AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

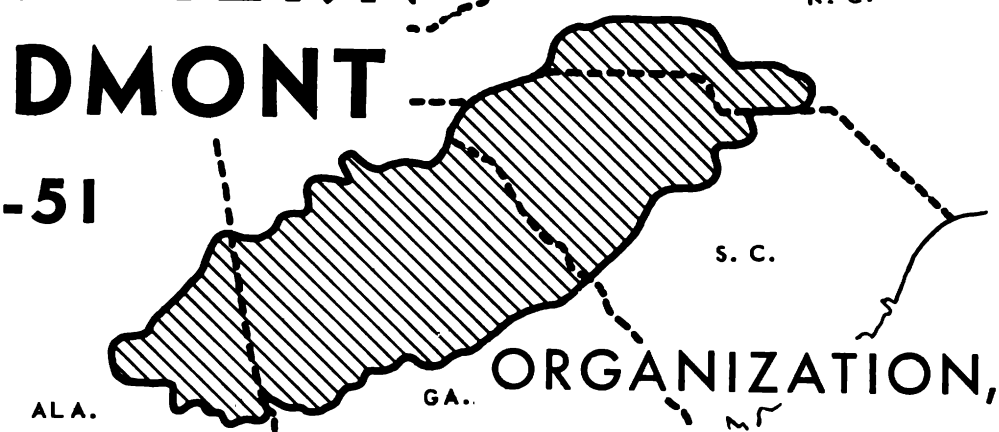
AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

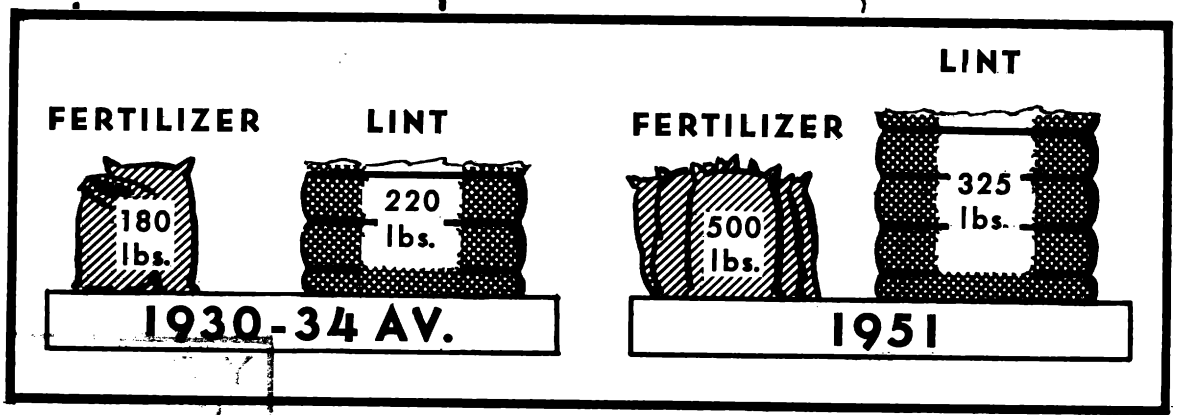
Ag 84Ab
cop 4

Cotton Farming

IN THE SOUTHERN PIEDMONT 1930-51



ORGANIZATION, COSTS, AND RETURNS



by W. HERBERT BROWN-Agricultural Economist

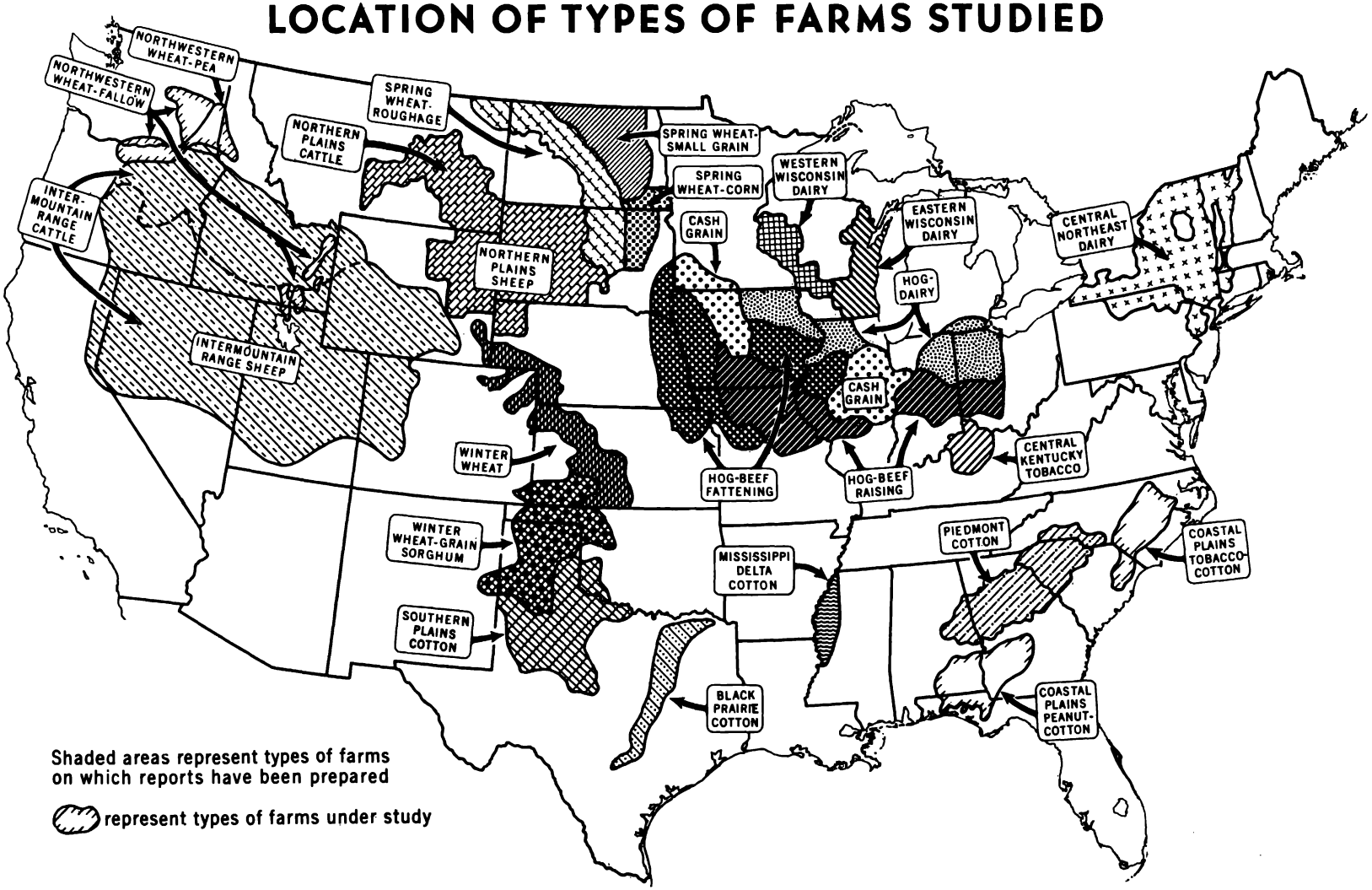
Agriculture Information Bulletin No. 89

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS
WASHINGTON, D. C.

JUNE 1952

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price 35 cents

LOCATION OF TYPES OF FARMS STUDIED



Shaded areas represent types of farms on which reports have been prepared

represent types of farms under study

U. S. DEPARTMENT OF AGRICULTURE

NEG. 45773-H BUREAU OF AGRICULTURAL ECONOMICS

888886

CONTENTS

	Page
Summary	ii
Introduction	1
Source of data	3
Description of the area	3
Soils and topography	3
Crop acres and livestock numbers	5
Type of farming	8
Size of farm	10
Tenure	10
Mechanization	11
Population	13
Commercial family-operated cotton farms	13
Total land farmed and crop acres	13
Yields and production	16
Livestock numbers	19
Total physical production	19
Labor inputs	19
Efficiency ratios	20
Investment	22
Prices received	23
Cash receipts and gross farm income	25
Prices paid and farm expenses	26
Net farm income	28
Capital charge and return to operator and family labor	33
Southern Piedmont cotton farms compared with farms in other areas.	34
Comparison of index numbers with 1937-41 and 1947-49 base periods.	38
Small-scale cotton farms	38
Small commercial family-operated cotton farms	42
Large commercial family-operated cotton farms	44
Similar publications for other areas	48
Appendix	50
Definition of terms used	50
Additional tables	53

SUMMARY

A history of costs and returns since 1930 for cotton farms in the southern Piedmont area is presented in this report. Changes in farm returns are related to such factors as changes in demand, prices, farm organization, technological improvements, and weather.

The main part of this report deals with commercial family-operated cotton farms--that is, farms large enough to provide reasonably full employment for the farm family and yet the farm operator's function as an employer of labor is not large compared to his other duties in operating the farm. Similar information is presented for small-scale farms--too small to provide reasonably full employment for the family.

Net farm income on average commercial family-operated cotton farms which averaged $1,935 in 1951, was about six times the amount in 1930. Return per hour to operator and family for labor used on the farm reached a high of $0.46 in 1946 and amounted to $0.43 in 1951. Farm incomes on southern Piedmont cotton farms are low compared with other cotton farms and other types of farms in other areas reported in these series. Industrial wage rates in the Piedmont area which amounted to $1.18 per hour in 1951, are much higher than either farm wages or return per hour to family and operator labor on most farms.

Higher prices and more favorable price-cost relationships are mostly responsible for the increase in income on southern Piedmont cotton farms but efficiency has improved somewhat since 1933. Damage from unfavorable weather and from insects has caused comparatively wide year-to-year fluctuations in both income and physical efficiency.

Cotton acreage on commercial family-operated cotton farms in the late 1940's was approximately half the acreage in the early 1930's. Corn and cowpeas were increased in the late 1930's to replace at least a part of the cotton, but later these crops declined below the 1930 acreages. In the 1940's small grain and lespedeza were the main crops replacing cotton. Total cropland harvested declined during the period. The shift away from cotton tends to lower efficiency because other enterprises have not been increased enough to cover the overhead formerly carried by cotton, an intensive crop. The relation of price to the supply of cotton must also be considered in evaluating the reduction in acreage.

Factors resulting in higher yields per acre such as increased use of fertilizers, better varieties, hybrid seed, better selection of land for cotton, and better methods of insect control have contributed to greater physical efficiency. The 1947-51 average crop yields were one-third higher than the 1930-34 average yields.

Farm wage rates in 1951 were nearly four times the prewar level compared to increases of about 50 percent in prices of machinery and fertilizer and 15 percent in motor fuel. This change in price relationships has contributed to a shift in proportion of factors used in production. Some labor has been replaced by capital in the form of machinery, improved seed, and fertilizer. Mechanization, which had been retarded prior to 1940 by low wages, low incomes, and poorly adapted machinery, is now proceeding at a rapid rate. The economy of mechanization was doubtful at prewar price relationships but as wages rise machinery may be used profitably for more and more operations. Better adapted machinery and higher incomes have also contributed to mechanization.

Changes on other sizes of farms in this area are similar to those on average commercial family-operated farms. The decrease in acreage of cotton and the increase in acreages of small grain are somewhat more pronounced on the large farms than on the smaller ones. Mechanization also has proceeded further on the large farms.

COTTON FARMING IN THE SOUTHERN PIEDMONT, 1930-51 1/

Organization, Costs, and Returns

By W. Herbert Brown, Agricultural Economist
Bureau of Agricultural Economics

INTRODUCTION

This study of commercial family-operated cotton farms in the southern Piedmont area, which runs through parts of Alabama, Georgia, South Carolina, and North Carolina, was undertaken to find out how costs and returns have varied during the years in response to changes in economic conditions, technology, and weather. Variations in farm income are related to changes in other factors such as demand, prices, size of farm, organization of enterprises, mechanization, and labor used. As individual farms are affected differently by these factors, results are presented for a specific type and size of farm. Because price relationships and technology change continuously no one year can be taken as typical or normal.

During the depression of the 1930's, demand for all agricultural products was low; some products such as cotton and wheat were especially hard hit. Cotton faced heavy competition from foreign producers and domestic producers of other fibers.

Adjustments were made to these conditions by restricting production beginning with 1933, and by making some shifts in type of farming. In this period farm incomes were especially low because of low prices for farm products, limited sales, relatively high costs, and bad weather in some years. During World War II the demand situation was reversed. Demand was especially heavy for grain, fiber, fats, and oils. Production expanded as a result of more and better machinery, of more fertilizer, improved varieties, hybrid seed, and to some extent, better weather. Higher production together with higher prices resulted in much higher incomes during and after the war. The rise in wage rates relative to prices of fertilizer, fuel and machinery following 1940 greatly accelerated the shift to greater use of capital and less labor in production.

1/ This report is part of a Nation-wide study of operations, costs, and returns on farms by types and sizes in some important farming regions of the United States. A list of publications covering these studies is included in the appendix. Although this study was conducted by the Bureau of Agricultural Economics, under the supervision of Wylie D. Goodsell, informal cooperation and consultation was provided by members of the staffs at the Georgia and South Carolina Agricultural Experiment Stations.

Information on net farm income, organization, and practices by size and type of farm is especially useful in planning programs to aid farmers during depressions and other periods of economic stress. Sufficient data are presented in this report to estimate the probable effect on income of proposed or likely changes in organization or practices. Data concerning costs and returns also are useful in comparing alternative types of farming and in establishing loan policies by credit agencies.

Farm incomes in the southern Piedmont are relatively low compared with other cotton areas and other type-of-farming areas reported in similar studies. As pointed out later, net farm income and returns per hour of labor have been below those for all other types of farms studied, except for a few depression years as in 1930, 1934, and 1936 when the price of wheat was especially low and when weather in other areas was unfavorable.

In the southern Piedmont production of cotton faces competition from more profitable areas such as the Mississippi Delta and States farther West which are better adapted to mechanization. In the southern Piedmont some cotton farms have shifted to other types of production and other crops have replaced a part of the cotton on remaining cotton farms. Industrialization has taken some labor from farms.-

The main part of this report deals with the large group of commercial family-operated farms or management units in the Piedmont area that produce most of the products sold off farms. A management unit includes all the land managed by an operator whether operated as a single unit or a multiple unit. Farms operated with family and hired labor only are called single units.

"A multiple-unit operation is one in which two or more subunits are handled as a single-farm enterprise. It usually involves supervision of share cropper or tenant operations and central control of such items as sale of products, work power, machinery and equipment, crop rotation, or purchase of supplies. A multiple-unit operation consists of two or more subunits, one of which must be a cropper or tenant operation under the close supervision of the multiple-unit operator. One of the subunits may consist of land worked by the operator, his family, or wage hands." 2/ Farming operations on a commercial family-operated farm are large enough to provide reasonably full employment to the farm family and yet not so large that the operator's role as employer of labor is important relative to his other functions in operating the farm.

2/ United States Bureau of the Census. Multiple-Unit Operations. A special report. 1945, p. VIII.

In 1944, commercial family-operated cotton farms in the southern Piedmont area were defined as ranging from $1,200 to $19,999 in gross value of product. However, few farms had more than $5,000 gross value of product, although they ranged in acreage from 30 to 400 acres of cropland.

Within the range of commercial family-operated cotton farms, data for a typical small and a typical large farm are presented to show the situation on farms of a specific size and organization. On these farms methods of operation and sizes of enterprises are more nearly those occurring on actual farms. In addition, small-scale farms also are studied. These farms ranged from $800 to $1,199 gross value of product in 1944 and usually had less than 30 acres of cropland. The frequency of these farms in relation to all cotton farms in 1944 is shown in figure 1. Small-scale farms were numerous but there were very few large-scale farms. Many of the small-scale farms are really part-time units.

SOURCE OF DATA

A special sample of individual farm schedules from the 1945 Census of Agriculture provided the basis for establishing the organization of each of these farms in 1944. Rural carrier and crop-correspondent data from the State Agricultural Statistician's office, together with samples of earlier census schedules, provided a basis for determining size of farm, crop acreages, and yields for other years. Published reports from State experiment stations and State and Federal agencies provided supplementary material. In addition, special field surveys taken in 1947 and 1949 provided information on cropping practices, man labor, power, machinery and materials used, and miscellaneous farm expenses.

DESCRIPTION OF THE AREA

The southern Piedmont area comprises 86 counties running from south central North Carolina through South Carolina and Georgia to east central Alabama (see inside front cover). The area lies between the coastal plains and the Appalachian Mountains.

Soils and Topography

The topography varies from rolling to hilly. Soils range from coarse sandy loam to clay with clays predominating. Predominant soil series are Cecil, Appling, Durham, and Davidson. Soils are moderately to strongly acid but are high in potash. Long seasons when the ground is not frozen and a system of farming which leaves the soil relatively bare much of the year make the ground easily eroded

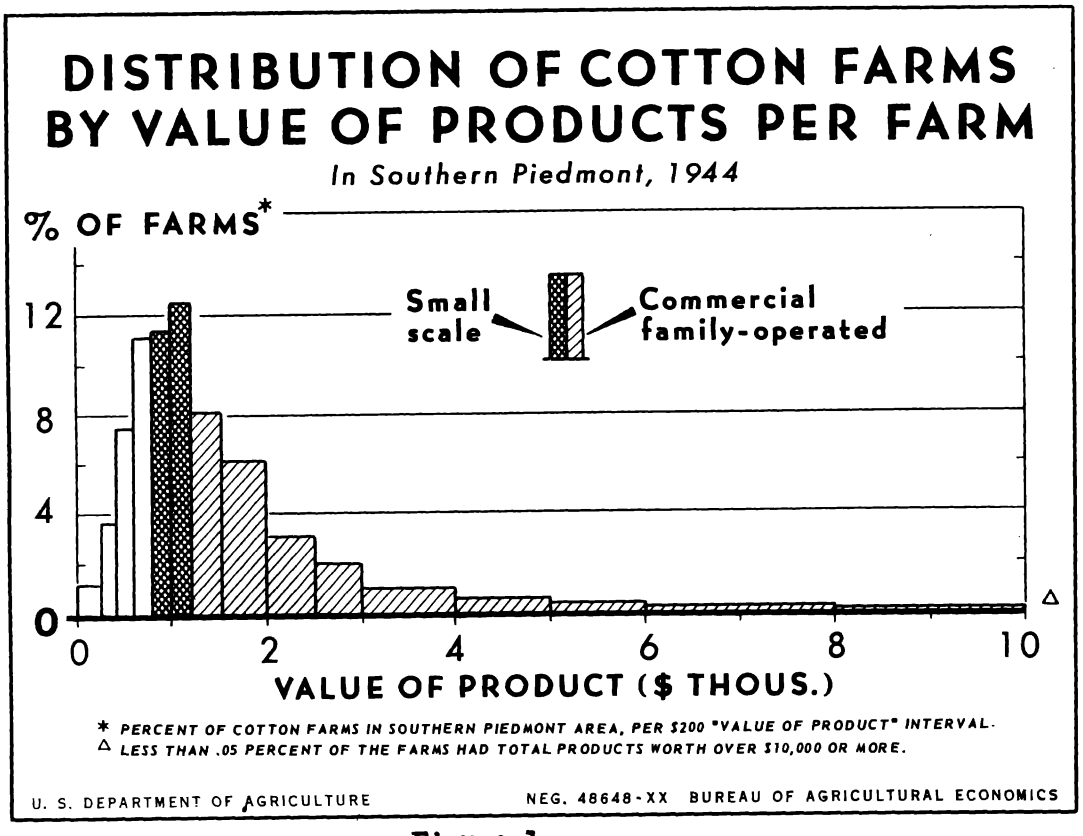


Figure 1.

by the torrential rains. Since 1920 considerable acreage of farm land has been abandoned and allowed to grow up into pine. Much of the present cropland has been terraced for many years but some of the early terraces were poorly made and have not been kept up. Irregular topography makes contour cultivation difficult. Heavy cropping with cotton and corn and severe erosion have left many of the soils badly depleted. Organic content of the soil is low because of rapid oxidation resulting from high temperatures. However, owing to heavy rainfall of about 50 inches a year the soils are responsive to fertilizer. Dry periods during the fall make it difficult to be sure of getting a good stand of wheat but they are favorable to cotton picking.

Crop Acres and Livestock Numbers

Cotton has been the main crop grown in the area since it was settled, and this type of farming still predominates despite a marked decline in acreage of cotton. The greatest decline occurred from 1919 to 1924 with the coming of the boll weevil

(table 1). During this period, acreage of cotton in the area declined relative to the national total acreage as well as in absolute amount. A second period of rapid decline occurred after 1930 when the cotton market was depressed by economic conditions. From 1930 to 1947, acreage of cotton in the southern Piedmont area followed the national trend very closely (table 2). The reduction from 1933 to 1936, when the readjustment programs were first put into effect, was fairly uniform in all cotton-producing areas. A small general increase in acreage of cotton occurred in 1937 when allotments were removed, but economic conditions did not allow unlimited production until the early part of World War II. During the war period, efforts to obtain more peanuts, soybeans, corn, small grain, certain vegetable crops, and livestock, together with the labor shortage, tended to hold the acreage of cotton down in both the southern Piedmont and the country as a whole, but in 1947 other areas increased their acreages of cotton whereas the southern Piedmont did not. Heavy damage from boll weevils in 1949 and 1950 has discouraged production of cotton in very recent years.

When the first big decline in acreage of cotton occurred following 1920 there was no increase in other crops to take its place. In fact, acreage of most other crops decreased to some extent. The decline in total land farmed in the area from 1919 to 1924 indicates that some farm units were abandoned. However, acreage of individual crops declined a great deal so considerable abandonment must have occurred within existing units. Following 1930, when cotton acreage was reduced by economic conditions, acreages of other crops, notably small grain and hay, were increased so that cropland harvested for the area changed very little until 1944. By 1950 cropland harvested was 28 percent below 1930.

Table 1.- Total land farmed, selected crop acreages and livestock numbers, southern Piedmont, 1920-50

Census years	Total land	Crop-land harvested	Cotton	Percentage of U. S. total	Corn	Wheat	Oats		Barley	Rye	All hay	All cattle and calves	Cows and heifers	All hogs and pigs	Chickens raised
							Threshed	Unthreshed							
	1,000 acres	1,000 acres	1,000 acres	Percent	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	Thousands	Thousands	Thousands	Thousands
1920	16,891	(1/)	4,023	11.9	2,542	187	168	(1/)	-	7	252	662	370	733	14,165
1925	15,113	5,607	2,575	6.6	2,225	117	66	218	-	7	181	508	328	399	11,777
1930	15,132	5,753	2,971	6.9	1,941	104	93	240	3	5	131	446	279	349	11,122
1935	17,532	5,900	1,870	7.0	2,468	331	127	338	3	10	481	672	394	395	11,068
1940	16,001	5,652	1,616	7.1	2,248	321	294	273	14	14	480	492	313	365	12,608
1945	15,691	4,977	1,270	6.7	1,741	362	342	347	34	7	545	673	384	420	31,361
1950	15,816	4,114	1,331	4.9	1,296	225	375	168	23	2	626	709	381	398	(1/)

1/ Not available.

United States Bureau of the Census.

212345 O—52——2

Table 2.- Acreage 1/ and production of cotton in southern Piedmont and United States, 1928-50

Year	Acreage		Production		Southern Piedmont as percentage of U. S. total	
	Southern Piedmont	U. S. total	Southern Piedmont	U. S. total	Acreage	Production
	1,000 acres	1,000 acres	1,000 bales	1,000 bales	Percent	Percent
1928	3,020.4	43,737	1,170.7	14,477	6.9	8.1
1929	3,001.2	44,448	1,333.3	14,825	6.8	9.0
1930	2,994.2	43,329	1,422.3	13,932	6.9	10.2
1931	2,739.8	39,110	1,398.4	17,097	7.0	8.2
1932	2,593.8	36,494	1,011.1	13,003	7.1	7.8
1933	2,671.0	40,248	1,040.8	13,047	6.6	8.0
1934	1,883.7	27,860	917.4	9,636	6.8	9.5
1935	1,902.2	28,063	964.6	10,638	6.8	9.0
1936	1,968.7	30,627	911.9	12,399	6.4	7.4
1937	2,206.9	34,090	1,344.5	18,946	6.5	7.1
1938	1,791.5	25,018	850.1	11,943	7.2	7.1
1939	1,729.5	24,683	997.1	11,817	7.0	8.4
1940	1,697.4	24,871	1,110.5	12,566	6.8	8.8
1941	1,596.0	23,130	620.0	10,744	6.9	5.8
1942	1,505.3	23,302	960.6	12,817	6.5	7.5
1943	1,509.3	21,900	853.2	11,427	6.9	7.5
1944	1,309.6	19,990	903.4	12,230	6.6	7.4
1945	1,226.8	17,588.	835.5	9,015	7.0	9.3
1946	1,250.4	18,251	763.6	8,640	6.8	8.8
1947	1,246.1	21,611	690.1	11,860	5.8	5.8
1948	1,241.4	23,264	808.5	14,877	5.3	5.4
1949	1,376.7	27,719	594.0	16,127	5.0	3.7
1950	873.0	18,613	363.9	10,012	4.7	3.6

1/ Acreage July 1.

Bureau of Agricultural Economics.

Acreage of corn increased during the early years of readjustment but later declined to 33 percent less than that of 1930.

For the area as a whole, the total number of cattle as shown in table 1 increased 7 percent from 1920 to 1950. The drop in numbers in 1930 and 1940 apparently was associated with the national cattle cycle. Dairy cattle tend to be concentrated more on dairy farms and other cattle tend to be concentrated more on beef-cattle farms. The number of hogs declined sharply after 1920. Since 1925 it has remained fairly constant. The number of chickens raised also declined somewhat after 1920, but since 1940 the increase has been very large. In 1944, the number of chickens was two and one-half times the prewar number. Three counties in Georgia in which broiler enterprises have developed account for a very large part of the increase but some expansion has occurred throughout the area.

Type of Farming

In 1944, cotton farms made up 53 percent of all farms in the area and 80 percent of the farms producing products primarily for sale (table 3). Comparable figures for other years are not

Table 3.- Number of farms 1/ by type, southern Piedmont, 1945

Type	Farms	Percentage of total
	Number	Percent
Field crops (including cotton)	76,039	52.8
General	4,941	3.4
Livestock	1,683	1.2
Dairy	2,782	1.9
Poultry	5,924	4.1
Other commercial	3,224	2.2
Home use	47,117	32.6
Total classified	141,710	98.2
Unclassified	2,635	1.8
Total	144,345	100.0

1/ On a management unit basis.
United States Bureau of Census.

available but it is apparent from the number of census farms shown in table 4 that the number of cotton farms on a management-unit basis has declined markedly since 1930--probably as much as 40 percent. Most of the cotton farms that changed type became part-time farms or farms producing primarily for household use. This shift may not be as great as it seems. Cotton probably is still the major crop grown on the farms that changed classification. Poultry, livestock, and dairy farms also have increased in number but they still make up a relatively small proportion of all farms.

Table 4.- Number of census farms by type, southern Piedmont, 1930, 1945, and 1950

Type	Farms			Percentage of total		
	1930	1945	1950	1930	1945	1950
	Number	Number	Number	Percent	Percent	Percent
General	8,634	5,772	1/ 3,581	3.9	3.1	2.1
Field crop:	181,070	105,330	60,395	82.1	56.4	35.9
Cash grain	315	(2/)	1,423	.1	(2/)	.8
Cotton	180,755	(2/)	3/ 58,628	82.0	(2/)	34.9
Other field crops	--	(2/)	344	--	(2/)	.2
Dairy	2,808	3,247	4,145	1.3	1.7	2.5
Other livestock	308	2,359	4/ 4,200	.1	1.3	2.5
Poultry	827	6,569	6,801	.4	3.5	4.0
Other commercial	1,621	3,907	1,554	.7	2.1	.9
Miscellaneous and other	25,433	59,592	87,654	11.5	31.9	52.1
Total	220,701	186,776	168,330	100.0	100.0	100.0

1/ General--both crops and livestock important.
2/ Not available.
3/ Includes 2,832 general, primarily crop.
4/ Includes 621 general, primarily livestock.

The total number of farms has not changed greatly since 1930 but the total number of commercial farms has decreased markedly, with a corresponding increase in part-time farms and farms producing primarily for home use.

Size of Farm

The average size of all farms also changed relatively little during the period but commercial farms increased in size by 10 to 20 acres. The increase in average size of commercial farms resulted from small farms shifting to part-time or subsistence types and other farms taking on the land not used by those farms that dropped out of the commercial group. Even though the number of small commercial farms has declined, small farms still predominate in the commercial group. In 1944, the gross value of product was less than $1,200 on 50 percent of the field-crop farms and less than $2,000 on 78 percent of these farms.

Tenure

Multiple units made up 21 percent of all cotton farms in 1944. Compared with some areas the size of the multiple unit is rather small; 50 percent have only 2 and 85 percent have less than 5 subunits. Croppers greatly outnumber share tenants on the multiple units and about 85 percent of the croppers are on multiple units.

A share cropper is differentiated from other types of tenants in that the landlord usually supplies the workstock or power. In the usual cropper arrangement the crop is divided on a 50-50 basis. The landlord supplies the land, workstock or power, machinery, half the fertilizer, poison, and ginning. The cropper usually raises cotton and corn and occasionally some small grain. He may have a cow, raise one or two hogs, and keep a few chickens for his own use. The landlord provides rather close supervision and finances the cropper during the season. Rental arrangements tend to be less uniform when tractor power is used. Custom work may be divided on a 50-50 basis or it may be assumed by either the landlord or the tenant. When the tractor is owned by the landlord, he may supply tractor and fuel while the cropper supplies the driver.

Another type of arrangement is being developed in some areas to fit in with mechanization. Under this arrangement the cropper receives a house to live in and a third of the crop. He or his family supply only labor to hoe and pick the cotton. In this way, the landlord can handle more crops. At the same time he has labor available to meet the period of peak demand. The cropper has a house to live in but he spends most of the time working in industry.

A share tenant usually supplies the workstock or power, two-thirds or three-fourths of the fertilizer, poison, ginning, and hauling, and receives either two-thirds or three-fourths of the crops and in addition a house, land for a garden, and other buildings and pasture for livestock. In some cases the share-tenant divides expenses and the crop on a 50-50 share basis. When the landlord receives a larger share of the crop he usually participates more in the management of the crop.

Both the share cropper and the share-tenant systems also exist outside the multiple units, but the share-tenant system is much more common on a single-unit basis. In addition, some farms are rented on a cash-rent or on a standing-rent basis. In the standing-rent system, the tenant pays a specified quantity of cotton and receives the use of the whole farm. The landlord provides very little supervision with either of these types of rental arrangements.

In 1930 tenants of all types made up 68 percent of all census farms in the southern Piedmont, and more than half of these were "croppers" (table 5). Tenants other than croppers accounted for 48 percent of the total farms minus croppers, and cash tenants accounted for one-fifth of the other types of tenants. By 1950, tenants of all types had dropped from 150,030 to 66,637 and made up only 40 percent of the census farms. Tenants other than croppers accounted for 26 percent of the total farms minus croppers.

During the same period the number of full owners increased from 60,982 to 87,507 and made up 63 percent of the total number of farmers minus croppers in 1950 compared to 45 percent in 1930.

Mechanization

Mechanization has made less progress in the area than in most other sections of the United States. Requirements of the cotton crop for hand labor for chopping and picking, irregular topography, low wages, low incomes, and the tenure system have retarded mechanization. Even on many farms where tractors are owned much of the work on cotton and corn is still done by croppers using one and two mule equipment. Few tractors were bought before 1940. Development of small tractors and small combines suited to this area did much to speed up mechanization. In contrast to cotton and corn, much of the production of small grain has been mechanized and nearly all the harvesting is done with combines.

Table 5.- Number of farms by tenure of operator, southern Piedmont, 1930, 1945, and 1950

Tenure of operator	Farms			Percentage of total			Percentage of total minus croppers		
	1930	1945	1950	1930	1945	1950	1930	1945	1950
	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent
Full owners	60,982	83,457	87,507	27.6	44.7	52.0	45.1	58.1	63.2
Part owners	8,998	6,906	13,675	4.1	3.7	8.1	6.6	4.8	9.9
Managers	691	559	511	.3	.3	.3	.5	.4	.4
All tenants	150,030	95,854	66,637	68.0	51.3	39.6	---	---	---
Croppers	85,272	43,148	30,025	38.7	23.1	17.8	---	---	---
Tenants other than croppers:	64,758	52,706	36,612	29.3	28.2	21.8	47.8	36.7	26.5
Cash	13,003	21,021	9,773	5.9	11.2	5.8	9.6	14.6	7.1
Share cash	51,755	300	382	23.4	.2	.2	38.2	.2	.3
Share		21,368	17,780		11.4	10.6		14.9	12.8
Other		10,017	8,677		5.4	5.2		7.0	6.3
Total farms	220,701	186,776	168,330	100.0	100.0	100.0			
Total farms minus croppers	135,429	143,628	138,305				100.0	100.0	100.0

Population

The southern Piedmont is a densely populated area with 49 rural people per square mile in 1950 compared with 18 for the United States. Since 1920 total population has increased 30 percent, with practically all of the increase coming in urban areas. In 1950, approximately 60 percent of the people were in rural areas and 25 percent were on farms. Farm population was approximately 25 percent below 1940. There were 95 farm people per 1,000 acres of open land farmed. This compared with 25 in Iowa, 30 in Illinois, 50 in Ohio, and 145 in North Carolina. Owing to the high birth rate and improved farm technology, more than half of the males reaching maturity each year among the farm population must find off-farm employment or leave the area. 3/ Industrialization, which has been rather extensive in parts of the area, has provided employment for some underemployed farm people and to some extent has provided competition for labor. From 1929 to 1947, the number of industrial workers increased 70 percent compared with a 20-percent increase in population from 1930 to 1950.

COMMERCIAL FAMILY-OPERATED COTTON FARMS

Commercial family-operated cotton farms, covering the range of $1,200 to $19,999 in value of products, made up 54 percent of all cotton farms and 44 percent of all farms producing primarily for sale in 1944. Small family-operated farms predominated within the group; 56 percent had a value of product of less than $2,000 and 88 percent had less than $4,000. Commercial family-operated cotton farms are highly specialized; in 1951, 65 percent of their gross cash income came from cotton and cottonseed. Gross farm income per farm was $4,084 and net farm income was $2,023 in 1951. Cropland harvested averaged only 51 acres in 1951; 30 percent was in cotton, 32 percent in corn, 19 percent in small grain, and 19 percent in hay and other crops. Livestock are kept primarily for home use although small amounts of livestock and livestock products are sold. Workstock are used rather extensively for power even though nearly half the farms have tractors.

Total Land Farmed and Crop Acres

Commercial family-operated cotton farms in this area increased from 156 acres per farm in 1930 to 162 acres in 1951 (table 6). This increase resulted from small farms shifting to noncommercial types. Other commercial farms may have taken over some of the cropland on the farms that dropped out of the commercial class. There was some increase in idle cropland and pasture but the

3/ Stepp, J.M., and Plaxico, J.S. The Labor Supply of a Rural Industry. South Carolina Agr. Expt. Sta. Bul. 376, July 1948, p. 5.

largest increase was in woodland. In contrast, cropland harvested showed little change until after 1940 and then declined from 64 acres per farm to 51 acres in 1951--a 20-percent drop.

Acreage of cotton dropped from 32.0 acres per farm in 1930 to 13.8 acres in 1950 but increased again in 1951 to 15.4 acres (fig. 2 and table 6). Although the acreage of cotton declined in 16 of the 22 years, most of the decline occurred in the early 1930's. Expansion to meet emergency demand in 1951 was not so great in the southern Piedmont area as in other sections of the Cotton Belt, because of the recent heavy damage from boll weevils and the labor shortage that resulted from industrial expansion. As acreage of cotton was limited by quotas during much of the period, relative changes in acreage were fairly uniform from size to size with only a slightly greater decrease on the large farms.

Acreage of corn which averaged 20 acres per farm in 1930, increased until 1938 and then declined. In 1951 it was 20 percent below the 1930 acreage. Cotton and corn together accounted for 80 percent of the cropland in 1930. This means that the cropping system left much of the land exposed to erosion during most of the year. In 1951 the proportion of the cropland in row crops had dropped to 60 percent.

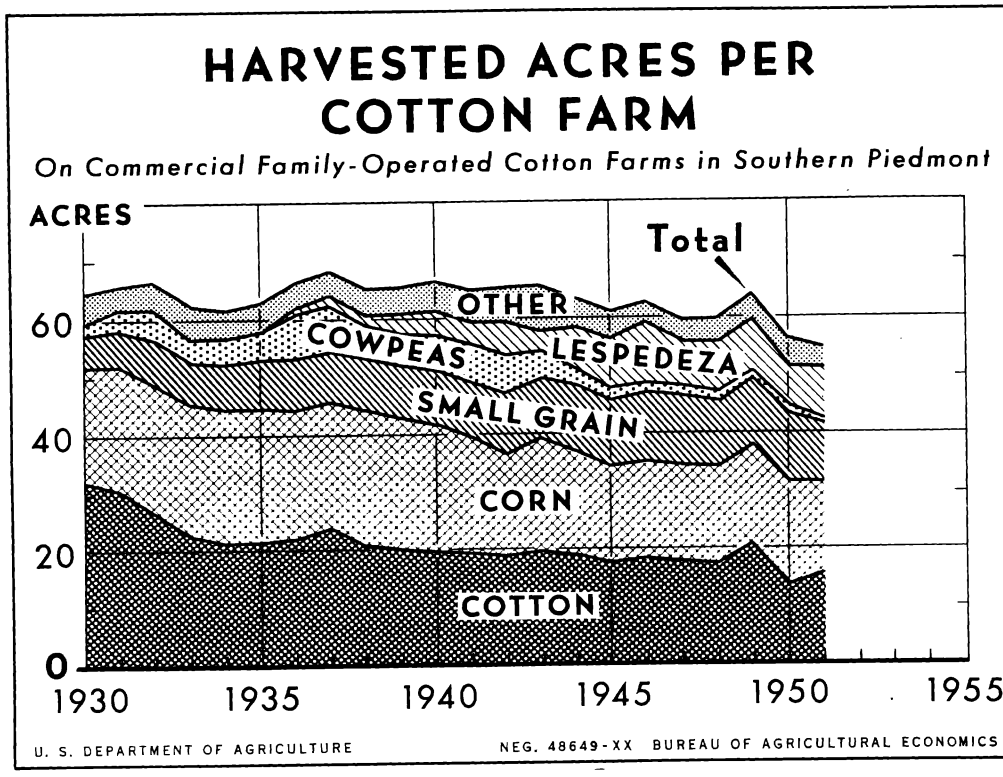


Figure 2.

Table 6.- Land use and livestock numbers per farm, commercial family-operated cotton farms, southern Piedmont, 1930, 1940, and 1948-51

Item	1930	1940	1948	1949	1950	1951
	Acres	Acres	Acres	Acres	Acres	Acres
Land use:						
Cotton	32.0	19.9	17.5	20.4	13.8	15.4
Corn	20.0	22.1	16.7	17.7	18.1	16.2
Wheat	.9	3.7	5.2	4.1	3.8	3.8
Oats	4.3	5.6	6.2	7.3	7.6	6.0
Cowpeas	2.3	5.9	1.6	1.0	1.0	.9
Lespedeza hay	-	3.4	7.1	7.3	6.0	7.4
Other crops	4.8	6.0	5.6	6.0	6.0	5.2
Total cropland	64.3	66.6	59.9	63.8	56.3	54.9
Less double-cropped	.7	3.1	2.8	4.8	3.5	4.0
Cropland harvested	63.6	63.5	57.1	59.0	52.8	50.9
Other land	92.4	94.5	103.9	102.0	108.2	111.1
Total land in farm	156.0	158.0	161.0	161.0	161.0	162.0
	Number	Number	Number	Number	Number	Number
Livestock:						
Workstock	3.0	2.7	2.2	2.1	1.9	1.8
Milk cows	1.8	1.9	2.1	2.1	2.0	2.0
Other cattle	1.7	1.5	1.7	1.5	1.8	2.0
Sows	.6	.5	.5	.4	.4	.4
Other hogs	3.2	2.7	2.5	2.6	2.7	2.3
Chickens	40	41	44	42	46	44

Acreage of small grain, especially wheat, increased to replace cotton in the farming system. The increase was proportionally larger on the large farms than on the smaller ones. The large farms could more readily shift to extensive crops as they could reduce the labor force by not replacing share croppers. The introduction of the combine, new crop varieties, better seeding methods, and the use of nitrogen fertilizer have contributed to the shift to small grain. Acreages of cowpeas also were increased to fill the gap left by cotton, but after 1942 they declined rapidly as wage rates rose. The cost of seed became very high, as it was hand-gathered.

212345 O—52——3

Lespedeza came into prominence in the late 1930's and to a considerable extent it has replaced other types of hay. Total acreage of hay has expanded relatively more than have numbers of livestock. In the early 1930's the hay produced was hardly sufficient to supply the needs of the livestock kept. A few farms harvest lespedeza for seed as an additional source of income.

In the first years of the agricultural adjustment programs the increase in other crops grown was insufficient to replace cotton, but by 1937 total crops harvested exceeded the 1930-32 acreage. Total acreage of crops harvested remained fairly high until 1943, then a downward trend came, with an especially large drop in 1950.

Yields and Production

With heavy applications of fertilizer and usually good rainfall, relatively high yields of cotton were generally obtained. The 1930-34 average yield of 222 pounds of lint per acre on southern Piedmont farms was 20 percent above the national average. Since then, the yield has increased rather steadily except for the dry year of 1941, and 1949 and 1950 when damage from boll weevils was heavy (table 7). The 1947-51 average was 275 pounds of lint--23 percent above the 1930-34 average--and a peak of 345 pounds was reached in 1948. Because of the increase in yield per acre, total production of cotton did not decrease as much as acreage of cotton. From 1947 to 1951 production of cotton was only 21 percent below the 1930-34 production, although acreage was down 36 percent.

Yields of corn, small grain, and hay were especially low in the early 1930's. The 1930-34 average yield of corn on Piedmont farms was 40 percent below the national average, and yields of wheat, oats, and hay were more than 20 percent below. The increase in recent years in per acre yields of corn, wheat, and oats was even greater than the increase in cotton. The 1947-51 average yields of corn, wheat, and oats were 53, 64, and 39 percent, respectively, above the 1930-34 yields. Owing to this increase in yields and the larger acreages of wheat and oats, total production of grain rose 46 percent, even though acreage of corn was greatly reduced. Total production of hay for the respective 5-year periods was up by 72 percent but this increase was due to larger acreage. There was no change in yield.

When the yields of all crops are combined into a crop index, yield shows a definite upward trend since 1936 (fig. 3). A number of factors contributed to this upward trend. Limitations on acreage gave farmers an incentive to increase yields per acre and thereby to maintain and increase total production and sales. The smaller acreage

Table 7.- Crop yields per acre on commercial family-operated cotton farms, southern Piedmont, selected 5-year averages, 1930-51, and annually 1948-51

Crop	Unit	1930-34 average	1937-41 average	1947-51 average	1948	1949	1950	1951
Cotton lint 1/	Pound	222	255	275	345	228	203	322
Corn	Bushel	12.2	11.9	18.9	17.7	20.2	20.4	19.3
Wheat	do.	9.2	10.6	15.6	15.3	11.8	13.2	22.1
Oats	do.	20.3	21.6	27.8	27.8	29.0	29.5	27.1
Cowpeas	do.	5.3	4.0	6.3	6.3	6.6	6.6	6.9
Hay	Ton	.83	.78	.81	.94	.93	.72	.71
Lespedeza seed	Pound	--	2/198	263	294	282	228	280

1/ Cottonseed average from 1.6 to 1.8 pounds per pound of lint.
2/ 1939-41.

of cotton grown allowed farmers to select better land for the remaining cotton acreage. Use of commercial fertilizer per acre has increased by 67 percent since 1930. In addition, crop varieties have been improved and better methods of insect control have been adopted. The increase in yield of corn and small grain also followed an increase in use of fertilizers, both in amount applied per acre and in number of farmers using it. Additional nitrogen has been important, particularly in later years. A survey of production practices in 1948 showed the following average rates of fertilization:

	Mixed plus	Nitrogen (mostly nitrate of soda)
Cotton	460 pounds	45 pounds
Corn	220 "	85 "
Wheat	220 "	90 "
Oats	250 "	80 "

These rates of fertilization for corn and small grain are roughly double the prewar amounts. The use of hybrid seed corn has been important in recent years. The proportion of acreage planted with hybrid seed increased from 2.5 percent in 1946 in South Carolina and Georgia to 34 and 28 percent, respectively, in 1951.

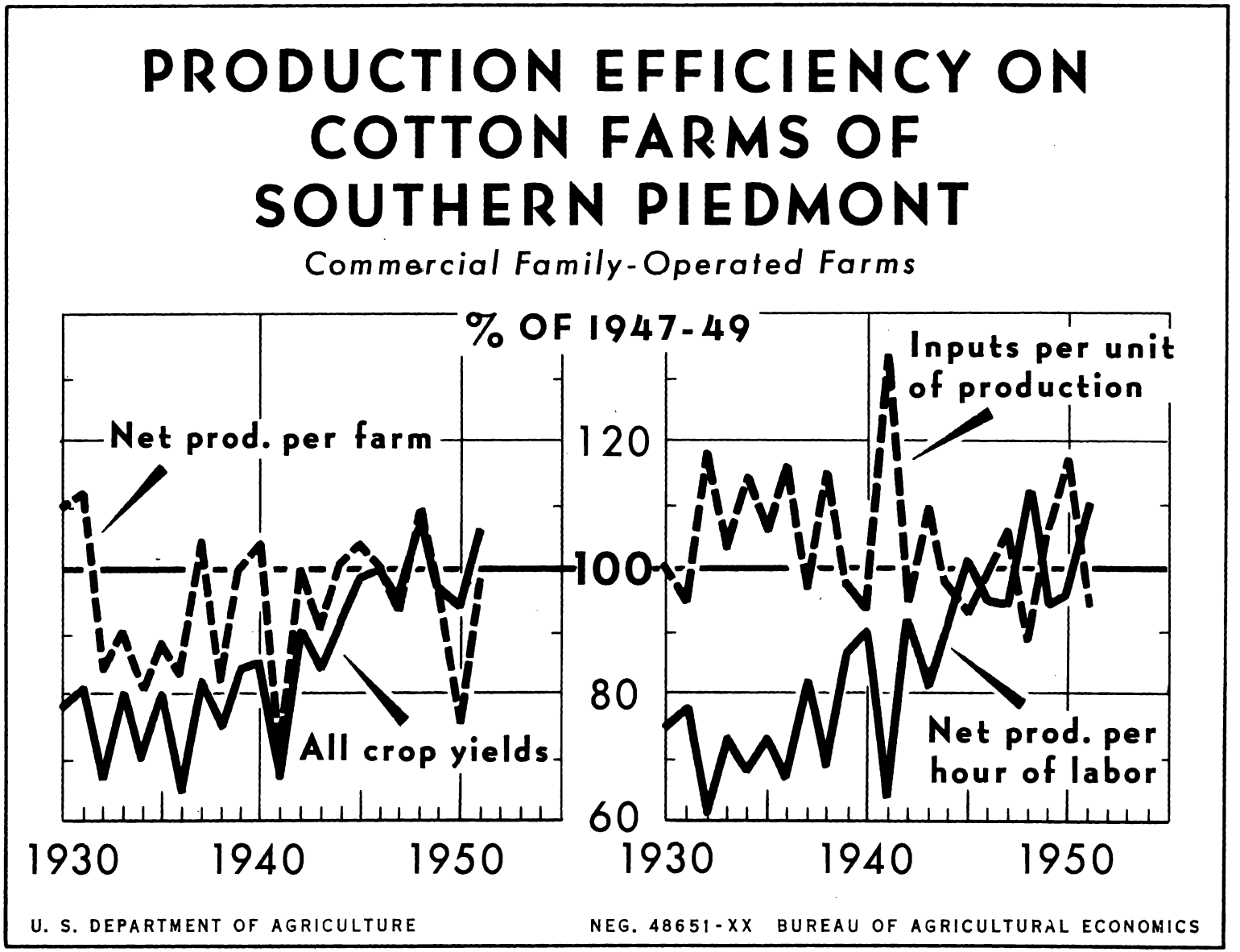

PRODUCTION EFFICIENCY ON COTTON FARMS OF SOUTHERN PIEDMONT
Commercial Family-Operated Farms
% OF 1947-49
Net prod. per farm
All crop yields
Inputs per unit of production
Net prod. per hour of labor
120
100
80
60
1930
1940
1950
1930
1940
1950
U. S. DEPARTMENT OF AGRICULTURE
NEG. 48651-XX BUREAU OF AGRICULTURAL ECONOMICS

Figure 3.

Livestock Numbers

Livestock on farms in the southern Piedmont area have been kept primarily for home use (table 6). Changes in livestock numbers have been relatively small compared with changes in crop acres. Numbers of cattle increased 14 percent from 1930 to 1951, with a large part of the increase taking place on the larger farms. Cattle numbers have increased more than this in the entire Piedmont area as some farms have shifted from cotton to livestock farming. The large investment needed for land, fences, buildings, establishing pastures, and purchase of livestock greatly retards the shift to livestock farming. Hogs raised declined 19 percent from 1930 to 1951--a shift that is largely associated with the decline in number of share croppers. The hog enterprise remains primarily one for home use. Poultry on cotton farms continues at about the same size, supplying a little more than household needs. In some parts of the area, poultry has increased very much but these cases represent a shift in type of farm.

Workstock decreased 40 percent from 1930 to 1951, with most of the decrease occurring after 1946. However, very few farms have disposed of mules altogether.

Total Physical Production

The effect of changes in acreage, yields, and livestock numbers on total production is shown in figure 3. The index of total output dropped from 112 in 1931 to about 85 for the next 5 years. This decline resulted first from low yields in 1932 and then from the reduction in cotton acreage. From 1936 there was an upward trend with year-to-year variations associated with changes in crop yields except for 1950 when acreage of cotton was greatly reduced. Net production, however, has not increased as much as did the crop yield index, owing to the smaller acreage of crops grown.

Labor Inputs

In 1930, the average labor force consisted of the operator, about one-quarter man equivalent of family labor, an average of 1.4 cropper families, and 45 days of hired labor. Seven percent of the labor was hired and the remainder was about equally divided between cropper labor and operator and family labor. Since 1930, the labor used has declined markedly. Total hours declined from 6,500 in 1930 to 3,560 in 1950 but increased again to 3,965 in 1951 with the larger acreage of cotton. Reduced labor has been reflected mainly in the number of croppers, which declined from 1.4 in 1930 to 0.4 in 1951.

Although most of the reduction in labor resulted from the shift away from cotton, the amount of labor used per acre was reduced somewhat (table 8). Small grain and lespedeza seed are the only crops on which the reduction is substantial. Labor used per acre on these crops has declined more than 40 percent since 1938 compared to decreases of 2 percent on cotton and 15 percent on corn. As shown in table 9 most of the work done on small grain for seed is done with tractors. Ninety-one percent of the oats were combined. Tractors are used mainly for plowing or tilling on both cotton and corn. As these crops are often raised by croppers on large farms, mules still may be used even though a tractor is owned. However, this practice is changing, as rental arrangements are being revised.

If 1950 labor performance rates had prevailed with 1938 acreages and livestock numbers, total labor would have been 12 per cent below the amount used in 1938. If tractors had been used exclusively except for harvesting cotton and corn, total hours of labor would have been reduced by 39 percent. Mechanization on cotton farms has been greatly retarded by the low cost of labor, the large capital requirements, the difficulty of working over terraces, and the prevailing type of rental arrangements. Development of a small tractor and combine suitable to small acreages has contributed to the recent mechanization.

Efficiency Ratios

The influence of these physical changes in farm organization and practices on efficiency is shown in figure 3. Beginning in 1936, there was an upward trend in the index of net production per hour of labor. This index follows the index of crop yields closely in both long-time trend and year-to-year variations. Labor saved per acre by mechanization has contributed less to the increase in net production per hour of labor than have factors influencing crop yields.

Total input per unit of production combines all the physical factors of production in an over-all efficiency ratio. It indicates the gain from making the adjustments just discussed when 1947-49 average price relationships prevail. The reduction in efficiency (a higher input per unit of production) immediately following 1931 was associated with poor yields in 1932 and reduced cotton acreage in other years. Other crops were not increased enough to cover the overhead formerly carried by cotton. 4/ Except

4/ Another factor is the heavy weight given cotton by using 1947-49 prices when cotton prices were relatively high.

Table 8.- Man labor and tractor work per unit, with mule power only, with mule and tractor power, and with tractor power only, southern Piedmont commercial family-operated cotton farms

Item	Unit	Man labor used with-			Tractor work used with -	
		Mule power only 1/	Mule and tractor power 2/	Tractor power only	Mule and tractor power 2/	Tractor power only
		Hours	Hours	Hours	Hours	Hours
Cotton	Acre	120.0	117.2	89.0	4.8	12.4
Corn	do.	35.0	29.6	19.8	3.3	11.4
Wheat	do.	16.0	7.9	6.0	3.2	4.0
Oats, grain	do.	18.0	9.8	7.5	4.2	4.5
Oats, hay	do.	16.5	13.3	11.5	2.9	7.0
Lespedeza and other hay	do.	10.0	9.4	8.5	1.8	5.0
Lespedeza seed	do.	11.0	3.0	3.0	1.4	2.5
Cowpeas	do.	25.0	22.6	--	.6	--
Workstock	Head	120.0	120.0	120.0	--	--
Milk cows	do.	170.0	170.0	170.0	--	--
Other cattle	do.	33.0	33.0	33.0	--	--
Pork produced	Cwt.	15.0	15.0	15.0	--	--
Chickens	Head	2.0	2.0	2.0	--	--

1/ These rates apply from 1930 to 1938.
2/ With the combinations of mule and tractor power prevailing in 1950.

Table 9.- Proportion of machine work done with tractors on cotton, corn and oats, commercial family-operated cotton farms, southern Piedmont, 1947

Operation	Cotton	Corn	Oats
	Percent	Percent	Percent
Cut stalks	5	8	-
Plow or till	43	47	-
Seed-bed preparation 1/	9	13	79
Plant and fertilize	9	7	61
Cultivate	8	6	-
Poison cotton	28	-	-

1/ Both mules and tractors were used for seed-bed preparation on 19 percent of the cotton, 17 percent of the corn and 2 percent of the oats.

for years of drought and heavy damage from boll weevil these farms generally were more efficient in the war and postwar periods than they would have been if they had continued with prewar farm organization and practices. The close association between total input per unit of production and crop yields indicates that measures to improve yields are important in increasing efficiency. The gain indicated in over-all efficiency is not as great as the increase in production per hour of labor, because the latter ratio does not take all the cost factors into consideration.

Investment

Total average investment per farm in 1930 was $5,125 (table 10). It declined somewhat during the 1930's but rose sharply during the 1940's. From 1930 to 1950, the value of land and buildings more than doubled. The increase was due almost entirely to changes in the prices of land, equipment and livestock, total acreage per farm increased only 3 percent, cropland declined slightly, and there was little change in buildings. Investments in machinery and equipment shows the largest relative increase. Investment in machinery and equipment in 1950 was four times that in 1930, and the percentage of total investment represented by this item doubled. The low relative increase in total numbers of livestock since 1940 is due largely to a reduction in workstock; the number of mules has been reduced by 40 percent and the value per head has not increased.

Total investment of $11,500 in the average southern Piedmont cotton farm is considerably less than for other farms reported in similar studies. Investment values in 1950 ranged from about $19,500 for southern Plains cotton farms, to about $70,000 for Intermountain cattle ranches. The low investment in working capital on Piedmont cotton farms no doubt contributes to the low incomes, but low investment in land and buildings is also a reflection of small farms and low incomes on cotton farms in the area.

Table 10.- Investment on commercial family-operated cotton farms, southern Piedmont, 1930, 1940, and 1950

Item	Investment			Percentage distribution		
	1930	1940	1950	1930	1940	1950
	Dollars	Dollars	Dollars	Percent	Percent	Percent
Land and buildings	4,039	3,673	9,193	80	78	79
Machinery and equipment	276	290	1,127	5	6	10
Livestock	535	595	838	10	12	7
Crops on hand	275	214	408	5	4	4
Total	5,125	4,772	11,566	100	100	100

Prices Received

Prices received by farmers for products sold fluctuated during the period with general business conditions. The index (1947-49=100) of prices received declined from 33 in 1930 to 20 in 1931 with the onset of the depression (fig. 4). The index was higher from 1934 to 1936 as a result of partial business recovery, government measures to increase prices, and the short crops in 1934 and 1936. A drop in prices of farm products accompanied the recession of 1937 and there was no general increase until 1941 when wartime demand brought an increase in all prices. Another increase came in 1946 after the elimination of controls. This increase resulted largely from heavy demand for reconstruction of war-torn countries and delayed spending at home. There was some decline in 1949 as demand was being filled, but the Korean crisis brought another upturn in prices in 1950.

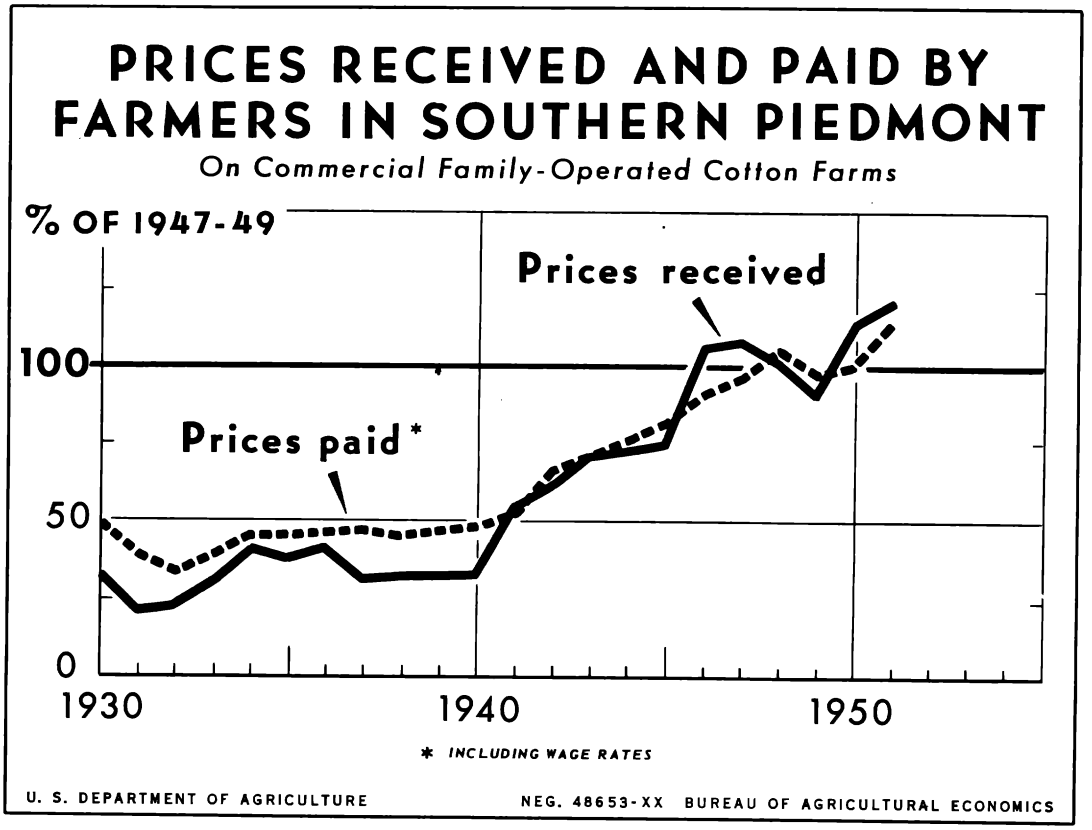


Figure 4.

212345 O—52——4

As cotton is the chief product sold on these farms, the index of prices received by Piedmont cotton farmers is heavily influenced by cotton prices. However, during the swing from depression to prosperity the price of cotton varied over a wider range than the index of all prices (fig. 5). The lowest price, 5.7 cents per pound of lint, occurred in 1931, and the highest, 40.6 cents per pound, was reached in 1950 when a short cotton crop was combined with increased demand as a result of the outbreak of hostilities in Korea.

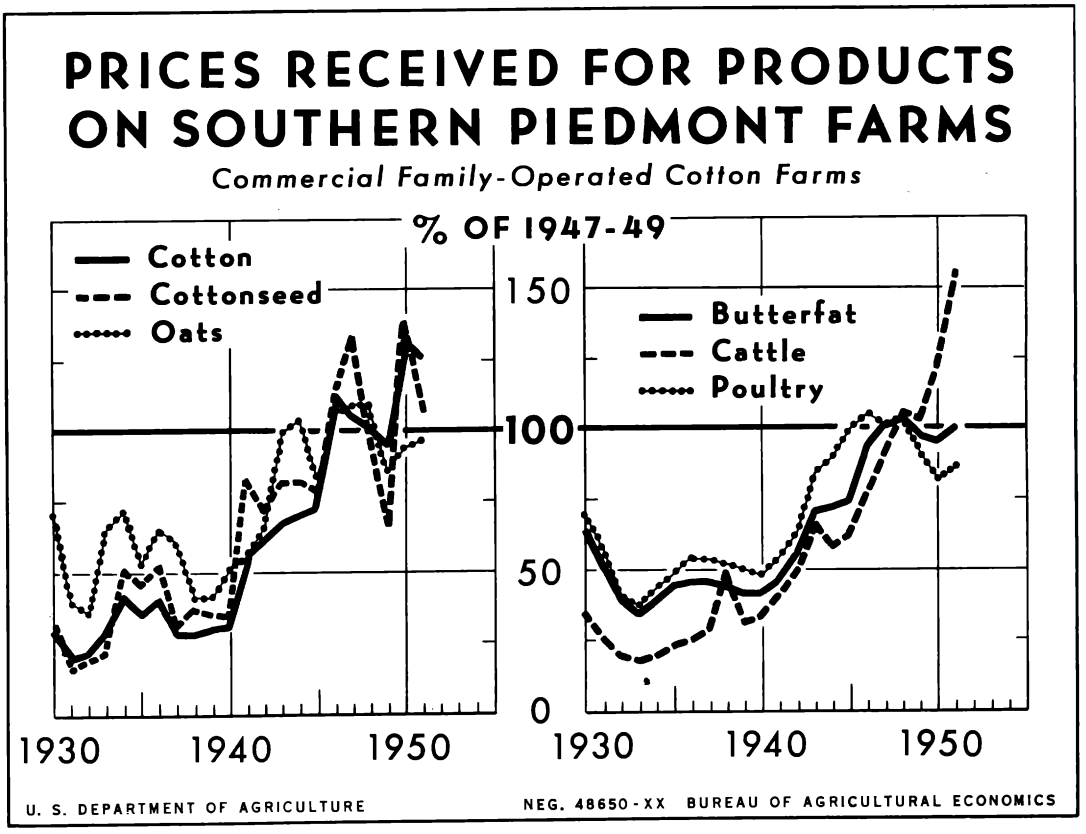


Figure 5.

During the 22-year period, the price of cottonseed fluctuated even more than did the price of cotton. The heavy demand for fats and oils during and immediately after the war caused a large increase in the price of cottonseed at that time.

The upward trend in the price of oats was not as large as the increase in prices of cotton and cottonseed. Prices received for corn and wheat had about the same general trend as prices of oats, but they differ considerably in individual years.

Cattle prices increased about as much during the period as did prices of cotton. Variations in the upward trend since 1934 were associated with the cycle in cattle numbers. The rapid rise in 1950 was the result of low cattle numbers and high demand resulting from high consumer incomes. Hog prices also had a large upward trend but there was no rapid rise following 1949.

Prices of butterfat and poultry have shown the smallest upward trend, and year-to-year variations have been small. Prices of poultry meat were particularly strong during the war period. Egg prices followed butterfat prices closely with only a slightly sharper upward trend.

Cash Receipts and Gross Farm Income

Cash receipts on Piedmont cotton farms amounted to $963 in 1930 but dropped to $441 in 1932 as a result of reduced volume and lower prices received. As prices improved, cash receipts returned to the 1930 level in 1934 and did not change greatly until 1942. Variations in production were largely offset by variations in price. The rapid rise in prices, together with generally good production, brought a large increase in cash receipts after 1942. A peak of $3,243 was reached in 1951 when yields per acre were relatively large and prices were up. The small upward trend in the index of net production per farm (fig. 3) indicates that prices are mostly responsible for the large increase in gross receipts.

Most of the cash receipts came from cotton and cottonseed during the entire period. The percentage from this source declined from a high of 84 percent in 1930 to a low of 48 percent in 1938 when both acreage and yield were low. Since 1940 the proportion of income from cotton and cottonseed has ranged from 59 to 75 percent. Sales of other crops--mostly small grain--are the only receipts other than Government payments that have increased substantially in relative importance. Other crops made up 24 percent of the total in 1950 compared to 5 percent in 1930. Off-farm income is not included in these analyses.

Gross farm income increased from $733 in 1932 to $4,048 in 1951. The upward trend of gross farm income is less than that for cash receipts because the prices of many farm-produced items used in the home have increased less than the price of cotton and also because fewer perquisites are needed with the smaller number of croppers. Cash receipts accounted for 60 to 70 percent of gross farm income before 1940 but since 1945 they have represented about 80 percent. Changes in the inventory of feed and supplies affect gross income but these inventories changed relatively little during the period.

Prices Paid and Farm Expenses

The index of prices paid for commodities used in production did not increase as much from the botton of the depression to the peak of prosperity as did the index of prices received (fig. 4). Also, year-to-year variations were smaller than those in the prices-received index. However, farm wage rates showed a very large increase compared with prices paid for other important items of expense. Wages in the postwar period are nearly four times those of the prewar period, whereas prices paid for fertilizer and machinery increased only about 50 percent and prices of motor fuel and oil increased only 15 percent (fig. 6)

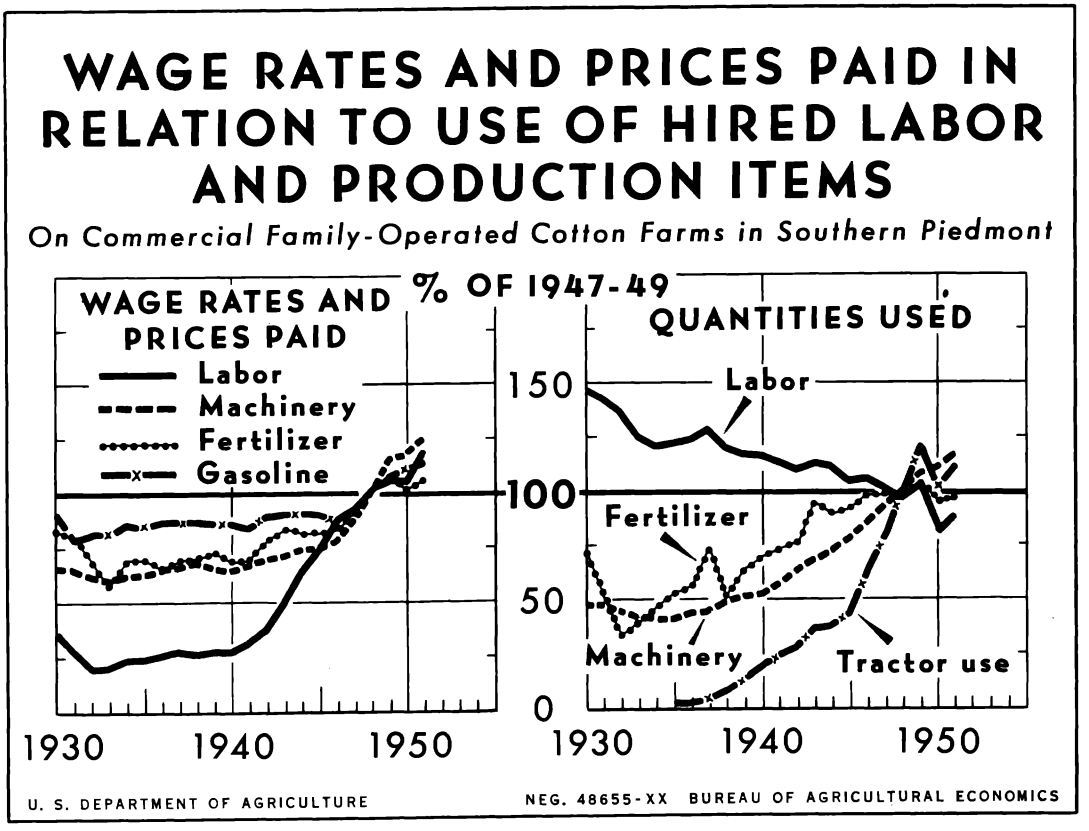


Figure 6.

This change in prices and wage rates paid has contributed greatly to the shift in proportion of labor and capital used in production. Total man labor used in production on Piedmont cotton farms declined 40 percent from 1930 to 1951, whereas the investment in machinery on a constant-dollar basis more than doubled. Hours of tractor work increased from nothing in the early 1930's to about 200 hours per year in the late 1940's. Increased use of fertilizer, and hybrid corn and new varieties of seed also helped farmers reduce the amount of man labor used per unit of production, as labor requirements per acre do not increase proportionally with increased yields. As a result of these shifts, total cost per unit of production has not increased as much as the prices and cost rates of items entering into total cost (fig. 7). The gain from making these shifts is also reflected in the downward trend in per unit physical production requirements (total input per unit of production). The years of high input per unit of production are due to dry weather or heavy damage from boll weevils. Low demand for cotton and the development of small combines and tractors better suited to the area contributed to the shift in proportion of factors used in production, although the change in price relationships of cost factors doubtless gave added incentive to farmers to make these shifts.

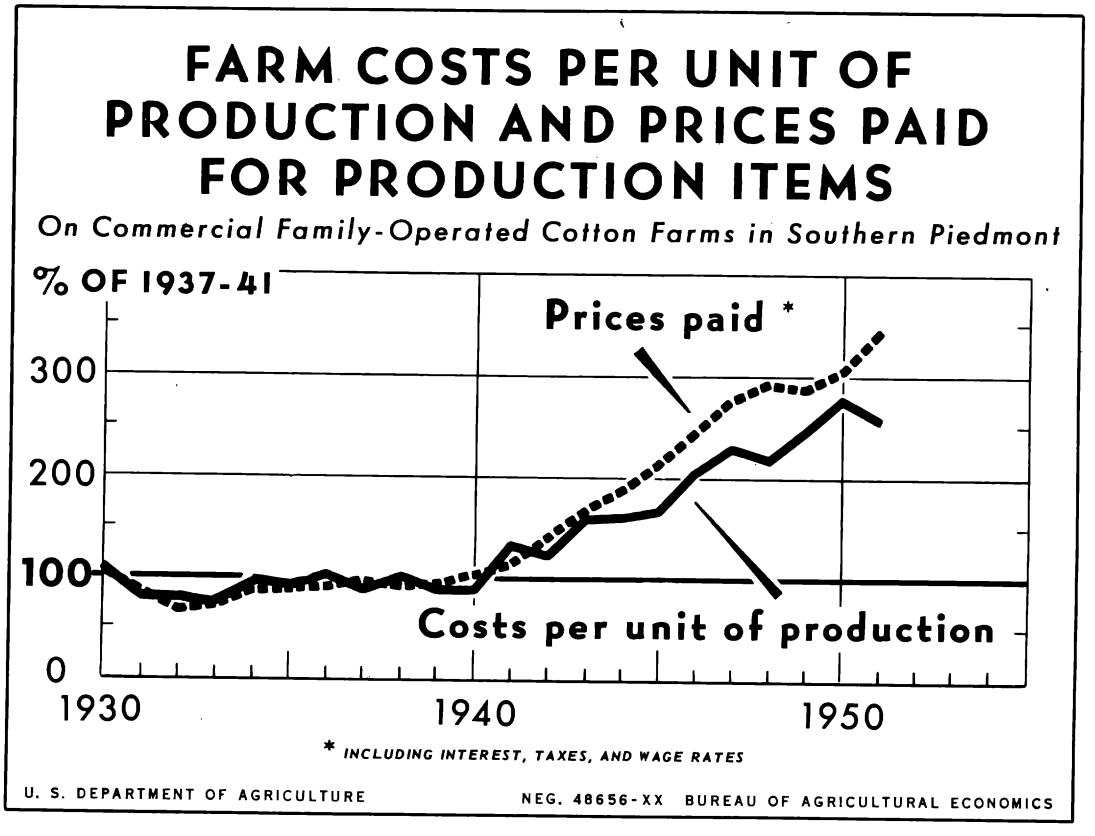


Figure 7.

Total cash expenses, like receipts, showed a very large increase during the period due largely to higher cash rates. From 1932 to 1951, cash expenses on Piedmont cotton farms increased from $469 to $2,219, whereas expenditures in physical terms increased about 10 percent. Relatively, the increase in cash expenses was 60 percent of the increase in cash receipts. This reflects the greater rise in prices received compared to prices paid and the improvement in physical efficiency.

Even though the amount of hired labor and cropper labor has been cut in half, expenditures for cropper and hired labor still make up one-fifth of total expenditures due to the large increase in wage rates and cotton prices. In contrast, prices of fertilizer increased relatively little and expenditures for fertilizer decreased from 29 to 23 percent of total cash expenses. Power and machinery increased from 24 percent of the total in 1932 to 34 percent in 1951. This is the only major group of expenses that made up a substantially larger proportion of the total in 1951 than in 1930.

Net Farm Income

Net farm income on Piedmont cotton farms declined from $317 in 1930 to $110 in 1932. This decline resulted from low prices in 1931 and both low production and low prices in 1932. Largely as a result of improved price relationships and direct Government aid, net farm income increased rapidly to $480 in 1934. Low prices brought a small drop in 1937, and low yields held income down in 1938. With increased production, incomes again rose in 1939 and 1940. Extremely low yields held farm income down in 1941 even though price relationships were much more favorable.

During World War II, incomes rose almost steadily and reached about $1,800 in 1946. No decline in incomes occurred in the postwar period until 1949 when the cotton yield was very low and prices were a little less favorable. Smaller acreages of cotton together with low yields, held income down to about $1,200 in 1950 despite high prices for cotton. A somewhat larger cotton acreage, good yields, and more favorable price relationships in 1951 gave a record high net farm income of $2,023.

Favorable weather and price relationships are mainly responsible for the high net farm income in 1951. If 1947-51 average yields are substituted for 1951 yields, net farm income would be reduced by $277 (table 11). In 1951 prices of cotton lint and beef were the only ones above parity. If cotton prices in 1951 had been 90 percent of parity instead of 113 percent and other prices had remained at 1951 levels net farm income would have been reduced by another $288 or to $1,458 (table 12). Net income then would have

Table 11.- Value of production and expenses with 1947-51 average yields and 1951 farm organization and prices, average commercial family-operated cotton farms, southern Piedmont

Item	Unit	Quantity	Price	Value	Parity ratio
			Dollars	Dollars	Percent
Value of production					
Cotton	Pound	4,235	0.387	1,638.94	113
Cottonseed	Ton	2.4	69.00	165.60	96
Corn	Bushel	168.7	1.65	278.36	94
Wheat	do.	30.0	2.10	63.00	88
Oats	do.	98.0	.95	93.10	86
Cattle	Cwt.	5.7	24.65	140.50	146
Hogs	do.	8.8	20.00	176.00	96
Poultry	Pound	276.0	.271	74.80	84
Butterfat	do.	324.0	.73	236.52	92
Eggs	Dozen	304.3	.55	167.36	92
Other income				696.22	
Total				3,730.40	
Expenses:					
Feed	Cwt.	21.9	5.21	114.10	
Day labor	Day	10.2	3.60	36.72	
Cotton picking	Cwt.	31.5	2.92	91.98	
Cropper labor				329.18	
Fertilizer	Cwt.	214	2.15	460.10	
Ginning	do.	42.35	1.72	72.84	
Tractor oper.	Hour	209	.67	140.03	
Auto oper.	Mile	3,660	.036	131.76	
Machinery				206.00	
Building				120.00	
Taxes				63.34	
Other				218.66	
Total				1,984.74	
Net farm income				1,745.66	
Return to cropper:					
Cotton	Pound	600	.387	232.20	
Cottonseed	Ton	.44	69.00	30.36	
Other				148.73	
Total				411.29	
Cropper share of expenses					
Fertilizer	Cwt.	20.1	2.15	43.22	
Ginning	do.	6.00	1.72	10.32	
Other				28.57	
Total				82.11	
Net return to cropper				329.18	

been nearly as low as in 1949 and 1950. A 5 percent reduction below 1951 in all prices received would have reduced net farm income by $166.

Table 12.- Net farm income at different yield and price levels, commercial family-operated farms, southern Piedmont

Yield and price levels	Net farm income
	Dollars
With 1951 yields and prices	2,023
With 1947-51 yields and:	
1951 prices for all products	1,746
Cotton lint adjusted to 90 percent of 1951 price 1/	1,458
All prices received 5 percent below 1951	1,580

1/ Prices of other products at 1951 levels.

The importance of prices in influencing changes in net farm income on these cotton farms is shown in figure 8.

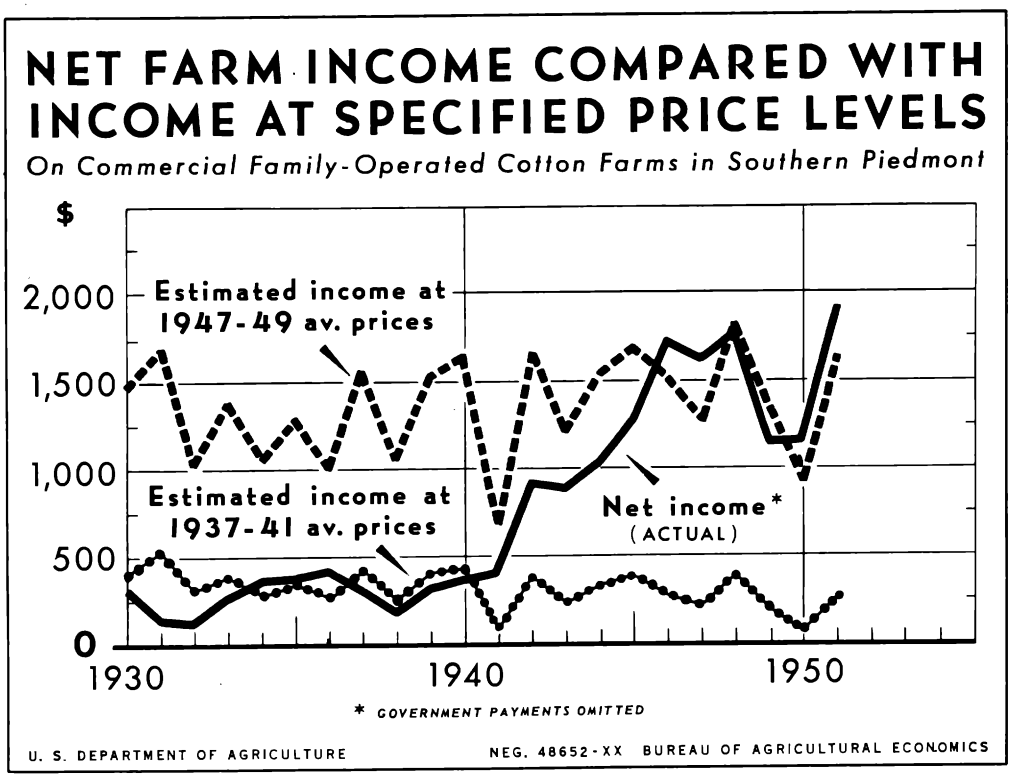


Figure 8.

When the influence of prices is removed by recalculating net farm income at either 1937-41 or 1947-49 average prices, it is apparent that most of the increase in net farm income is due to higher prices. If 1947-49 prices and cost rates had prevailed during the entire period, net farm income would have been about as high in 1930 and 1931 as in any year following. The lower level from 1932 to 1936 came when cotton acreage was restricted but few other adjustments had taken place except for more corn, small grain, and cowpeas. An upward trend in production set in after 1936 when other adjustments were made, such as heavier applications of fertilizer, mechanization, and planting hybrid seed corn, and other improved varieties.

It is apparent also from figure 8 that the long-time trend in net farm income would have been downward had 1937-41 price and cost rates prevailed during the period. The difference in trend in net farm income at 1937-41 prices and 1947-49 prices reflects the shift in price relationships and in quantity of factors used in production discussed earlier. Net farm income at 1937-41 prices has a downward trend largely because labor, which has been decreasing in quantity, is valued low relative to other factors, whereas fertilizer and machinery, which have been increasing in quantity, are valued high relative to labor. At least some of the adjustments would not have taken place if 1937-41 price relationships had prevailed during the entire period.

How much each adjustment has contributed individually to the increase in net farm income cannot be ascertained because of the interrelationships between adjustments. However, some separate estimates will give at least a partial measure of the value of individual adjustments. The results of these budgets are shown in table 13.

The first comparison measures the value of shifting from cotton to grain. The high cotton budget is based on the 1949 farm organization, except that 1947-51 average yields are used. The low cotton alternative differs only in crop acreages which approximate those grown in 1950. Cotton acreage is reduced by a third. Acreages of small grain were adjusted to give the 1949 acreage of total cropland harvested. With no change in yield allowed for the smaller acreage in row crops the high cotton acreage gives $87 more income at 1937-41 average prices and $334 at 1947-49 average prices. If a smaller volume of cotton production does not increase the price, yields on the high cotton acreage would have to be reduced 10 to 15 percent to justify the shift from cotton to grain.

212345 O—52—5

Table 13.- Influence of acreage shifts, improved yields, and mechanization on net farm income at 1937-41 and 1947-49 average prices, commercial family-operated cotton farms, southern Piedmont

Alternative compared	Net farm income per farm at -	
	1937-41 average prices	1947-49 average prices
	Dollars	Dollars
Shift from cotton to small grain		
High cotton acreage	248	1,639
Low cotton acreage	161	1,305
Increased yield		
1930-34 average yields (high cotton acreage)	168	1,257
1947-51 average yields (high cotton acreage)	248	1,639
Mechanization		
All mule power (high cotton acreage)	316	1,611
All tractor power (high cotton acreage)	252	1,874

The second comparison in table 13 estimates the gain from increased fertilization, hybrid seed corn, improved varieties, and other measures to improve yields, but does not include a large shift away from row crops. Average yields from 1930-34 are compared with the 1947-51 average using 1949 crop acreages. The gain from adopting these practices is estimated at $80 with prewar prices and $382 at postwar prices. However, some credit must be given to the reduction in row crops and the increase in lespedeza since 1930. It is difficult to say how much is due to these changes.

The last comparison estimates the gain from shifting from all mule power to all tractor power. No change is allowed in the method of picking cotton and corn. The 1949 organization is used again for the base. There would be a loss of $64 with mechanization at prewar prices but a gain of $263 at postwar prices. This difference, which resulted from changes in relationship between wages and other costs noted earlier, shows the major reason for slow mechanization in this area before 1940. Rather than driving off labor from farms, mechanization appears to be taking place only as wage rates go up.

For the period as a whole, 56 percent of the net farm income was in the form of cash and the remaining 44 percent came about as credits for farm products used in the home. The change in

inventory during the period was very small. In 1951, net cash income amounted to $1,266, or 65 percent of the net farm income. Cash income made up a much smaller proportion in the early 1930's, amounting to minus $63 in 1931. During the depression years, farmers were able to hold net cash income up by not maintaining inventories of machinery and buildings, but this meant that cash income was held down in later years as inventories were replaced.

The total value of perquisites supplied by the farm increased from $283 in 1933 to $822 in 1947. Although most of this increase was in prices, there was a per capita increase in the physical quantities of most products used. Total quantities of products used by operator and cropper families on the farm decreased along with the decline in number of croppers.

Capital Charge and Return to Operator And Family Labor

Determining the charge to make for farm capital used is necessarily an arbitrary procedure. In this report, interest on real estate is charged at the going farm-mortgage interest rate, and interest rates charged for short-term and intermediate credit are applied to working capital. On this basis, the total capital charge (on real estate and on working capital in the form of machinery, livestock, and the like) amounted to $344 in 1930. It decreased to $191 in 1933 and then increased steadily to $709 in 1951. Even though interest rates showed a downward trend during most of the period, the capital charge increased, mainly as a result of higher prices and higher investment values. The physical quantity of real estate and working capital on Piedmont cotton farms increased only a little.

Net farm income was less than the capital charge by $27 in 1930 and $150 in 1931. The first year in which net farm income was sufficient to cover capital charge and allow the operator and his family a return for their labor was 1933. Returns to the operator and family for labor and management were about $300 in the remainder of the 1930's and increased to more than $1,200 in the postwar years except for 1949 and 1950.

Returns per hour to operator and family labor and management varied from $0.05 to $0.12 from 1933 to 1941. Hourly returns increased to about $0.40 in the postwar years except 1949 and 1950, when they dropped to $0.19 and $0.23 respectively.

Although industrial wage rates are not strictly comparable with these estimates of hourly returns on Piedmont farms, some comparisons are helpful in understanding the movement of labor off farms. During the 1930's average annual earning of non-

agricultural workers in South Carolina and Georgia ranged from $525 to $690 and reached a high of $2,430 in 1951. 5/ Average hourly earnings in 1951 were $1.18 per hour.

SOUTHERN PIEDMONT COTTON FARMS COMPARED WITH FARMS IN OTHER AREAS

Even though there has been a relatively large increase in farm returns on commercial family-operated Piedmont cotton farms during the period, dollar incomes are still low compared with farms in most other areas. As shown in table 14, both net farm income and returns per hour to operator and family for labor are lower on southern Piedmont cotton farms than on cotton farms in other areas and on other types of farms in other areas included in these series. In 1951, when net farm incomes averaged $2,023 on southern Piedmont farms, incomes on Black Prairie and southern Plains cotton farms averaged $3,112 and $6,357, respectively. Incomes on other types of farms ranged from $3,872 on tobacco-livestock farms in the Kentucky bluegrass area to $20,155 on sheep ranches in the northern Plains. Incomes on southern Piedmont cotton farms exceeded incomes on a few other types of farms in the early 1930's when prices of grains were very low and when droughts hit other areas as in 1930, 1934 and 1936.

The southern Piedmont has some advantages over other cotton-producing areas, although they are outweighed by the disadvantages. Due to better quality and nearness to market, the prices received by Piedmont cotton farmers for lint and cottonseed are little higher than those paid to producers in other areas. On the other hand, wage rates are lower in parts of the southern Piedmont than in some other cotton-producing areas. The yield of cotton is high relative to the nonirrigated areas of Texas and farther West (table 15). However, heavy application of fertilizer is necessary to get these higher yields. Small fields and irregular topography make the use of large-scale equipment difficult. Four-row equipment is used on the smooth land of the Texas High Plains, whereas half-row mule equipment is still used in much of the Piedmont. Heavy weed growth requires more labor for chopping cotton than is needed in the drier areas to the West. Labor used per acre to grow and harvest cotton in the Piedmont area is two and a half times the amount used in the Black Prairie and six times that in the southern Plains.

Yields of corn, small grain, and hay are generally lower on Piedmont cotton farms than on other types of farms in other areas studied, even though heavy applications of fertilizer are made. On cash-grain farms in the Corn Belt, the per acre yield

---

5/ United States Bureau of the Census, Census of Manufactures, and United States Bureau of Labor Statistics, Hours and Earnings--Industry Report, April 1952.

Table 14.- Farm returns, selected commercial family-operated farms, by type, average 1937-41, and 1949-51

Type of farm and location	Net farm income per farm				Returns per hour to operator and family			
	1937-41	1949	1950	1951 1/	1937-41	1949	1950	1951 1/
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Cotton farms:								
Southern Piedmont	495	1,204	1,244	2,023	0.09	0.19	0.23	0.45
Southern Plains	1,684	6,496	6,787	6,357	.42	2.23	2.43	2.12
Black Prairie, Texas	1,229	3,303	3,642	3,112	.26	.74	.90	.60
Corn Belt farms:								
Cash grain	2,900	9,729	9,262	11,529	.44	1.84	1.70	2.20
Hog-beef fattening	2,180	9,347	9,803	11,189	.31	1.86	2.01	2.25
Hog-beef raising	1,337	5,920	5,892	6,435	.24	1.22	1.22	1.29
Hog-dairy	1,602	5,672	5,156	6,359	.24	1.12	.78	1.24
Dairy farms:								
Central Northeast States	943	3,205	3,536	4,476	.12	.51	.58	.78
Eastern Wisconsin	1,521	3,472	3,588	4,948	.17	.48	.53	.81
Western Wisconsin	1,242	2,825	2,854	4,092	.17	.45	.48	.76
Winter wheat farms (So. Plains)								
Wheat	1,427	5,988	8,982	7,407	.22	1.35	2.47	1.69
Wheat-grain sorghum	1,870	11,015	6,421	9,538	.38	3.24	1.47	2.52
Spring wheat farms (No. Plains):								
Wheat-corn-livestock	1,550	4,173	5,250	8,850	.30	.84	1.21	2.20
Wheat-small grain-livestock	1,476	5,283	6,696	8,105	.32	1.43	2.00	2.43
Wheat-roughage-livestock	1,064	3,411	4,753	7,801	.20	.61	1.05	1.93
Cattle ranches:								
Intermountain region	2,843	7,799	8,835	13,656	.28	1.16	1.33	2.43
Tobacco-livestock farms:								
Kentucky Bluegrass	1,219	3,217	3,082	3,872	.26	.78	.73	.96
Sheep ranches								
Northern Plains	2,734	3,361	9,760	20,155	.34	- .10	1.42	3.57
Intermountain region	4,103	5,854	8,923	19,108	.56	.48	1.17	3.41

1/ Preliminary.

Table 15.- Comparison of factors on three cotton and four other types of commercial family-operated farms, 1950

Item	Unit	Cotton farms			Other farms			
		Southern Piedmont	Black Prairie	Southern Plains	Cash grain	Hog-beef raising	Northeast dairy	Kentucky tobacco-livestock
Total acres	Acre	161	161	326	235	186	191	113
Cropland harvested	do.	51	93	292	181	99	78	31
Investment total	Dol.	11,566	22,312	19,509	69,033	32,426	21,900	20,818
Land and buildings	do.	9,193	19,285	15,525	54,990	22,134	10,300	16,896
Machinery and equip.	do.	1,127	1,498	1,979	3,596	2,183	3,500	1,170
Livestock	do.	838	1,158	1,504	3,624	4,745	6,200	1,953
Crops on hand	do.	408	371	501	6,823	3,364	1,900	799
Farms with tractors	Pct.	40	100	100	100	80	95	35
Gross farm income	Dol.	3,010	5,309	8,186	13,358	8,086	7,463	5,395
Yields per acre: 1/								
Cotton	Lb.	271	158	182	---	---	---	---
Corn	Bu.	18.2	20.9	15.1	51.7	51.5	---	44.8
Wheat	do.	14.3	11.1	---	25.7	23.1	---	17.7
Oats	do.	27.9	23.5	21.8	40.5	36.6	---	---
All hay	Ton	.8	1.2	.9	1.8	1.7	1.5	1.5
Labor used	Hour	3,931	4,030	2,968	3,626	3,608	5,241	4,139
Labor used per acre on:								
Cotton	Hour	117.2	47.3	21.3	---	---	---	---
Corn	do.	29.2	11.4	5.4	6.0	9.3	---	29.0
Wheat	do.	7.9	3.6	1.9	4.5	6.5	9.0	6.7
Oats	do.	9.8	5.8	---	3.5	6.3	9.0	---

1/ 1946-50 average.

of corn is nearly three times the yield on southern Piedmont cotton farms, and yields of wheat and oats are 80 and 45 percent higher, respectively, on Corn Belt cash-grain farms.

Southern Piedmont cotton farmers use about six times as much man labor per acre on corn and twice as much per acre on small grain as do Corn-Belt farmers. When tractors are used exclusively, the two areas are more nearly equal in labor used per acre except for corn, because few corn pickers are used on southern Piedmont cotton farms.

When size is measured in terms of either gross farm income, total investment, or acres of cropland, southern Piedmont cotton farms are smaller than the other farms studied. In terms of acres of cropland, however, Kentucky tobacco-livestock farms are smaller. In terms of total input of labor, southern Piedmont cotton farms are as large as many of the other types of farms and a third larger than southern Plains cotton farms. The difference in size as measured by labor input compared with other measures suggests that high labor input per unit is an important reason for the small size of Piedmont cotton farms as measured by acreage and value of product. The low amount of working capital, particularly in crop machinery and livestock on Piedmont cotton farms, also contributes to smallness in terms of gross and net income, but low investment in land and buildings is partly a result of low income as well as a cause of low income.

The improvement in physical efficiency on southern Piedmont farms since 1940 has been small compared to that on southern Plains cotton farms, sheep ranches, Corn-Belt farms, and wheat farms in both the northern and southern Plains. On the other hand, Black Prairie cotton farms, cattle ranches, and central Northeast dairy farms have had little or no improvement in efficiency.

Mechanization was well advanced by 1940 on Corn Belt farms and wheat farms, so that the opportunity for improvement in production and efficiency from this source has not been as great as from improved yields and better adjustment of other factors of production. Measures leading to higher yields per acre have been important in improving efficiency on both southern Piedmont cotton farms and other types of farms. Weather conditions have been a major factor in increasing yields on wheat farms. Some other types of farms have improved efficiency more than have southern Piedmont cotton farms because they have expanded crop acreages, whereas southern Piedmont cotton farms have made reductions. Greater volume of production has allowed some farms to spread overhead and to make better use of equipment.

COMPARISON OF INDEX NUMBERS WITH 1937-41 AND 1947-49 BASE PERIODS

The prewar base period of 1937-41 has been used frequently in calculating various index numbers including those in other reports in this series. However, a more recent postwar base period of 1947-49 has been used in this report. A comparison of some important index numbers calculated with the 1937-41 and the 1947-49 base periods is shown in table 16. When the base period is shifted to 1947-49 the relative trend shown by some of the index numbers is changed as well as the actual numbers. Prices received, prices paid (including wages) and the power and machinery index show a greater upward trend when the 1947-49 base period is used. The greatest difference occurs in the index of prices paid. This difference results mostly from the relative decline in hours of cropper and hired labor and the marked rise in wage rates and returns to cropper labor. Total input per unit of production shows a small downward trend since 1934 when the postwar base period is used but there is a slight upward trend when the prewar base period is used. The reasons for these differences are discussed in the sections on prices paid and net farm income. The trend in other index numbers is not changed by shifting base periods.

SMALL-SCALE COTTON FARMS

In many ways the small-scale cotton farms in the Piedmont area are like the commercial family-operated farms except that they are smaller. In 1930 a typical small-scale farm had 50 acres of total farmland compared with 156 acres for the commercial family-operated group. In acres of cotton and total cropland harvested, small-scale farms averaged about 40 percent as large as average commercial family-operated cotton farms. The trend in changes in crop acreages on small-scale farms is similar to that on the larger farms but the relative changes are not so great (table 17). The decline in acreage of cotton since 1933 on small-scale farms was only 50 percent compared to 57 percent on the larger farms, whereas acreages of small grain increased 43 percent on small-scale farms compared with 70 percent on commercial family-operated farms. Practically no lespedeza is raised for seed on small-scale farms. Available data indicate no difference between size groups as to level and trend of yields per acre.

Table 16.- Comparison of indexes of selected measures with 1937-41 and 1947-49 base periods. Commercial family-operated cotton farms, southern Piedmont, 1930-51

Year	Net farm income		Prices received		Prices paid including wages		Power and machinery used (quantity)	
	1937-41 = 100	1947-49 = 100	1937-41 = 100	1947-49 = 100	1937-41 = 100	1947-49 = 100	1937-41 = 100	1947-49 = 100
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1930	64	20	92	33	112	49	105	77
31	29	9	56	20	88	38	103	75
32	22	7	62	22	77	33	103	75
33	70	22	83	30	89	39	101	73
34	97	31	117	42	98	45	97	71
1935	100	32	103	38	99	45	97	71
36	114	36	116	42	100	46	92	58
37	79	25	86	31	102	47	95	70
38	83	26	85	32	94	45	97	72
39	109	34	89	32	100	47	100	74
1940	117	37	91	33	100	48	101	75
41	112	35	149	55	104	52	107	80
42	207	65	169	62	131	66	113	86
43	200	63	191	71	139	71	112	86
44	228	72	196	73	149	76	115	88
1945	272	86	199	75	152	81	118	91
46	362	114	286	107	174	92	127	98
47	339	107	283	108	168	97	125	98
48	369	116	267	101	193	105	125	100
49	244	77	236	91	178	98	127	102
1950	252	79	290	114	176	100	126	103
51	409	129	310	118	199	114	126	104

	Net farm production		Net production per hour of labor		Per unit of production: Total cost		Per unit of production: Total input	
1930	116	110	94	75	111	47	92	100
31	120	112	99	78	83	35	85	95
32	92	84	79	61	80	35	102	118
33	95	90	90	73	79	33	94	103
34	88	81	86	68	101	43	103	114
1935	93	88	91	73	98	41	97	106
36	90	83	87	67	103	45	104	116
37	112	104	103	82	91	39	90	97
38	91	82	90	69	100	44	106	115
39	105	100	107	86	91	38	91	97
1940	112	104	115	90	88	38	89	93
41	80	72	85	64	130	58	124	133
42	107	100	115	92	123	52	94	95
43	99	91	104	81	150	69	106	109
44	109	101	115	91	162	70	97	98
1945	115	104	132	101	162	72	91	93
46	107	100	121	95	209	89	102	99
47	102	94	122	94	225	100	106	106
48	119	109	145	112	216	94	93	89
49	108	97	122	94	243	106	108	105
1950	85	76	126	96	272	121	124	117
51	108	98	143	110	256	111	102	95

Table 17.- Land use and livestock numbers on small-scale cotton farms, southern Piedmont, 1930, 1940, and 1948-1951

Item	1930	1940	1948	1949	1950	1951
	Acres	Acres	Acres	Acres	Acres	Acres
Crop acreage:						
Cotton	12.1	8.6	7.6	8.7	6.0	6.7
Corn	8.1	9.0	7.5	7.2	6.8	5.6
Wheat	.3	1.8	1.9	1.4	1.8	1.5
Oats	2.7	4.0	4.1	4.5	4.8	3.4
Cowpeas	.8	2.2	1.0	.6	.5	.5
Lespedeza hay	-	1.9	3.8	3.8	3.0	3.6
Other crops	3.3	3.4	2.7	2.2	2.3	2.2
Total crops harvested	27.3	30.9	28.6	28.4	25.2	23.5
Less double cropped	.3	3.2	3.0	2.8	2.3	1.5
Total cropland harvested	27.0	27.7	25.6	25.6	22.9	22.0
Other land	23.0	22.3	24.4	24.4	27.1	28.0
Total land farmed	50.0	50.0	50.0	50.0	50.0	50.0
	Number	Number	Number	Number	Number	Number
Livestock on hand, January 1:						
Workstock	1.5	1.5	1.4	1.2	1.2	1.2
Milk cows	1.2	1.2	1.1	1.1	1.2	1.2
Other cattle	.7	.8	.8	.7	.9	.9
Hogs	1.7	1.4	1.6	1.6	1.5	1.5
Chickens	20	26	29	25	27	26

Changes in livestock numbers are even smaller on small-scale farms than on the commercial family-operated farms. There was a small increase in poultry, a small decrease in hogs, and practically no change in cattle (table 17), on small-scale farms. Workstock decreased only 20 percent on small-scale farms compared with 37 percent on the larger farms.

In 1930 production was even less mechanized on the small-scale farms than on the commercial farms. No tractors were kept on small-scale farms and the proportion of farms with automobiles was half that on the larger farms. Labor used per acre on small-scale farms was 12 percent higher on corn and 17 percent higher on wheat than on commercial family-operated farms. Mechanization has been slower getting started on small-scale farms than on the larger ones. This accounts for the smaller reduction in workstock. By 1950, 16 percent of small-scale farms had tractors. In addition, some plowing and harrowing were hired on a custom basis. The combine has largely replaced the thresher on all farms but some oats are still fed unthreshed on small-scale farms.

In 1930, the investment on small-scale farms was only 36 percent of the investment on commercial farms (tables 10 and 18). Investment in machinery, equipment, and livestock was 50 percent as large as on the commercial group, even though cropland harvested on the small-scale farms was only 40 percent as large. The relative increase in investment on small-scale farms is similar to that on commercial farms except that livestock values increased more on the small-scale farms. This reflects the smaller reduction in workstock.

Table 18.- Investment on small-scale cotton farms, southern Piedmont, 1930, 1940 and 1950

Item	Investment			Percentage distribution		
	1930	1940	1950	1930	1940	1950
	Dol.	Dol.	Dol.	Pct.	Pct.	Pct.
Land and buildings	1,294	1,155	2,855	70	66	69
Machinery and equipment	133	140	510	7	8	12
Livestock	273	332	525	15	19	13
Crops on hand	143	114	228	8	7	6
Total	1,843	1,741	4,118	100	100	100

The index of net farm production shows less increase on small-scale farms than on commercial family-operated farms, mostly because of the smaller increase in wheat, oats, and livestock numbers on small-scale farms. Net production per hour of labor also increased less on small-scale farms due to slow mechanization as well as to small acreages of crops that have been more highly mechanized.

Net farm income in the early 1930's was about as large on small-scale farms as on commercial farms but the relative increase was smaller. In 1951 the average net farm income was $1,150 compared with $2,023 on the commercial family-operated farm. This difference results from the combination of more favorable price ratios and larger quantities on the commercial farms. Returns per hour to family and operator labor on small-scale farms in the 1930's ranged from $0.02 to $0.12 per hour. By 1951, returns per hour were $0.48 compared with $0.45 on the commercial family-operated farms.

SMALL COMMERCIAL FAMILY-OPERATED COTTON FARMS

The small and large commercial family-operated cotton farms discussed later represent specific situations, whereas, the average commercial family-operated and the small-scale cotton farms are averages of a comparatively wide range in sizes and operations. Small and large farms with organization and practices similar to the farms presented are common to the area. Changes in organization and methods of operation are introduced as made by individual operators--that is, livestock numbers are changed in whole units and a tractor or combine is added in a single year.

Small commercial family-operated cotton farms are in the lower part of the range covered by the average commercial family-operated cotton farms. Throughout the period the small family-operated cotton farm described here contained 105 acres. Cropland harvested decreased from 42 acres in 1930 to 35 acres in 1951. Crops grown are similar to those grown on the average commercial family-operated cotton farms except that only the more important ones are included (table 19).

The decline in acreage of cotton on small family-operated cotton farms, although similar to that on other cotton farms in the area, has not been quite as large. After 1930, small grain made up a larger proportion of crops harvested than is the case on other farms, but the increase since 1940 has not been as great as on the large farms. Lespedeza replaced other hay about 1939 and cowpeas were dropped after 1945.

Livestock on small family-operated farms in 1930 consisted of two mules, two cows, a heifer, two hogs raised, and 30 chickens. There has been practically no change since then except for a slight increase in poultry.

The trend in net farm production does not differ greatly from that on average commercial family-operated farms. Most of the field work is still done with half-row mule equipment although some plowing and harrowing have been hired since 1940. Small grain was first hired combined in 1946. Labor used per acre in 1950 is only slightly below 1940 when mules were used exclusively for power. If a tractor were used exclusively except for harvesting cotton and corn only 340 hours of tractor work would be used. Without doing custom work for others the tractor would not be used as much as tractors are ordinarily used in this area.

In 1930, 114 days of man labor were hired, but by 1951, with the smaller volume of cotton, hired labor had declined to 28 days. Total labor used in 1930 was 46 percent greater than in 1951.

Table 19.- Land use and livestock numbers on small commercial family-operated cotton farms, southern Piedmont, 1930, 1940, 1948-51

Item	1930	1940	1948	1949	1950	1951
	Acres	Acres	Acres	Acres	Acres	Acres
Crop acreage:						
Cotton	18.9	11.8	11.2	13.0	8.7	9.6
Corn	14.4	14.9	11.7	12.5	12.3	10.6
Wheat	---	4.4	4.7	4.0	4.0	3.8
Oats	3.4	4.0	4.9	5.7	5.5	4.7
Small grain hay	1.1	1.0	.7	.8	1.0	.8
Lespedeza hay		1.8	4.9	6.0	4.8	5.3
Cowpeas	1.4	4.2	---	---	---	---
Other hay	3.1	1.1	---	---	---	---
Total crops harvested	42.3	43.2	38.1	42.0	36.3	34.8
Less double cropped	.6	2.7	2.2	1.5	2.0	1.8
Total cropland harvested	41.7	40.5	35.9	40.5	34.3	33.0
Other land	63.3	64.5	69.1	64.5	70.7	72.0
Total land farmed	105.0	105.0	105.0	105.0	105.0	105.0
	Number	Number	Number	Number	Number	Number
Livestock on hand Jan. 1.:						
Workstock	2	2	2	2	2	2
Milk cows	2	2	2	2	2	2
Calves, under 1 yr.	1	1	1		1	
Other cattle, 1 yr. & over				1		1
Hogs	1	1	1	1	1	1
Chickens	31	33	35	34	36	35
Hens and pullets	26	28	30	29	30	30
Livestock raised:						
Hogs	2	2	2	2	2	2
Chickens	47	64	72	67	63	63

The increase in investment, which more than doubled from 1930 to 1950, is due almost entirely to increased prices as there was little change in quantities (table 20).

Table 20.- Investment on small and large commercial family-operated cotton farms, southern Piedmont, 1930, 1940, and 1950

Item	Investment			Percentage distribution		
	1930	1940	1950	1930	1940	1950
	Dollars	Dollars	Dollars	Percent	Percent	Percent
Small						
Land and buildings	2,718	2,426	5,996	77	75	80
Machinery and equipment	247	230	514	7	7	7
Livestock	369	442	692	10	13	9
Crops on hand	199	158	298	6	5	4
Total	3,533	3,256	7,500	100	100	100
Large						
Land and buildings	10,356	9,240	22,840	78	78	76
Machinery and equipment	620	488	3,572	5	4	12
Livestock	1,417	1,549	2,071	11	13	7
Crops on hand	728	649	1,423	6	5	5
Total	13,121	11,926	29,906	100	100	100

Net farm income on these farms did not drop as low during the depression as the averages for the large commercial family-operated cotton farms, but it did not rise as high during the war and postwar periods as on the larger farms (fig. 9). A high of $1,600 was reached in 1951. Returns per hour of family and operator labor used were nearly the same as that for the average commercial family-operated farm.

LARGE COMMERCIAL FAMILY-OPERATED COTTON FARMS

Large commercial family-operated cotton farms are in the upper part of the range of average commercial family-operated cotton farms. The typical farms described here contained 400 acres of total land throughout the period compared with 156 acres in 1930 and 162 acres in 1951 on the average commercial family-operated cotton farm. Cropland harvested declined from 162 acres in 1930 to 135 in 1950 but increased to 145 in 1951.

Acreage of cotton on typical large farms declined 61 percent from 1930 to 1950 (table 21), compared with a 54-percent decline on typical small farms. However, the larger farm increased more in 1951 than the small farm. Lespedeza for hay and seed made up 24 percent of the acreage of crops harvested on large cotton farms in 1951 compared with 16 percent on the smaller farms.

Numbers of milk cows remained constant at about five head on large farms, but calves and other cattle increased from five to seven head, with the increase in beef cattle. One sow was kept throughout the period but the number of hogs raised declined from nine to six. This was due mostly to the decline in number of croppers, because there was less need for home-grown meat. Poultry kept by all subunits in 1951, however, was slightly larger than in 1930 even though there were fewer croppers in 1951.

A big step toward mechanization of large Piedmont cotton farms was taken with the purchase of a tractor in 1940. The shift to tractor power has not been completed, as four head of workstock were still kept in 1951. Workstock are used primarily by the croppers in growing cotton and corn. A combine was first used for small grain on these farms in 1941. Labor used on

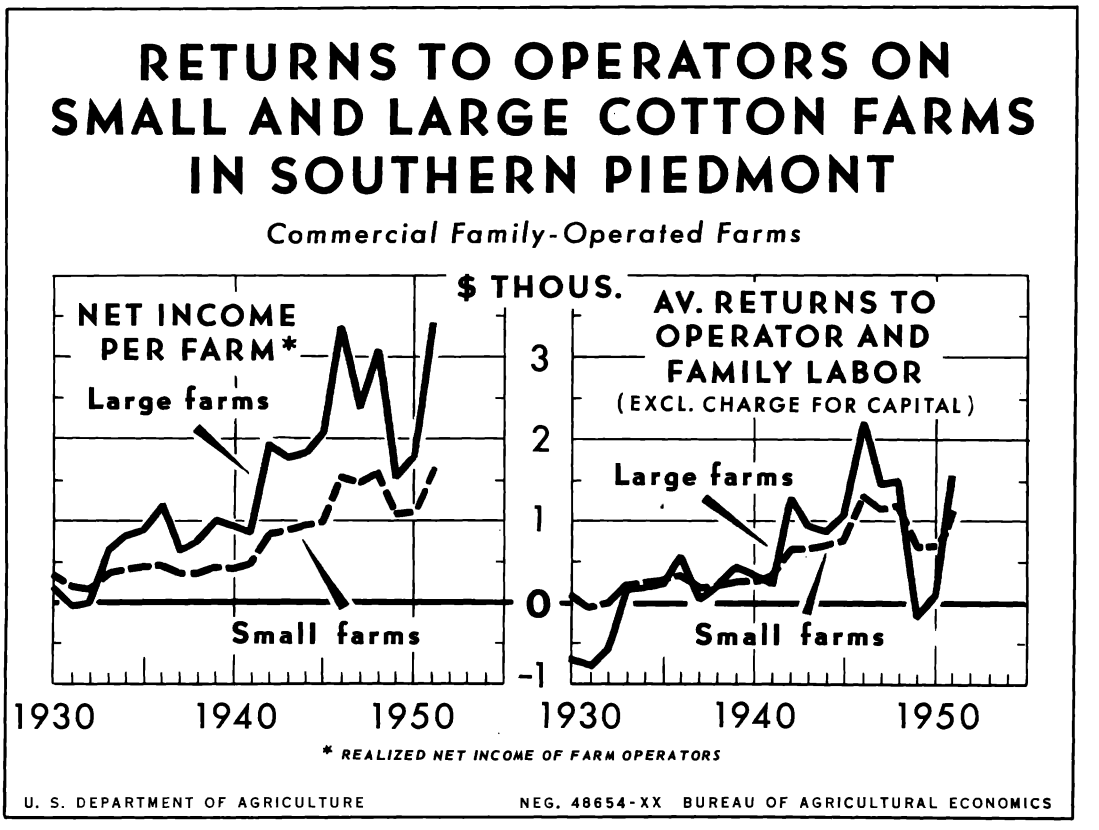


Figure 9.

small grain has been reduced at least 55 percent per acre but labor on corn has been reduced only 25 percent, and on cotton about 5 percent. Cotton and corn afford a considerable opportunity for further reduction in labor used in preharvest operations. Total labor inputs on large Piedmont cotton farms dropped from 16,836 hours in 1930 to 10,670 hours in 1951. This reduction is the combined result of changes in crop acreages, livestock numbers, and mechanization.

In 1930, the labor force consisted of six cropper families and 67 days of hired labor, in addition to the operator and some family labor. The number of croppers declined to three in 1951. Hired labor varied from 35 to 175 days per year throughout the period.

Chiefly because of greater mechanization on large cotton farms, net production per hour of labor increased more than on smaller cotton farms. The relative increase in total investment on large farms was only a little larger than on small farms but the increased investment in machinery and equipment was much larger (table 20). In 1950, investment in machinery and equipment on large farms amounted to $3,572 compared with $620 in 1930. The purchase of the tractor and tractor equipment in 1940 and a combine in 1946, together with higher prices, largely account for this increase.

Net farm income on large commercial family-operated cotton farms was lower than on small and average commercial family-operated farms from 1930 to 1933 (fig. 9). With the marked improvement in price relationships in 1933, net farm income on the large farms rose above the smaller farms and remained higher through 1951. Both the upward movement from 1941 to 1946 and the year-to-year variations were greater on the large farms.

Returns to the operator and his family for labor and management followed the same trend as net farm income until 1942. From 1933 to 1941 returns to the operator and family for labor and management on the large farms were about equal to returns on the small farms. This indicates that the net farm income was just enough higher on the large farms to pay interest on the additional capital. One reason the large farms did not produce higher incomes relative to the small farms during this period was that croppers usually received higher returns per hour of labor than wage hands.

Following 1942, returns to the operator and family for labor and management increased less than net farm income because of larger capital charges associated with mechanization and higher interest rates.

Table 21.- Land use and livestock numbers on large commercial family-operated cotton farms, southern Piedmont, 1930, 1940, 1948-51

Item	1930	1940	1948	1949	1950	1951
	Acres	Acres	Acres	Acres	Acres	Acres
Crop acreage:						
Cotton	90.8	53.5	43.8	52.0	35.4	45.0
Corn	48.4	56.0	41.9	42.5	46.5	41.2
Wheat	2.1	11.8	17.4	13.6	11.5	12.0
Oats	8.9	12.2	15.6	15.5	17.0	16.1
Cowpeas	4.2	9.6	---	---	---	---
Small grain hay	1.6	2.3	1.3	1.6	1.9	2.0
Lespedeza hay	---	16.2	28.3	28.8	23.0	29.6
Other hay	6.2	2.6	---	---	---	---
Lespedeza seed	---	---	4.5	4.8	3.8	4.5
Total crops harvested	162.2	164.2	152.8	158.8	139.1	150.4
Less double cropped	.6	3.6	5.9	5.0	4.1	5.2
Total cropland harvested	161.6	160.6	146.9	153.8	135.0	145.2
Other land	238.4	239.4	253.1	246.2	265.0	154.8
Total land farmed	400.0	400.0	400.0	400.0	400.0	400.0
	Number	Number	Number	Number	Number	Number
Livestock on hand Jan. 1.:						
Workstock	8	7	5	4	4	4
Milk cows	5	6	5	5	5	4
Calves, under 1 yr.	2	2	3	3	3	3
Other cattle, 1 yr. & ov.	3	3	4	4	4	5
Sows	1	1	1	1	1	1
Other hogs on hand	9	7	6	6	6	6
Chickens on hand	72	68	76	72	78	75
Hens and pullets	61	58	65	61	66	64
Livestock raised:						
Hogs	12	9	8	8	8	8
Chickens	103	139	146	140	139	134

SIMILAR PUBLICATIONS FOR OTHER AREAS

Fowler, Herbert C.
1952. Changes in Dairy Farming in the Northeast, 1930-51. U. S. Bur. Agr. Econ.

Goodsell, Wylie D., Jones, Ronald W., and Bierman, Russell W.
1946. Typical Family-Operated Farms, 1930-45, Adjustments, Costs, and Returns. U. S. Bur. Agr. Econ. F.M. 55, 91 pp., illus.

Gray, James R., and Baker, Chester B.
(In press). Commercial Family-Operated Sheep Ranches, Northern Great Plains Region, 1930-50, Organization, Production Practices, Costs, and Returns. Montana State College, Bozeman, Montana.

Hochmuth, H. R., and Goodsell, Wylie D.
1948. Commercial Family-Operated Cattle Ranches, Intermountain Region, 1930-47, Organization, Costs, and Returns. U. S. Bur. Agr. Econ. F.M. 71, 29 pp., illus.

Hochmuth, H. R.
1952. Commercial Family-Operated Sheep Ranches, Intermountain Region, 1930-50, Organization, Costs, and Returns. U. S. Bur. Agr. Econ.

Hole, Erling and Bondurant, John H.
1949. Farming in the Bluegrass Area of Kentucky, Operations, Costs, and Returns, 1930-48. University of Kentucky, Lexington, Kentucky. Bul. 544, 51 pp., illus.

Rauchenstein, Emil, Wilcox, Walter W., and Smith, Edward J.
1950. Changes in Dairy Farming in Wisconsin, 1930-48. University of Wisconsin, Madison, Wisconsin. Res. Bul. 166, 40 pp., illus.

United States Bureau of Agricultural Economics.
1949. Farm Costs and Returns, 1945-48, Commercial Family-Operated Farms in 7 Major Farming Regions. U. S. Bur. Agr. Econ. 15 pp., illus.

1950. Farm Costs and Returns, 1949 With Comparisons, Commercial Family-Operated Farms in 7 Major Farming Regions. U. S. Bur. Agr. Econ. F.M. 78, 17 pp. illus.

1951. Farm Costs and Returns, 1950 With Comparisons, 16 Commercial Family-Operated Farms in 8 Major Farming Regions. U. S. Bur. Agr. Econ. F.M. 82, 18 pp., illus.

1952. Farm Costs and Returns, 1951 With Comparisons, 20 Types of Commercial Family-Operated Farms in 10 Major Farming Regions. U. S. Bur. Agr. Econ. F.M. 93, 21 pp., illus.

APPENDIX

Definition of Terms Used

Insofar as possible, standard terms were used in making this study but some exceptions were necessary. The following explanation is given in cases of departure from standard usage and when standard usage does not exist:

Total land farmed: - Includes total land owned plus land rented in and minus land rented out.

Cropland harvested: - Includes land from which a crop was harvested in any given year. Land double-cropped is included only once.

Total crops harvested: - Cropland harvested plus acreage from which a second crop was removed.

Total labor: - Includes total hours of labor by the operator, other members of the family working without pay, hired labor, and cropper labor used in production of crops, livestock, repair and maintenance of machinery, equipment and buildings, and in managing the farm unit. It is labor used and not labor available.

Total value of investment: - Includes estimated value of land, all dwellings, service buildings, livestock, machinery and equipment, a portion of the value of the automobile chargeable to the farm business, and crops on hand January 1.

Cash receipts: - Include total amount of cash received during the calendar year for sales of crops, livestock, livestock products, Government payments, and custom work done for others. All current marketings are included whether produced during the current year or from inventories.

Cash expenditures: - Include all cash paid for goods and services used in production, including new machinery, new buildings, and a portion of the operating expenses for the automobile chargeable to the farm business. Rent, interest payments, repairs on the operator's dwelling, and the purchases of additional land are not included.

Value of perquisites: - All farm products consumed on the farms where grown by the operator and the cropper's families are valued at current farm prices. Annual rent of operator's dwelling is charged at a nominal rate of 8 percent of current value to cover the part of dwelling costs which have been charged to the farm business.

Net change in inventory: - Changes in the physical quantities of livestock and crops on hand are valued at the year-end price. Inventory changes in machinery and service buildings are obtained by subtracting current depreciation from current purchases. Inventory changes of crops

and livestock are treated as a receipt while changes in machinery, service buildings, etc., are treated as an operating expense.

Net farm income: - The net cash income plus value of perquisites and net change in inventory. It is the return to the operator and unpaid family workers for labor and management plus the return to investment regardless of ownership.

Charge for real estate capital: - The current rate of mortgage interest times the value of land and buildings including the operator's dwelling on January 1.

Charge for working capital: - The total current value of livestock, crops on hand, and machinery and equipment times the current rate of interest on intermediate and short-term loans.

Return to operator and family for labor and management: - Obtained by subtracting the charges for real estate and working capital from net farm income.

Crop index: - Includes only major crops grown. It is an average of crop-yield relatives weighted according to acreages grown in the current year.

Index of power and machinery is based on the total value of work animals, tractors, trucks, automobiles, and other farm machinery valued at 1947-49 average prices.

Net farm production measures the change in the physical quantity of production. It is based on the value of products sold and used in the home and changes in inventory of livestock and crops on hand valued at 1947-49 average prices. Purchases of seed, feed, and livestock were removed.

Operating expense per unit of production is obtained by dividing total cash expenditures adjusted for inventory changes in machinery, equipment, and service buildings by total value of farm products sold and used in the home adjusted for inventory changes and valued at 1947-49 average prices.

Total cost per unit of production is the same as operating expenses per unit of production except that a charge for capital is included and operator and family labor are added in at hired labor rates.

Total input per unit of production is an index of total physical inputs including interest and family and operator labor divided by an index of gross farm production. Each index is weighted according to 1947-49 average prices. The formula for each index is $\frac{\Sigma q_1 p_0}{\Sigma q_0 p_0}$.

Index of prices received: - The total value of all products sold and used in the home valued at current prices is divided by the total value of the same quantities valued at 1947-49 prices. The quotient is then multiplied by 100 and divided by the 1947-49 average. The formula is $\frac{\Sigma q_1 p_1}{\Sigma q_1 p_o}$

Index of prices paid is similar to the index of prices received. It includes wages paid to hired labor and return to cropper labor.

Additional Tables

Table 22.- Livestock weights per head 1930-51, production per unit 1950, cotton farms, southern Piedmont

Kind	Unit	Weight if sold or used 1930-51	Production per head 1950
Calves under 1 year	Pound	225	-
Cattle 1 to 2 years	do.	400	-
Milk cows	do.	750	1/ 171
Other cattle	do.	750	-
Hogs raised	do.	250	-
Chickens	do.	4.0	2/ 91

1/ Pounds of butterfat.
2/ Eggs per hen.

Table 23.- Feeding rate 1/ for livestock on cotton farms, southern Piedmont, 1930-51

Kind	Unit	Feed			
		Grain	Cottonseed meal	Commercial concentrate	Hay
		Pounds	Pounds	Pounds	Pounds
Workstock	Head	2/ 1,640	-	-	3,000
Milk cows	do.	500	400	400	2,200
Other cattle & calves	do.	150	350		1,200
Hogs raised	Cwt. of pork prod.	400	-	30	-
Chickens, Jan. 1	Head	40		15	
Chickens raised	do.	13		6	

1/ These rates are not recommended amounts but amounts used with average pasture produced in the area.
2/ Small and small-scale farms, 1,500 pounds, large farms, 2,000 pounds.

Table 24.- Seeding rates per acre and percentage of seed purchased, cotton farms, southern Piedmont, 1930-50

Crop	Unit	Rate per acre	Percentage purchased
Cotton	Pound	35	17
Corn	do.	7	1/
Wheat	Bushel	1.3	12
Oats	do.	2.5	20
Lespedeza	Pound	35	2/ 33

1/ Increased from 10 to 30 percent with the increase in use of hybrid seed.
2/ Small farms purchased 100 percent.

Table 25.- Man labor used and tractor work per acre on selected crops, small and large commercial family-operated cotton farms, with mule power only, with mule and tractor power 1950, and with tractor power only

Crop	Man labor used					
	Small farms			Large farms		
	Mule power only	Mule and tractor power	Tractor power only	Mule power only	Mule and tractor power	Tractor power only
	Hours	Hours	Hours	Hours	Hours	Hours
Cotton	120.7	118.9	89.0	118.7	113.0	89.0
Corn	35.4	32.2	21.0	34.0	25.4	17.5
Wheat	1/16.0	10.0	6.0	16.0	6.5	6.0
Oats, grain	18.5	12.0	7.5	18.0	8.0	7.5
Oats, hay	16.5	16.5	2/11.5	16.5	12.0	11.5
Lespedeza and other hay	10.0	10.0	2/ 8.5	10.0	9.5	8.5
Lespedeza seed	--	--	--	11.0	3.0	3.0
	Tractor work					
Cotton	--	--	13.0	--	5.2	11.0
Corn	--	--	12.0	--	4.2	10.0
Wheat	--	1.2	4.0	--	3.8	4.0
Oats, grain	--	1.2	4.5	--	4.3	4.5
Oats, hay	--	--	7.0	--	5.8	7.0
Lespedeza and other hay	--	--	5.0	--	4.1	5.0
Lespedeza seed	--	--	--	--	2.5	2.5

1/ Stationary thresher used.
2/ Hay loader used.

Table 26.- Receipts, products used in home, and total farm income, small and large cotton farms, southern Piedmont, 1950

Item	Unit	Price	Small farms		Large farms	
			Quantity	Value	Quantity	Value
		Dollars		Dollars		Dollars
Cash receipts						
Cotton	Pound	0.406	1,776	721.06	7,186	2,917.52
Cottonseed	Ton	87.91	.7	61.54	3.2	281.31
Corn	Bushel	1.50	130.5	195.75	536.8	805.20
Wheat	do.	2.18	32.1	69.98	91.0	198.38
Oats	do.	.92	97.8	89.98	329.9	303.51
Lespedeza seed	Pound	.14			331	46.34
Lumber and wood	Cord	2.80	6	16.80	32	89.60
Total crops				1,155.11		4,641.86
Cattle	Cwt.	20.30	2.25	45.68	19.0	385.70
Hogs	Cwt.	17.85	.40	7.14	-	-
Weaning pigs	Number	10.30			4	41.20
Poultry	Pound	.249	121	30.13	-	-
Total livestock				82.95		426.90
Butterfat	Pound	.67	236	158.12	425	284.75
Eggs	Dozen	.434	133	57.72	229	99.39
Total livestock products				215.84		384.14
Custom work for others						120.00
Government payments				65.00		150.00
Total cash receipts				1,518.90		5,722.90
Products used in home:						
Pork	Cwt.	17.85	4.60	82.11	20.0	357.00
Poultry	Pound	.249	109	27.14	511.0	127.24
Butterfat	do.	.67	110	73.70	440.0	294.80
Eggs	Dozen	.43	87	37.76	250.2	108.59
Corn	Bushel	1.50	9.4	14.10	46.6	69.90
Wheat	do.	2.18	2.8	6.10	13.3	28.99
Fuel for cropper(stumpage)	Cord	1.15			18.0	20.70
Fuel for operator	do.	7.60	7.0	53.20	9	68.40
Net house rent				132.00		340.00
Garden				109.00		109.80
Total perquisites				535.91		1,525.42
Net change in feed and livestock inventory				3.92		-183.19
Total farm income				2,058.73		7,065.18

Table 27.- Expenses on small and large commercial family-operated cotton farms, southern Piedmont, 1950

Expenses	Unit	Price	Small		Large	
			Quantity	Value	Quantity	Value
		Dollars		Dollars		Dollars
Mixed dairy feed	Cwt.	3.96	8.0	31.68	20.0	79.20
Poultry feed	do.	4.99	9.6	47.90	19.6	97.80
Tankage	do.	6.81	1.5	10.22	6.0	40.86
Total feed				89.80		217.86
Day labor	Day	3.15	5	15.75	36.1	113.72
Picking seed cotton	Cwt.	2.40	11	26.40	15.0	36.00
Cropper labor	Hour	.39			4,484	1,762.23
Total labor				42.15		1,911.95
Pigs	Head	10.30	2.0	20.60	--	--
Baby chicks	Per 100	12.50	.72	9.00	1.29	16.12
Other livestock				5.55	11.0	16.80
Total livestock expense				35.15		32.92
Corn for seed	Bushel	6.12	.2	1.22	.6	3.67
Wheat for seed	do.	3.48	.6	2.09	1.8	6.26
Oats for seed	do.	1.40	3.3	4.62	9.4	13.16
Cotton	Cwt.	10.00	.52	5.20	2.1	21.00
Lespedeza	do.	8.25	1.43	11.80	2.6	21.45
Fertilizer	do.	2.06	125	257.50	540	1,112.40
Poison	Pound	.135	90	12.15	400	54.00
Other crop		1.48	8.32	12.32	33	48.90
Total crop expense				306.90		1,280.84
Tractor depreciation 1/	Dollar	1.81			66.50	121.00
Tractor operating cost	Hour	.64			756	483.84
Combine depreciation 2/	Dollar	1.52			76.50	116.00
Other machinery	do.	1.82	10.44	19.00	86	156.00
Repairs	do.	1.82	18.70	34.00	52.00	95.00
Plowing and harrowing	Acre	3.00	17.0	51.00		--
Combining	do.	4.50	9.5	42.75		--
Dusting	do.	.35	4.0	1.40	8.0	2.80
Hauling cotton	Bale	1.50	2.6	3.90	6.6	9.90
Ginning	Cwt. of lint	1.70	17.66	30.02	71.86	122.16
Mule depreciation	Head	140.0	.3	42.00	.6	84.00
Auto depreciation	Dollar	1.45	23.45	34.00	35.00	51.00
Auto operating cost	Mile	.035	2,610	91.35	3,900	136.50
Other machine work hired	Dollar	1.40	7.14	10.00	--	--
Total power & machinery				359.42		1,378.20
Farm building	Dollar	1.90	37.37	71.00	178	338.00
Taxes - real estate	Acre	(3/)	1.05	32.55	400	84.00
Taxes - personal	$100	.74	12.06	8.92	56.43	41.76
Miscellaneous	Dollar	1.48	12.91	19.10	24	35.20
Total cash expenses				964.99		5,320.73

1/ Quantity is the depreciation in 1940. Price is the relative change in price since 1940.
2/ Quantity is the depreciation in 1946. Price is the relative change in price since 1946.
3/ Real estate tax per acre, $0.31 for small farms and $0.21 for large farms.

Table 28.- Land use, livestock numbers, labor used, and investment, average commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total land in farm	Acre	156	156	156	156	157	157	157	158	158	158	159	159	159	160	160	160	160	161	161	161	161	162
Cropland harvested	do.	64	65	64	60	60	61	63	64	62	62	64	62	62	63	60	58	59	57	57	59	53	51
Important crops:																							
Cotton	do.	32.0	30.6	26.8	22.7	21.0	21.2	21.8	23.9	20.6	20.0	19.9	19.7	19.1	19.8	19.0	17.3	18.3	17.7	17.5	20.4	13.8	15.4
Corn	do.	20.0	21.5	22.3	22.8	23.4	23.4	22.3	22.0	24.0	22.7	22.1	20.1	17.6	19.6	18.0	17.1	17.1	17.0	16.7	17.7	18.1	16.2
Small grain	do.	5.2	6.3	7.5	7.3	8.1	8.7	9.1	8.5	8.6	9.1	9.3	9.2	10.5	10.2	11.9	11.4	12.1	12.1	11.4	11.4	11.4	9.8
Hay	do.	4.8	4.7	7.4	6.4	6.0	6.4	7.7	9.0	8.6	9.1	10.0	10.3	12.3	11.1	11.2	10.4	11.0	9.8	10.9	10.5	9.4	10.0
Crop yields (per harvested acre):																							
Cotton	Lb.	231	238	177	244	220	234	213	279	205	285	329	177	315	252	311	332	300	281	345	228	203	322
All crops index (1947-49=100)	Pct.	78	81	67	80	70	80	65	82	75	84	85	67	90	84	92	99	100	95	108	97	94	106
Livestock on farm, January 1:																							
Milk cows	No.	1.8	2.1	2.1	2.2	2.4	2.3	2.4	2.0	2.0	2.0	1.9	2.2	2.2	2.2	2.1	2.4	2.3	2.1	2.1	2.1	2.0	1.9
Other cattle	do.	1.7	1.4	1.7	1.8	1.6	1.6	1.5	1.3	1.3	1.4	1.5	1.7	1.8	1.7	1.9	1.7	1.9	1.5	1.7	1.5	1.8	1.7
Sows	do.	.6	.5	.6	.4	.4	.4	.4	.4	.5	.5	.5	.4	.5	.5	.4	.4	.4	.5	.5	.4	.4	.4
Other hogs	do.	3.2	3.2	3.0	2.6	2.6	2.3	2.2	2.3	2.2	2.8	2.7	2.7	2.4	2.8	3.0	2.6	2.7	2.6	2.5	2.6	2.7	2.3
Poultry	do.	40	37	37	37	35	36	37	36	38	39	41	39	47	47	48	47	46	45	44	42	46	44
Workstock	do.	3.0	2.9	3.0	3.0	2.9	2.9	2.6	2.7	2.7	2.7	2.7	2.8	2.9	2.7	2.7	2.6	2.8	2.4	2.2	2.1	1.9	1.8
Farms with tractors	Pct.	4	5	5	5	6	7	8	9	11	13	14	16	19	21	21	23	24	29	33	37	40	43
Total labor used	Hour	6,501	6,382	6,088	5,526	5,335	5,383	5,463	5,691	5,293	5,159	5,129	5,005	4,870	4,993	4,957	4,579	4,661	4,422	4,318	4,633	3,559	3,965
Operator and family labor	do.	3,010	3,052	3,212	3,021	2,920	3,053	2,955	2,908	3,093	2,849	2,753	3,072	2,946	2,986	2,941	2,839	2,906	2,895	2,788	3,027	2,587	2,884
Hired and cropper labor	do.	3,491	3,330	2,876	2,505	2,415	2,330	2,508	2,783	2,200	2,310	2,376	1,933	1,924	2,007	2,016	1,700	1,755	1,527	1,530	1,606	972	1,081
Total investment	Dol.	5,125	4,337	3,161	2,829	3,899	4,525	4,235	4,581	4,353	4,747	4,772	5,101	5,613	6,426	7,453	8,058	8,944	10,782	11,309	11,906	11,566	13,095
Land and buildings	do.	4,039	3,412	2,438	2,162	3,027	3,514	3,253	3,448	3,305	3,705	3,673	3,927	4,234	4,813	5,549	6,158	6,922	8,454	8,884	9,396	9,193	10,564
Machinery and equipment	do.	276	268	243	217	215	224	234	248	280	292	290	326	385	429	463	518	571	757	891	1,066	1,127	1,246
Livestock	do.	535	429	338	323	454	522	565	622	584	577	595	631	721	811	929	878	989	977	940	925	838	851
Crops in inventory	do.	275	228	142	127	203	265	183	263	184	173	214	217	273	373	512	504	462	594	594	519	408	434
												Index numbers (1947-49=100)											
Power and machinery used (quantity)	Pct.	77	75	75	73	71	71	58	70	72	74	75	80	86	86	88	91	98	98	100	102	103	104
Net farm production	do.	110	112	84	90	81	88	83	104	82	100	104	72	100	91	101	104	100	94	109	97	76	119
Net production per hour of labor	do.	75	78	61	73	68	73	67	82	69	86	90	64	92	81	91	101	95	94	112	94	96	110
Total input per unit of production	do.	100	95	118	103	114	106	116	97	115	97	93	133	95	109	98	93	99	106	89	105	117	95

1/ Preliminary.

Table 29.- Receipts, expenses, income and related factors, average commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total cash receipts	Dol.	963	597	441	766	965	980	1,033	978	883	1,045	1,135	1,082	1,780	1,781	2,062	2,145	3,023	2,889	3,118	2,475	2,416	3,243
Cotton and cottonseed	do.	808	468	345	539	692	640	688	666	426	605	722	696	1,329	1,185	1,453	1,449	2,153	1,864	2,107	1,474	1,260	2,126
Other crops	do.	61	51	41	94	95	134	78	125	112	102	112	88	130	235	323	347	471	596	572	541	626	539
Livestock and livestock products	do.	84	69	48	47	53	76	117	91	100	112	86	133	212	244	180	284	319	344	378	377	413	453
Government payments	do.	-	-	-	79	116	121	140	86	233	214	200	150	93	99	88	44	56	61	37	57	90	90
Other	do.	10	9	7	7	9	9	10	10	11	12	15	15	16	18	18	21	24	24	24	26	27	35
Total cash expenses	do.	933	660	469	557	648	680	734	857	722	786	861	870	1,130	1,260	1,402	1,448	1,785	1,808	2,021	1,889	1,659	2,008
Feed	do.	61	50	40	42	50	52	55	53	46	50	53	60	73	89	89	93	109	113	121	105	106	114
Labor 2/	do.	215	116	79	143	142	140	163	174	97	145	174	144	290	305	380	383	537	427	472	326	242	411
Livestock expense	do.	15	11	7	7	9	12	13	14	11	12	11	16	21	28	28	28	33	38	40	44	41	34
Crop expense	do.	312	221	125	123	171	191	189	264	235	227	235	249	305	395	386	391	428	471	532	583	498	543
Power and machinery	do.	220	171	142	163	193	185	218	249	244	248	286	302	337	350	424	462	510	562	631	635	577	698
Other	do.	110	91	76	79	83	100	96	103	89	104	102	99	104	93	95	91	168	197	225	196	195	208
Net cash income	do.	30	-63	-28	209	317	300	299	121	161	259	274	212	650	521	660	697	1,238	1,081	1,097	586	757	1,235
Net change in crop and livestock inventory	do.	21	21	7	-35	-20	-41	1	2	13	17	22	27	0	-9	-33	33	-89	-124	1	-31	-134	46
Net change in building and machinery inventories	do.	-6	-35	-39	-12	-4	3	11	18	12	14	31	27	15	-7	13	5	86	79	91	12	10	56
Total value of perquisites 3/	do.	464	367	285	283	322	350	372	357	318	329	324	371	456	619	617	749	723	822	807	787	728	795
Perquisites to cropper	do.	192	146	115	100	135	116	121	107	92	82	75	82	97	134	132	142	172	187	175	150	123	109
Net farm income	do.	317	144	110	345	480	496	562	391	412	537	576	555	1,024	990	1,125	1,342	1,786	1,671	1,821	1,204	1,238	2,023
Total charge for capital	do.	344	294	214	191	238	259	226	241	217	236	234	244	269	313	359	382	454	559	603	642	645	727
Return to operator and family for labor and management	do.	-27	-150	-104	154	242	237	336	150	195	301	342	311	755	677	766	960	1,332	1,112	1,218	562	593	1,296
Return per hour to operator and family labor and management	do.	-.01	-.05	-.03	.05	.08	.08	.11	.05	.06	.11	.12	.10	.26	.23	.26	.34	.46	.38	.44	.19	.23	.45
												Index numbers (1947-49=100)											
Gross farm income	Pct.	40	28	20	28	35	36	39	37	34	39	41	41	62	67	74	82	102	100	110	90	84	122
Net farm income	do.	20	9	7	22	31	32	36	25	26	34	37	35	65	63	72	86	114	107	116	77	79	140
Prices received	do.	33	20	22	30	42	38	42	31	32	32	33	55	62	71	73	75	107	108	101	91	114	118
Prices paid including wages	do.	49	38	33	39	45	45	46	47	45	47	48	52	66	71	76	81	92	97	105	98	100	114
Operating expense per unit of production	do.	51	37	37	37	48	45	51	45	43	42	43	64	60	77	75	76	93	101	96	103	115	104
Total cost per unit of production	do.	47	35	35	33	43	41	45	39	44	38	38	58	52	69	70	72	89	100	94	106	121	111

1/ Preliminary. 2/ Includes cropper labor. 3/ Includes perquisites to cropper.

Table 30.- Land use, livestock numbers, labor used, and investment, small-scale cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total land in farm	Acre	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Cropland harvested	do.	27	28	29	26	26	27	28	22	28	29	28	28	27	27	25	25	25	26	26	25	24	22
Important crops:																							
Cotton	do.	12.1	10.8	10.3	9.5	8.7	8.8	8.9	10.0	8.2	8.4	8.6	7.9	7.2	8.0	7.5	7.7	7.0	7.0	7.6	8.7	6.0	6.7
Corn	do.	8.1	8.9	9.2	9.3	9.6	9.5	9.1	9.6	10.5	10.9	9.0	8.3	7.7	8.5	8.0	7.5	7.4	7.4	7.5	7.2	6.8	5.8
Small grain	do.	3.0	4.1	5.1	4.3	4.4	5.1	6.0	5.6	5.7	5.7	5.8	6.0	6.0	5.7	6.0	5.1	6.2	6.9	6.0	5.9	6.6	4.9
Hay	do.	1.7	1.5	2.8	2.4	2.5	2.8	3.5	3.8	3.7	4.6	5.3	5.8	6.8	5.9	3.8	4.7	6.8	6.2	6.0	5.8	4.9	5.5
Crop yields (per harvested acre):																							
Cotton	Lb.	231	238	177	244	220	234	213	279	205	285	329	177	315	252	311	332	300	281	345	228	203	322
All crops index (1947-49=100)	Pct.	77	80	67	79	70	81	66	81	76	84	85	69	88	84	92	99	100	94	107	98	94	104
Livestock on farm, January 1:																							
Milk cows	No.	1.2	1.2	1.2	1.3	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.3	1.4	1.5	1.3	1.3	1.1	1.1	1.2	1.2
Other cattle	do.	.7	.6	.9	.9	.9	.9	.6	.6	.7	.8	.8	.8	.8	.7	.8	.9	.9	.9	.8	.7	.9	.9
Hogs	do.	1.7	1.6	1.5	1.5	1.4	1.4	1.2	1.2	1.4	1.4	1.4	1.4	1.3	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.5	1.5
Poultry	do.	20	19	19	19	18	18	18	16	20	21	26	22	27	27	26	28	27	26	29	25	27	26
Workstock	do.	1.5	1.5	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.6	1.5	1.4	1.2	1.2	1.2
Farms with tractors	Pct.	-	-	-	-	-	-	-	-	-	-	1	2	3	4	6	7	8	9	12	14	16	18
Total labor used	Hour	2,649	2,546	2,460	2,530	2,445	2,445	2,493	2,662	2,452	2,529	2,450	2,343	2,218	2,361	2,298	2,300	2,214	2,206	2,188	2,271	1,837	1,958
Operator and family labor	do.	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,150	2,070	2,070	2,070	2,070	2,070	2,070	2,070	2,070	1,817	1,872
Hired labor	do.	499	396	310	380	295	305	343	512	302	379	300	193	148	291	228	230	144	136	118	201	20	86
Total investment	Dol.	1,843	1,551	1,144	1,030	1,414	1,640	1,535	1,660	1,575	1,710	1,741	1,839	2,036	2,346	2,736	2,899	3,197	3,840	4,036	4,197	4,118	4,616
Land and buildings	do.	1,294	1,093	781	693	964	1,119	1,036	1,091	1,046	1,172	1,155	1,235	1,332	1,504	1,734	1,924	2,163	2,626	2,759	2,918	2,855	3,260
Machinery and equipment	do.	133	129	115	102	98	103	108	116	130	133	140	157	183	202	213	224	239	291	385	477	510	572
Livestock	do.	273	219	179	173	248	284	295	319	307	317	332	329	379	440	516	504	547	582	538	496	525	523
Crops in inventory	do.	143	110	69	62	104	134	96	134	92	88	114	118	142	200	273	247	248	341	354	306	228	261
Power and machinery used (quantity)	Pct.	76	76	77	75	74	74	68	70	72	75	77	80	86	86	87	90	97	98	101	101	105	108
Net farm production	do.	100	112	81	92	82	87	82	106	86	101	105	76	93	91	98	108	98	95	109	96	81	99
Net production per hour of labor	do.	84	98	74	81	75	79	73	88	78	89	96	72	94	86	95	105	98	96	110	94	98	112
Total input per unit of production	do.	94	81	104	92	103	99	108	92	105	94	91	121	98	106	97	92	100	103	92	105	112	96

1/ Preliminary.

Table 31.- Receipts, expenses, income, and related factors, small-scale cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total cash receipts	Dol.	400	228	180	323	403	411	421	421	377	452	497	465	671	714	814	913	1,134	1,151	1,309	986	970	1,378
Cotton and cottonseed	do.	302	164	131	228	284	262	282	275	168	251	311	274	500	473	565	635	819	727	917	626	538	918
Other crops	do.	21	20	17	31	32	47	34	66	59	49	33	39	42	79	110	87	137	202	189	177	171	166
Livestock and livestock products	do.	74	42	30	29	37	49	46	38	49	57	58	83	83	110	95	167	147	189	181	147	213	245
Government payments	do.	-	-		33	48	50	56	39	98	91	91	65	42	47	39	18	24	26	15	28	40	40
Other	do.	3	2	2	2	2	3	3	3	3	4	4	4	4	5	5	6	7	7	7	8	8	9
Total cash expenses	do.	369	274	198	205	251	276	308	376	324	368	367	377	417	505	526	596	635	715	811	789	683	773
Feed	do.	34	27	22	23	27	28	28	28	27	29	31	34	40	51	54	56	64	69	72	62	67	71
Labor	do.	50	28	17	20	16	18	20	44	17	31	31	8	25	44	55	71	51	43	70	49	-	31
Livestock expense	do.	11	8	5	5	8	8	8	8	8	8	7	11	14	19	18	18	25	31	30	33	33	38
Crop expense	do.	124	91	51	53	76	87	89	132	116	114	115	129	143	190	172	180	197	212	246	263	223	225
Power and machinery	do.	112	88	75	77	95	100	130	128	125	151	148	161	161	169	194	239	247	300	322	320	293	333
Other	do.	38	32	28	27	29	35	33	36	31	35	35	34	34	32	33	32	51	60	71	62	67	75
Net cash income	do.	31	-46	-18	118	152	135	113	45	53	84	130	88	254	209	288	317	499	436	498	197	287	605
Total value of perquisite	do.	246	201	156	168	182	208	218	219	199	211	205	243	304	422	413	435	473	562	549	508	493	561
Net change in livestock and crop inventory	do.	-16	14	8	2	-13	-31	-11	5	22	16	-4	15	17	3	-22	21	23	-89	-36	11	-24	-38
Net change in building and machinery inventories	do.	-2	-17	-17	-10	-1	3	7	11	0	13	17	12	4	-3	-1	3	21	33	48	9	9	22
Net farm income	do.	259	152	129	278	320	315	327	280	274	324	348	358	579	631	678	776	1,016	942	1,059	725	765	1,150
Total charge for capital	do.	124	105	77	69	86	95	83	88	79	86	86	90	99	117	135	139	163	201	217	230	231	259
Return to operator and family for labor and management	do.	135	47	52	209	234	220	244	192	195	238	262	268	480	514	543	637	853	741	842	495	534	891
Return per hour to operator and family labor and management	do.	.06	.02	.02	.10	.11	.10	.11	.09	.09	.11	.12	.12	.23	.25	.26	.31	.41	.36	.41	.24	.29	.48
Gross farm income	Pct.	38	27	21	30	35	36	38	39	36	41	42	44	60	69	73	83	99	99	110	91	87	115
Net farm income	do.	28	17	14	31	35	35	36	31	30	36	38	39	64	69	75	85	112	104	116	80	84	127
Prices received	do.	34	18	23	30	42	37	43	32	32	33	33	55	63	72	73	74	108	107	101	92	115	119
Prices paid including wages	do.	59	50	45	43	53	53	54	53	56	54	53	61	67	74	80	80	86	95	102	103	102	108
Operating expense per unit of production	do.	50	35	36	30	41	42	49	47	51	47	45	65	60	75	73	74	84	97	94	109	113	102
Total cost per unit of production	do.	46	32	32	28	38	37	42	38	42	38	37	55	51	65	68	69	85	97	94	109	115	107

1/ Preliminary.

Table 32.- Land use, livestock numbers, labor used, and investment, small commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total land in farm	Acre	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
Cropland harvested	do.	42	43	42	40	40	41	42	42	42	40	40	39	39	40	37	34	36	36	36	38	34	33
Important crops:																							
Cotton	do.	18.9	18.0	15.5	13.3	12.9	12.8	13.2	15.0	12.8	12.0	11.8	11.7	11.4	11.6	11.0	9.5	11.6	11.0	11.2	13.0	8.7	9.6
Corn	do.	14.4	15.6	16.2	15.4	16.5	16.6	15.2	15.2	17.1	15.5	14.9	13.3	10.9	12.8	11.6	11.6	11.8	11.8	11.7	12.5	12.3	10.6
Small grain	do.	3.4	5.3	5.6	5.3	6.3	7.0	7.9	7.8	7.0	7.2	8.4	7.9	9.2	9.2	11.0	9.2	9.9	10.7	9.6	9.7	9.5	8.5
Hay	do.	5.5	4.5	6.4	6.1	4.4	5.0	6.4	6.5	5.3	6.9	6.9	7.2	9.1	8.5	6.4	7.2	5.6	4.7	5.6	6.8	5.8	6.1
Crop yields (per harvested acre):																							
Cotton	Lb.	231	238	177	244	220	234	213	279	205	285	329	177	315	252	311	332	300	281	345	228	203	322
All crops index (1947-49=100)	Pct.	78	81	68	80	70	80	66	81	75	84	84	68	89	84	92	98	100	96	107	97	95	108
Livestock on farm, January 1:																							
Milk cows	No.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Other cattle	do.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hogs	do.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Poultry	do.	31	28	28	28	27	27	29	29	29	29	33	30	35	36	36	38	33	36	35	34	36	35
Workstock	do.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total labor used	Hour	4,058	4,053	3,677	3,488	3,408	3,469	3,571	3,966	3,529	3,515	3,548	3,200	3,334	3,314	3,168	2,967	3,112	2,994	3,124	3,177	2,576	2,789
Operator and family labor	do.	2,923	2,930	2,855	2,772	2,707	2,772	2,767	2,958	2,829	2,765	2,776	2,766	2,768	2,812	2,702	2,606	2,679	2,646	2,662	2,769	2,455	2,511
Hired labor	do.	1,135	1,123	822	716	701	697	804	1,008	700	750	772	434	566	502	466	361	433	348	462	408	121	278
Total investment	Dol.	3,533	3,004	2,192	1,969	2,678	3,087	2,940	3,156	2,997	3,256	3,256	3,434	3,729	4,283	4,939	5,305	5,807	6,987	7,363	7,791	7,500	8,463
Land and buildings	do.	2,718	2,296	1,641	1,455	2,024	2,350	2,176	2,291	2,197	2,462	2,426	2,594	2,796	3,158	3,641	4,041	4,542	5,514	5,794	6,128	5,996	6,847
Machinery and equipment	do.	247	234	219	201	193	198	204	211	228	235	230	238	262	282	280	284	270	323	413	500	514	543
Livestock	do.	369	311	232	223	307	359	417	469	434	434	442	445	489	593	666	654	668	764	729	775	692	740
Crops in inventory	do.	199	163	100	90	154	180	143	185	138	125	158	157	182	250	352	326	327	386	427	388	298	333
Power and machinery used (quantity)	Pct.	93	93	91	90	88	87	87	88	89	90	90	91	92	94	93	94	95	98	99	103	103	103
Net farm production	do.	108	104	81	88	79	86	82	104	83	93	98	72	97	87	96	93	99	94	109	97	76	96
Net production per hour of labor	do.	82	79	69	78	72	77	71	81	73	82	85	70	90	81	94	97	99	97	108	95	92	106
Total input per unit of production	do.	95	96	110	99	112	104	113	99	113	102	100	127	99	112	99	102	99	104	92	105	118	98

1/ Preliminary.

Table 33.- Receipts, expenses, income, and related factors, small commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Gross farm income	Dol.	971	668	513	713	828	893	964	929	837	943	955	1,007	1,515	1,617	1,753	1,757	2,526	2,491	2,739	2,254	2,059	2,732
Cotton and cottonseed	do.	481	274	198	320	422	382	413	413	261	359	426	407	785	685	833	786	1,358	1,139	1,346	934	782	1,320
Other crops	do.	79	54	50	84	88	107	102	95	84	86	93	91	116	179	247	198	362	412	361	334	373	332
Livestock and livestock products	do.	153	128	85	85	82	98	120	141	126	132	104	170	189	259	194	285	258	352	351	444	299	436
Government payments	do.	-	-	-	48	71	73	87	55	149	133	117	96	62	67	58	28	33	37	22	40	65	65
Feed and livestock inventory change	do.	0	-1	15	0	-25	12	0	-5	8	7	3	-15	40	-13	-14	-6	17	-40	75	-47	4	-25
Perquisites	do.	258	213	165	176	190	221	242	230	209	226	212	258	323	440	435	466	498	591	584	549	536	604
Total farm expenditures	do.	633	490	359	360	428	454	485	583	498	520	539	532	668	761	806	821	991	1,021	1,178	1,176	965	1,126
Feed	do.	54	39	32	33	38	41	44	44	38	40	44	46	57	69	70	73	83	93	100	86	90	98
Labor	do.	110	78	45	39	51	44	63	86	55	60	64	42	76	86	99	91	138	115	166	138	42	120
Livestock expenses	do.	11	8	6	5	7	10	10	11	9	9	8	16	22	27	24	28	30	36	39	38	35	40
Crop expenses	do.	203	142	80	79	112	126	128	182	163	159	163	170	216	264	259	264	301	306	353	386	307	326
Power and machinery 2/	do.	172	144	128	144	157	162	173	189	172	185	194	188	225	243	276	280	345	364	403	400	359	404
Other	do.	83	79	68	60	63	71	67	71	61	67	66	70	72	72	78	85	94	107	117	128	132	138
Net farm income	do.	338	178	154	353	400	439	479	346	339	423	416	475	847	856	947	936	1,535	1,470	1,561	1,078	1,094	1,606
Total charge for capital	do.	237	203	149	133	163	177	157	167	149	162	160	164	179	209	238	252	294	362	392	420	416	470
Return to operator and family labor and management	do.	101	-25	5	220	237	262	322	179	190	261	256	311	668	647	709	684	1,241	1,108	1,169	658	678	1,136
Return per hour to operator and family labor and management	do.	.03	-.01	0	.08	.09	.09	.12	.06	.07	.09	.09	.11	.24	.23	.26	.26	.46	.42	.44	.24	.28	.45
Gross farm income	do.	39	27	21	29	33	36	39	37	34	38	38	40	61	65	70	70	101	100	110	90	83	109
Net farm income	do.	25	13	11	26	29	32	35	25	25	31	30	35	62	62	69	68	112	107	114	79	80	117
Prices received	do.	36	23	24	30	42	38	44	32	33	33	34	53	62	71	73	75	108	107	101	92	113	118
Operating expense per unit of production	do.	52	42	39	36	48	47	52	50	53	49	49	66	61	78	75	79	89	96	96	108	112	104
Total cost per unit of production	do.	47	38	35	32	42	41	44	41	45	42	41	57	52	69	70	76	86	97	94	109	121	112

1/ Preliminary.

2/ Includes inventory change.

Table 34.- Land use, livestock numbers, labor used, and investment, large commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Total land in farm	Acre	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Cropland harvested	do.	162	166	164	152	152	155	159	159	153	157	161	156	157	157	154	151	155	144	147	154	135	145
Important crops:																							
Cotton	do.	90.8	85.6	76.6	64.0	58.0	58.4	60.0	62.6	54.0	53.1	53.5	53.0	51.5	53.0	51.0	46.9	46.4	43.8	43.8	52.0	35.4	45.0
Corn	do.	48.4	54.5	53.6	55.0	57.8	60.0	58.4	56.0	58.8	57.0	56.0	52.0	46.0	50.6	47.0	43.2	42.4	41.9	41.3	42.5	46.5	41.2
Small grain	do.	11.0	14.4	19.3	20.2	21.9	22.8	23.5	20.9	21.7	23.8	24.0	24.8	26.2	27.3	30.0	31.5	33.8	31.9	33.0	29.1	28.5	28.1
Hay	do.	11.5	10.8	15.9	12.9	13.6	16.0	19.7	22.7	20.3	24.1	28.8	23.4	29.8	26.0	25.6	28.1	33.9	27.9	31.6	30.8	24.9	31.6
Crop yields (per harvested acre):																							
Cotton	Lb.	231	238	177	244	220	234	213	279	205	285	329	177	315	252	311	332	300	281	345	228	203	322
All crops index (1947-49=100)	Pct.	78	80	66	79	70	80	66	82	75	84	86	67	90	84	92	100	100	95	108	97	94	106
Livestock on farm, January 1:																							
Milk cows	No.	5	6	5	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	4
Other cattle	No.	5	4	5	6	6	6	6	5	4	4	5	7	7	7	7	7	7	6	7	7	7	8
Sows	No.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Other hogs	No.	9	9	9	8	8	8	6	6	6	8	8	6	6	6	6	6	6	6	6	6	6	6
Poultry	No.	72	67	67	67	65	67	66	62	68	69	71	71	86	83	88	80	85	78	76	72	78	75
Workstock	No.	8	8	8	8	8	8	8	7	7	7	7	7	6	6	6	6	6	5	5	4	4	4
Total labor used	Hour	16,836	16,372	14,960	14,264	13,386	13,773	13,871	14,643	12,728	13,291	13,763	11,986	12,518	12,267	12,244	11,760	11,144	10,301	10,693	10,630	8,464	10,669
Operator and family labor	do.	3,700	3,600	3,450	4,250	3,800	3,900	4,250	4,250	3,950	3,900	4,075	4,350	4,050	4,700	4,450	4,300	4,050	3,700	3,950	3,900	3,521	3,850
Hired and cropper labor	do.	13,136	12,772	11,510	10,014	9,586	9,873	9,621	10,393	8,778	9,391	9,688	7,636	8,468	7,567	7,794	7,460	7,094	6,601	6,743	6,730	4,943	6,819
Total investment	Dol.	13,121	11,107	8,062	7,204	9,962	11,604	10,958	11,561	10,936	11,921	11,926	13,316	14,383	16,466	19,129	20,400	22,640	27,611	29,248	30,748	29,906	33,759
Land and buildings	do.	10,356	8,748	6,252	5,544	7,712	8,952	8,288	8,728	8,368	9,380	9,240	9,880	10,652	12,032	13,872	15,396	17,304	21,004	22,072	23,344	22.840	26,084
Machinery and equipment	do.	620	605	559	461	448	457	427	448	489	498	488	1,213	1,408	1,528	1,529	1,555	1,619	2,529	2,978	3,455	3,572	3,863
Livestock	do.	1,417	1,163	879	867	1,241	1,451	1,670	1,644	1,531	1,508	1,549	1,575	1,619	1,888	2,171	2,059	2,244	2,244	2,295	2,201	2,071	2,133
Crops in inventory	do.	728	591	372	332	561	744	573	741	548	535	649	648	704	1,018	1,557	1,390	1,473	1,834	1,903	1,748	1,423	1,679
												Index numbers (1947-49=100)											
Power and machinery used (quantity)	Pct.	65	65	64	61	60	59	58	53	54	54	78	83	82	84	84	85	103	100	101	99	101	105
Net farm production	do.	121	121	89	101	87	96	92	111	85	104	109	73	107	100	107	111	106	92	113	95	76	109
Net production per hour of labor	do.	76	78	63	75	69	73	70	80	70	82	83	64	90	86	92	100	100	94	111	95	94	108
Total input per unit of production	do.	95	91	112	96	107	101	105	93	110	94	95	165	94	102	96	91	92	104	89	107	118	91

1/ Preliminary.

Table 35.- Receipts, expenses, income, and related factors, large commercial family-operated cotton farms, southern Piedmont, 1930-51

Item	Unit	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951 1/
Gross farm income	Dol.	3,547	2,371	1,785	2,656	3,202	3,345	3,666	3,252	2,893	3,453	3,635	3,558	5,651	6,084	6,478	6,972	9,194	8,245	9,494	7,384	7,065	10,608
Cotton and cottonseed	do.	2,291	1,311	990	1,539	1,913	1,761	1,885	1,736	1,115	1,601	1,938	1,853	3,581	3,411	3,897	3,929	5,439	4,565	5,260	3,733	3,199	6,208
Other crops	do.	53	44	32	149	161	229	225	203	172	280	260	302	357	578	911	920	1,320	1,354	1,349	1,094	1,443	1,593
Livestock and livestock products	do.	160	149	29	135	132	157	211	250	213	272	136	329	449	468	418	443	595	552	728	786	811	626
Government payments	do.	-	-	-	220	321	333	368	219	570	525	553	364	201	215	193	100	109	121	85	128	150	150
Feed and livestock inventory change	do.	-22	10	48	3	-35	31	125	26	57	-1	-13	-58	117	158	-219	134	89	-185	271	5	-183	205
Perquisites	do.	1,035	829	664	588	682	804	819	785	732	736	701	708	881	1,184	1,198	1,361	1,512	1,708	1,676	1,518	1,525	1,688
Other	do.	30	28	22	22	28	30	33	33	34	40	60	60	65	70	80	85	130	130	125	120	120	138
Total farm expenditures	do.	3,363	2,386	1,783	2,002	2,391	2,463	2,501	2,636	2,158	2,445	2,734	2,730	3,718	4,318	4,664	4,925	5,853	5,854	6,431	5,862	5,321	7,183
Feed	do.	141	103	76	98	113	121	119	124	110	116	113	127	153	181	184	183	222	233	245	212	218	214
Labor	do.	1,620	1,032	814	979	1,187	1,139	1,170	1,087	785	991	1,090	959	1,561	1,792	2,048	2,239	2,996	2,688	2,813	2,043	1,912	3,313
Livestock expense	do.	9	8	6	6	8	9	9	10	9	10	10	15	19	23	21	22	26	28	32	35	33	36
Crop expense	do.	816	582	328	323	430	483	480	670	587	574	589	637	808	1,092	1,080	1,059	1,139	1,262	1,436	1,577	1,281	1,490
Power and machinery 2/	do.	505	403	345	408	445	473	503	515	466	520	707	754	980	978	1,055	1,113	1,127	1,246	1,471	1,513	1,378	1,609
Other 2/	do.	272	258	214	188	208	238	220	230	201	234	225	238	257	252	276	309	343	397	434	482	499	521
Net farm income	do.	184	-15	2	654	811	882	1,165	616	735	1,008	901	828	1,933	1,766	1,814	2,047	3,341	2,391	3,063	1,522	1,744	3,425
Total charge for capital	do.	879	753	546	487	607	663	586	610	543	592	586	608	691	806	924	968	1,148	1,434	1,564	1,666	1,664	1,884
Return to operator and family for labor and management	do.	-695	-768	-544	167	204	219	579	6	192	416	315	220	1,242	960	890	1,079	2,193	957	1,499	-144	80	1,541
Return per hour of operator and family labor and management	do.	.19	-.21	-.16	.04	.05	.06	.14	0	.05	.11	08	.05	.31	.20	.20	.25	.54	.26	.38	-.04	.02	.40
												Index numbers (1947-49=100)											
Gross farm income	Pct.	42	28	21	32	38	40	44	39	35	41	43	42	67	73	77	83	110	99	113	88	84	127
Net farm income	do.	8	3/	3/	28	35	38	50	26	32	43	39	36	83	76	78	88	144	103	132	65	75	147
Prices received	do.	32	19	21	29	42	37	42	30	31	32	33	55	62	71	73	74	108	108	100	92	116	118
Operating expense per unit of production	do.	46	33	33	33	45	42	45	39	42	39	41	62	57	71	72	73	91	105	94	101	116	109
Total cost per unit of production	do.	44	32	32	31	43	40	42	37	40	37	38	59	52	67	69	70	87	103	93	104	122	109

1/ Preliminary.

2/ Includes inventory change.

3/ Less than 1 percent.