per family brings the family income from cotton up to \$1647.20 for the owner operator, \$1348.02 for the tenant operators and \$782.62 for the sharecroppers. These net family incomes are considerably increased by other crops and livestock enterprises in the case of the owner operator and to some extent in the case of the tenant, but the income from cotton constitutes almost the only income of the sharecropper.

Current labor rates, prices for lint and seed, and yield varies from year to year, causing year to year fluctuations in the cost of production and incomes. The basic factors of labor and power requirements are more stable. These vary slightly from year to year depending on weather conditions. Yield affects picking labor requirements, but any change in the per acre cost of picking due to yield is more than offset in the cost per pound of lint by the effects of spreading varying yields over many relatively fixed costs.