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Factors Related to Income and Costs of Production on Farms in Marshall and DeKalb Counties, Alabama 1927-1929

By
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By
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Contents

INTRODUCTION 3

EXPLANATION OF TERMS 5

LOCATION AND DESCRIPTION OF AREA 6

CONDITIONS DURING THE THREE YEARS OF THE STUDY 8

GENERAL DESCRIPTION OF FARMS 9
- Crop Acreage 9
- Crop Yields 10
- Operator's Livestock 11
- Operator's Capital 11
- Operator's Receipts and Expenses 12
- Family Use of Home-Grown Products 14
- Operator's Labor Income 14
- Tenure 16

RELATION OF SIZE OF BUSINESS TO LABOR INCOME 17
- Acreage of Cotton 17
- Number of Chickens 20

RELATION OF INTENSITY OF PRODUCTION TO LABOR INCOME 21
- Yield of Cotton per Acre 21
- Egg Production per Bird 23

RELATION OF DIVERSITY TO LABOR INCOME 24
- Receipts from Miscellaneous Sources 24

METHOD OF CALCULATING ENTERPRISE COSTS AND RETURNS 25

THE COTTON ENTERPRISE 27
- Labor on Cotton 28
- Costs and Returns from Cotton Production 29
- Relation of the Cost of Producing Cotton to Labor Income 30
- Relation of Yield and other Factors to the Cost of Producing Cotton 31

THE POULTRY ENTERPRISE 34
- Labor on Poultry 35
- Returns from the Poultry Enterprise 35
- Monthly Egg Production per Bird and Monthly Egg Prices 40
- Cost of Hatching Baby Chicks 41
- Cost of Raising Pullets 42

THE CORN ENTERPRISE 43
- Labor on Corn 44
- Costs and Returns from Corn Production 45
- Relation of Yield and other Factors to the Cost of Producing Corn 46

THE SOYBEAN HAY ENTERPRISE 48
- Labor on Soybean Hay 48
- Costs and Returns from Soybean Hay Production 49

MONTHLY DISTRIBUTION OF LABOR ON PRINCIPAL ENTERPRISES 50
- Man Labor 50
- Mule Labor 52

SUMMARY 53

APPENDIX 56

Factors Related to Income and Costs of Production on Farms in Marshall and DeKalb Counties, Alabama, 1927-1929

THE study reported in this bulletin was conducted during the three years 1927, 1928, and 1929 to determine the factors associated with higher incomes from farming in the Appalachian Plateau Region of Alabama. Approximately one-third of the farms included in the study were selected because they derived considerable income from poultry in addition to their principal source of income which was cotton. In this bulletin these farms are designated as farms having commercial poultry. The other farms in the study were selected at random, and are designated in this bulletin as farms having small farm flocks. The farms which had developed the poultry enterprise on a commercial scale to supplement income from cotton were compared with farms which had the usual small farm flocks of chickens, and then the data were analyzed to determine the other factors associated with income from these farm businesses. Following this a detailed analysis was made of the leading farm enterprises, cotton, poultry, corn, and soybean hay to determine the factors associated with costs and income from these enterprises.

The farmers who had commercial poultry flocks kept a detailed record of the poultry enterprise showing daily egg production, cash receipts and expenses, amounts of purchased and home-grown feeds consumed by the laying flock and young stock, and the amount of labor on the enterprise. These farms were visited four times a year, their books checked each trip, and the necessary estimates made when omissions were found. The information relating to other enterprises on these farms, and all information for the farms having small farm flocks of poultry was obtained in one personal interview with the farm operator at the end of each year.

Records were obtained for 29 commercial poultry flocks in 1927, and for 36 commercial flocks in both 1928 and 1929.

ACKNOWLEDGEMENTS.—This study was planned by Professor J. D. Pope and the first year's records were obtained before the author of this bulletin began work on the study. The author wishes to express his appreciation to Professor Pope and to other members of the Department of Agricultural Economics for helpful suggestions and criticisms in the work of obtaining and analyzing the data.

The author also wishes to express his appreciation to the farmers who supplied records to make this study possible, and to the clerical force of the Department of Agricultural Economics which gave splendid cooperation in the work of tabulating and checking the data.

Complete labor-income records and supplementary information regarding fertilizer practices and labor on the principal crops were obtained for 23 of these farms in 1927, 32 in 1928, and 33 in 1929. Labor-income records were obtained for 69 farms having small farm flocks of poultry in 1927, for 86 farms in 1928, and for 81 farms in 1929.

All records were taken, and all figures summarized from the viewpoint of the farm operator. For example, when there was a division of capital, or of receipts or expenses because of the tenure arrangement under which a farm was being operated, only that portion of these items was considered which belonged to the operator of the farm. The measure of financial success used was the operator's labor income. This measure was used because farmers in this area were laborers more than they were capitalists, and labor income reduces the incomes of farmers having a large amount of family labor and the incomes of farmers having a large capital to a basis so they can be compared directly with the incomes of farmers having a small amount of family labor or a small capital.

In this study all land operated by one man was regarded as a farm. For example, on each farm the land worked by family labor, wage labor, and tenants on the one-half system was included in the operator's farm, but land rented out on the one-third and one-fourth system or for cash was omitted from the operator's farm. The operator furnished stock and tools and supervised tenants on the one-half system, but did neither for the tenants on other systems.

Records could not be obtained from the same farmer all three years in some instances because some men left the community and a few did not continue to cooperate. Seventy-three of the 92 farmers who supplied labor-income records in 1927, however, supplied records in the other two years. Seventeen of the 23 farmers who supplied both labor-income and commercial-poultry records in 1927 supplied labor-income records all three years. Six of these discontinued the poultry enterprise, however, and one stopped keeping his poultry record. Records of other farmers were added to replace those whose records were discontinued, and the number of records was increased in 1928.

In order to make the presentation of results as simple as possible the figures for individual years are not presented in most tables. In almost all instances the relationships were similar each year. Exceptions to the relationships shown in the tables which occurred in individual years are noted in the text. The figures presented in both the text and the tables are averages of figures for groups of individual farms.

EXPLANATION OF TERMS

Labor income.—Labor income represents the amount which a farm operator receives for his labor and his management in a year's time, in addition to the use of a house in which to live and farm products to use in the home, after paying all business expenses of the farm and deducting a charge for the use of capital. As used in this study, it is the difference between the operator's receipts and expenses with unpaid family labor charged at what it would have cost if hired, and interest on the operator's average investment in the farm business charged at 6 per cent. Six per cent interest was used because it was very near the actual rate being paid on farm mortgages in the area (6.1 per cent in 1928).

Unpaid family labor.—This term refers to farm work done by all unpaid members of the farm family except the operator.

Livestock increase or decrease.—When the ending inventory value of livestock plus livestock sales was larger than the beginning inventory value of livestock plus livestock purchases, there was a livestock increase. When sales and ending inventory were less than purchases and beginning inventory, there was a livestock decrease.

Feed and supply decrease.—There was a feed and supply decrease when the value of feed and supplies on hand at the end of the year was less than the value of these items on hand at the beginning of the year.

Real estate and equipment decrease.—When the value of real estate or equipment on hand at the end of the year was less than the value of these respective items at the beginning of the year there was a decrease in the value of real estate or equipment. When there was an increase in the ending inventory value of these items caused by a large expenditure for additions or repairs during the year, the amount of the increase was deducted from farm expenses.

Receipts from miscellaneous sources.—More than 50 per cent of the receipts from miscellaneous sources was from man work and team work done off the farm. Miscellaneous receipts also include sales of timber and wood, receipts from side-line businesses such as trading in cows, hogs, or mules, running a syrup mill or meal mill, and other similar sources of income.

One-half system of tenure.—Under this system the owner of the farm furnishes the tenant with all workstock, tools, and seed, and pays one-half the fertilizer and ginning expense. In return he receives one-half the crop as rent. In most sections of the South a man under this tenure arrangement is regarded as a cropper-laborer.

One-third and one-fourth system of tenure.—Under this system the owner of the farm pays for one-fourth the cotton fertilizer, one-third the corn fertilizer, and one-fourth the ginning expense. In return he receives one-fourth the cotton and one-third the corn as rent. Variations exist in the divisions of other crops and related expenses. The tenant furnishes all stock, tools, and seed.

Part-owner.—This term refers to a farm operator who owns only part of the land which he operates.

LOCATION AND DESCRIPTION OF AREA

The farms in this study are in Marshall and DeKalb counties of northeastern Alabama (Figure 1). The farms having commercial poultry are scattered over the two counties because there were relatively few farms keeping more than the usual farm flock of chickens. The farms having small farm flocks are located in the vicinity of Albertville and Boaz. All farms, except six located in the valleys, are on two large plateaus at the southern end of the Appalachian chain. All farms on plateaus, except five, are on the plateau known as Sand Mountain which is about 18 miles wide and 75 miles long. It has a topography which is gently rolling and an elevation in most places between 1100 and 1300 feet above sea level.

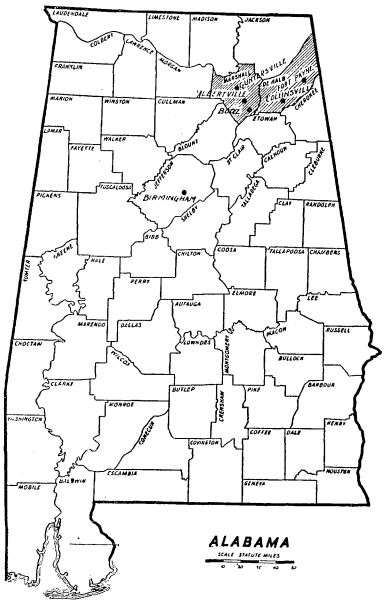

FIGURE 1.—Shaded area indicates counties where farms in this study are located.

The growing season for the region has an average length of 200 to 210 days extending from March to November for most crops. The mean annual precipitation is 54 inches. The summers are tempered somewhat by the elevation, but winter temperatures vary greatly, the mercury registering as low as zero in some winters. Cold spells, however, are usually of only a few days duration. As a result of the low winter temperatures, the boll weevil is kept in check. It has damaged only a few crops on Sand Mountain and damaged none during the three years of this study.

Soils of the area are exceedingly uniform and respond very readily to commercial fertilizer. They are classed as DeKalb

fine sandy loam and DeKalb sandy loam by the Soil Survey of the United States Department of Agriculture. The fields are small and irregular because of the rolling nature of the land and the terracing necessary to prevent washing of the soil.

The leading crops grown in the area are cotton, corn, and soybean hay. Livestock is of minor importance because of the lack of good pastures and cheap by-product feeds. Animals are kept primarily to furnish products for home use and the surplus is sold. Poultry, however, is an important source of income on some farms.

Negro labor is not employed on any of the farms in the area. The farms are small and the work on them is done mainly by the white operators and their families. The supply of day labor is limited.

Cultivation operations on the farms in the area are performed primarily with implements requiring only one man and one mule. Less than one-half the farmers are using two-horse cultivators for any cultivation operations.

Transportation facilities are provided by the Nashville, Chattanooga, and St. Louis Railway which passes through the area, and by the Southern railway which runs in a valley adjoining Sand Mountain. Busses and trucks make use of a macadam highway running through the area and improved highways in the valleys adjoining the area.

Local truckers pay cash for butter, eggs, and poultry at the farmer's door and truck them to Birmingham, 90 to 100 miles away, or to Chattanooga, Tennessee, from the northern part of the area. Most of the cotton produced here is sold to buyers in the principal towns of the area, Albertville, Boaz, Guntersville, Collinsville, or Fort Payne. There is only a very limited market in the towns of the area for livestock products, truck crops, and other food crops since the total population of the 5 towns mentioned in the preceding sentence is only 11,500 according to the 1930 Census of the United States. Some farmers are able to dispose of a limited amount of such products in the towns of Gadsden, Alabama City, and Attalla, 20 to 25 miles away. These three cities had a total population of 37,171 in 1930.

Land values on Sand Mountain were bid up very high during the years of this study because of the dependable high yields of cotton which can be obtained by using commercial fertilizer and because of the relatively high prices for cotton which have prevailed most years since the World War. Not only have farms been divided with the younger generation growing up in the area, but also with farmers from nearby counties who have come there to farm. The number of farms in Marshall County increased from 5,323 in 1925 to 6,279 in 1930 according to the United States Census of Agriculture, an increase of 18 per cent.

The harvested crop acreage in Marshall County increased from 133,244 acres in 1924 to 153,380 acres in 1929, an increase of 15 per cent.

CONDITIONS DURING THE THREE YEARS OF THE STUDY

Seasonal rainfall varied greatly during the three years of the study. In 1927 rainfall did not interfere with preparation and planting operations; moisture was adequate during the growing season, and rainfall was very light until late in the picking season (Appendix Table 39). In 1928 rain interfered somewhat with land preparation; the growing season was very wet, but during the picking season rainfall was relatively light and the weather mild, so most cotton bolls opened and were picked. In 1929 wet weather delayed land preparation and planting; there was a drought during the growing season, and the picking season was exceedingly wet and cold which caused much of the cotton to be low grade and prevented the maturing of many bolls.

The average price the farmers in this study received for cotton was 19.8 cents per pound in 1927, 18.5 cents in 1928, and 15.7 cents in 1929, or an average of 18.0 cents per pound for the three years. This compares with a 10-year average price of 17.5 cents per pound paid to farmers in Alabama for cotton during the principal picking months in northern Alabama from 1922 through 1931, or with a 5-year average price of 12.2 cents per pound during the principal picking months in northern Alabama from 1909 through 1913.

The average price which the farmers having commercial poultry received for eggs advanced from 27.0 cents per dozen in 1927 to 29.7 cents in 1928 and 33.1 cents in 1929. The average price received for eggs by farmers having small farm flocks advanced from 24.7 cents per dozen in 1927 to 26.2 cents in 1929. The index numbers of prices which Alabama farmers received for eggs during these three years were 141 in 1927, 155 in 1928, and 164 in 1929 when the average price from 1910 through 1914 equals 100.

Farmers included in this study paid the following average prices per ton of fertilizer during the three years of this study: acid phosphate, $15 in 1927, $19 in 1928, and $19 in 1929; nitrate of soda, $60 in 1927, $53 in 1928, and $51 in 1929; muriate of potash, $39 in 1927, $44 in 1928, and $45 in 1929; 10-2½-3, $24 in 1927, $32 in 1928, and $30 in 1929. The farmers having commercial poultry paid an average of $2.95 per hundred pounds of laying mash in 1927, $3.32 in 1928, and $3.32 in 1929. Unpaid family labor was valued by the farmers in this study at an average of $24 per month in 1927, $34 in 1928, and $33 in 1929.

Banks of the area extended liberal amounts of credit to individual farmers during the three years of this study. The

most common charge for a loan was 8 per cent of the amount borrowed whether the loan was for 2 months or 12 months. Because of this method of charging interest, production credit cost the farmers included in this study an average of 12 per cent per annum in the two years 1928 and 1929.

GENERAL DESCRIPTION OF FARMS

Crop Acreage

The farms having commercial poultry had a smaller average acreage in cotton, but a larger acreage in corn than the farms having only small farm flocks of chickens during each of the three years of the study (Table 1). The farms having commercial poultry, however, had an average of 13.1 acres in cotton in 1927 and 18.1 acres in 1929, an increase of 5 acres. Those having small farm flocks of poultry had an average of 16.7 acres in cotton in 1927 and 20.2 acres in 1929, an increase of 3.5 acres. The portion of crop acreage in cotton during the three years was 47.1 per cent for the farms having commercial poultry and 55.7 per cent for the farms having small farm flocks.

TABLE 1.—Acreage in Principal Crops and other Land per Farm for Farms having Commercial Poultry and Farms having Small Farm Flocks, Marshall and DeKalb Counties, Alabama, 1927-1929.

Crop or land classification	Three-year average acreages per farm	
	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	29	79
Cotton	15.4	18.7
Corn	12.6	11.6
Hay	3.4	2.4
Other crops	1.3	0.9
Total crops	32.7	33.6
Tillable land lying out	1.8	1.2
Open pasture	7.3	4.0
Woods pasture	5.6	4.2
Woods not pastured	19.5	7.2
Other land	2.0	1.5
Total land in farm	68.9	51.7

The 73 farmers who supplied records all three years increased their portion of crop land in cotton from 49.4 per cent in 1927 to 56.4 per cent in 1929 in response to the good cotton prices existing in 1927 and 1928. The portion of crop land in corn, hay, and other crops each decreased slightly on these farms during the three-year period. During the two years 1928 and

1929, all farms included in this study had an average of 55.4 per cent of their crop acreage in cotton and 33.8 per cent in corn. During these same years, 55.8 per cent of the crop acreage in Marshall County was in cotton and 34.3 per cent was in corn according to estimates by the United States Department of Agriculture, Bureau of Agricultural Economics cooperating with the Alabama Department of Agriculture and Industries. Estimates were not available for Marshall County in 1927.

The farms having commercial poultry had a larger acreage in pasture per farm each of the three years than the other group of farms. The greatest difference between the two groups of farms in the method of utilizing farm land, however, was in the amount of woodland not pastured. The farms having commercial poultry had an average of 12.3 acres more land in this classification than the other group of farms. This was partly accounted for by the greater distance of these farms from the towns of the area making the land somewhat less valuable so the owners could afford to leave more of it in woods.

Crop Yields

Average yields of important crops in Marshall County, where most of the farms in this study are located, were far above the average of the State in the two years 1928 and 1929 (Table 2).

TABLE 2.—Average Yield of Important Crops in the State of Alabama, Marshall County, and the Farms Included in this Study, 1928 and 1929.

Section	Two-year average yields per acre		
	Lint cotton (pounds)	Corn (bushels)	Hay (tons)
State of Alabama*	164	12.8	0.77
Marshall County*	257	18.5	0.80
Farms in this study**	343	20.8	0.96‡

*Calculated from estimates of the United States Department of Agriculture, Bureau of Agricultural Economics Cooperating with the Alabama Department of Agriculture and Industries. Estimates for 1927 are not available for Marshall County.

**Yields on land rented out as well as on land under the supervision of the operator are included.

‡Equals tons per acre of land. Some of the land grew two crops of hay.

Likewise, the yields of the farms studied were above the average of Marshall County. The yields on Sand Mountain average higher than in the County as a whole because the soil is more responsive to fertilizer than the valley land and the land is better adapted to cotton.

The average yield of lint cotton per acre during the three years was 331 pounds for the farms having commercial poultry and 356 pounds for the farms having small farm flocks. The farms having commercial poultry used an average of 512 pounds of fertilizer per acre on cotton which cost $8.30, and the farms

having small farm flocks used 544 pounds per acre costing $8.71. During the three years of the study the average yield of corn was 21.5 bushels per acre for the farms having commercial poultry and 20.5 bushels per acre for the farms having small farm flocks.

Operator's Livestock

Livestock on the farms having commercial poultry was valued at an average of $223 more per farm during the three years than on the farms having small farm flocks (Table 3).

TABLE 3.—Average Number and Value of Operator's Livestock per Farm, Marshall and DeKalb Counties, Alabama, 1927-1929.

Kind of livestock	Three-year averages per farm			
	Number		Value	
	Farms having commercial poultry	Farms having small farm flocks	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	29	79	29	79
Horses	0.4	0.2	$ 39	$ 14
Mules	1.7	1.9	186	208
Cows	1.5	1.2	101	73
Heifers	0.9	0.5	21	12
Calves	0.4	0.2	5	2
Bulls	0.1	—	7	1
Brood sows	0.2	0.1	7	4
Other hogs	1.4	1.6	22	36
Chickens	207.0	41.0	225	39
Miscellaneous	—	—	1	2
Total	—	—	$614	$391

The greatest difference came in the value of chickens. The farms having commercial poultry had an average of 207 chickens per farm valued at $225, whereas the other group had an average of 41 chickens per farm valued at $39. The farms in both groups averaged 2.1 head of workstock per farm. Hogs and cows were kept primarily for home use.

Operator's Capital

Operators of the owner and part-owner farms having commercial poultry had a larger average investment in livestock, machinery and equipment, and feed and supplies each of the three years than the operators of the owner and part-owner farms having small flocks (Table 4). The farms having commercial poultry had a lower average investment in real estate for the three-year period than the farms having small farm flocks. In 1927, however, the farms having commercial poultry had a larger investment in real estate than the other group of

TABLE 4.—Operator's Average Capital per Farm on Owner and Part-Owner Farms, Marshall and DeKalb Counties, Alabama, 1927-1929.

Item	Three-year averages per farm	
	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	28	64
Land	$3,975	$4,439
Dwelling	1,019	1,326
Tenant houses	187	155
Other buildings	513	418
Total real estate	$5,694	$6,338
Livestock	624	402
Machinery and equipment	225	148
Feed and supplies	396	368
Total	$6,939	$7,256

farms. The operator's average investment in real estate for the farms having commercial poultry was $6915 in 1927, $4959 in 1928, and $5208 in 1929. The average investment in real estate for the other group of farm operators was $6419 in 1927, $6170 in 1928, and $6425 in 1929. There was a difference of only $317 between the operator's total average capital of the two groups of farms for the three years. The average capital of operators of rented farms was similar to the average capital of operators of other farms except for the value of real estate.

The commercial poultry group had an average of 82 per cent of their capital invested in real estate and the other group had 87 per cent in real estate. For both groups of farms, 70 per cent of the operator's average investment in real estate for the three-year period was in land. The farms having commercial poultry had less invested in the operator's dwelling than the farms having small farm flocks, but they had a larger investment in tenant houses and other buildings each of the three years. The operator's average investment in land for the farms having commercial poultry was $4972 in 1927, $3384 in 1928, and $3568 in 1929. The average investment in land for the other group of farm operators was $4453 in 1927, $4346 in 1928, and $4517 in 1929.

Operator's Receipts and Expenses

Operators of farms having commercial poultry received less from sales of cotton and cotton seed and more from sales of eggs and livestock increase each of the three years than the farms having small farm flocks (Table 5). There was very little difference between the two groups of farms in their receipts from other sources. The operators of farms having commercial poultry had receipts per farm from cotton and cotton seed of $827 in 1927, $980 in 1928, and $804 in 1929, while the other

TABLE 5.—Operator's Average Receipts from Different Sources for Farms in Marshall and DeKalb Counties, Alabama, 1927-1929.

Source	Three-year averages per farm	
	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	29	79
Sales of cotton and cotton seed	$870	$1,145
Sales of other crops	58	65
Sales of eggs	530	36
Sales of other livestock products	35	30
Livestock increase	180	0
Miscellaneous receipts	101	77
Total	$1,774	$1,353

group of farmers had $1148 in 1927, $1232 in 1928, and $1054 in 1929. Egg sales per farm for the farms having commercial poultry were $353 in 1927, $521 in 1928, and $716 in 1929; for the other group of farms they were $33 in 1927, $39 in 1928, and $36 in 1929. Excluding receipts from the sale of eggs, sales of butter and butterfat made up 70 per cent of the receipts from livestock products on the farms having small farm flocks and 90 per cent on the farms having commercial poultry.

The operator's total farm receipts for the farms having commecial poultry averaged $421 more per farm for the three-year period than for the farms having small farm flocks, and their expenses were also larger by $328 (Table 6). The greatest dif-

TABLE 6.—Operator's Principal Farm Expenses for Farms in Marshall and DeKalb Counties, Alabama, 1927-1929.

Item	Three-year averages per farm	
	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	29	79
Hired labor	$ 42	$ 51
Unpaid family labor	218	272
Fertilizer	159	179
Feed	383	24
Ginning	39	47
Taxes	34	31
Insurance	14	13
Auto for farm use	34	18
Other cash farm expenses	92	58
Livestock decrease	—	1
Feed and supply decrease	1	1
Real estate and equipment decrease	48	41
Total	$1,064	$736

ference between the expenses of the two groups of farms was in the value of feed purchased which averaged $383 on the farms having commercial poultry, and only $24 on the other group of farms for the three-year period. The charge for family labor was less on the farms having commercial poultry than on the other farms each of the three years. The average amount charged for unpaid family labor was more than five times as great as the average amount paid for hired labor for both groups of farms during the three-year period. An average of 33.3 per cent of the amount spent for hired labor was for cotton picking on the farms having commercial poultry; 54.9 per cent was for cotton picking on the other group of farms.

The farms having commercial poultry had a feed expense per farm of $274 in 1927, $388 in 1928, and $487 in 1929, while the other group of farms spent only $24 for feed in 1927, $22 in 1928, and $26 in 1929. The operator's fertilizer expense per farm for the farms having commercial poultry amounted to $113 in 1927, $166 in 1928, and $199 in 1929; for the other group of farms it was $123 in 1927, $190 in 1928, and $224 in 1929. For the farms having commercial poultry, the average charge for unpaid family labor was $194 in 1927, $280 in 1928, and $180 in 1929; for the other group of farms, it was $222 in 1927, $310 in 1928, and $283 in 1929. Other expenses were quite stable over the three-year period.

Operator's taxes for owner and part-owner farms averaged somewhat higher than the operator's average taxes shown in Table 6 because rented farms are included in this table. For the owner and part-owner farms having commercial poultry, taxes amounted to $36 per farm during the three years, and for the owner and part-owner farms having small farm flocks, they were $37 per farm.

Family Use of Home-Grown Products

The families of the farm operators having commercial poultry used home-grown products valued at an average of $455 and those having small farm flocks used home-grown products valued at $416 (Table 7). The families having commercial poultry used more milk, butter, eggs, and corn meal than the other group, but they consumed fewer chickens and hogs. The average value of garden products used by the farm family was $50 for the farms having commercial poultry and $51 for the farms having small farm flocks. The value of products used by the family has not been included in the income figures used in this bulletin.

Operator's Labor Income

The operator's average labor income during the three years was $313 for the farms having commercial poultry, and $253 for the farms having small farm flocks (Table 8). The farms hav-

TABLE 7.—Average Quantity and Value of Home-Grown Products Used by the Farm Family, Marshall and DeKalb Counties, Alabama, 1927-1929.

Product	Three-year averages per farm			
	Quantity		Value	
	Farms having commercial poultry	Farms having small farm flocks	Farms having commercial poultry	Farms having small farm flocks
Average number of farms	29	79	29	79
Butter, pounds	178	156	$40	$37
Sweetmilk, gallons	205	169	76	60
Buttermilk, gallons	320	285	57	50
Eggs, dozens	150	110	47	28
Chickens	18	32	9	15
Hogs	1.7	2.2	61	70
Corn meal, bushels	25	20	27	24
Irish potatoes, bushels	7	7	8	8
Sweet potatoes, bushels	22	16	21	16
Fruit	—	—	9	4
Garden	—	—	50	51
Sorghum, gallons	6	6	6	5
Wood, cords	15	13	39	43
Miscellaneous	—	—	5	5
Total	—	—	$455	$416

ing commercial poultry had the lower incomes in 1927, when the price of cotton was 19.8 cents per pound. In 1929, when the price of cotton had declined to 15.7 cents per pound, the average labor income for the farms having commercial poultry was $320 and for those having small farm flocks it was only $36. In 1928 the average labor incomes of the two groups of farms were practically the same. Seventeen per cent of the farms having commercial poultry had minus labor incomes in 1927, which compares with 22 per cent in 1928 and 21 per cent in 1929. Nineteen per cent of the farms having small farm flocks had minus labor incomes in 1927, which compares with 17 per cent in 1928 and 56 per cent in 1929.

TABLE 8.—Average Labor Incomes of Farms having Commercial Poultry and of Farms having Small Farm Flocks, Marshall and DeKalb Counties, Alabama, 1927-1929.

Year	Number of farms		Labor income	
	Farms having commercial poultry	Farms having small farm flocks	Farms having commercial poultry	Farms having small farm flocks
1927	23	69	$273	$376
1928	32	86	346	348
1929	33	81	320	36
Average	29	79	$313	$253

The average labor incomes of the farms having commercial poultry were much more stable from year to year than the average labor incomes of the farms having small farm flocks. Part of the stability in the labor incomes of the farms having commercial poultry was attributable to the rise in the average price received for eggs from 27.0 cents a dozen in 1927 to 33.1 cents per dozen in 1929. This increase of 6.1 cents in the price of eggs helped offset the decline in the price of cotton, but the farms having commercial poultry would have had to receive an average of 13 cents less per dozen eggs in 1929 in order to have had as low an average labor income as the farms having small farm flocks, provided all other factors remained constant. Another factor which helped offset the decline in the price of cotton was the increase in the size of the poultry enterprise from 1927 through 1929 on the farms having commercial poultry.

Tenure

An average of 30 farmers included in the study during the three years owned their farms and rented no land (Table 9).

TABLE 9.—The Average Acreage in Cotton, Value of Unpaid Family Labor, and Average Labor Incomes of All Farms by Tenure Groups, Marshall and DeKalb Counties, Alabama, 1927-1929.

Tenure	Three-year averages per farm			
	Average number of farms	Value of unpaid family labor	Acres in cotton	Labor income
Owners having land rented out on one-half system	17	$182	33	$558
Owners having land rented out on one-third and one-fourth system	22	229	12	125
Owners having no land rented	30	263	13	123
Part-owners	23	305	16	300
Renters one-third and one-fourth	16	292	19	415
All farms	108	$257	18	$272

Seventeen farmers rented out land on the one-half system, 22 farmers rented out land on the one-third and one-fourth system, 23 rented land in addition to owning some, and 16 rented all the land which they operated.

Farmers supplying records averaged 46 years of age. As one would expect, assuming that farmers in a good farming community accumulate land and capital as they grow older, the renters were the youngest averaging 41 years of age, and the men renting out land on the one-half system were the oldest averaging 51 years of age.

The average acreage in cotton per farm was related to tenure. The owners having land rented out on halves had the

largest acreage, renters second, part-owners third, with either owners having land rented out on one-third and one-fourth, or owners having no land rented, fourth. In general, the average labor incomes followed this same order. In 1927 and 1929 the owners having land rented out on the one-third and one-fourth system had the lowest average labor incomes. In 1927 this group of farms had the lowest average acreage in cotton and in 1929 it had the same average acreage as the owners having no land rented. In 1929 the owners having land rented out on the one-half system had an average labor income of $244 and the renters on the one-third and one-fourth system had an average labor income of $274. The average labor incomes by tenure groups followed the order shown in Table 9 each year with the exception of those instances noted in the preceding sentences.

The average yields of lint cotton per acre during the three-year period ranged from an average of 337 pounds per acre for the owners having land rented out on halves to an average of 370 pounds per acre for the owners having land rented out on the one-third and one-fourth system.

Part-owners and renters averaged the highest values for unpaid family labor with $305 and $292 respectively for the three-year period. The owners who had land rented out had the lowest values for unpaid family labor with an average of $182 for those renting out land on the one-half system, and $229 for those renting out land on the one-third and one-fourth system.

If dependable croppers are available, it is more profitable for farm owners to rent out cotton land on the one-half system than on the one-third and one-fourth system when cotton prices are high. With cotton prices so low as to make cotton production unprofitable, however, it is probable that farm owners would lose less by renting out land on the one-third and one-fourth system than by renting out land on the one-half system.

In general, the farm businesses of owners who rented no land either in or out were too small to return a large income to the operator. These men could improve the size of their businesses and their incomes by renting in some land, or by buying more land. In general, those farmers who rented out land on the one-third and one-fourth system did not operate enough of their land themselves to have a large income. They could improve their incomes by renting out less land and operating more of it themselves.

RELATION OF SIZE OF BUSINESS TO LABOR INCOME

Acreage of Cotton

In studying the relation of different factors to labor income, the farms having commercial poultry and those having small farm flocks have been kept separate in most comparisons. This

enables one to study the effect of other factors on labor income when the effect of poultry is held practically constant. The number of farms in most tables is sufficiently large and the area in which the farms are located is sufficiently uniform that when the farms were grouped according to one factor the averages of other factors affecting income or returns were similar for each group of farms in the table except in instances of joint relationships. The principal factors affecting income were tabulated for each grouping of farms and the averages of these factors are mentioned in the text or shown in the tables when they appeared to affect the relationship shown.

In farming, as in other businesses, a very small business has neither the possibility of a large income nor a large loss, whereas, a large business has both of these possibilities. Since the principal enterprise on the farms in this study was cotton, the acreage in cotton is a good measure of the size of a farm business. The average labor incomes on these farms increased each year as their acreage in cotton increased (Table 10). The labor in-

TABLE 10.—Relation of the Acreage in Cotton to Labor Income on Farms which did not have Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1927-1929.

Acreage in cotton	1927	1928	1929	Three-year average
	Number of farms			
11 and less	24	20	16	20
12 - 19	22	33	27	27
20 and more	23	33	38	32
	Average acreage in cotton			
11 and less	8.6	8.0	7.7	8.1
12 - 19	15.8	15.5	14.7	15.3
20 and more	26.0	29.9	29.4	28.4
	Average labor income			
11 and less	$101	$181	–$117	$ 55
12 - 19	403	270	–31	214
20 and more	637	527	147	437

comes increased less, however, from one year to the next as the price of cotton declined. In 1927 the difference in average labor income between the group of farms which had 11 and less acres in cotton and the group which had 20 and more acres in cotton was $536, but in 1929 it was only $264. The group having the largest acreage in cotton had the lowest average yield of cotton per acre each of the three years, averaging 335 pounds of lint for the three-year period compared with 383 pounds of lint for the farms having 11 and less acres in cotton.

Acres in cotton, per cent of crop acreage in cotton, and acres of cotton per mule were very closely related on these

farms. An attempt to hold one or two of these three factors constant while studying the effect of the other one or two of these three factors on income would create a condition which rarely occurs in farm operation in the area. For this reason no tables are included in this bulletin which attempt to separate these factors although such tables were made and studied during the course of the analysis. The group of farms having the largest acreage in cotton had 60 per cent of their crop acreage in cotton for the three-year period compared with 48 per cent for the group having the smallest acreage in cotton. The average acreage of cotton per mule was 5.7 for the group having 11 and less acres in cotton and 10.5 for the group having 20 and more acres in cotton.

The average decline in labor income from 1927 to 1929 was less in the group of smallest farms than in the group of largest farms, the average decline being $218 for the smallest farms and $490 for the largest farms. This tendency has probably continued, and the lower prices for cotton which have prevailed in 1930 and 1931 may have caused the largest farm businesses to show the lowest average labor incomes. Ordinarily, however, as during the three years of this study, large farm businesses pay best.

In this area, where the operators and their families do most of the farm work, there is a close relation between the amount of family labor and the average acreage of cotton handled (Table 11). The farms employing 5 months and less of un-

TABLE 11.—Relation of the Months of Unpaid Family Labor to Labor Income and other Factors on Farms which did not have Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1927-1929.

Months of unpaid family labor	Three-year averages per farm					
	Average number of farms*	Months of unpaid family labor	Value of unpaid family labor	Acres of cotton on which the operator and family performed the pre-harvest labor	Family labor income	Operator's labor income
0 - 5	21	2.5	$ 83	10.2	$315	$232
6 - 11	17	8.3	270	13.3	477	207
12 and more	22	16.4	502	18.5	608	106

*Farms which hired labor amounting to more than $10 for other purposes than picking cotton are omitted from this table.

paid family labor had an average of 0.5 child over 10 years of age, whereas those employing 12 and more months had an average of 3.0 children over 10 years of age. In general, family labor was not used as efficiently as it could have been, for the operators of the farms using most family labor had the low-

est average labor incomes each of the three years even though they had larger acreages in cotton. In other words the increased income from the larger acreage in cotton was less than the value of the additional family labor employed. The farms using the largest amount of family labor had lower average yields of cotton per acre during the three-year period than the farms using the smallest amount of family labor, the average difference being 29 pounds of lint.

The family labor income increased as the months of unpaid family labor increased, but it would have increased still more if enough productive work and proper equipment had been provided to use the family labor efficiently. Family labor could have been used more efficiently by following fertility practices which return higher yields of cotton per acre and by handling larger acreages in cotton through the use of two-horse cultivators for some of the cultivation operations rather than using one-horse implements for all cultivation operations. During the three-year period, when only those farms were considered which hired less than $11 worth of labor for other purposes than picking cotton, the farmers who used two-horse cultivators performed the pre-harvest labor operations on an average of 0.8 acre more cotton with an average of 1.8 months less family labor than those who used one-horse implements for all cultivation operations. The farmers using two-horse cultivators had an average of 1.4 children over 10 years of age and the other group had an average of 2.0 children over 10 years of age. The farmers using two-horse cultivators paid an average of $31 per year for picking labor which compares with $14 a year paid by those using one-horse implements for all cultivation operations. The men using two-horse cultivators had higher average labor incomes each of the three years than those using one-horse implements for all cultivation operations. There was a difference of only 3 pounds in the average yield of lint cotton per acre between these two groups of farms for the three-year period.

Number of Chickens

Poultry was sufficiently important on the farms which had commercial poultry that the number of chickens was one measure of the size of business on these farms. The farms with commercial poultry having 180 and more chickens had higher average labor incomes each of the three years than the farms having 179 and less chickens (Table 12). The farms having the larger number of chickens, however, also had larger average acreages in cotton in 1927 and 1929, being 16.2 acres and 19.7 acres in these two years compared with 10.8 acres and 15.2 acres for the farms having the smaller number of chickens. In 1928 the farms having the larger number of chickens had an

TABLE 12.—Relation of the Number of Chickens to Labor Income on the Farms which had Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1927-1929.

Number of chickens	Three-year averages per farm				
	Average number of farms	Number of chickens	Acres of cotton	Yield of lint cotton per acre (pounds)	Labor income
179 and less	14	113	14.3	331	$157
180 and more	15	294	16.1	333	464

average of 4.5 acres less cotton than the farms having the smaller number. During the three-year period there was practically no difference between the two groups of farms in their average yields of lint cotton per acre.

RELATION OF INTENSITY OF PRODUCTION TO LABOR INCOME

Yield of Cotton per Acre

Another method of increasing the income from a farm business is to increase the production per acre or per animal. High rates of production obtained economically pay high returns since it requires only a little more labor before picking on an acre of cotton that will yield a bale to the acre than on one that will yield one-half bale. The same is true of animal production since it requires almost as much labor to care for a flock of hens producing 120 eggs per bird as to care for one producing 160 eggs per bird.

Both small and large farms which had high yields of cotton per acre obtained higher average labor incomes than farms of similar size having lower yields of cotton per acre (Table 13).

TABLE 13.—Relation of the Yield of Lint Cotton per Acre to Labor Income on Farms which did not have Commercial Poultry with Farms Grouped According to Acres in Cotton, Marshall and DeKalb Counties, Alabama, 1927-1929.

Yield of lint cotton per acre (pounds)	Three-year averages per farm			
	Average number of farms	Yield of lint cotton per acre (pounds)	Acres of cotton	Labor income
	Farms having 15 and less acres in cotton			
349 and less	16	292	11.0	$ 61
350 and more	19	436	10.2	199
	Farms having 16 and more acres in cotton			
349 and less	25	291	23.8	$161
350 and more	19	408	27.7	602

The group of farms having both large acreage and high yield had the highest average labor incomes all three years. The group which had both small acreage and low yield had the lowest average labor incomes all three years. In two of the three years, the farms which had a small acreage but a high yield had slightly higher average labor incomes than the farms which had a large acreage but low yield. During the three years of this study both the acreage in cotton and the yield of lint cotton per acre were very closely related to labor income.

High yields of cotton per acre were obtained by using heavy applications of commercial fertilizers. Since cotton brought a relatively high price all three years the heavier applications paid high returns and the farmers in this study increased their average fertilizer application each year from 1927 through 1929. The farmers who used 600 pounds and more of fertilizer per acre obtained an average of 105 pounds more lint cotton per acre during the three-year period than those farmers who used 449 pounds and less fertilizer per acre (Table 14). The average

TABLE 14.—Relation of the Pounds of Fertilizer Applied to Cotton to the Yield of Cotton per Acre, where no Compost or Manure was Used, Marshall and DeKalb Counties, Alabama, 1927-1929.

Pounds of fertilizer applied to cotton per acre	Three-year averages				
	Average number of fields*	Average acres of cotton**	Pounds of fertilizer applied to cotton per acre	Cost of fertilizer applied to cotton per acre	Yield of lint cotton per acre (pounds)
449 and less	43	678	364	$ 6.12	290
450 - 599	48	629	506	8.00	325
600 and more	43	503	671	10.44	395

*Since some farmers fertilized different fields at different rates, the field was taken as the unit in this table.

**Cotton rented out as well as that under the supervision of the operator of the farm is included in this table.

difference in the cost of fertilizer between these two groups was $4.32 or 4.1 cents for each additional pound of lint obtained. In 1929 a drouth during the growing season made the response from fertilizer less than usual, and the cost of fertilizer for each additional pound of lint obtained between these same two groups was 5.1 cents in that year.

There are other costs in obtaining a high yield in addition to the cost of fertilizer such as picking and ginning the additional cotton obtained and hauling and applying the additional fertilizer required. Furthermore, the risk of loss is great because of the large cash expenditure. Even though the extra cotton seed obtained will help repay some of the extra costs, it is doubtful whether a farmer in this area can afford to take the risk of

heavy fertilization when the prospective price for cotton is much below 10 cents per pound unless fertilizer prices are much lower than they were during the three years of this study.

Some evidence was obtained which indicated that farmers who spread compost or manure on their cotton land either broadcast or in a middle-burster furrow obtained higher yields of cotton than those who did not follow this practice. This is discussed more fully later in this bulletin in the section on the Cotton Enterprise (Table 23).

There were more farms below average in the three factors, acreage in cotton, yield of lint cotton per acre, and acres of cotton per mule, than there were above average in all three of these factors during the period of this study (Table 15). Those

TABLE 15.—Relation of the Combined Effect of Acres in Cotton, Yield of Cotton per Acre, and Acres of Cotton per Mule to Labor Income on Farms which did not have Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1927-1929.

Position of group with respect to acres in cotton, yield of lint cotton per acre, and acres of cotton per mule	Three-year averages per farm				
	Average number of farms	Acres in cotton	Yield of lint cotton per acre (pounds)	Acres of cotton per mule	Labor income
Below average in all	17	11.8	303	6.1	$ 45
Above average in all	10	35.2	410	11.3	870

farms which were above average in all three factors had very high labor incomes each year compared with the labor incomes of the farms which were below average in all of them. In the group above average there was only one minus labor income in 1927 and one in 1929, which contrasts with 6 minus labor incomes in the other group in 1927, 5 in 1928, and 12 in 1929. Efficiency in farm organization and operation pays high returns when prices are high, but it is particularly important when prices are low to attain maximum efficiency in order to guard against loss.

Egg Production per Bird

On the farms which had commercial poultry, the number of eggs produced per bird was also a measure of the intensity of production. The farms which had a production averaging 145 and more eggs per layer had higher average labor incomes all three years than those farms which had a lower production (Table 16). The farms having the higher production per bird had the lower average yield of cotton per acre each year, the average difference amounting to 25 pounds of lint cotton for the three-year period. The farms having the higher production

TABLE 16.—Relation of Egg Production per Bird to Labor Income on Farms having Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1927-1929.

Egg production per bird	Three-year averages per farm				
	Average number of farms	Egg production per bird	Yield of lint cotton per acre (pounds)	Acres of cotton	Labor income
70 - 144	16	121	346	13.8	$234
145 and more	13	167	321	17.2	451

per bird, however, had a larger average acreage in cotton each year, the average difference being 3.4 acres for the three-year period.

RELATION OF DIVERSITY TO LABOR INCOME

Farmers in this area have only a very limited opportunity to diversify their farm businesses for good pastures and cheap by-product feeds are lacking, which limits the livestock possibilities to an enterprise like poultry. Furthermore, only limited markets for truck crops are available. The relatively few farmers growing truck crops for sale often overstock the markets in reach of the area. Strawberries are being tried, but their picking conflicts with the planting of cotton on Sand Mountain, and day help is scarce at that time of year. Some farmers have been able to work off the farm during the slack periods to raise their incomes. Almost all farmers in the area except those having commercial poultry raised sufficient food and feed crops for home use during the three years of this study. It is not practicable, however, to raise all the feed for a commercial flock of poultry. The relation between the poultry enterprise and labor income has been discussed earlier in this bulletin.

Receipts from Miscellaneous Sources

The farms which had $50 and more receipts from miscellaneous sources had higher average labor incomes all three years than those having less than this amount (Table 17). They also had a slightly larger acreage in cotton each of the three years,

TABLE 17.—Relation of Receipts from Miscellaneous Sources to Labor Income, All Farms, Marshall and DeKalb Counties, Alabama, 1927-1929.

Receipts from miscellaneous sources (dollars)	Three-year averages per farm				
	Average number of farms	Receipts from miscellaneous sources	Acres of cotton	Yield of lint cotton per acre (pounds)	Labor income
0 - 49	71	$ 7	17.4	358	$204
50 and more	37	240	18.6	331	398

the average difference being 1.2 acres for the three-year period. Their average yield of cotton per acre was lower each year, however, the average difference being 27 pounds of lint for the three-year period.

METHOD OF CALCULATING ENTERPRISE COSTS AND RETURNS

The method of calculating enterprise costs used in this study tends to show a minimum average cost because of the method of valuing labor, and also because of the omission of certain very minor overhead costs which could not well be considered. It is believed, however, that the cost figures presented are useful for studying the relation of different factors to cost, to furnish a general idea of the cost of production, and to show the relative importance of different items making up the cost of production.

Labor.—Man labor was charged at 15 cents per hour which was the most common rate being paid in the area for day labor without board. This method of valuing labor is not strictly accurate, since the time of a farm operator is somewhat more valuable than that of a hired laborer because of the planning and supervision which he furnishes. There was no satisfactory basis for valuing the time of the farm operator, however, and the portion of the total labor on each enterprise performed by the operator himself was not determined for any enterprise except poultry. All human labor except that on the small farm flocks of poultry was reduced to man equivalent labor. A large portion of the labor on the small farm flocks of poultry was performed by women and children, and since a satisfactory basis for converting it to man labor was lacking a rate of 12.5 cents per hour was charged for this labor. Labor used for picking cotton was charged at $1.00 per hundred pounds of seed cotton in accordance with the rate being paid in the area. Mule labor was charged at 7.5 cents per hour which was the most common rate being paid in the area.

Interest.—Interest was charged on equipment and supplies at 8 per cent. In charging interest on seed and fertilizer, 8 per cent of the amount of these items was used in accordance with banking practice in the area. Interest on land was charged at 6 per cent which approximated the average rate being paid on farm mortgages in the area.

Depreciation.—The depreciation of the laying flock and the depreciation of buildings and equipment were all calculated in a similar manner. The procedure was to add the value of the inventory at the beginning of the year and the value of all additions during the year, then to subtract from this total the value of the inventory at the end of the year and the value of sales

during the year. Chickens were valued by the farmer at a reasonable value as egg producers. Equipment and buildings were valued by the farmer and he estimated the amount of decrease or increase in value each year considering repairs or additions.

Use of land.—In calculating a value for use of land, interest was charged at 6 per cent on the value of all land owned at the beginning of the year omitting the value of the dwelling houses on the farm. The taxes paid were added to the interest charge and the number of acres owned was divided into this total to obtain the land charge per acre which was applied to all crops. Only one-half this amount was charged to each crop on land which was double cropped. In 1929 an attempt was made to obtain estimates of the value of crop land, pasture land, and woodland on the farm from each farmer cooperating. In almost all instances the farmer's reply was that one part of his farm was just as valuable as another. The sentiment seemed to be that the woodland was as valuable as the crop land and that the timber and wood to be cut would pay for clearing it. In calculating costs on rented farms, the average charge for use of land on owned farms was used.

Use of equipment.—The charge for the use of equipment was calculated by adding depreciation and repairs, including plow points, and interest at 8 per cent on the average investment in equipment. This charge was divided between operator and cropper crops in accordance with the acres of operator and cropper cotton. The equipment charge to operator's crops was apportioned between operator and wage cotton, corn, and soybean hay in accordance with the number of mule hours on each one of these enterprises on the assumption that equipment was used only when mules were used.

Auto cost.—The portion of the auto chargeable to poultry or peddling was deducted from the auto cost charged to the farm. The amount which remained after these deductions was divided between cotton, corn, and soybean hay in accordance with the number of man hours on each of these enterprises on the assumption that this represented their relative importance on the farm.

Cover crop.—A cover-crop charge was calculated by figuring the value of labor, seed, and fertilizer to plant the cover crop. Fifty per cent of this total amount was charged to the crop which followed the cover crop on the assumption that future crops would receive the benefit of the other 50 per cent.

Manure.—Manure was valued at the price the farm operator could buy it for and haul it himself. Only 50 per cent of the value of manure applied to a crop was charged to that crop on

the assumption that future crops would receive the benefit of the other 50 per cent.

In order to calculate a return for poultry manure, estimates were obtained in 1929 of the amount of manure recovered from the laying flock and its value per ton at the farm. The total value of this manure was divided by the number of layers to get an average return per layer from manure. This value of 11 cents per layer was used in calculating returns from commercial laying flocks. The value of manure was ignored on the small farm flocks since practically none of it was recovered. No account was taken of manure in calculating the cost of raising pullets, nor in listing receipts and expenses from the whole flock which included both young stock and laying flock.

Valuation of cotton, poultry, and eggs.—Cotton was valued at the price the farmer received for it, or at the price he expected to receive for it, providing his estimate was reasonable considering the market price at the time of obtaining the record. If his estimate for unsold cotton was not considered reasonable, the market price at the time of obtaining the record was used. Poultry and eggs were valued at the price the farmer received for them, or at the market price if they were consumed on the farm.

Valuation of corn, fodder, hay, and cotton seed.—Each farmer's estimate of the price these commodities were selling for in his community was used in calculating his returns from the different enterprises. This same value was used in charging home-grown feed to poultry.

Valuation of baby chicks.—In calculating the cost of pullets, baby chicks were valued at 10 cents each if home hatched, and cost if bought. Ten cents was the most common price received for baby chicks sold by farmers cooperating in this study.

Mowing hay.—When a man owned a mower and cut his own hay, the charges for man labor, mule labor, and equipment were calculated as described above. In the many instances where the farmer did not own a mower and paid some one to cut his hay at a certain rate per acre, the expense was charged under a separate heading called "hired mowing."

THE COTTON ENTERPRISE

Information from which to calculate the cost of producing cotton was obtained for 111 farms in 1928 and 102 farms in 1929. These cost data are presented in this section of the bulletin. They apply to cotton on which the labor was performed by the operator and his family or by wage help.

The farmers included in this study were growing varieties

of cotton having a short staple length. Half and Half and Rucker, the two varieties most common to the area, were grown either entirely or in combination with another variety by 75 per cent of these farmers in 1928, and by 73 per cent in 1929.

Labor on Cotton

In 1928, a year having a very wet growing season, an average of 121 man hours per acre was spent on cotton which compares with 103 man hours per acre in 1929, a year having a very dry growing season. The greatest difference between the wet and the dry season came in the amount of hoe labor, which was 12.6 hours more per acre in 1928 than in 1929. An average of 2.9 man hours more per acre were spent in cultivation in 1928 than in 1929. Two-thirds of the man labor on cotton during the two years was spent in the hand-labor operations, picking, hoeing, and side dressing. Picking required an average of 45 per cent of the total man hours on cotton during the two years.

The operator's wife and children picked 51 per cent of the cotton, and did 69 per cent of the chopping and 74 per cent of the hoeing on this enterprise, which brings out the very great importance of family labor in performing the hand-labor operations on cotton. These farmers hired 19 per cent of their cotton picked, 10 per cent chopped, and only 5 per cent hoed.

Less than one-half as many mule hours as man hours were spent on cotton. The difference between the dry and the wet year in the amount of mule labor on cotton was small, the principal difference being 2.2 mule hours more per acre in cultivation in 1928 than in 1929. The amount of mule time spent in land-preparation and planting operations was the same as the amount of mule time spent in cultivation operations during these two years.

Farmers using two-horse cultivators for some of their cultivation operations performed the labor on cotton with an average of 16.5 man hours less per acre than those who used one-horse implements for all cultivation operations (Table 18). This amounted to a saving of 24 days of man labor in a season on the average of 14.4 acres of cotton which they handled. There was a saving of 8.4 hours of man labor per acre in cultivation operations, and 6.3 hours per acre in hoe labor. The saving in hoe labor is probably attributable partly to the promptness and speed with which a man using a two-horse cultivator is able to cultivate his crop when it needs cultivation enabling him to keep the growth of grass and weeds in check, and partly to the better work usually done by the two-horse cultivator. Some of the two-horse cultivators were walking cultivators and some were riding cultivators.

The average hours of mule labor per acre were the same

TABLE 18.—Relation of the Two-Horse Cultivator to Man and Mule Labor on Cotton per Acre, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Operations	Two-year averages	
	Using 1-horse implements for all cultivation operations	Using 2-horse cultivator for some cultivation operations
Average number of farms	72	34
Acres of cotton per farm	14.6	14.4
Pounds of lint per acre	354	368
	Man hours per acre	
Land preparation and planting	15.6	14.6
Side dressing	1.8	1.7
Cultivation	21.0	12.6
Hoe labor	25.0	18.7
Picking	50.2	49.3
Hauling to gin and marketing	3.6	3.8
Total	117.2	100.7
	Mule hours per acre	
Land preparation and planting	21.2	21.9
Side dressing	0.4	0.3
Cultivation	21.6	21.0
Hauling to gin and marketing	6.8	7.1
Total	50.0	50.3

when a two-horse cultivator was used for some of the cultivation operations as when one-horse implements were used for all cultivation operations.

Costs and Returns from Cotton Production

The principal costs involved in producing cotton amounted to an average of $45 per acre during the two years 1928 and 1929 (Table 19). Man labor made up an average of 40.9 per cent of this cost, fertilizer 21.3 per cent, use of land 12.1 per cent, and mule labor 8.3 per cent. The average cost of producing a pound of lint cotton was 9.4 cents in 1928 and 10.7 cents in 1929, or an average of 10.0 cents for the two years. The difference in the average cost per pound from one year to the next was caused principally by the difference in the price of cotton seed in 1928 and 1929, since cotton seed was credited at the market price.

Total returns from both lint and seed amounted to $81 per acre in 1928 and $66 per acre in 1929, or an average of $73 for the two years. Profit per acre decreased from an average of $36 in 1928 to an average of $21 in 1929. The average return for labor amounted to $56 per acre in 1928, or 46 cents per hour, compared with $38 per acre in 1929, or 37 cents per hour.

TABLE 19.—Costs and Returns per Acre from Producing Cotton, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Item	1928	1929	Two-year average
Number of farms	111	102	106
Acres of cotton per farm	14.3	14.8	14.6
Pounds of lint per acre	362	355	358
Costs per acre:			
Seed	$0.90	$ 0.98	$0.94
Fertilizer	8.86	10.41	9.63
Manure or compost	0.27	0.58	0.42
Ginning	3.05	3.03	3.04
Use of land	5.29	5.62	5.46
Use of equipment	1.39	1.28	1.34
Man labor, pre-harvest	9.94	7.55	8.74
Man labor, hauling to gin and marketing	0.51	0.60	0.56
Picking labor	9.37	8.92	9.15
Mule labor	3.81	3.71	3.76
Truck cost	0.04	0.13	0.08
Share of auto cost	1.07	1.24	1.16
Interest on seed and fertilizer	0.78	0.91	0.84
Total cost per acre	$45.28	$44.96	$45.12
Value of cotton seed	11.29	6.97	9.13
Cost of lint per acre	$33.99	$37.99	$35.99
Cost of lint per pound	0.094	0.107	0.100
Returns per acre:			
Lint cotton	$69.85	$58.58	$64.21
Cotton seed	11.29	6.97	9.13
Total returns per acre	$81.14	$65.55	$73.34
Profit per acre	35.86	20.59	28.22
Return for labor per acre	55.68	37.66	46.67
Return per hour of man labor	0.46	0.37	0.42

Relation of the Cost of Producing Cotton to Labor Income

A very close relation existed between the cost of producing a pound of lint cotton and labor income on these farms, the group of farms with lowest cost having an average labor income of $518 and those with highest cost a labor income of –$8 (Table 20). No relationship existed between the cost of lint cotton per pound and the acres of cotton on which the cost was calculated because the acreage did not indicate the size of fields nor the length of rows. There was, however, a very close relation between the cost per pound and the yield of lint per acre. The average cost per acre tended to be slightly higher for the group which had the lowest cost per pound, which indicates that a large expenditure per acre may be good business if a sufficiently high yield results from such an expenditure. It should be noted, however, that the group having the lowest cost per pound of lint had an average cost of 7.6 cents in 1928 and 8.9 cents in 1929 both of which figures are above the price farmers in Alabama received for cotton in the 1931-32 season.

TABLE 20.—Relation of the Cost of Producing a Pound of Lint Cotton to Labor Income and other Factors, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Position of group in cost of producing lint cotton per pound	Number of farms	Average cost of producing lint cotton per pound (cents)	Cost of producing cotton per acre	Yield of lint cotton per acre (pounds)	Profit per acre on cotton	Labor income
	1928					
Lower third	37	7.6	$49	459	$56	$635
Middle third	37	9.7	47	371	36	300
Upper third	37	12.0	45	305	22	52
	1929					
Lower third	34	8.9	$46	428	$33	$400
Middle third	34	11.0	46	359	20	1
Upper third	34	13.2	45	297	11	–69
	Two-year average					
Lower third	35	8.2	$48	444	$45	$518
Middle third	35	10.4	46	365	28	150
Upper third	35	12.6	45	301	16	–8

Relation of Yield and other Factors to the Cost of Producing Cotton

During the two years 1928 and 1929, the cost of producing lint cotton declined from an average of 11.9 cents per pound to an average of 8.8 cents per pound as the yield of lint per acre increased (Table 21). The average return per acre for labor

TABLE 21.—Relation of the Yield of Lint Cotton per Acre to the Cost of Producing Cotton and the Return for Labor on Cotton, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Yield of lint cotton per acre (pounds)	Two-year averages			
	Average number of farms	Yield of lint cotton per acre (pounds)	Return for labor on cotton per acre	Cost of producing lint cotton per pound (cents)
324 and less	39	281	$34	11.9
325 - 399	34	364	46	10.2
400 and more	33	482	68	8.8

on cotton was twice as great for the group of farms having the highest yield per acre as for the group having the lowest yield per acre.

The principal method of obtaining a high yield of cotton per acre during the years of this study was to use a large application of fertilizer per acre. The two-year average cost of pro-

ducing lint cotton per pound decreased as the fertilizer application increased (Table 22). This decrease was greater in 1928

TABLE 22.—Relation of the Pounds of Fertilizer Applied to Cotton per Acre to the Cost of Producing Cotton and other Factors on Farms Applying less than One-Half Ton of Compost or Manure per Acre, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Pounds of fertilizer applied to cotton per acre	Two-year averages					
	Average number of farms	Pounds of fertilizer applied to cotton per acre	Yield of lint cotton per acre (pounds)	Cost of fertilizer per pound of lint cotton (cents)	Return for labor on cotton per acre	Cost of producing lint cotton per pound (cents)
494 and less	28	416	306	2.5	$40	10.8
495 - 645	34	574	347	2.8	46	10.7
646 and more	25	756	421	2.9	57	9.9

than in 1929 because of differences in moisture conditions during the two growing seasons. The average return per acre for labor on cotton was $17 greater for the group of farms applying the largest amount of fertilizer to cotton than for the group of farms applying the smallest amount of fertilizer to cotton. All farms except 16 in 1928 and 7 in 1929 applied part of their fertilizer as a side dressing.

A factor of great importance, when the price of cotton is low, is the increase in the cost of fertilizer per pound of lint cotton produced as the fertilizer application is increased. This increase was small in 1928 when full benefit from the fertilizer application was obtained, but in 1929 the increase amounted to an average of 0.7 cent from the group of lowest fertilizer application to the group of highest application.

One method of increasing the yield of cotton per acre and reducing the cost of production without cash expense is to apply compost or manure to the cotton land either broadcast or in a middle-burster furrow. Although livestock is limited on these farms, which eliminates the possibility of having enough manure for a heavy application, more care can be taken to bed stables with leaves and preserve manure so that a light application can be made. In 1928 the 13 farmers applying an average of one-half ton or more of manure or compost per acre obtained an average yield of lint cotton per acre which was 104 pounds larger than those who applied less than this amount. This was true even though the application of fertilizer was lighter. In 1929 the 27 farmers having the heavier application of compost or manure had an average yield of lint cotton per acre 78 pounds larger than those applying less than one-half ton per acre. In both years the farmers applying more compost or manure had

lower average costs per pound of lint, the average difference amounting to 0.8 cent for the two years (Table 23). The farmers

TABLE 23.—Relation of the Pounds of Compost or Manure Applied to Cotton to the Cost of Producing Cotton and other Factors, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Pounds of compost or manure applied to cotton per acre	Two-year averages					
	Average number of farms	Average pounds of compost or manure applied to cotton per acre	Pounds of fertilizer applied to cotton per acre	Yield of lint cotton per acre (pounds)	Return for labor on cotton per acre	Cost of producing lint cotton per pound (cents)
999 and less	86	165	583	354	$46	10.6
1000 and more	20	2,356	568	444	60	9.8

applying more compost or manure received an average of $14 more per acre for their labor on cotton than those who applied little or no compost or manure to cotton.

The cost of producing cotton increased from an average of 10.0 cents per pound of lint for the group of farmers who spent 15 and less man hours in cultivation per acre during the two years to an average of 10.8 cents per pound for the group who spent 20 and more man hours in cultivation per acre. The farmers who spent more time in cultivation also spent more time in hoe labor per acre. Those using two-horse cultivators came in the lower groups, but there were more farmers in the lower groups than were using two-horse cultivators, so the difference in time spent in cultivation represents partly a saving in time for the same amount of cultivation and partly less cultivation.

The average yield of lint cotton per acre increased by 17 pounds in 1929 as the hours in cultivation increased, and in 1928 the average yield did not decline even though the average application of fertilizer per acre decreased slightly. The difference in yield was so small, however, that those farmers spending the largest amount of time in cultivation were receiving a lower return per hour of labor spent on cotton than those spending the smallest amount of time in cultivation. The amount of time spent on cotton can be reduced by using a two-horse cultivator and by omitting cultivations and hoeings which are not needed for grass or weed control.

Those farmers using two-horse cultivators who had a yield of lint cotton per acre above the average of all farms and who spent less than the average amount of mule labor per acre on cotton before picking, produced cotton for an average of 4.0 cents less per pound of lint during the two years than the farmers not using two-horse cultivators who had a yield below

average, and who were above average in mule labor per acre. These factors in combination were also closely related to labor income.

Labor income decreased as the average value of land per acre increased in 1928 and 1929 (Table 24). There was a tend-

TABLE 24.—Relation of the Value of Land per Acre to the Cost of Producing Cotton and Labor Income, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Value of land per acre (dollars)	Two-year averages					
	Average number of farms*	Value of land per acre	Yield of lint cotton per acre (pounds)	Pounds of fertilizer applied to cotton per acre	Cost of producing lint cotton per pound (cents)	Labor income
59 and less	30	$ 40	364	543	10.0	$357
60 - 99	36	81	368	589	10.4	154
100 and more	24	132	388	632	10.8	42

*Rented farms are omitted from this table.

ency for the average cost of producing lint cotton per pound to increase in 1928 as the value of land increased, but the higher yield per acre caused principally by the heavier application of fertilizer largely offset the increase in cost. In 1929, however, the cost of lint was higher by 1.6 cents per pound on the farms having land valued at $100 or more per acre than on the farms having land valued at $59 and less per acre. In some areas it is good business to pay a high price for land in order to obtain fertility in the soil, but in this area where the natural fertility of the soil is low, high values usually reflect something other than fertility such as nearness to town, or cotton prices in the recent past. Since this condition exists, persons who expect to depend on their income from cotton production to pay for land and to supply family needs should avoid paying a price for land which is not based on the return which can be expected from it when cotton prices are relatively low.

THE POULTRY ENTERPRISE

The data cited in this section refer to flocks on which a poultry record was obtained whether or not there was a labor-income record for the farm. Hence, individual figures may not agree with some cited earlier in the bulletin where the reference was to flocks on farms which had a labor-income record. Only a small number of records are included in the relationship tables in this section of the bulletin, but the relationships are believed to be significant since they were obtained for more than one year.

Only 15 of the 29 men who had commercial poultry in 1927 were keeping commercial poultry in 1929. This large turnover was principally a result of the low returns which some farmers received for their labor on poultry. Low returns were usually caused by one or more of the following factors: diseases or parasites, irregular feeding, poor stock, failure to cull, or other management factors. Four of the 14 who discontinued the commercial poultry enterprise had minus returns for their labor on poultry in 1927. The 14 had an average return for labor on poultry of $55 in that year. Only one of the 15 men who continued the commercial poultry enterprise over the three years had a minus return for labor on poultry in 1927. The 15 had an average return of $152 for labor on poultry in that year.

Two-thirds of the commercial poultry flocks were made up of White Leghorn birds during the three years of the study. More than 75 per cent of the flocks were of the Leghorn breeds since there were also some flocks of Buff and Brown Leghorns. The small farm flocks were made up almost entirely of the heavy breeds of birds, but only a few of the commercial flocks were made up of heavy breeds exclusively. The flocks which had two or more breeds usually had some Leghorns together with a heavy breed.

Since the Leghorn breed predominated, other breeds are omitted from relationship tables which follow where it was thought the weight of the birds would tend to affect the relationship. There were not enough commercial flocks of breeds other than Leghorns to furnish dependable information regarding the relative merits of the different breeds.

Labor on Poultry

The average amount of labor spent on commercial poultry flocks included in this study was 575 hours per year which compares with an average of 178 hours per year spent on the small farm flocks. The labor on the commercial flocks was distributed as follows: 54.3 per cent for feeding and chores on the laying flock, 14.4 per cent for cleaning laying houses, 4.5 per cent for marketing poultry and eggs, 4.9 per cent for incubation, and 21.9 per cent for rearing young stock.

The operators of the farms performed 57 per cent of the labor on the commercial poultry flocks and 12 per cent of the labor on the small farm flocks. The operator's wife and children performed 88 per cent of the work on the small farm flocks. Not only was there more work on the commercial flocks, but a greater portion of the work was performed by the farm operator.

Returns from the Poultry Enterprise

The commercial flocks had an average of 168 layers per flock and the small farm flocks an average of 38 layers for the three-

year period (Table 25). These figures do not fully reflect the difference in size of the flocks because the commercial poultry

TABLE 25.—Receipts and Expenses for Commercial Flocks and Small Farm Flocks of Poultry Including both Young Stock and Laying Flock, Marshall and DeKalb Counties, Alabama, 1927-1929.

Item	Three-year averages			
	Per flock		Per layer	
	Commercial flocks	Small farm flocks	Commercial flocks	Small farm flocks
Average number of flocks	34	71	34	71
Average number of layers	168*	38‡	168*	38‡
Eggs produced per layer	142	85	142	85
Receipts:				
Egg sales	$551.37	$35.97	$3.21	$0.96
Eggs eaten	39.82	28.05	0.24	0.76
Poultry sales	151.15	20.12	0.91	0.52
Poultry eaten	9.95	15.35	0.06	0.41
Increase in value of flock	45.19	——	0.28	——
Miscellaneous	2.35	0.01	0.02	——
Total receipts	$799.83	$99.50	$4.72	$2.65
Expenses:				
Feed	$444.17	$31.26	$2.63	$0.83
Birds purchased	26.82	0.85	0.16	0.02
Man labor	86.21	22.19	0.51	0.59
Depreciation and repairs on buildings and equipment	22.78	1.67	0.13	0.05
Interest on investment	37.72	4.78	0.23	0.13
Decrease in value of flock	——	3.81	——	0.10
Miscellaneous	16.94	0.26	0.09	——
Total expenses	$634.64	$64.82	$3.75	$1.72
Net return	$165.19	$34.68	$0.97	$0.93
Return for labor on poultry	251.40	56.87	1.48	1.52

*Average of the average number of layers each month.
‡Average of inventories beginning and end of year.

figure refers to an average of monthly averages, whereas the small farm flock figure refers to the average of the inventories at the beginning and end of the year. The average number of layers in the commercial flocks was 133 in 1927, 173 in 1928, and 198 in 1929; the small farm flocks averaged 33 in 1927, 41 in 1928, and 39 in 1929.

Farmers having commercial poultry flocks had an average of $236 invested in birds and $199 in buildings and equipment during the three years of this study. The investment in buildings and equipment was distributed as follows: laying houses, $101; brooder houses, $29; other buildings, $11; fencing, $15; incubators, $32; and brooders, $11. The farmers having small farm flocks had an average of $39 invested in birds and $21

invested in buildings and equipment. The commercial poultry flocks used land valued at $65 per flock, but the small farm flocks had practically no land given over entirely to their use.

Total receipts from poultry averaged $800 per year from the commercial flocks and $100 from the small farm flocks during the three years of the study. The receipts from the commercial flocks increased during the three-year period from an average of $572 in 1927 to $1008 in 1929, while the receipts from the small farm flocks increased from an average of $91 in 1927 to an average of $107 in 1929. Farmers having commercial poultry received an average of $251 a year for their labor on this enterprise during the three years of this study whereas those having small farm flocks received an average of $57 a year for their labor on poultry. The average return for labor on commercial poultry flocks was $197 in 1927, $214 in 1928, and $343 in 1929; for the small farm flocks it was $54 in 1927, $56 in 1928, and $61 in 1929.

The value of eggs and poultry consumed on the farm amounted to 44 per cent of the receipts from the small farm flocks, but home-use items made up only 6 per cent of the receipts from the commercial flocks. The families having commercial poultry flocks consumed more eggs than the families having small farm flocks, but those having small farm flocks consumed more poultry on the farm.

Home-grown feed made up 75 per cent of the value of the ration fed the small farm flocks, but only 17 per cent of the value of feed consumed by the commercial laying flocks was home-grown. The feed cost amounted to $0.83 per layer for the small farm flocks compared with $2.63 per layer for the commercial flocks. The average production per layer was 85 eggs per year for the small farm flocks and 142 eggs for the commercial flocks. The receipts and expenses per layer were much less for the small farm flocks than for the commercial flocks. The average return for labor was $1.52 per layer from the small farm flocks and $1.48 per layer from the commercial flocks.

The above figures are averages for all poultry including both young stock and laying flock. In Table 26 are shown the average costs and returns from the commercial laying flocks on these farms. The principal costs were feed, labor, and depreciation of flock. Each layer consumed an average of 42 pounds of mash and 25 pounds of grain per year. The average return for labor on the laying flocks was $1.05 per layer or $0.43 per hour during the three years. The return per hour increased from an average of 31 cents in 1927 to an average of 62 cents in 1929. The average return for labor per layer was $0.79 in 1927 and $1.41 in 1929.

The average cost of producing eggs was 24.3 cents per dozen

TABLE 26.—Principal Costs and Returns from an Average of 34 Commercial Laying Flocks, Marshall and DeKalb Counties, Alabama, 1927-1929.

Item	Three-year averages			
	Per flock	Per layer	Per dozen eggs (cents)	Per cent
Returns:				
Value of eggs produced	$610.59	$3.57	29.9	96.8
Value of manure	18.45	0.11	1.0	3.2
Total returns	$629.04	$3.68	30.9	100.0
Costs:				
Feed	$335.09	$1.98	16.6	65.6
Labor	63.02	0.38	3.2	12.6
Depreciation of flock	61.51	0.36	3.0	11.9
Depreciation of buildings and equipment	12.47	0.08	0.7	2.8
Interest on investment	28.88	0.17	1.4	5.5
Miscellaneous	7.98	0.04	0.4	1.6
Total costs	$508.95	$3.01	25.3	100.0
Net return from laying flock	$120.09	$0.67	5.6	——
Return for labor on laying flock	183.11	1.05	8.8	——

for the commercial poultry flocks during the three years when a deduction was made for the value of manure produced. In 1927 the average cost of producing eggs was 23.3 cents per dozen, in 1928, 25.5 cents, and in 1929, 24.2 cents. Feed made up 65.6 per cent of the cost, labor 12.6 per cent, and depreciation of the flock 11.9 per cent. The average price which these farmers received per dozen eggs was 26.9 cents in 1927, 30.1 cents in 1928, and 32.8 cents in 1929, or an average of 29.9 cents for the three years. Profit per dozen eggs amounted to 3.6 cents in 1927, 4.6 cents in 1928, and 8.6 cents in 1929, or an average of 5.6 cents for the three years.

Leghorn flocks which had 150 and more layers produced eggs for an average of 3.5 cents less per dozen than the Leghorn flocks which had 149 and less layers during the three years (Table 27). The average difference in cost was 6.5 cents in 1927, 3.0 cents in 1928, and 1.2 cents in 1929. The smaller flocks required more than 50 per cent more labor per layer than the larger flocks, and the return per hour of labor spent on the smaller laying flocks averaged 23 cents less than on the larger flocks. For the smaller flocks, the average return per hour of labor was 19 cents in 1927 and 52 cents in 1929; for the larger flocks, it was 41 cents in 1927 and 69 cents in 1929. Greater efficiency in the use of labor, buildings, and equipment was obtained by having a larger flock of hens and this resulted in higher returns for labor spent on poultry each of the three years of this study.

TABLE 27.—Relation of the Average Number of Layers to the Cost of Producing Eggs and the Return per Hour of Labor, Commercial Laying Flocks of Leghorns, Marshall and DeKalb Counties, Alabama, 1927-1929.

Number of layers	Three-year averages					
	Average number of flocks	Number of layers	Hours of labor per layer	Cost of producing eggs per dozen	Return for labor on laying flock	Return per hour of labor on laying flock
149 and less	11	98	3.4	$0.282	$ 86	$0.34
150 and more	15	247	2.2	0.247	272	0.57

Another very important factor related to the cost of producing eggs and the returns from commercial laying flocks each of these three years was the production of eggs per layer. The average cost for the three years declined from 30.6 cents per dozen for the Leghorn flocks which had a production of 70 to 129 eggs per layer to 22.9 cents per dozen for the flocks which had a production of 160 and more eggs per layer (Table 28).

TABLE 28.—The Relation of Eggs Produced per Layer to the Cost of Producing Eggs and the Return per Hour of Labor on Commercial Laying Flocks of Leghorns, Marshall and DeKalb Counties, Alabama, 1927-1929.

Eggs produced per layer	Three-year averages			
	Average number of flocks	Egg production per layer	Cost of producing eggs per dozen	Return per hour of labor on laying flock
70 - 129	9	110	$0.306	$0.27
130 - 159	10	144	0.242	0.49
160 and more	7	171	0.229	0.70

The average cost of these two groups for individual years differed from the three-year average cost by a maximum of 0.6 cent. The average return per hour of labor on the laying flock increased from 27 cents to 70 cents as the egg production per layer increased. For the group having the lowest production per layer the average return per hour of labor was 17 cents in 1927 and 42 cents in 1929; for the group having the highest production it was 41 cents in 1927 and 85 cents in 1929. High production per layer was obtained by taking good care of good birds and keeping the flocks closely culled. Some relationship was found between the pounds of feed consumed per layer and the production per bird, but feeding alone did not explain the difference in production.

Monthly Egg Production per Bird and Monthly Egg Prices

For the three years of this study, the farmers having commercial poultry obtained their highest production per bird and their lowest price for market eggs during the months of March, April, and May (Figure 2). Farmers received the highest price

FIGURE 2.—Relation of the monthly production of eggs per bird to the average monthly price received for market eggs, commercial poultry flocks, Marshall and DeKalb Counties, Alabama, 1927-1929.

for market eggs in October, November, and December when the production per bird was lowest.

The average monthly egg production fluctuated more violently than did the average monthly price received for eggs which accounts for the high-production months being profitable ones for a poultry flock. In April, when production per bird was 57 per cent above the average monthly production, the price received for eggs was only 31 per cent below the average monthly price. In November, production per bird was 58 per cent less than the average monthly production and the price received for eggs was only 38 per cent above the average monthly price.

Leghorn flocks which had 35 and more eggs produced per layer during the five months of lowest average production had a higher average production per layer each year than those

which produced 34 and less eggs per layer during those months (Table 29). These laying flocks returned 28 cents more per

TABLE 29.—Relation of the Eggs Produced per Layer during the Five Months September through January to Production and other Factors for the Whole Year, Commercial Laying Flocks of Leghorns, Marshall and DeKalb Counties, Alabama, 1927-1929.

Eggs per layer September through January	Three-year averages					
	Average number of flocks	Average eggs per layer, September through January	Eggs per layer, whole year	Annual average cost of producing eggs	Annual average price received for eggs	Return per hour of labor on laying flock
34 and less	11	26	125	$0.285	$0.291	$0.30
35 and more	15	45	148	0.248	0.311	0.58

hour of labor than those which produced 34 and less eggs per layer during this period. Their cost of producing eggs was 3.7 cents less per dozen than those which produced 34 and less eggs per layer during the low-production months and the price which they received for eggs was 2 cents higher. These relationships held all three years.

Many farmers may improve their production per layer during the low-production months by adopting a policy of replacing a larger portion of their old layers with pullets each year, by guarding more carefully against diseases, and by closer culling of the laying flock. During the three years of this study, the Leghorn laying flocks contained an average of 57.1 per cent pullets in the month in which the pullets were placed in the laying flock.

Cost of Hatching Baby Chicks

An average of 17 farms hatched baby chicks with incubators in 1928 and 1929. Eleven of the 17 farms had incubators with a capacity of 400 eggs or less per incubator. The 17 farmers hatched an average of 1,113 chicks per farm and received an average hatch of 65 per cent (Table 30). Their average cost per chick amounted to 7.6 cents. The amounts of the items making up this cost were exactly the same both years with the exception of labor which was 0.1 cent per chick less in 1929 than in 1928. Fifty per cent of the total cost per chick was the value of eggs which were set, 23 per cent was depreciation and repairs on the incubators, 10 per cent was the value of labor, and 10 per cent was interest on incubators and incubator houses. Only three of the farms had incubator houses so the charges for houses were not important. Repairs and depreciation on incu-

TABLE 30.—Cost of Hatching Baby Chicks with Incubators on Farms having Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Two-year averages	
Average number of farms	17
Number of chicks hatched per farm	1,113
Per cent hatch	65
Incubator capacity per farm	782
Average capacity of each incubator	429
Value of incubators per farm	$84
Number of hatches per season	2.4

Average cost of chicks:	Per farm	Per chick (cents)	Per cent
Value of eggs set	$42.25	3.8	50
Depreciation and repairs on incubators	19.76	1.8	23
Cost of fuel consumed	4.00	0.4	5
Depreciation and repairs on incubator house	1.54	0.1	2
Interest on incubators and incubator house	8.12	0.7	10
Labor	8.43	0.8	10
Total	$84.10	7.6	100

bators amounted to 23 per cent of their inventory value according to estimates obtained in 1929.

Farmers who sold baby chicks received an average of 11.8 cents per chick. Those who bought baby chicks paid an average of 14.0 cents per chick. In many instances, farmers buying baby chicks were improving their flocks by buying better stock than they already had, which was probably good business in most cases. After good stock has been obtained, farmers who plan to continue their commercial poultry enterprise over a period of years can save some money by hatching their own chicks and can make some extra money selling baby chicks.

No relationship was found between the size of incubators and the cost of hatching chicks, nor between the number of times the incubators were set during the season and the cost of hatching chicks. There was a close relationship, however, between the per cent hatch obtained and the cost per chick. The difference amounted to 1.7 cents per chick in favor of the farms which had a hatch of 66 per cent and more compared with those farms having a hatch of 65 per cent and less. This relationship held true in both 1928 and 1929.

Cost of Raising Pullets

An average of 30 farmers having commercial poultry raised pullets in 1928 and 1929. They were able to raise an average of one pullet from three chicks during the two years. An aver-

age of 29 pullets were raised per 100 chicks in 1928, and 38 pullets per 100 chicks in 1929. The average cost of raising a pullet was $1.00 in 1928 and $0.79 in 1929, or $0.89 for the two years (Table 31). The lower cost in 1929 was principally a

TABLE 31.—Cost of Raising Pullets on Farms having Commercial Poultry, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Two-year averages			
Average number of flocks			30
Number of pullets raised per farm			178
Per cent of chicks raised to pullets			33.4
Value of brooders per farm			$12
Value of brooder houses per farm			$34
Average cost of pullets:	Per farm	Per pullet	Per cent
Value of chicks	$ 56.01	$0.322	24
Feed to young stock	141.22	0.800	59
Labor on young stock	24.06	0.137	10
Depreciation of brooders	2.54	0.014	1
Value of fuel for brooders	5.54	0.032	2
Depreciation of brooder houses	4.94	0.028	2
Interest on brooders and brooder houses	3.67	0.021	2
Miscellaneous	0.38	0.002	—
Total	$238.36	$1.356	100
Credit for friers sold and eaten and cockerels raised	81.84	0.463	—
Net cost of pullets	$156.52	$0.893	—

result of better success in raising young stock that year and a lower price paid for baby chicks than in 1928. The principal costs of raising pullets during the two years were distributed as follows: feed, 59 per cent; chicks, 24 per cent; and labor, 10 per cent. Fuel for brooders amounted to only 2 per cent of the cost.

The farmers keeping Leghorns who raised a relatively large number of pullets raised them at a lower average cost per pullet than those raising a small number of pullets because it required only a slightly larger investment in labor, buildings, and equipment to care for the large number than for the small number. Those who succeeded in raising a large portion of their baby chicks had a lower average cost of raising pullets than those who were able to raise only a small portion of their baby chicks.

THE CORN ENTERPRISE

Although corn is grown on these farms for feed and food, it is essential to produce it efficiently and at low cost so that more time and land can be devoted to the farm enterprises from which cash income is derived. Data from which to calculate the cost

of producing corn were obtained for 111 farms in 1928 and 97 farms in 1929. These data are presented in this section of the bulletin.

Labor on Corn

A total of 40.4 man hours per acre was spent on corn during the two years. Thirty-two per cent of this labor was spent in cultivation operations, 29 per cent in land preparation and planting operations, 13 per cent in harvesting corn, and 17 per cent in pulling fodder. There was only a small difference between the wet and the dry growing season in the amount of man labor on corn. An average of 37.8 mule hours per acre was spent on corn, of which 47 per cent was spent in land preparation and planting, 38 per cent in cultivation, and 15 per cent in harvesting.

Those farmers using a two-horse cultivator for some cultivation operations spent an average of 6.5 man hours less labor per acre on corn than those using one-horse implements for all cultivation operations (Table 32). The saving in cultivation

TABLE 32.—Relation of the Two-Horse Cultivator to Man and Mule Labor on Corn per Acre, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Operations	Two-year averages	
	Using 1-horse implements for all cultivation operations	Using 2-horse cultivator for some cultivation operations
Average number of farms	78	26
Acres of corn per farm	10.2	10.4
Bushels of corn per acre	22	22
	Man hours per acre	
Land preparation and planting	11.9	11.3
Side dressing	1.6	1.4
Cultivation	14.1	9.8
Hoe labor	2.1	1.4
Harvesting	5.2	5.3
Pulling fodder	7.2	6.4
Total	42.1	35.6
	Mule hours per acre	
Land preparation and planting	17.4	18.6
Side dressing	0.2	0.2
Cultivation	14.7	14.0
Harvesting	5.5	5.5
Total	37.8	38.3

operations and hoe labor amounted to an average of 5 hours per acre, which was a saving of more than 5 days of man labor per season on the average of 10.4 acres of corn handled by these men. There was a difference of only 0.5 hour per acre in the

amount of mule labor on corn where two-horse cultivators were used and where they were not used.

Costs and Returns from Corn Production

The total average cost of producing corn amounted to $20 per acre during the two years 1928 and 1929, of which 31 per cent was for man labor, 27 per cent for use of land, 18 per cent for fertilizer, and 14 per cent for mule labor (Table 33). The

TABLE 33.—Costs and Returns per Acre from Producing Corn, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Item	1928	1929	Two-year average
Number of farms	111	97	104
Acres of corn per farm	10.3	10.2	10.2
Bushels of corn per acre	22	21	22
Costs per acre:			
Seed	$0.17	$0.15	$0.16
Fertilizer	3.39	3.67	3.53
Manure or compost	0.01	0.02	0.02
Cover crop	0.02	0.09	0.06
Use of land	5.35	5.47	5.41
Use of equipment	1.08	0.99	1.03
Man labor, fodder pulling	1.07	1.01	1.04
Man labor, other	5.22	4.81	5.02
Mule labor	2.85	2.82	2.83
Share of auto cost	0.41	0.51	0.46
Interest on seed and fertilizer	0.28	0.31	0.29
Total cost per acre	$19.85	$19.85	$19.85
Value of fodder	3.73	3.61	3.67
Cost of corn per acre	$16.12	$16.24	$16.18
Cost of corn per bushel	0.74	0.78	0.76
Returns per acre:			
Corn	$28.49	$26.51	$27.50
Fodder	3.73	3.61	3.67
Total returns per acre	$32.22	$30.12	$31.17
Profit per acre	12.37	10.27	11.32
Return for labor per acre	18.66	16.09	17.38
Return per hour of man labor	0.44	0.41	0.42

average yield of corn on these farms was 22 bushels per acre in 1928 and 21 bushels per acre in 1929, and the average cost of producing corn, after deducting the value of fodder, amounted to 74 cents per bushel in 1928 and 78 cents per bushel in 1929. The average total return from corn and fodder was $31 per acre for the two years with corn valued at an average of $1.31 a bushel in 1928 and $1.27 a bushel in 1929. The return for labor on corn amounted to $17 per acre or 42 cents per hour during the two years.

The average value of fodder which was pulled amounted to $3.67 per acre. This fodder was pulled with labor which could

have been hired for $1.04 at the rate being paid in the area for day labor during 1928 and 1929. Fodder was pulled by 90 per cent of these farmers in 1928 and by 92 per cent of them in 1929. This practice may have reduced the yield of corn somewhat, but unless this decrease amounted to more than 2 bushels per acre the data in this study would indicate that fodder pulling was a profitable practice. This is especially true when consideration is given to the fact that the labor pulling fodder was performed at a time when very little other productive work could be done on the farm. Furthermore, it was probably economy in the use of land and labor to obtain part of the necessary roughage from the same land on which corn was grown. This practice also acts as an insurance since the yield of hay on Sand Mountain is uncertain in a dry year, and hay sometimes rots before it can be cured in a wet harvest season.

Relation of Yield and other Factors to the Cost of Producing Corn

Yield of corn per acre was very closely related to the cost of producing corn per bushel (Table 34). The cost per bushel

TABLE 34.—Relation of the Yield of Corn per Acre to the Cost of Producing Corn, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Yield of corn per acre (bushels)	Two-year averages		
	Average number of farms	Yield of corn per acre (bushels)	Cost of producing corn per bushel
17 and less	30	14	$1.18
18 - 24	35	20	0.78
25 and more	39	30	0.60

during the two years decreased from an average of $1.18 for the group which had a yield of 17 and less bushels per acre to an average of $0.60 for the group which had a yield of 25 and more bushels per acre.

The most common method of obtaining high yields of corn on these farms was to apply a relatively large amount of a nitrogenous fertilizer which in most cases was nitrate of soda. The average cost of fertilizer applied to corn was $44 a ton during the two years 1928 and 1929. In Table 35 is shown the relation of the cost of fertilizer applied per acre to the yield of corn. Cost was used because it reflects partly the quality and partly the quantity of fertilizer applied. There was an average increase of 8 bushels per acre in the yield of corn, and a reduction of 19 cents per bushel in the cost of producing corn as the cost of fertilizer per acre increased from an average of $1.81 to $5.27 per acre. A factor of great importance, when the price of corn is very low, is the increase in the cost of fertilizer per bushel of

TABLE 35.—Relation of the Cost of Fertilizer Applied to Corn per Acre to the Yield of Corn and the Cost of Producing Corn, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Cost of fertilizer applied to corn per acre (dollars)	Two-year averages					
	Average number of farms	Cost of fertilizer applied to corn per acre	Cost of fertilizer per bushel of corn (cents)	Pounds of fertilizer applied to corn per acre	Yield of corn per acre (bushels)	Cost of producing corn per bushel
2.74 and less	28	$1.81	10.4	79	18	$0.93
2.75 - 3.99	36	3.34	16.0	153	21	0.88
4.00 and more	40	5.27	20.0	240	26	0.74

corn as the value of the application per acre is increased. The fertilizer cost per bushel of corn was larger by an average of 9.6 cents in the group which had the highest value of fertilizer per acre than in the group which had the lowest value of fertilizer per acre.

The group of farmers spending 10 hours and less of man labor in cultivation of corn per acre had higher yields of corn per acre in both 1928 and 1929 than those who spent 16 and more man hours per acre in cultivation (Table 36). The average

TABLE 36.—Relation of the Man Hours in Cultivation per Acre on Corn to the Yield of Corn and the Cost of Producing Corn, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Man hours in cultivation per acre on corn	Two-year averages				
	Average number of farms	Man hours in cultivation per acre on corn	Value of fertilizer applied to corn per acre	Yield of corn per acre (bushels)	Cost of producing corn per bushel
10 and less	35	8	$3.70	23	$0.73
11 - 15	42	13	3.84	22	0.87
16 and more	27	19	3.39	20	0.92

application of fertilizer on corn was the same for these two groups of farms in 1929. In 1928, however, the average application was slightly lower for the farms spending the larger number of hours in cultivation. The cost of producing corn was higher by an average of 19 cents per bushel during the two years for the group which spent the largest number of hours in cultivation than for the group which spent the smallest number of hours in cultivation. The reduced yield and the additional time spent in cultivation by the high group was partially caused by a larger growth of grass and weeds in the crop. Part of the growth may have been unavoidable because of weather or the greater importance of other farm work at the time cultivation was needed, but in some cases cultivation could have been more prompt, thus checking the weed growth and reducing the total

hours in cultivation on corn. There were some examples of men performing cultivation operations which were unnecessary for weed control; these were of little or no benefit, and in some cases may have injured the corn. The men who spent more time cultivating corn also spent more time in the cultivation operations on cotton, averaging 7 hours more per acre. The men using two-horse cultivators were in the groups having the smaller number of man hours in cultivation, but there were three times as many farms in the two lower groups as were using two-horse cultivators, so the difference in hours represents less cultivation as well as a saving of time for the same amount of cultivation.

THE SOYBEAN HAY ENTERPRISE

Many of the farmers included in this study did not grow hay, but depended on their corn fodder to meet the roughage requirements of their livestock. Data from which to calculate the cost of producing soybean hay were obtained, however, for 27 farms in 1928 and 46 farms in 1929. These are presented in this section of the bulletin.

Labor on Soybean Hay

These farmers spent an average of 32.2 man hours per acre on soybean hay in 1928 and 27.2 man hours per acre in 1929 (Table 37). The greatest difference in man labor between the

TABLE 37.—Man Labor and Mule Labor on Soybean Hay per Acre by Principal Divisions, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Operations	1928	1929	Two-year average
Number of farms	27	46	36
Acres of soybean hay per farm	3.4	3.7	3.6
Tons of hay per acre	1.05	0.62	0.84
	Man hours per acre		
Land preparation and planting	12.1	12.6	12.4
Cultivation	2.9	2.9	2.9
Harvesting and hauling	17.2	11.7	14.4
Total	32.2	27.2	29.7
	Mule hours per acre		
Land preparation and planting	17.6	18.1	17.8
Cultivation	3.5	3.2	3.4
Harvesting and hauling	11.1	9.1	10.1
Total	32.2	30.4	31.3

two years came in harvesting and hauling the hay, the difference amounting to an average of 5.5 hours per acre. This was prob-

ably a result principally of the difference in the yield of hay since the average yield amounted to 1.05 tons per acre in 1928 when there was a wet growing season, but only 0.62 ton in 1929 when the growing season was dry. Labor for harvesting and hauling made up 48 per cent of the total man labor on hay. An average of 31.3 hours of mule labor per acre was spent on soybean hay during the two years, of which 57 per cent was for land preparation and planting.

Costs and Returns from Soybean Hay Production

The cost of producing soybean hay averaged $18.69 per acre on the 3.6 acres per farm grown by these men (Table 38). The

TABLE 38.—Costs and Returns per Acre from Producing Soybean Hay, Marshall and DeKalb Counties, Alabama, 1928 and 1929.

Item	1928	1929	Two-year average
Number of farms	27	46	36
Acres of soybean hay per farm	3.4	3.7	3.6
Tons of hay per acre	1.05	0.62	0.84
Costs per acre:			
Seed	$2.06	$1.94	$2.00
Fertilizer	2.58	2.41	2.50
Manure or compost	—	0.06	0.03
Use of land	5.62	5.09	5.35
Use of equipment	0.85	0.81	0.83
Man labor	4.62	3.98	4.30
Mule labor	2.26	2.18	2.22
Hired mowing	1.10	0.46	0.78
Truck cost	—	0.01	—
Share of auto cost	0.19	0.44	0.32
Interest on seed and fertilizer	0.37	0.35	0.36
Total cost per acre, not baled	$19.65	$17.73	$18.69
Cost of hay per ton, not baled	18.71	28.48	23.60
Returns per acre:			
Value of hay	$25.99	$18.12	$22.05
Profit per acre	6.34	0.39	3.36
Return for labor per acre	10.96	4.37	7.66
Return per hour of man labor	0.37	0.16	0.27

charge for the use of land made up 29 per cent of this cost. There was a difference of only $1.92 between the total cost per acre in 1928 and 1929, but the great variation in yield per acre caused the average cost per ton to be $18.71 in 1928 and $28.48 in 1929 for unbaled hay. These farmers valued their hay at an average of $24.75 per ton in 1928, and $29.11 per ton in 1929 which left them a profit of $6.34 per acre in 1928 and $0.39 per acre in 1929. Their return for labor amounted to $10.96 per acre or 37 cents per hour in 1928, and $4.37 per acre or 16 cents per hour in 1929.

In addition to the costs shown in Table 38, many farmers had

their hay baled at a cost of 10 cents per bale weighing between 60 and 70 pounds. The man doing the baling usually furnished the baler, a team for the power, two or three men, and the necessary wire. The man whose hay was being baled hauled the hay to and from the baler.

The yield of hay per acre was very closely related to the cost of producing hay, the cost averaging more than twice as much per ton on those farms having a yield of less than one ton per acre as on those farms having a yield of one ton or more per acre. The farmers who spent 13 and more man hours in land preparation and planting per acre produced hay at a lower average cost per ton and had a higher average yield per acre each year than those farmers who spent 12 and less man hours in land preparation and planting, the average difference in cost being $4 per ton for the two years. The amount of labor in land preparation was more closely related to yield and cost in the dry growing season of 1929 than in the wet growing season of 1928. Although time spent in preparing land for hay was associated with higher average yields of hay and lower average costs per ton, the hay land was prepared and planted at a time of the year when the labor peak on these farms was greatest, and the additional labor might have been worth more on another enterprise at that time.

MONTHLY DISTRIBUTION OF LABOR ON PRINCIPAL ENTERPRISES

Man Labor

In 1929 more than one-third more hours of man labor were spent on operator and wage cotton per farm than on all three of the other principal operator and wage enterprises, corn, soybean hay, and commercial poultry, combined. In 1929 the greatest labor conflict between the principal enterprises on these farms came in the month of June (Figure 3). Cotton had a poorer labor distribution than either corn, hay, or poultry. An average of 353 hours of man labor was spent on this enterprise during October, the month when the largest amount of cotton in northern Alabama is picked, but only 4 hours were spent on this enterprise in February, 6 in January, and 8 in August. Because of this great seasonal variation in the labor on cotton, it is exceedingly difficult to find a supplementary enterprise on which the labor can be performed during the slack periods for cotton.

The labor peak on poultry came during the months of April and May when the baby chicks were being brooded and required careful attention. Labor on poultry was quite uniform during the other months of the year. The greatest peak on corn and hay came in the month of June, and a somewhat smaller

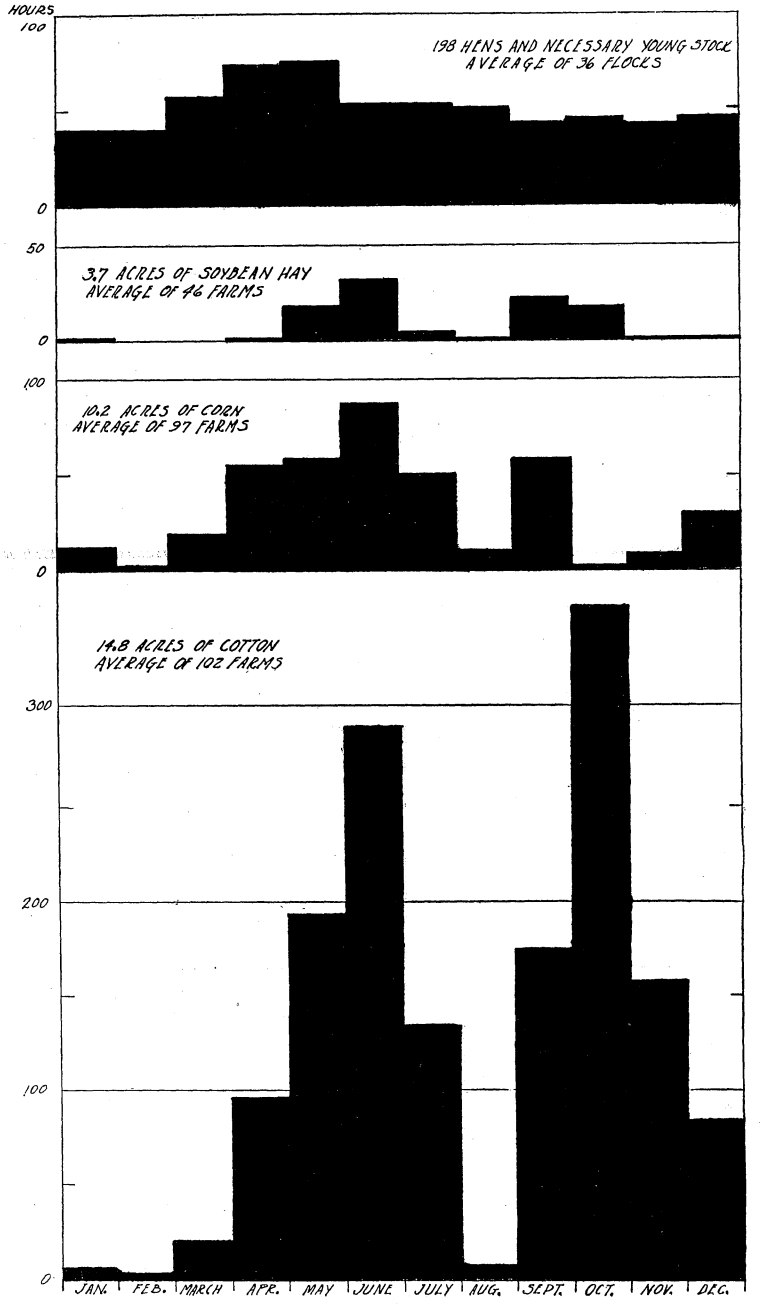

FIGURE 3.—Hours of man labor by months on principal crops and commercial poultry flocks, Marshall and DeKalb Counties, Alabama, 1929.

peak came in September when fodder was being pulled and hay harvested. Fodder was pulled in a slack period just before cotton picking started, so the labor for this operation fitted in very well with the labor on cotton.

Mule Labor

Seventy-seven per cent of the mule labor on cotton, corn, and hay was performed during the four months of April, May, June, and July (Figure 4). April, May, and June were especially heavy months of mule labor on cotton and corn.

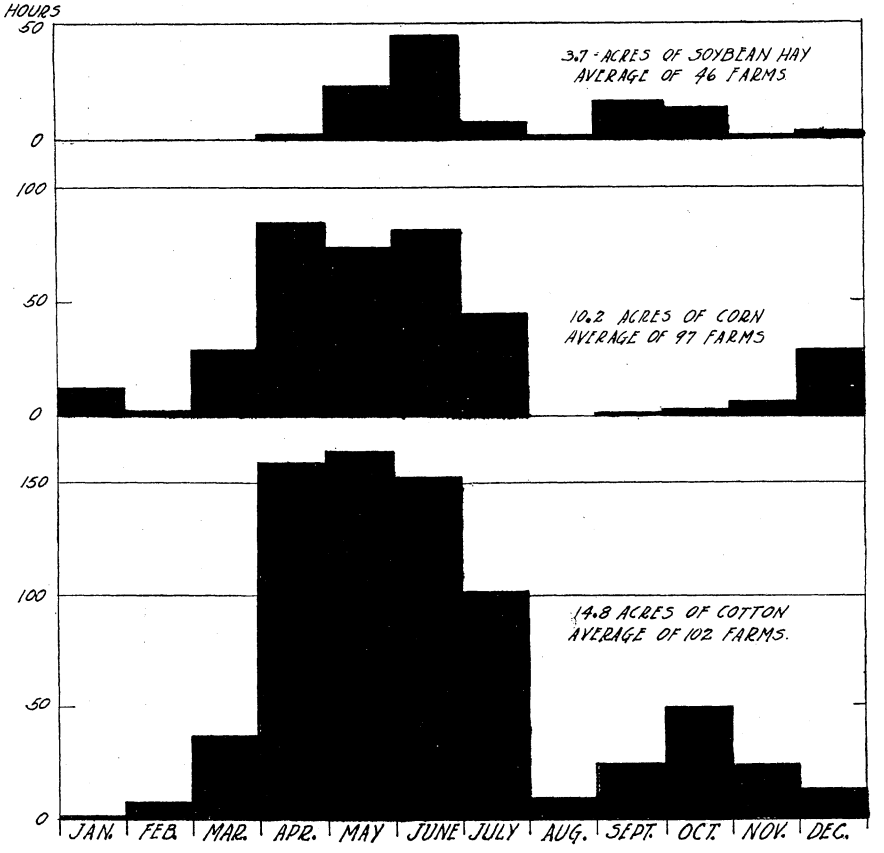

FIGURE 4.—Hours of mule labor by months on principal crops, Marshall and DeKalb Counties, Alabama, 1929.

SUMMARY

An average of 29 farms in Marshall and DeKalb Counties having commercial flocks of poultry which had an average of 207 chickens and 79 farms having small farm flocks which had an average of 41 chickens were studied during the three years 1927, 1928, and 1929. The farms having commercial poultry had an average of 32.7 acres in crops of which 15.4 acres were in cotton; those having small farm flocks had an average of 33.6 acres in crops of which 18.7 acres were in cotton. The soils of the area respond very readily to commercial fertilizer and the yields of cotton are high compared with the average of Marshall County. Only 52 per cent of the farmers who had commercial flocks of poultry in 1927 still had commercial flocks of poultry in 1929. Records of other farmers keeping commercial poultry were added in 1928 and 1929 in order to maintain the number of farms in this group. Most of the farm work was performed by the white operators and their families. Negroes do not live or work on farms in this area.

The average labor incomes of those farms having commercial poultry were relatively much more stable over the three-year period than the average labor incomes of those farms having small farm flocks.

On those farms which did not have commercial poultry, the average labor incomes increased each year with an increase in the acres in cotton or in the yield of lint cotton per acre. The average yield of lint cotton per acre was lower on the larger farms than on the smaller farms. Farms having the largest acreage in cotton had the largest portion of their crop acreage in cotton and had the largest acreage of cotton per mule.

The average labor incomes of the larger farms decreased more from year to year as the price of cotton declined than the average labor incomes of the smaller farms.

During the three years of this study the farms which were above average in the three factors, acres of cotton, yield of lint cotton per acre, and acres of cotton per mule had an average labor income of $870, whereas those farms which were below average in all three of these factors had an average labor income of only $45.

On the farms having commercial poultry, the average labor incomes of farm operators increased each year with an increase in the number of chickens per farm or in the egg production per bird.

Farm operators receiving $50 and more from miscellaneous sources had higher average labor incomes all three years than the farm operators receiving less than $50 from miscellaneous sources.

The amount of family labor used on the farm was associated with larger acreages of cotton handled by the operator and his

family. Family labor was not used as efficiently as it could have been as the operator's average labor income was lowest each year for the group of farms using the largest amount of family labor. Family labor could have been used more efficiently by obtaining a higher yield of cotton per acre and by handling a larger acreage in cotton through the use of a two-horse cultivator to increase the average output per worker.

The yield of cotton per acre and the return per acre for labor on cotton increased each year as the application of fertilizer increased. Because of fertilizer and certain other cash costs involved, it is doubtful whether farmers can afford to take the risk of heavy fertilization when the prospective price for cotton is much below 10 cents per pound unless fertilizer prices are much lower than they were during the three years of this study.

Farmers applying one-half ton or more of compost or manure per acre to cotton land obtained higher average yields of cotton than those applying little or no compost or manure.

Farmers using two-horse cultivators had higher average labor incomes all three years than those farmers using one-horse implements for all cultivation operations. Although the farmers using two-horse cultivators averaged fewer children over 10 years of age than those using one-horse implements for all cultivation operations, they handled a slightly larger acreage of cotton. Farmers using two-horse cultivators for some of their cultivation operations spent 16.5 man hours less labor per acre on cotton and 6.5 man hours less labor per acre on corn than those using one-horse implements for all cultivation operations.

The method of calculating enterprise costs described in this bulletin tends to show a minimum average cost. The average cost of producing different products according to this method of calculation for the two years 1928 and 1929 was as follows: cotton, $45 per acre or 10.0 cents per pound of lint; corn, $20 per acre or 76 cents per bushel; unbaled soybean hay, $19 per acre or $24 per ton; baby chicks, 7.6 cents each; and pullets, 89 cents each. The three-year average cost of producing eggs was 24.3 cents per dozen.

Labor incomes from these farm businesses were very closely related to the cost of producing cotton per pound of lint. There was very little relation between the cost of production per acre and the cost per unit of corn or cotton.

Yield per acre was more closely related to the cost per unit of producing cotton, corn, and soybean hay than any other single factor.

There was a slight relation between the man hours spent in cultivating cotton and the yield of lint per acre, but the difference in yield was so small that those men spending the largest amount of time in cultivation received the lowest average return per hour of labor spent on cotton.

In both 1928 and 1929 the average yield of corn per acre was

smaller and the cost per bushel larger as the hours in cultivation increased.

The average yield of soybean hay per acre increased as the hours spent in land preparation increased.

In 1928 and 1929 the average labor incomes decreased as the value of land per acre increased.

For the two years 1928 and 1929, these farmers received the following returns per hour of man labor spent on the different enterprises; cotton, 42 cents; corn, 42 cents; and soybean hay, 27 cents. The average return for labor on commercial laying flocks for the three-year period was 43 cents per hour. The return per hour of man labor, however, does not represent the total return from the different enterprises for many more hours of labor were spent on some enterprises than on others. More than one-third more hours of man labor per farm were spent on operator and wage cotton than on all three of the other operator and wage enterprises mentioned above in combination.

An average of 112 man hours per acre was spent on cotton, 40 man hours per acre on corn, and 30 man hours per acre on soybean hay during the two years 1928 and 1929. An average of 50 mule hours per acre was spent on cotton, 38 mule hours per acre on corn, and 31 mule hours per acre on soybean hay.

Two-thirds of the man labor on cotton was spent in the hand-labor operations, picking, hoeing, and side dressing. The operator's wife and children did 51 per cent of the picking, 69 per cent of the chopping, and 74 per cent of the hoeing on cotton.

An average of 575 hours per flock was spent on the commercial poultry enterprise, and an average of 178 hours per flock was spent on the small farm flocks. The operator's wife and children performed 40 per cent of the labor on the commercial flocks and 88 per cent of the labor on the small farm flocks.

The commercial poultry flocks of Leghorns having 150 and more layers had a lower average cost of producing a dozen eggs and a higher average return per hour of labor spent on the laying flock than those having 149 and less layers.

Flocks having a production of 160 and more eggs per layer returned more than two and one-half times as much per hour of labor as those having a production of 70 to 129 eggs per layer.

The average monthly egg production for the farms having commercial poultry fluctuated more violently than did the average monthly price received for eggs which accounts for the high-production months being profitable ones for a poultry flock.

Commercial flocks of Leghorns having 35 and more eggs produced per layer during the five low-production months had a higher average annual production, a lower average cost of producing eggs, and received a higher average price for eggs than those flocks having a production of 34 and less eggs per layer during the five low-production months.

Farmers using incubators who obtained a hatch of 66 per cent and more had a lower cost of hatching baby chicks than those who obtained a hatch of 65 per cent and less.

Farmers keeping Leghorns who raised a relatively large number of pullets raised them at a lower average cost per pullet than those raising a small number of pullets.

APPENDIX

TABLE 39.—Precipitation as Recorded at Guntersville, Marshall County, Alabama, by the United States Department of Agriculture for 1927, 1928, and 1929 Expressed in Per Cent of Normal.

Month	Normal precipitation (inches)	Per cent of normal		
		1927	1928	1929
January	5.02	35	35	121
February	5.32	69	49	105
March	5.35	113	103	201
April	4.95	53	164	125
May	4.78	106	107	174
June	4.34	120	202	38
July	5.64	33	45	35
August	3.84	38	151	38
September	3.63	17	93	291
October	3.22	75	89	158
November	2.64	173	130	510
December	5.20	165	34	74
Annual	53.93	81	96	139