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## DIVISION OF FARM AND RANCH ECONOMICS

IN COOPERATION WITH BUREAU OF AGRICULTURAL ECONOMICS, UNITED STATES DEPARTMENT  
OF AGRICULTURE

# SYSTEMS OF FARMING FOR THE BLACK WAXY PRAIRIE BELT OF TEXAS



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†As of May 1, 1929.

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\*\*\*In cooperation with the School of Agriculture.



The Black Waxy Prairie Belt of Texas is characterized by a one-crop system—cotton. Upwards of 90 per cent of the gross income is derived from this enterprise. The area has not escaped the usual disadvantages that accompany single-crop farming. The more important natural hazards are the gradual decline in soil productivity, the frequent ravages of insects, the increase of weed pests, and the spread of diseases, particularly that of cotton root rot. In addition, such a system fails to fully utilize the farmer's available labor throughout the year, and gives a comparatively low return on his entire investment. A 100-acre farm in this area devoted entirely to cotton will employ only about three-fifths of the operator's time. As a natural consequence yields have declined, costs have increased, and farming has tended to become more speculative and precarious.

In this Bulletin facts are focused on the task of finding a better balanced system or systems of farming for the area. To this end several different systems for farms of various sizes have been outlined and presented, not as ideal set-ups, but as possibilities, shown by a thorough study of prevailing systems on a group of selected farms over a period of years. They are based upon normal production and production requirements for both crop and livestock enterprises; normal building, machinery, fence, and automobile expenses; and expected prices of products sold and of items bought. The acres of crops, numbers of livestock, expected receipts, expenses, and net returns have been shown for each system.

The different systems, with cotton acreages varying from all of the cultivated land to one-eighth of it, and with feed crops and livestock substituted for cotton, show significant variations in net returns. For example, in the case of the systems outlined for 100-acre farms the one with one-fourth of the cultivated land in cotton shows a net return of \$470 greater than the system with all of the cultivated land in cotton. In the case of 150-acre farms, with 140 acres in cultivation, a difference of \$765 is shown in favor of the system with three-eighths of the cultivated land in cotton over the one with three-fourths in cotton. In all cases the net returns increase until the cotton acreages are decreased to about one-fourth of the cultivated land. There are no significant differences, however, between the range from one-half to one-fourth of the cultivated land in cotton.

## CONTENTS

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	PAGE
Nature of Study . . . . .	5
Present Systems of Farming . . . . .	7
Farm Returns Obtained from Present Systems . . . . .	10
Normal Crop Yields, Livestock Production, Crop and Livestock Re- quirements, and Expected Prices . . . . .	11
Systems for 50-Acre Farms . . . . .	17
Details of D-System, 50-Acre Farms . . . . .	22
Systems for 100-Acre Farms . . . . .	26
Systems for 150-Acre Farms . . . . .	31
Systems for 200-Acre Farms . . . . .	34
Size of Farms and Net Returns . . . . .	35
Planning for a Period of Years . . . . .	37
Planning for the Coming Year . . . . .	38
Summary and Conclusions . . . . .	40
Appendix . . . . .	42

## SYSTEMS OF FARMING FOR THE BLACK WAXY PRAIRIE BELT OF TEXAS

L. P. GABBARD, J. B. HUTSON,\* AND T. L. GASTON, JR.

The Black Waxy Prairie Belt of Texas is one of the most important agricultural areas of the State. Cotton is the chief crop grown, yielding upwards of 90 per cent of the gross farm income. This area, like the majority of single-crop areas, is subject to serious hazards. The gradual decline in soil fertility, the ravages of insect pests, the spread of cotton root rot, and the presence of weed pests are natural factors which make cotton production increasingly precarious. Such conditions tend to make farming highly speculative, particularly so during years of low cotton prices.

Fortunately the natural hazards of farming in this area are in a high degree subject to control. A well-balanced system of farming, coupled with good farm practices, will do much to eliminate risks or materially reduce their effects. The results obtained on the Substation at Temple, reported in Station Bulletin No. 365, show that the root rot of cotton can be practically eliminated by rotation of crops. These results also show that the yields of cotton were doubled, and the yields of corn, wheat and oats were very materially increased by rotation. These findings are confined quite generally by the experience of farmers.

The advantages of well-balanced systems of farming for this area have become quite generally recognized. But what are well-balanced systems? What crops, in addition to cotton, should be grown? What kinds of livestock should be kept and how many of each kind? What combination of enterprises is likely to prove most profitable over a period of years? These questions suggest the nature and extent of the problem involved. It is essentially one of farm management, or more specifically, a problem of farm organization, that of arriving at the most profitable combination of enterprises. Farmers are attacking this problem in different ways and varying degrees of success are being obtained.

### NATURE OF STUDY

With a view of helping farmers in this area with their problems the Texas Agricultural Experiment Station in 1922 made a comprehensive survey of prevailing economic conditions. The survey covered 500 farms. An effort was made to determine what the economic problems were and their relative importance. The results of the study are shown in Texas Station Bulletin No. 327.

In 1925 the Texas Agricultural Experiment Station and the Bureau

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of Agricultural Economics, United States Department of Agriculture, began a detailed study of the farm-organization and management problems of the area. This study extended over a period of three years. A selected group of farmers in Rockwall and Collin Counties kept complete records of all farming operations in 1925 and 1926. These records were kept on 23 farms in 1925 and 26 farms in 1926. They show inventories, expenses and receipts, crop yields, livestock production, farm products furnished the household, hours of man labor, horse work, and

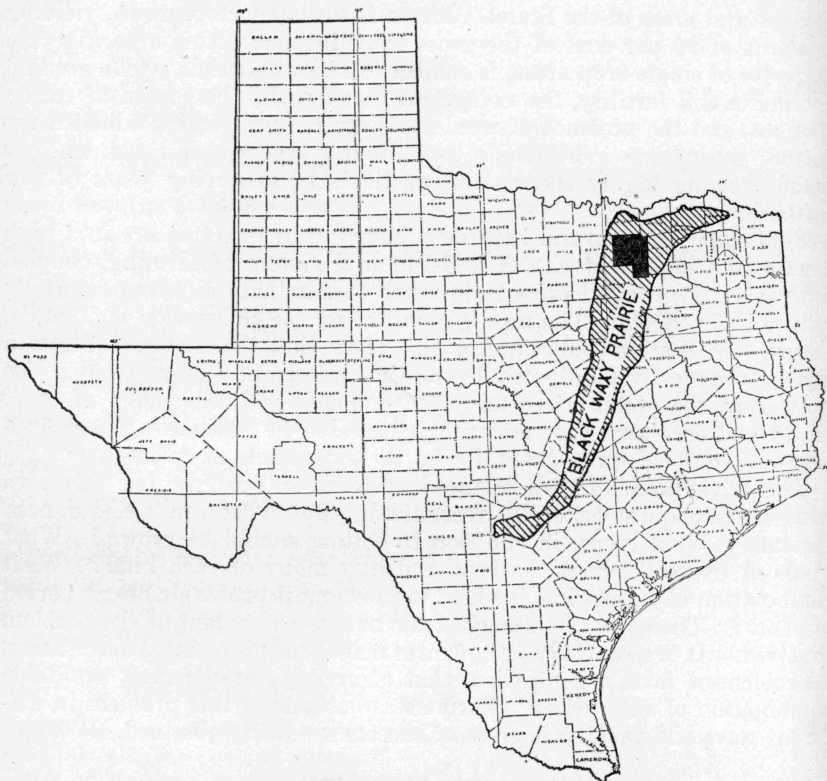


Figure 1.—Shaded area shows location of the Black Waxy Prairie Belt of Texas. A narrow strip somewhat over 300 miles long, and ranging from 75 to 25 miles wide.  
 Black portion shows locality in which detailed study was conducted.

amounts of materials and miscellaneous costs used in growing the different crops; and hours of man labor and horse work, and amounts of feed and miscellaneous costs used for the different kinds of livestock.

In 1927 records showing inventories, expenses, receipts, crop yields, livestock production, and products furnished the household were continued on some of these farms, and in addition, similar records kept on a few other farms on which unusually good returns were being obtained.

Records were kept on 28 farms in 1927. During the three-year period these farms were visited at regular intervals by a field man who carefully supervised the keeping of the records to insure accuracy and completeness.

Other farms in the area on which one or more classes of livestock were important sources of income were visited and records secured showing hours of man labor and horse work, amounts of feed and miscellaneous costs used, and the production obtained. For 1926, 15 records of this kind were obtained for dairy cows, 10 for sheep, and 9 for hogs.

Experimental data on the yield of cotton and other crops obtained by the Temple Substation in different rotations have been carefully reviewed. Experimental data applicable to the area showing the results obtained when different rations were fed live stock have been carefully examined and compared with the data showing the results obtained on the farms included in the study. Data showing the crop yields that have been obtained in the area in recent years have also been carefully reviewed.

Prices received by farmers for products sold and prices paid by them for feed and other expense items during the past few years were obtained from feed stores, mills, elevators, and creameries. Quoted prices of farm products and expense items were reviewed in the market reports issued by the United States Department of Agriculture in the daily papers and other publications of the area. Special price studies carrying conclusions as to price trends, cycles, and factors influencing prices have also been reviewed.

These data have been analyzed and the results obtained from different enterprises, systems of farming, and practices indicated. They are used in determining the yields, production requirements, and prices that may reasonably be expected for the different products under usual conditions in the area. Such information forms the basis for conclusions as to returns that may be reasonably expected over a period of years for different systems of farming that are being and that may be advantageously followed in the area.

### PRESENT SYSTEMS OF FARMING

On the farms included in the 1922 survey about 93 per cent of the total land area was cultivated, and the remainder was pasture, waste, farmstead, and idle. About 67 per cent of the cultivated land was in cotton, and 31 per cent in feed crops. The livestock consisted largely of work stock. Enough other livestock were kept to consume about one-half as much feed as the horses and mules. Of these farms 36 per cent were between 26 and 75 acres in size, 36 per cent were between 76 and 125 acres, 16 per cent were between 126 and 175 acres, 7 per cent were between 176 and 225 acres, and 5 per cent were 225 acres and above. In later discussions those farms between 26 and 75 acres are referred to as the 50-acre group and those between 76 and 125 acres are referred to as the 100-acre group, etc.



It would be difficult to find an agricultural area in the State with a more homogenous type of farming than that of the Black Waxy Prairie Belt. This fact is well illustrated in Figure 2, which indicates the distribution of crops and livestock for each of the 27 counties included in the area.

On slight examination one will readily observe that the farm organization in Bexar, Denton, and Tarrant Counties differs noticeably from that of the other counties in the group. No doubt this variation is influenced quite largely by differences in soil types and by the presence of large population centers. The Blackland proper occupies a relatively small portion of each of these counties. The striking similarity of the type of farming common to the Black Waxy Prairie soils is illustrated by that of Ellis, Rockwall, and Delta Counties.

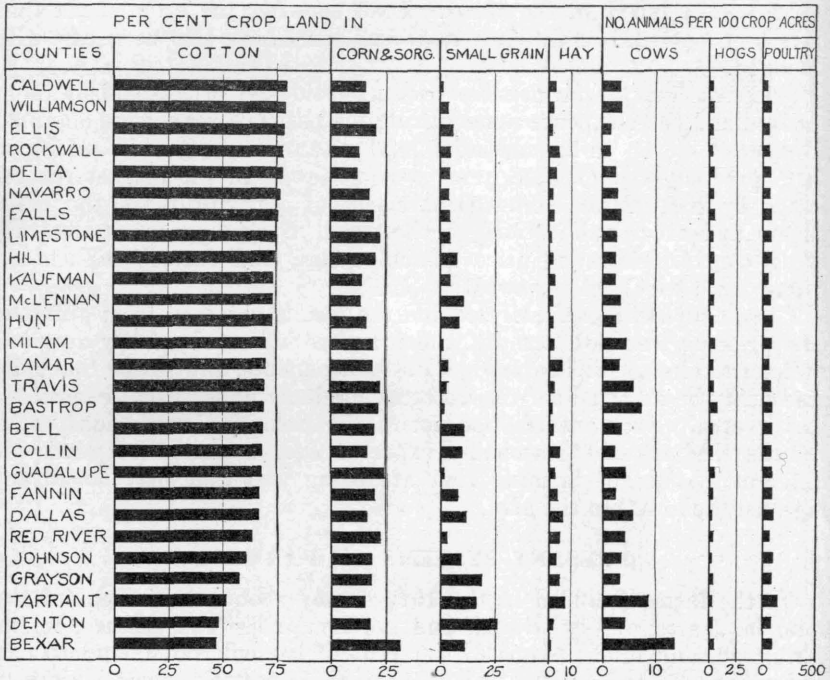


Figure 2.—Distribution of crop area and important kinds of livestock showing similarity in type of farming in Black Waxy Prairie Counties. (U. S. Census, 1925.)

While the acres of crops and the numbers of livestock are strikingly uniform for the entire area, they differ greatly from farm to farm. The per cent of land in cotton and feed crops and the numbers of the different kinds of livestock on 172 farms in the 100-acre group are shown in Figure 3. The range in the per cent of land in cotton is from 99 to 0. The per cent of land in feed crops is fairly uniform with the exception

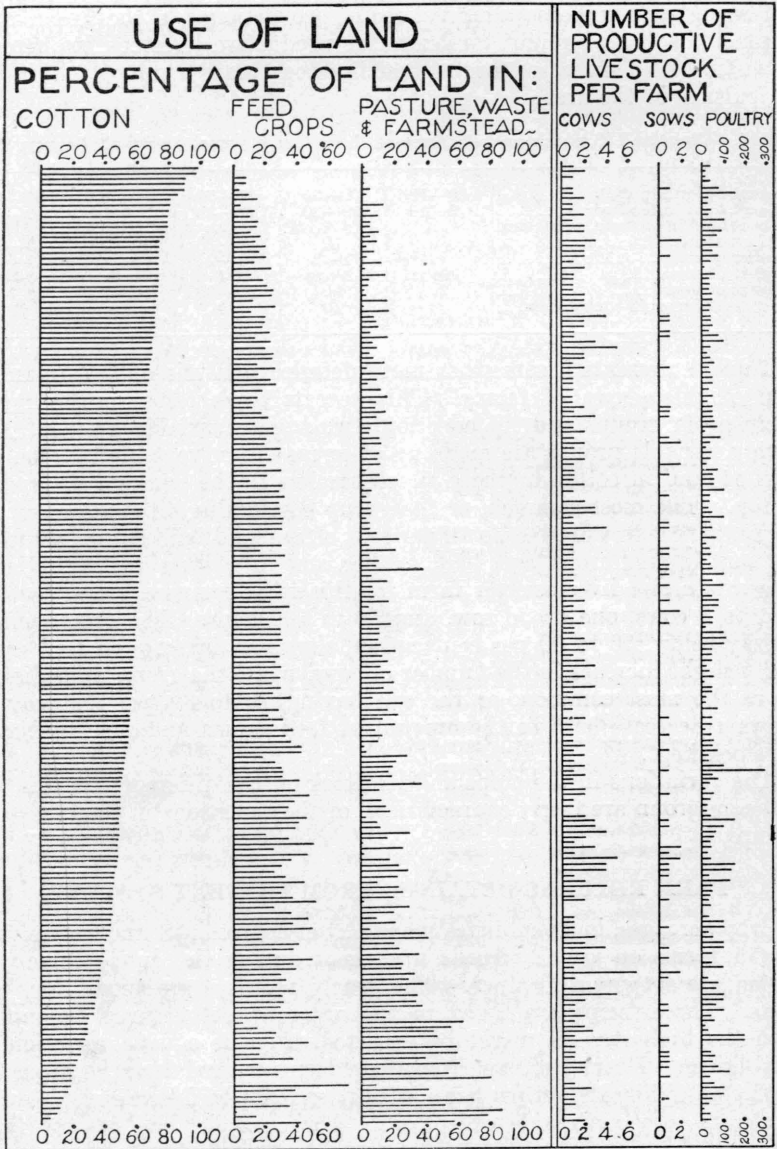


Figure 3.—Variation in organization in a group of 100-acre farms in Rockwall County, 1922.  
(Each line gives the organization of one farm.)

of a small group of farms showing a very high per cent of land in cotton and of a small group showing a low per cent of land in cotton. Pasture and waste land increase almost directly proportional to the decrease in cotton. There is a slight tendency for productive livestock to increase as pasture land increases, but at best livestock plays a minor role in the agriculture of the area.

Table 1.—Crops and livestock on 172 farms of the 100-acre group, Rockwall County, 1922

Per cent of land in cotton.....	80—100	70—80	60—70	50—60	50—0
Per cent land in feed crops.....	0—10	10—20	20—30	30—40	0—80
Per cent land in pasture, waste and # farmstead.....	5	10	10—20	10—20	10—80
Number of cows.....	1	1—2	1—2	1—4	1—2
Number of sows.....	None	None	1	1—2	0—1
Number of hens.....	25	50	50—100	50—100	50—100
Per cent all farms in each group...	4	20	40	18	18

Table 1 presents a somewhat more detailed analysis of the organization of this group of farms. This reveals three fairly uniform and comparable groups and, in addition, two highly variable groups. The highly variable groups are made up of farms either very high in the per cent of land in cotton or those which are low in the per cent of land in cotton. The most common, or the group comprising 40 per cent of the farms, is that in which 60 to 70 per cent of the land is in cotton, 20 to 30 per cent in feed crops, and 10 to 20 per cent in pasture and waste land. The productive livestock per farm for this most common group consists of 1 to 2 cows, one brood sow, and 50 to 100 hens. The group immediately below, 50 to 60 per cent cotton, shows an increase in feed crops and a slight increase in the number of cows, while the group immediately above the most common, or the one having 70 to 80 per cent cotton, shows a decrease both in the amount of feed grown and the number of livestock kept.

The variations in the crops and livestock on the different farms in the 100-acre group are fairly characteristic of the variations in the other-size groups.

#### FARM RETURNS OBTAINED FROM PRESENT SYSTEMS

Crop acreages, business investment, expenses, receipts, and net returns for 11 farms on which records were kept during the entire three-year period are shown in Table 2. The yearly averages are shown for each item. These farms are listed in the order of net returns, beginning with the highest. As might be expected, there is a wide variation in this figure. The net return from these farms ranged from \$4,944.00 to \$643.00. While the return has a strong tendency to follow size of farms, there are very noticeable exceptions. For example, one 83-acre farm made an average income of \$1,780.00 while a 79-acre farm averaged only \$643.00. This 83-acre farm showed a higher average income than three farms whose acreage averaged 95, 127, and 129, respectively. Evidently the difference in net returns was not due altogether to a difference

in size. No doubt variations in net returns are due very largely to such factors as the differences in farmers, farms, farming systems, and farming practices. Farmers and farms are not very readily changed. The soil and physical environment of a farm for any given year are fairly definitely fixed, but farming systems and practices lend themselves much more readily to human control.

Almost any agricultural community has at least a few farmers who are recognized as successful. Their success is not a matter of luck or chance. Some farmers are more successful in working out profitable systems of farming than others. They are keen observers, taking advantage not only of their own experience but that of their neighbors. Furthermore, use is made of information which will help them to decide on crops and livestock likely to be most profitable for any given year or period of years.

Table 2.—Yearly average net returns per farm, 11 farms, 1925, 1926, and 1927.

Farm number	Acres in farm	Business investment	Farm receipts	Farm expenses	Products used in home	Net returns
19.....	331.22	63436.84	9719.50	5665.86	891.29	4944.93
23*.....	182.00	35446.08	10767.82	7336.74	768.32	4199.40
8.....	161.03	39536.97	4678.14	3366.32	801.99	2113.81
22.....	151.08	31452.13	4002.42	2660.05	552.98	1895.35
13.....	83.19	19958.62	2683.12	1676.84	773.68	1779.96
14.....	127.44	24239.42	3419.32	2305.20	531.41	1645.53
3.....	129.84	24350.80	2441.83	1405.57	535.19	1571.45
21.....	95.38	5171.62	1824.62	1274.26	709.99	1260.35
1.....	66.11	10557.03	1747.79	1249.85	677.49	1175.43
6.....	59.69	13617.60	2841.09	2149.76	483.65	1174.98
16.....	79.41	9718.24	2163.60	1880.67	359.98	642.91

\*Average for 1925 and 1926.

The more profitable farms in the area have certain important characteristics in common. Cotton is a major enterprise and the important source of income. At the same time varying numbers of livestock, such as cows, hogs, poultry, and sometimes a few sheep are kept. The cropping system recognizes the importance of controlling cotton root rot to the extent of having cotton follow other crops in so far as possible. These farms produce much of the food needed by the farm family and practically all of the feed used by the farm livestock. Good farm practices are followed in the growing of crops and in the handling of livestock. Considerable attention is given to pedigreed or high-grade cotton seed and to the quality of livestock kept.

#### NORMAL CROP YIELDS, LIVESTOCK PRODUCTION, CROP AND LIVESTOCK REQUIREMENTS, AND EXPECTED PRICES

To repeat, profitable systems of farming are not accidental. Generally they are the results of comparisons between enterprises or systems, or both, thoughtfully made. It is to assist farmers in making these comparisons that several different systems for farms of various

sizes are outlined and presented in this Bulletin. The acres of crops, numbers of livestock, expected receipts, expenses, and net returns are shown for each of these systems.

In arriving at the anticipated expenses, receipts, and net returns a detailed farm budget was prepared for each system. Each of these budgets shows the hours of man labor and horse work and other costs, and production for each crop. It also shows the amounts of home-grown and purchased feeds, and other costs, and production for each class of livestock. General farm or overhead expenses are also included for each system. In order that these budget statements may indicate as nearly as possible the returns that will be obtained from systems similar to those outlined, it was necessary to reach conclusions as to the following:

1. Normal crop yields and requirements
2. Normal livestock production and requirements
3. Normal building, machinery, fence, and automobile expenses
4. Expected prices of products sold and of items bought

**Crop Yields and Requirements:** Normal yields and requirements for cotton are shown in Table 3. By "normal" requirements is meant the man labor, horse work, and other costs that are used in producing an acre of cotton under usual conditions in the area. Conclusions as to these normal requirements are based upon the amounts of man labor and horse work, and materials used and the cash costs paid out in growing cotton in 1925 and 1926 on the farms in this study.

Table 3.—Normal yields and requirements for cotton, acre basis.

	Amount per acre					
	A	B	C	D	E	F
	Systems	Systems	Systems	Systems	Systems	Systems
	All cultivated land in cotton	75% cultivated land in cotton	50% cultivated land in cotton	37½% cultivated land in cotton	25% cultivated land in cotton	12½% cultivated land in cotton
<b>Yields:</b>						
Lint.....	170	185	200	208	215	220
Seed.....	285	310	335	348	360	369
Seed cotton.....	478	520	562	585	605	618
<b>Production requirements:</b>						
Man labor, hours†..	30	30	30	30	30	30
Horse work, hours..	33	33	33	33	33	33
Seed, bushels.....	1	1	1	1	1	1
Other cash costs‡.....	8.28	9.01	9.74	10.13	10.46	11.25

†Includes all labor except picking. A common rate of picking, considering the entire season, is 20 pounds per hour.

‡Includes a contract charge for picking at \$1.25 per 100 pounds of seed cotton; ginning \$0.35 per 100 pounds of seed cotton; wrapping \$1.50 per bale; and yardage \$0.35 per bale.

The cropping system followed has an important influence on the cotton yield obtained. Consequently six different yield figures are shown. The yield shown for "A" systems assumes continuous cropping of cotton; that shown for "B" systems, 75 per cent of the cultivated



land in cotton; that shown for "C" systems, 50 per cent in cotton; that shown for "D" systems, 37.5 per cent in cotton; that shown for "E" systems, 25 per cent in cotton; and that shown for "F" systems, 12.5 per cent in cotton. Conclusions as to these yields are based on experimental results obtained on the Temple Substation as reported in Texas Station Bulletin No. 365 and results obtained on farms in this study. The letters A, B, C, etc., are used in presenting the systems outlined to indicate the cotton yield used. Normal yields and requirements for corn, oats, cane, and sudan pasture are shown in Table 4. Leguminous crops have been omitted from the systems outlined as a measure of root rot control. It is recognized, however, that there are farms in the area having little or no root rot. Operators on these farms might well consider the growing of alfalfa and sweet clover, both for hay and pasturage. The conclusions as to the requirements are based on results obtained on farms in this study. Those as to yields are based upon yields obtained on these farms and other farm data showing average yields obtained in the area during the past few years and on experimental data showing yields obtained when different practices were followed.

Table 4.—Normal yields and requirements for corn, oats, cane, and sudan, acre basis.

	Corn	Oats	Cane	Sudan
Yields.....	25 bu.	35 bu.	3 tons	Pasture
Production requirements:				
Man labor, hours.....	25	15	40*	10
Horse work, hours.....	32	22	50*	20
Seed.....	7 lbs.	3 bu.	3 bu.	20 lbs.
Cash costs.....				
Twine.....		.52†		
Threshing.....		1.75‡		

\*For harvesting when hauled to the barn without baling.

†Three and one-half pounds twine at 15 cents.

‡Thirty-five bushels at 5 cents.

**Livestock Production and Requirements:** Normal production and requirements for dairy cattle, hogs, sheep, and poultry are shown in Table 5. Normal requirements for work stock are also shown. In reaching conclusions as to these normal figures, the results obtained on the farms in this study were considered together with the results obtained when different rations were fed under experimental conditions.

The requirements shown are based on the following: dairy cows, 8 pounds of the concentrate mixture (corn, oats, bran, and cottonseed meal in the proportions of 5, 5, 5, and 7.5, respectively), and 15 pounds of hay per day for 120 days; 6 pounds of concentrate mixture and 8 pounds of hay for 80 days; 3.3 pounds of concentrate mixture for 100 days; and 134 pounds of concentrate and 260 pounds of hay for the remaining period; one sow and 10 pigs, 6 bushels of corn, 20 pounds of cottonseed meal, and 150 pounds of milk for each 100 pounds of pork; chickens, 40 pounds of corn, 20 pounds of oats, 7 pounds of oyster shells, and 80 pounds of skim milk for each mature bird; and 5 pounds of corn,

2 pounds of oats, 7 pounds of skim milk, and 4 pounds of baby chick feed for growing each young bird to two pounds.

Table 5.—Normal production and requirements for dairy cows, sheep, hogs, chickens, and work stock.

	One dairy cow <sup>1</sup>	One mature sheep <sup>2</sup>	One sow and 10 pigs	One mature chicken	One work horse <sup>1</sup>
Production.....	250 lbs. B. F.	80 lbs. lamb, 7 lbs. wool	2,000 lbs. pork (live weight) 3 lbs.	8 1-3 doz. eggs, <sup>3</sup> 3 lbs. friers, 1 lb. hen	1,000 hours
Production require- ments:					
Corn, bushels.....	6	.....	120	.8	35
Oats, bushels.....	14	1	.....	.7	30
Bran, pounds.....	500	.....	.....	.....	.....
Cottonseed meal, lbs..	620	.....	400	.....	300
Cane hay, lbs.....	2,700	100	.....	.....	3,000
Baby chick feed, lbs..	.....	.....	.....	4.0	.....
Oyster shells, lbs.....	.....	.....	.....	7.0	.....
Skim milk, lbs.....	.....	.....	3,000	90.0 <sup>4</sup>	.....
Man labor, hours.....	160 <sup>5</sup>	5	100	3.0	60
Miscellaneous costs....	\$3.00	\$0.20	\$2.50	\$0.02	\$2.00
Pasture, acres <sup>6</sup> .....	1.50 <sup>7</sup>	.25	1.25	.01	.75

<sup>1</sup>For dairy cows and work stock 10 pounds of oats are approximately equal to 7.1 pounds of shelled corn and 1.2 pounds of cottonseed meal. Substitutions are made on this basis in balancing the feeds in the systems shown.

In addition to the feed shown for 1 dairy cow, feed is required for the young dairy cattle. Approximately 400 pounds of whole milk are required to grow a veal calf to 125 pounds. Approximately 100 pounds of whole milk, 1,200 pounds of skim milk, 300 pounds of bran, 1,200 pounds of cane hay, and good pasturage are required to grow a calf to two years of age. Under usual conditions, .6 of the above requirements for producing a veal and .2 of those for growing a calf to two years of age will be used for each cow each year. A veal calf would weigh 125 pounds and the production per cow would be 6 x 125 pounds. One-half of replaced cows would be sold at 700 pounds or 70 pounds per cow.

<sup>2</sup>Two out of 10 lambs are to be kept for replacement. This leaves 64 pounds of lamb per mature sheep for sale. It is assumed that one-half the culled ewes would be sold at a weight of 100 pounds, or 10 pounds for each mature sheep.

<sup>3</sup>Only 2 pounds per hen sold. The remainder is used to replace culled hens.

<sup>4</sup>For chickens 5 pounds of meat scrap and 8 pounds of shorts may be substituted for 100 pounds of skim milk.

<sup>5</sup>Includes man labor for veal calves and enough young cattle to keep up herd.

<sup>6</sup>Cultivated pasture. Three acres of permanent pasture are considered equal to one acre of cultivated pasture.

<sup>7</sup>Includes pasturage for enough young cattle to keep up herd.

**Building, Machinery, Fence, and Automobile Expenses:** The data obtained in this study and data for areas with similar conditions elsewhere have been used in working out normal farm building expenses. These are shown in Section A, Table 6. The expenses include depreciation, repairs, and insurance. The systems are classified into A, B, C, D, E, and F systems as indicated under the discussion of cotton yields and requirements.

The number of livestock kept is the most important factor in determining the amount of building expense. The following yearly estimated rates were used:

Work horses.....	\$3.00 to \$5.00 per head,
Cows.....	\$2.50 to \$4.00 per head,
Sheep.....	15 cents to 20 cents per head,
Chickens.....	12 cents to 18 cents per mature bird.

The lower rates were used for the systems with the larger number of livestock and the higher rates for the systems in which the smaller number were kept.

Normal farm machinery expenses are shown in Section B, Table 6.

Table 6.—Normal farm building, machinery, fence, and auto expenses, for the different system of farms with different acreages.

Section A—Farm buildings.

Size of farm	A Systems	B Systems	C Systems	D Systems	E Systems	F Systems
50-acre.....	\$ 18	\$ 25	\$ 35	\$ 50	\$ 52	\$ 55
100-acre <sup>1</sup> .....	25	30	65	85	88	90
100-acre <sup>2</sup> .....	25	40	60	70	75	85
150-acre <sup>3</sup> , No. 1.....		35	90	95		
No. 2.....		35	90	95		
150-acre <sup>4</sup> , No. 1.....		45	65	55		
No. 2.....		50	70	78		
200-acre <sup>5</sup> .....			98	120		
200-acre <sup>6</sup> .....			105	112		
200-acre <sup>7</sup> .....			65	100		

Section B—Farm machinery.

50-acre.....	45	50	60	68	72	74
100-acre <sup>1</sup> .....	80	90	100	108	114	118
100-acre <sup>2</sup> .....	78	95	95	98	112	114
150-acre <sup>3</sup> , No. 1.....		125	145	150		
No. 2.....		125	145	150		
150-acre <sup>4</sup> , No. 1.....		110	120	110		
No. 2.....		110	118	125		
200-acre <sup>5</sup> .....			165	170		
200-acre <sup>6</sup> .....			160	168		
200-acre <sup>7</sup> .....			130	145		

Section C—Fences.

50-acre.....	5	10	15	18	20	22
100-acre <sup>1</sup> .....	8	15	22	25	28	30
100-acre <sup>2</sup> .....	8	25	30	32	34	36
150-acre <sup>3</sup> , No. 1.....		20	30	30		
No. 2.....		20	30	33		
150-acre <sup>4</sup> , No. 1.....		20	35	37		
No. 2.....		30	38	42		
200-acre <sup>5</sup> .....			40	46		
200-acre <sup>6</sup> .....			40	45		
200-acre <sup>7</sup> .....			40	46		

Section D—Automobile.

50-acre.....	50	55	75	80	85	90
100-acre.....	80	85	100	110	120	125
100-acre <sup>1</sup> .....	75	100	110	115	120	125
150-acre <sup>3</sup> , No. 1.....		110	140	145		
No. 2.....		110	140	145		
150-acre <sup>4</sup> , No. 1.....		120	130	140		
No. 2.....		125	135	140		
200-acre <sup>5</sup> .....			150	165		
200-acre <sup>6</sup> .....			140	152		
200-acre <sup>7</sup> .....			135	150		

<sup>1</sup> 90 acres in cultivation.

<sup>2</sup> 70 acres in cultivation.

<sup>3</sup> 140 acres in cultivation.

<sup>4</sup> 100 acres in cultivation.

<sup>5</sup> 180 acres in cultivation.

<sup>6</sup> 150 acres in cultivation.

<sup>7</sup> 100 acres in cultivation.

These normal expenses were worked out in a manner similar to that described for farm buildings. The rates used are as follows:

Cotton	70 to 90 cents per acre,
Oats	60 to 80 cents per acre,
Corn	70 to 90 cents per acre,
Cane Hay	\$1.25 to \$1.75 per acre,
Sudan Pasture	40 to 60 cents per acre,
Work Stock (Harness)	\$2.00 to \$3.00 per head,
Dairy Cows (Equipment for Handling)	\$1.50 to \$2.00 per head,
Poultry (For feeding, etc.)	4 to 6 cents per mature bird,
Hogs (For feeding, etc.)	5 to 10 cents per 100 pounds pork.

The lower rates were used for the systems with the larger acreages of crops or the larger number of livestock and higher rates for the systems with the smaller acreages of crops grown or the smaller number of livestock kept.

Normal fence and automobile expenses are shown in Sections C and D. Fence expenses include depreciation and repairs; automobile expenses include depreciation, repairs, gas, oil, and license fees. The automobile expenses include only those incurred when the automobile is used for the farm business.

**Prices:** The prices used in calculating the expected returns for the systems outlined are shown in Table 7. Conclusions as to these prices are based upon the prices that have prevailed in the area during the past few years, price trends, and a study of conditions likely to influence prices during the years just ahead. Detail price data used in this connection are shown in Tables 32, 33, and 34 of the appendix.

Table 7.—Expected prices of products sold and items bought.

Products sold	Items bought
Cotton lint	Cottonseed meal
16.0 cents per lb.	\$42.00 per ton
Cotton seed	1,800 pounds of cottonseed meal for 1 ton of cotton seed
1.5 cents per lb.	Bran
Butter fat	\$35.00 per ton
36.0 cents per lb.	Shorts
Culled cows	\$40.00 per ton
4.0 cents per lb.	Baby chick feed
Hogs	3½ cents per lb.
9.0 cents per lb.	Meat scrap
Veal calves	4½ cents per lb.
8.0 cents per lb.	Oyster shell
Wool	\$ 1.50 per 100 lbs.
32.0 cents per lb.	Cotton seed (certified)
Lambs	\$3.00 per bu.
10.0 cents per lb.	Cane seed
Culled ewes	\$1.50 per bu.
3.5 cents per lb.	Sudan seed
Eggs	7½ cents per lb.
27.0 cents per doz.	Threshing (oats)
Friers	5 cents per bu.
25.0 cents per lb.	Twine
Culled hens	15 cents per lb.
17.0 cents per lb.	Picking cotton
Corn	\$1.25 per 100 lbs.
\$1.00 per bu.	Ginning cotton (includes wrapping and yardage)
Oats	\$6.75 per bale
60.0 cents per bu.	Chopping cotton
Cane Hay	\$1.50 per acre
\$10.00 per ton	Hired labor
	\$1.50 per day

The crop yields, livestock production, crop and livestock requirements, overhead expenses, and prices shown are not likely to prevail during any

one year. They are intended to represent average expectations, considering a period of years. When they are combined in working out expected net returns for the different systems, the results are believed to represent reasonable expectations under usual conditions in the section for systems similar to those indicated.

Systems worked out on the basis of the normal production and price relations shown above are presented for 50-, 100-, 150-, and 200-acre farms, with varying amounts of cotton, other crops, and livestock for each group.

### SYSTEMS FOR 50-ACRE FARMS

There are many different ways to organize 50-acre farms. The outlines of six different systems for 50-acre farms are shown in Table 8. These systems have been outlined for the purpose of showing the returns

Table 8.—Outline of systems for 50-acre farms

	System A	System B	System C	System D	System E	System F
Value of land.....	\$7000.00	\$7000.00	\$7000.00	\$7000.00	\$7000.00	\$7000.00
Value of farm buildings.....	180.00	250.00	350.00	450.00	470.00	500.00
Value of farm machinery.....	110.00	260.00	270.00	280.00	290.00	300.00
Value of livestock.....	265.00	360.00	555.00	665.00	755.00	820.00
Number of work stock.....	2	2	2	2	2	2
Acres in crops:						
Cotton.....	44	33	22	16	11	6
Corn.....		4.5	8.5	10	12	14
Oats.....		3.5	5	7	7.5	8
Cane hay.....		1.5	2.5	3	3.5	4
Sudan pasture.....		1.5	6	8	10	12
Permanent pasture.....	4	4	4	4	4	4
Farmstead.....	2	2	2	2	2	2
Hours of man labor on crops*.....	1320.00	1230.00	1107.50	1035.00	982.50	930.00
Hours of horse work on crops.....	1452.00	1415.00	1353.00	1312.00	1287.00	1262.00
Number of productive livestock:						
Dairy cows.....		1	3	4	5	9
Hogs.....			600 lb.	600 lb.	1400 lb.	1 sow
Sheep.....						
Poultry.....	20	50	100	150	150	150
Hours of man labor on livestock....	180.00	430.00	930.00	1240.00	1440.00	1630.00
Farm receipts.....	\$1359.29	\$1172.26	\$1191.66	\$1212.12	\$1208.89	\$1145.81
Value of products in home.....	93.80	209.14	249.64	249.64	249.64	249.64
Farm expenses.....	738.15	561.07	548.48	554.32	534.02	557.09
Net returns.....	714.94	820.33	892.82	907.44	924.51	838.36

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.

that may reasonably be expected under usual conditions in the section when different acreages of cotton are grown. Feed crop and livestock enterprises are substituted for that of cotton as the acreage of this crop is decreased. The feed crops and livestock included in the different systems are combined in such a way that the feed crops provide a fairly well-balanced ration for the livestock. On the systems in which butter fat is sold, enough poultry or hogs, or both, are included to utilize the



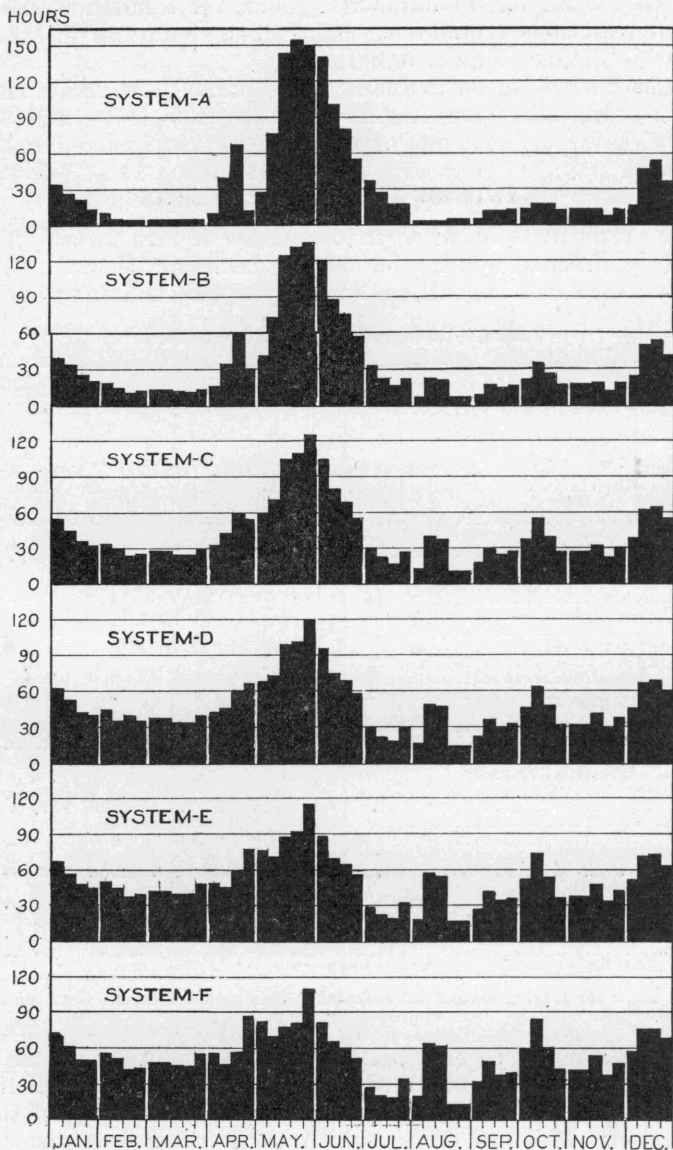


Figure 4.—Distribution of man labor for systems outlined for 50-acre farms.

skim milk advantageously. Enough pasture is included for each system to provide ample grazing during the growing season. A brief description of these systems follows:

**A-System—(50-acre Farms):** This system provides for growing 44 acres of cotton (all cultivated land), keeping 2 head of work stock, and 20 chickens. The feed for the work stock and chickens is bought. The poultry products are used in the household and cotton is the only source of income.

**B-System—(50-acre Farms):** This system provides for growing 33 acres of cotton (three-fourths of cultivated land), keeping 2 head of work stock, one cow, and 50 chickens. The feed is grown. The dairy products and some of the poultry products are used in the household. The surplus poultry products are sold. There are no other sales except cotton.

**C-System—(50-acre Farms):** This system provides for 22 acres of cotton (one-half of cultivated land); 2 head of work stock, 3 cows, 3 hogs, and 100 chickens are included. The feed for the livestock is grown on the farm. The milk from one cow, all of the pork, and some of the poultry products are used by the farm family. In addition to cotton, the dairy products from 2 cows and the surplus poultry products are sold, amounting to about 25 per cent of the farm sales.

**D-System—(50-acre Farms):** This system provides for 16 acres of cotton (approximately three-eighths of cultivated land). In addition to 2 head of work stock, 4 dairy cows, 3 hogs, and 150 chickens are included. The feed for the livestock is grown on the farm. The milk from one cow, all of the pork, and some of the poultry products are used in the home. The remainder of the dairy and poultry products are sold. Dairy and poultry products make up about 45 per cent of the sales from this system.

**E-System—(50-acre Farms):** This system provides for 11 acres of cotton (one-fourth of the cultivated land). Five cows, 7 hogs, and 150 chickens are kept. The feed is grown on the farm. In addition to cotton, dairy and poultry products and hogs are sold. Over 60 per cent of the sales consist of livestock products.

**F-System—(50-acre Farms):** This system provides for only 6 acres of cotton (approximately one-eighth of land in cultivation). Feed crops are grown, and dairy and poultry products and hogs are the important sources of income.

In planning a system of farming it is important for one to consider the seasonal man-labor and horse-work requirements. With some systems, particularly those with only one or two enterprises, most of the work must be done during a comparatively short period of time. During the remainder of the year there is little productive employment. With other systems, particularly those in which several crops and live-

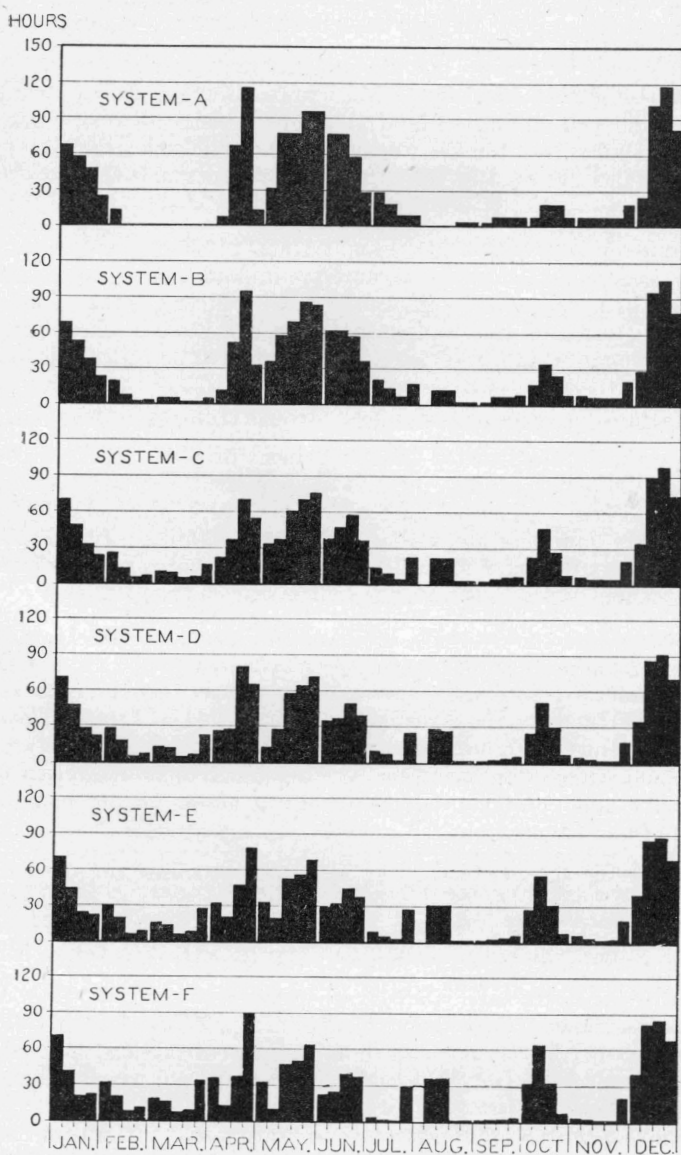


Figure 5.—Distribution of horse work for systems outlined for 50-acre farms. The substitution of feed crops and livestock for cotton gives a more even distribution of horse work and also tends to decrease the amount required to be done during the year.

stock with different seasonal requirements are included, the man labor and horse work requirements are much more evenly distributed throughout the year.

The seasonal distribution of the man-labor and horse-work requirements for the systems outlined for 50-acre farms is shown in Figures 4 and 5. The average of cotton varies from 100 per cent of the cultivated land in System-A to 12.5 per cent in System-F. Feed crops and livestock have been substituted for cotton. The leveling effect of this substitution on the distribution of both man labor and horse work throughout the year is very apparent. This is particularly true of the distribution of man labor as shown in Figure 4. This fact is strikingly contrasted by a comparison of the distribution of man labor for System-A with that of System-D. In the case of the former the operator is given the opportunity of working about 1,200 hours during the year, or about four-tenths of his available time, while in the case of the latter, where other crops and livestock are substituted for 28 acres of cotton, the operator is able to utilize 2,100 hours or about seven-tenths of his available time. In other words, the operator is able to work 900 hours more in System-D than in System-A. The difference in net returns is \$190.00 in favor of System-D or about 21 cents per hour for this extra time.

The crop yields, livestock production, crop and livestock requirements, overhead expenses, and prices previously presented have been used in calculating the expected returns for each of these systems. These expected returns are shown at the bottom of Table 8. Under usual conditions in the section, the chances appear about even for a net return of approximately \$720.00 from systems for 50-acre farms similar to A-System, \$830.00 from systems similar to B-System, \$880.00 from systems similar to C-System, \$896.00 from systems similar to E-System, and \$855.00 from systems similar to F-System. The value of the livestock and garden products furnished the household is included as receipts in these calculations. Expenses are also included for chopping and picking cotton in each system. No other labor charges are deducted. The figures shown indicate the amounts left for returns on the investment and for the labor and management of the operator.

The results indicate that, under usual conditions in the section in the substitution of feed crops and livestock for cotton on 50-acre farms, the net returns are not greatly affected when the cotton acreage is increased until approximately 50 per cent of the cultivated land is in cotton or decreased until only 25 per cent of the land is in cotton, provided that the land is used effectively in growing feed crops and in producing livestock and livestock products. When more than 50 per cent, or when less than 25 per cent of the land is in cotton, the net returns are less than when the acreage is within these limits. The conclusion is that most farmers on 50-acre farms will get the best results under usual conditions when 25 to 50 per cent of the cultivated land is in cotton, and the remainder of it used effectively in growing feed crops and in pro-

ducing livestock and livestock products. The most profitable acreage, within these limits, depends upon the nature of the soil and the aptitudes, inclination, and skill of the farmer.

### DETAILS OF D-SYSTEM—50-ACRE FARMS

(Approximately Three-eighths of Cultivated Land in Cotton)

A detailed budget for D-System is shown in Table 9. As explained above, the data in Tables 3, 4, 5, 6, and 7 have been used in the preparation of this budget. For example, the requirements and production for 16 acres of cotton shown in Sections A and B are obtained by multiplying the different items for cotton in D-System, Table 3, by 16. The requirements and production for 10 acres of corn are obtained by multiplying the different items for corn, Table 4, by 10. The requirements and production for 4 dairy cows are obtained by multiplying the different items for dairy cows, Table 5, by 4. The cost of expense items and value of production are obtained by multiplying the quantities obtained as indicated above by the prices shown in Table 7. The expenses for farm buildings, farm machinery, fence, and automobile shown in D-System for 50-acre farms in Table 6 are brought forward.

Table 9—Detailed budget for D-system, 50-acre farm  
Section A—Acreage and cash expenses for crops

Crop	Acres	Man Hours	Horse Hours	Seeds and plants		Other Expenses	
				Amount	Cost	Kind and amount	Cost
Cotton:							
Lint.....	16	486	528	1.6 bu. (certified)	\$ 4.80	Picking, ginning, wrapping and yardage.....	\$ 162.08
Seed.....						Chopping.....	24.00
Seed cotton.....							
Corn.....	10	250	320	70 pounds.....			
Oats.....	7	105	154	21 bushels.....		Twine, 21½ pounds.....	3.68
Cane.....	3	120	150	9 bushels.....	13.50	Treshing.....	12.25
Rotation pasture.....	8	80	160	160 pounds.....	12.00		
Permanent pasture.....	4						
Farms'ead.....	2						
Totals.....	50	1035	1312		\$ 30.30		\$ 202.01

Section B—Production and disposal crops

Crop	Production	Farm use		Sales	
		Feed	Seed	Amount	Value
Cotton:					
Lint.....	3,328 pounds.....			3,328	\$ 532.48
Seed.....	5,568 pounds.....	3,556	461	1,551	23.27
Seed cotton.....	9,360 pounds.....				
Corn.....	250 bushels.....	250	1¼ bu.		
Oats.....	245 bushels.....	221	21 bu.		
Cane.....	18,000 pounds.....	17,160 lbs.			
Total.....					\$ 555.75



## Section C—Feeds and other expenses for livestock

Livestock	No.	Man Hours	Home-grown feeds		Purchased feeds			Other expenses	
			Kind	Quantity	Kind	Quantity	Cost	Kind	Cost
Work stock.....	2	120	Corn.....	70 bu.				Misc.	\$ 4.00
			Oats.....	60 bu.					
			Cs. meal.....	600 lbs.					
			Cane hay.....	6,000 lbs.					
Dairy cows.....	4	640	Corn.....	24 bu.	Wheat bran..	2,000 lbs.	\$ 35.00	Misc.	12.00
			Oats.....	56 bu.					
			Cs. meal.....	2,480 lbs.					
			Cane hay.....	10,800 lbs.					
Young D. cattle.....			Cane hay.....	960 lbs.	Wheat bran..	240 lbs.	4.25		
			Skim milk.....	960 lbs.					
Hogs.....	3	30	Corn.....	36 bu.				Misc.	.75
			Cs. meal.....	120 lbs.					
			Skim milk.....	900 lbs.					
Poultry.....	150	450	Corn.....	120 bu.	Chick feed...	600 lbs.	21.00	Misc.	3.00
			Oats.....	105 bu.	Oyster shell..	1,050 lbs.	15.75		
			Skim milk.....	10,824 lbs.	Meat scraps	134 lbs.	6.03		
					Shorts.....	214 lbs.	4.28		
Totals.....		1240					\$ 86.31		\$ 19.75

## Section D—Production and disposal of livestock and livestock products

Livestock	Production	Fed to livestock	Used in home		Sales	
			Amount	Value	Amount	Value
Work stock.....	2,000 hours.....					
Dairy cows.....	1,000 lbs. butter fat... 280 lbs. cull cow.....	52 lbs.	237	\$ 85.00	711 lbs. butter fat... 280	\$ 255.96 11.20
Young dairy cattle.....	300 lbs. veal.....				300 pounds.....	24.00
Hogs.....	600 pounds.....		450	40.50	150.....	13.50
Poultry.....	1,250 doz. eggs..... 450 lbs. friers..... 150 lbs. hens.....	45 doz.* 150 lbs.*	182 doz. 100 lbs.	49.14 25.00	1023 dozen..... 200 pounds..... 150 pounds.....	276.21 50.00 25.50
Totals.....				\$ 199.64		\$ 656.37

\*Eggs used for hatching and friers for replacement.

## Section E—Summary of receipts and expenses

Receipts	Total Value	Expenses	Total Value
Crops (Sec. B.).....	\$ 555.75	Crops (Sec. A.):	
Livestock and livestock products (Sec. D.)...	656.37	Seed.....	\$ 30.30
Livestock products used in home (Sec. D.)..	199.64	Other crop expenses.....	202.01
Garden (estimated).....	50.00	Livestock (Sec. C.):	
		Feed purchased.....	86.31
		Other livestock expenses.....	19.75
		Other expenses (estimated):	
		Machinery.....	68.00
		Fence.....	18.00
		Buildings.....	50.00
		Auto.....	80.00
Total.....	\$ 1,461.76		\$ 554.37
Net returns.....	907.39		

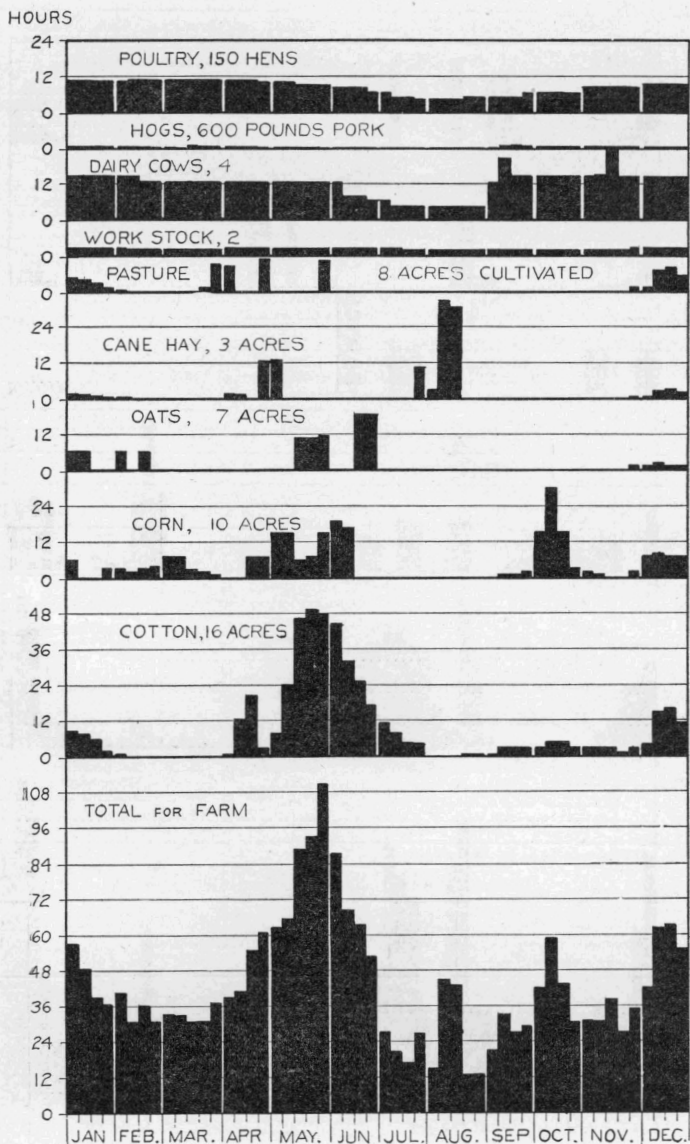


Figure 6.—Distribution of man labor by enterprises for D-system (50-acre farms).

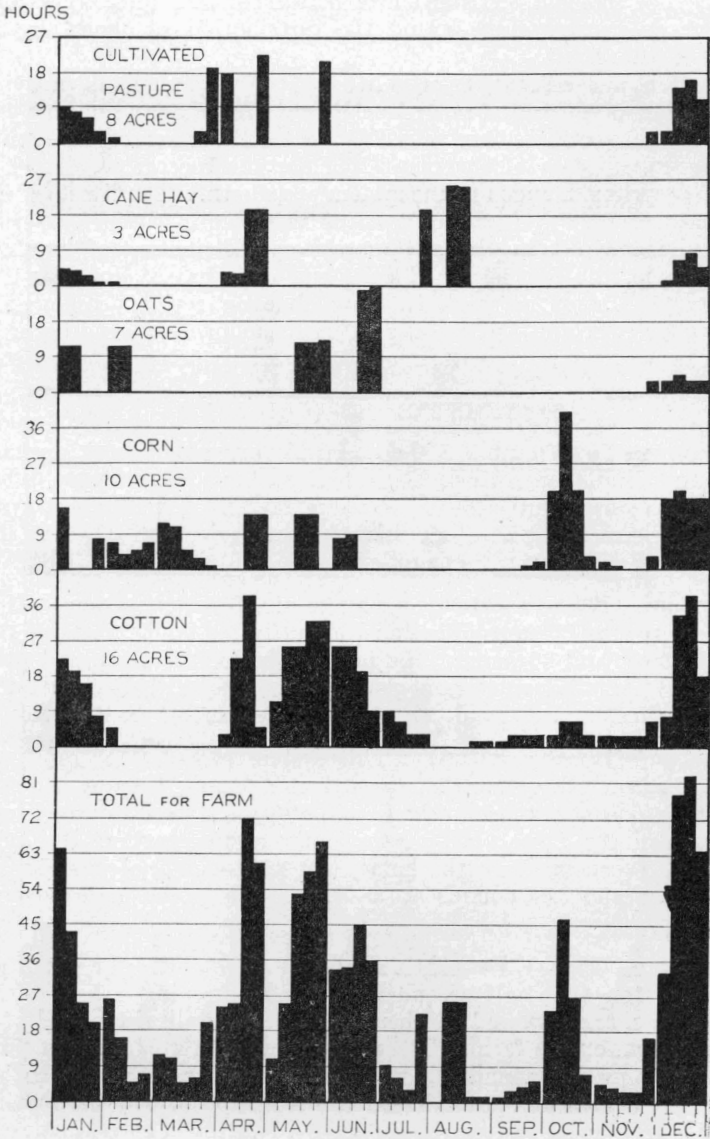


Figure 7.—Distribution of horse work by crops for D-system (50-acre farms)

The seasonal distribution of man labor and horse work for the different crop and livestock enterprises of D-System are shown in Figures 6 and 7. The seasonal distribution of man labor and horse work for the different enterprises is based on the distribution as shown by farm records in this study.

Attention has already been called to the advantage of a type of organization as illustrated in System-D over that of all cotton in System-A. An explanation of this advantage is readily observed in Figure 6, where a distribution of the man labor for the several crops and livestock enterprises included in the system are shown. The livestock enterprises have a very decided influence on this result. Other crops, to be sure, aid materially in giving a more even distribution of man labor. For example, the harvesting of corn and cane hay is done at a time when very little or no work is being done on cotton. Likewise, the planting of corn and the seeding of oats, sudan, and cane occur at a time when a relatively small amount of work is being done on cotton.

### SYSTEMS FOR 100-ACRE FARMS

As suggested by Figure 1, 100-acre farms vary widely in this organization. In a similar manner to that described for 50-acre farms, different systems have been outlined for 100-acre farms. Six different systems with 90 per cent of the land in cultivation are shown in Table 10. These systems are briefly described as follows:

**A-System—(100-acre Farms):** This is an all-cotton system. It provides for growing 90 acres of cotton (all cultivated land), keeping 4 head of work stock, and 30 hens. The feed for both work stock and poultry is bought. All the poultry and poultry products, with the exception of a few cull hens and a few dozen eggs, were consumed in the home.

**B-System—(100-acre Farms):** This system provides for growing 68 acres of cotton (three-fourths of cultivated land), keeping 4 head of work stock, one cow, 4 head of hogs, and 80 hens. Feed for the livestock is grown on the farm. All of the dairy and a part of the poultry products are consumed in the home, and 450 pounds of pork are used in the home and 350 pounds are sold. Cotton is the major source of income.

**C-System—(100-acre Farms):** This system provides for growing 45 acres of cotton (one-half of cultivated land), keeping 4 head of work stock, 6 cows, one sow, and 180 hens. Practically all of the feed of livestock is grown on the farm. The milk of one cow, a part of the poultry and poultry products, and 450 pounds of pork are used in the home. About 60 per cent of the total sales are from cotton and the remainder from livestock and livestock products.

**D-System—(100-acre Farms):** This system provides for growing 33 acres of cotton (three-eighths of cultivated land), keeping 4 head of work stock, 8 cows, one sow, and 275 hens. Practically all the feed is grown

on the farm. The milk of one cow, 450 pounds of pork, and some of the poultry and poultry products are used in the home and the remainder of all these are sold. Livestock and livestock products constitute almost 60 per cent of the total gross sales from this system.

**E-System—(100-acre Farms):** This system provides for growing 23 acres of cotton (approximately one-fourth of cultivated land), keeping 4 head of work stock, 9 cows, 2 sows, and 290 hens. Most of the feed for the livestock is produced on the farm. The milk from one cow, 450 pounds of pork, eggs, and poultry for the table are used in the home, and the remainder of the livestock and livestock products are sold.

**F-System—(100-acre Farms):** This system provides for growing 15 acres of cotton (one-sixth of cultivated land), keeping 4 head of work stock, 10 cows, 3 sows, and 290 hens. All of the feed for livestock, with the exception of some bran, cottonseed meal, and baby chick feed, was grown on the farm. The milk from one cow, 450 pounds of pork, and some of the eggs and poultry, were used in the home and the remainder of livestock and livestock products were used for replacement and sale. Cotton is a minor source of income.

Table 10.—Outline of systems for 100-acre farms.

(90 acres in cultivation.)

	System A	System B	System C	System D	System E	System F
Value of land . . . . .	\$14000.00	\$14000.00	\$14000.00	\$14000.00	\$14000.00	\$14000.00
Value of farm buildings . . . . .	250.00	300.00	650.00	850.00	880.00	900.00
Value of farm machinery . . . . .	220.00	370.00	370.00	370.00	350.00	355.00
Value of livestock . . . . .	525.00	655.00	1095.00	1310.00	1420.00	1520.00
Number of work stock . . . . .	4	4	4	4	4	4
Acres in crops:						
Cotton . . . . .	90.00	68.00	45.00	33.00	23.00	15.00
Corn . . . . .		10.50	17.50	21.50	27.00	32.00
Oats . . . . .		6.00	10.50	13.50	14.00	14.00
Cane hay . . . . .		2.50	5.00	6.00	7.00	7.00
Sudan pasture . . . . .		3.00	12.00	16.00	19.00	22.00
Permanent pasture . . . . .	8.00	8.00	8.00	8.00	8.00	8.00
Farmstead . . . . .	2.00	2.00	2.00	2.00	2.00	2.00
Hours of man labor on crops* . . . . .	2700.00	2527.50	2265.00	2130.00	2045.00	1960.00
Hours of horse work on crops . . . . .	2970.00	2897.00	2766.00	2,940.00	2662.00	2617.00
Number of productive live- stock:						
Dairy cows . . . . .		1	6	8	9	10
Hogs . . . . .		800 lb.	1 sow	1 sow	2 sows	3 sows
Sheep . . . . .						
Poultry . . . . .	30	80	180	275	290	290
Hours of man labor on live- stock . . . . .	330.00	680.00	1840.00	2445.00	2750.00	3010.00
Farm receipts . . . . .	2794.96	2449.90	2612.48	2660.64	2639.28	2632.50
Value of products in home . . . . .	139.14	274.64	274.64	274.64	274.64	274.64
Farm expenses . . . . .	1434.94	1047.20	1045.24	987.73	947.83	963.20
Net returns . . . . .	1499.16	1677.34	1841.88	1947.55	1966.09	1943.94

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.



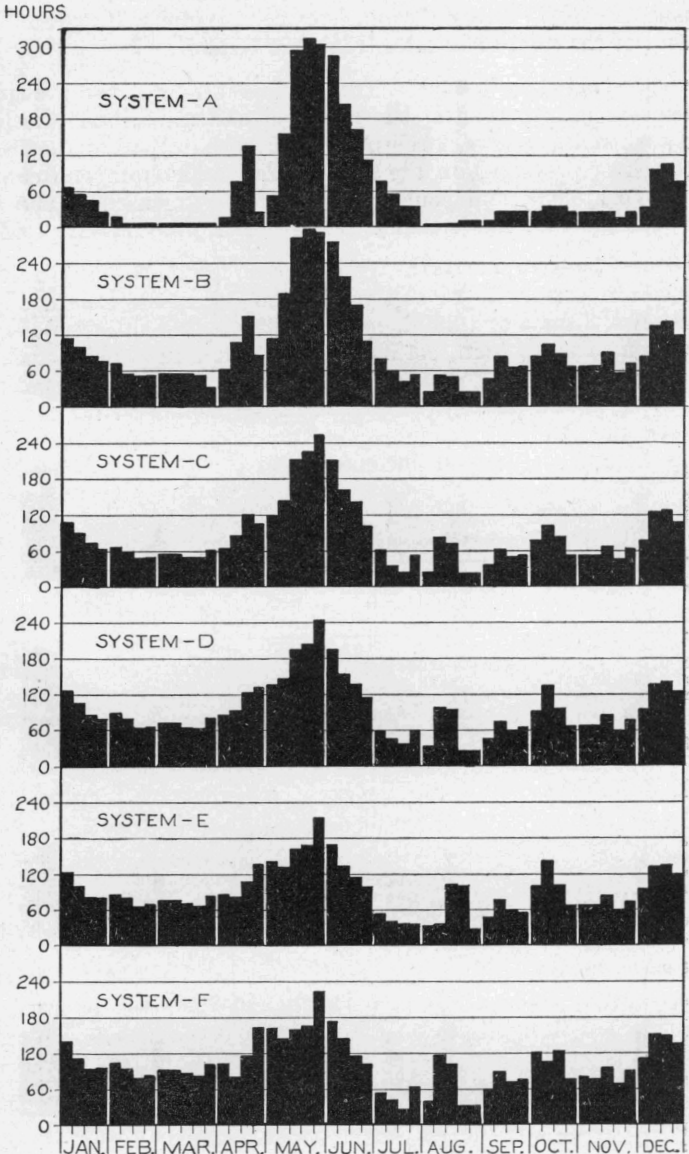


Figure 8.—Distribution of man labor for systems outlined for 100-acre farms. (90 acres cultivated.)

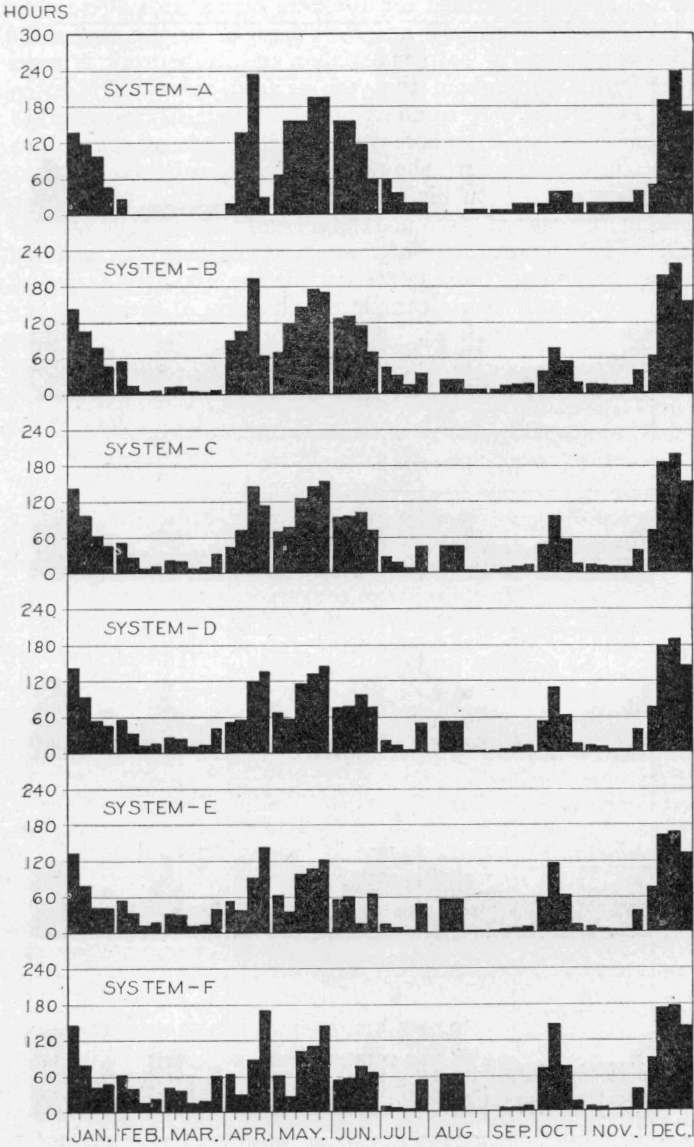


Figure 9.—Distribution of horse work for systems outlined for 100-acre farms. (90-acres cultivated.)

The seasonal distribution of the man-labor and horse-work requirements for the systems outlined for 100-acre farms with 90 acres in cultivation is shown in Figures 8 and 9. Here, as in the case of 50-acre farms, the distribution of both man labor and horse work is more uniformly distributed throughout the year as feed crops and livestock are substituted for cotton. A comparison of System-A, an all-cotton organization, with System-D, where a combination of enterprises has been included in the organization, shows that the organization of System-A offers an opportunity of utilizing about three-fifths of the operator's time, while in the case of System-D practically all of his available time is utilized. The organizations of System-D for both 50- and 100-acre farms are quite similar, but the system for the 100-acre farms offers a much better opportunity for a complete utilization of the operator's time because of the increase in size. A small farm, regardless of how well organized, does not offer the opportunity of year-round employment as does the large farm of a similar organization.

Table 11.—Outline of systems for 100-acre farms.  
(70 acres in cultivation.)

	System A	System B	System C	System D	System E	System F
Value of land.....	\$11000.00	\$11000.00	\$11000.00	\$11000.00	\$11000.00	\$11000.00
Value of farm buildings.....	250.00	400.00	600.00	700.00	750.00	850.00
Value of farm machinery.....	215.00	370.00	320.00	320.00	320.00	320.00
Value of live stock.....	525.00	835.00	1135.00	1230.00	1430.00	1480.00
Number of work stock.....	4	4	4	4	4	4
Acres in crops:						
Cotton.....	70.00	52.00	35.00	27.00	18.00	9.00
Corn.....		7.00	12.00	16.00	19.00	25.00
Oats.....		5.00	9.50	10.00	12.00	13.00
Cane hay.....		3.00	4.50	5.00	6.00	6.00
Sudan pasture.....		3.00	9.00	12.00	15.00	17.00
Permanent pasture.....	28.00	28.00	28.00	28.00	28.00	28.00
Farmstead.....	2.00	2.00	2.00	2.00	2.00	2.00
Hours of man labor on crops*.....	2100.00	1960.00	1762.50	1680.00	1585.00	1500.00
Hours of horse work on crops.....	2310.00	2260.00	2153.00	2113.00	2066.00	2023.00
Number of productive live-stock:						
Dairy cows.....		1	4	5	7	7
Hogs.....			400 lb.	1 sow	1 sow	2 sows
Sheep.....		30	30	30	30	30
Poultry.....	30	30	130	140	210	240
Hours of man labor on live-stock.....	330.00	640.00	1440.00	1710.00	2240.00	2430.00
Farm receipts.....	\$ 2184.24	\$ 2018.27	\$ 2082.37	\$ 2057.17	\$ 2123.97	\$ 2096.74
Value of products in home.....	139.14	224.14	260.14	274.64	274.64	274.64
Farm expenses.....	1225.45	905.65	852.06	821.75	817.22	819.99
Net returns.....	1097.93	1336.76	1490.45	1510.06	1581.39	1541.39

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.

Under usual conditions in the area, chances appear about even for a net return of approximately \$1,500.00 for systems for 100-acre farms

similar to A-System, \$1,675.00 for systems similar to B-System, \$1,840.00 for systems similar to C-System, \$1,950.00 for systems similar to D-System, \$1,965.00 for systems similar to E-System, and \$1,945.00 for systems similar to F-System. As in the case of 50-acre farms, these comparisons indicate that in the substitution of feed crops and livestock for cotton on 100-acre farms with 90 per cent of the land in cultivation, the net returns are increased until a point is reached where approximately 35 to 40 per cent of the cultivated land is in cotton. The net returns are approximately the same when three-eighths, one-fourth or one-eighth of the cultivated land is in cotton, provided the remainder of the land is utilized effectively in growing feed crops and livestock, and in producing livestock products.

In a manner similar to that prescribed above, systems have been outlined for six 100-acre farms with approximately 70 acres of land in cultivation. The details for these are shown in Table 11. The different systems are similar to those described for 100-acre farms with 90 acres of land in cultivation except that slightly less cotton and slightly more livestock are included in each case. Sheep have been introduced to give a better utilization of permanent pastures. The man-labor and horse-work requirements are slightly less for the systems with smaller cultivated acreages. Less cultivated pasture is also required on the farms with the smaller cultivated acreages.

#### SYSTEMS FOR 150-ACRE FARMS

Systems with different acreages in cotton, ranging from three-fourths to three-eighths of the cultivated land, were worked out for 150-acre farms with 140 acres in cultivation. The systems for 150-acre farms with less than three-eighths and more than three-fourths of the cultivated land in cotton are not shown. However, two systems have been outlined with approximately three-fourths, two with approximately one-half, and two with approximately three-eighths of the cultivated land in cotton. The details for these systems are shown in Table 12. The largest returns are indicated when approximately 35 to 40 per cent of the cultivated land is in cotton. However, only slightly smaller returns were indicated when other acreages were included between one-half and three-eighths of the total cultivated land. A brief description of each system follows:

**B-System, No. 1—(150-acre Farms):** This system provides for growing 105 acres of cotton, keeping 6 head of work stock, 3 cows, 1 sow and 30 hens. Feed for livestock is grown on the farm. The milk from one cow, 450 pounds of pork, and most of the poultry and poultry products are used in the home. Cotton is the major source of income.

**B-System, No. 2—(150-acre Farms):** This system differs from B-No. 1 chiefly in the kind of livestock kept, 2 hogs, 30 sheep and 10 hens being substituted for 2 cows and 1 sow.

Table 12—Outline of systems for 150-acre farms (140 acres in cultivation)

	System B, No. 1	System B, No. 2	System C, No. 1	System C, No. 2	System D, No. 1	System D, No. 2
Value of land.....	\$21000.00	\$21000.00	\$21000.00	\$21000.00	\$21000.00	\$21000.00
Value of farm buildings.....	350.00	350.00	900.00	900.00	950.00	950.00
Value of farm machinery.....	430.00	430.00	390.00	390.00	390.00	390.00
Value of livestock.....	1015.00	1110.00	1450.00	1660.00	2100.00	1960.00
Number of work stock.....	6	6	6	6	6	6
Acres in crops:						
Cotton.....	105.00	105.00	70.00	70.00	52.00	52.00
Corn.....	15.00	11.00	33.00	25.00	28.00	34.00
Oats.....	7.50	8.00	11.00	17.00	20.00	19.00
Cane hay.....	4.50	4.00	7.00	8.00	9.00	9.00
Sudan pasture.....	8.00	12.00	19.00	20.00	31.00	26.00
Permanent pasture.....	7.00	7.00	7.00	7.00	7.00	7.00
Farmstead.....	3.00	3.00	3.00	3.00	3.00	3.00
Hours of man labor on crops*	3897.50	3825.00	3560.00	3500.00	3230.00	3315.00
Hours of horse work on crops.	4495.00	4433.00	4338.00	4284.00	4122.00	4192.00
Number of productive live- stock:						
Dairy cows.....	3	1	7	9	11	12
Hogs.....	1 sow	400 lbs.	4 sows	1 sow	1 sow	2 sows
Sheep.....		30			30	
Poultry.....	30	40	110	310	390	390
Hours of man labor on live- stock.....	1030.00	810.00	2210.00	2830.00	3540.00	3650.00
Farm receipts.....	\$ 3822.61	\$ 3834.44	\$ 3937.25	\$ 4159.01	\$ 4471.26	\$ 4549.87
Value of products in home.....	289.64	290.14	299.64	299.64	299.64	299.64
Farm expenses.....	1535.22	1510.34	1438.53	1530.93	1427.80	1419.69
Net returns.....	2577.03	2614.24	2798.33	2927.72	3343.10	3429.82

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.

**C-System, No. 1—(150-acre Farms):** This system provides for growing 70 acres cotton (one-half cultivated land), keeping 6 work stock, 7 cows, 4 sows and 110 hens. Almost all of the feed for livestock is grown on the farm. The milk from one cow, 450 pounds of pork and some of the poultry products are used in the home. Livestock and livestock products constitute an important source of income.

**C-System, No. 2—(150-acre Farms):** About the only significant difference between C-System, No. 1 and No. 2, is that No. 2 provides for 2 more cows, 3 less sows, and 200 more hens. This change in the livestock gives a substantial increase in returns for No. 2 over No. 1.

**D-System, No. 1—(150-acre Farms):** This system provides for growing 52 acres of cotton (three-eighths cultivated land), keeping 6 head of work stock, 11 cows, 1 sow, 30 sheep and 390 hens. Feed for livestock is grown on the farm. The milk from 1 cow, 450 pounds of pork, some of the poultry and poultry products are used in the home. Livestock and livestock products constitute the major source of income.

**D-System, No. 2—(150-acre Farms):** This system has the same number of acres in cotton, slightly more feed crops, and cows and hogs are



substituted for sheep. Livestock and livestock products form the major source of income in both systems.

The seasonal distribution of man-labor and horse-work requirements for the systems outlined for 150-acre farms, with 140 acres in cultivation, are quite similar to those shown for 100-acre farms with 90 acres in cultivation.

Table 13—Outline of systems for 150-acre farms (100 acres in cultivation)

	System B, No. 1	System B, No. 2	System C, No. 1	System C, No. 2	System D, No. 1	System D, No. 2
Value of land.....	\$16500.00	\$16500.00	\$16500.00	\$16500.00	\$16500.00	\$16500.00
Value of farm buildings.....	450.00	500.00	650.00	700.00	550.00	780.00
Value of farm machinery.....	370.00	380.00	400.00	400.00	390.00	410.00
Value of livestock.....	875.00	960.00	1435.00	1535.00	1570.00	1835.00
Number of work stock.....	4	4	4	4	4	4
Acres in crops:						
Cotton.....	75.00	75.00	50.00	50.00	38.00	38.00
Corn.....	14.00	12.00	23.00	19.00	29.00	20.00
Oats.....	7.00	10.00	12.00	12.00	10.00	14.00
Cane hay.....	4.00	3.00	6.00	6.00	6.00	7.00
Sudan pasture.....			9.00	13.00	17.00	21.00
Permanent pasture.....	47.00	47.00	47.00	47.00	47.00	47.00
Farmstead.....	3.00	3.00	3.00	3.00	3.00	3.00
Hours of man labor on crops*	2865.00	2820.00	2585.00	2525.00	2425.00	2340.00
Hours of horse work on crops.	3277.00	3229.00	3130.00	3082.00	3042.00	2972.00
Number of productive live- stock:						
Dairy cows.....	4	1	7	5	6	7
Hogs.....	1 sow		2 sows	1 sow	4 sows	1 sow
Sheep.....		30	30	60	60	80
Poultry.....	80	190	180	220	60	220
Hours of man labor on live- stock.....	1220.00	1120.00	2250.00	2100.00	2080.00	2520.00
Hours of horse labor on live- stock.....						
Farm receipts.....	\$ 3051.99	\$ 3280.84	\$ 3282.82	\$ 3350.15	\$ 3127.93	\$ 3330.00
Value of products in home...	299.64	259.14	299.64	299.64	299.64	299.64
Farm expenses.....	1222.38	1304.90	1155.10	1158.81	993.29	1107.59
Net returns.....	2129.25	2335.08	2427.36	2490.98	2434.28	2522.05

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.

Under usual conditions, the chances appear about even for a net return of approximately \$2,575.00 for systems similar to B-System, No. 1; \$2,615.00 for B-System, No. 2; \$2,800.00 for C-System, No. 1; \$2,925.00 for C-System, No. 2; \$3,340.00 for D-System, No. 1; and \$3,430.00 for D-System, No. 2. Here, as in previously discussed systems, the best returns are indicated where about three-eighths of the cultivated land is in cotton and the remainder effectively used for the production of crops and livestock.

Systems have been outlined for six 150-acre farms with 100 acres in cultivation. The detailed summary of these systems is shown in Table 13. They differ from 150-acre farms with 140 acres in cultivation principally in the fact that they provide for more permanent pasture and slightly more livestock.

## SYSTEMS FOR 200-ACRE FARMS

The amount of tillable land in the area varies considerably. Those farms in the open prairies have a high percentage of the land in cultivation, while those along streams show much less cultivated land and more pasture and waste land, principally due to the broken character of the surface and to overflows. This situation is recognized in the six systems outlined for 200-acre farms as well as in the systems outlined for the 100- and 150-acre farms. The outline provides for two systems with 180 acres in cultivation, two with 150 acres in cultivation, and two with 100 acres in cultivation. The details for these systems are shown in Table 14. A brief outline of them follows:

Table 14—Outline of systems for 200-acre farms

	System C 180 acres in Cult.	System D 180 acres in Cult.	System C 150 acres in Cult.	System D 150 acres in Cult.	System C 100 acres in Cult.	System D 100 acres in Cult.
Value of land . . . . .	\$28000.00	\$28000.00	\$22000.00	\$22000.00	\$16000.00	\$16000.00
Value of farm buildings . . . . .	980.00	1200.00	1050.00	1120.00	650.00	1000.00
Value of farm machinery . . . . .	455.00	460.00	400.00	420.00	390.00	400.00
Value of livestock . . . . .	1975.00	2505.00	2035.00	2300.00	1705.00	2050.00
Number of work stock . . . . .	6	6	6	6	4	4
Acres in crops:						
Cotton . . . . .	90.00	67.00	75.00	56.00	50.00	38.00
Corn . . . . .	38.00	42.00	29.00	39.00	29.00	28.00
Oats . . . . .	19.00	23.00	18.00	21.00	11.00	17.00
Cane hay . . . . .	9.00	11.00	9.00	10.00	7.00	9.00
Sudan pasture . . . . .	24.00	37.00	19.00	24.00	3.00	8.00
Permanent pasture . . . . .	16.00	16.00	46.00	46.00	96.00	96.00
Farmstead . . . . .	4.00	4.00	4.00	4.00	4.00	4.00
Hours of man labor on crops* . . . . .	4535.00	4215.00	3795.00	3610.00	2700.00	2535.00
Hours of horse work on crops . . . . .	5534.00	5351.00	4629.00	4538.00	3230.00	3134.00
Number of productive live- stock:						
Dairy cows . . . . .	12	15	11	13	8	11
Hogs . . . . .	3 sows	3 sows	2 sows	3 sows	4 sows	2 sows
Sheep . . . . .		30	30	30	60	60
Poultry . . . . .	370	470	270	390	60	300
Hours of man labor on live- stock . . . . .	3690.00	4620.00	3280.00	4060.00	2400.00	3400.00
Farm receipts . . . . .	\$ 5609.28	\$ 5718.57	\$ 4819.09	\$ 4887.98	\$ 3678.06	\$ 3936.35
Value of products in home . . . . .	309.64	309.64	309.64	309.64	304.64	309.64
Farm expenses . . . . .	1882.48	1799.69	1657.11	1569.11	1156.33	1219.27
Net returns . . . . .	4036.44	4228.52	3471.62	3628.51	2826.37	3026.72

\*Man labor for picking cotton not included. This item is accounted for under farm expenses.

**C-System—(200-acre Farms):** This system has the same amount of land in cultivation as B-System, but 90 acres of cotton instead of 135. Six head of work stock, 12 cows, 3 sows and 370 hens are kept. Feed for livestock is grown on the farm and the table supplied with dairy, poultry and meat products. Livestock and livestock products are a close second to cotton as a source of income.

**D-System—(200-acre Farms):** This system provides for growing 67 acres of cotton (three-eighths of cultivated land), keeping 6 head of

work stock, 15 cows, 3 sows, 470 hens, and 30 sheep. Feed for livestock is grown on the farm, and provision is made for supplying the home with livestock products. Livestock is the major source of income, while cotton becomes a minor, but important, one.

**C-System—(200-acre Farms):** This system provides for growing 75 acres of cotton out of 150 acres in cultivation. Six head of work stock, 11 cows, 2 sows, 30 sheep, and 270 hens are kept. Feed for livestock is grown on the farm. Cotton and livestock are about equally important as sources of income.

**D-System—(200-acre Farms):** In this system 150 acres are in cultivation, but it differs from the system immediately preceding in that 56 acres, or about three-eighths of the cultivated land, are planted to cotton. Six head of work stock, 13 cows, 3 sows, 30 sheep, and 390 hens are kept. Feed for livestock is grown on the farm, and the table is supplied with dairy, poultry and meat products. Livestock and livestock products constitute a major and cotton a minor source of income.

**C-System—(200-acre Farms):** Only 100 acres or one-half of the land is cultivated. This system provides for growing 50 acres of cotton (one-half the cultivated land), keeping 4 head of work stock, 8 cows, 4 sows, 60 sheep, and 60 hens. Livestock and cotton are the important sources of income.

**D-System—(200-acre Farms):** This system, like the one mentioned immediately above, has 100 acres or one-half of the land in cultivation. In this system only 38 acres, or three-eighths of the cultivated land, is in cotton. Four head of work stock, 11 cows, 2 sows, 60 sheep, and 300 hens are kept. Like all of the systems outlined for 200-acre farms, feed for livestock is grown on the farm, and dairy, poultry and meat products are furnished the table. Livestock and livestock products form the major source of income for this system.

On examination of the net returns for the systems outlined for the 200-acre farms, it is readily observed that the net income is strongly influenced by the number of acres in cultivation. In each case the lesser acreage of cotton gave the larger return. The best return for 180 acres in cultivation was \$4,230.00; for 150 acres in cultivation was \$3,629.00; and for 100 acres in cultivation was \$3,027.00.

### SIZE OF FARM AND NET RETURNS

While this study is devoted principally to a consideration of systems of farming for the different-sized farms most common in the Black Waxy Prairie Belt, it is not amiss to call attention to the significance of size in relation to income. Volume of business, in farming as in other productive undertakings, is a prime requisite to success. The organization and operation of a farm may be the very best, yet it may be so small as to preclude the possibility of anything other than a

meager income. This suggests the advisability of comparing returns that may reasonably be expected from farms of different sizes.

The outlines of the most profitable systems in the different-sized groups previously discussed are assembled in Table 15. The returns shown represent the amount that is to cover the labor and management of operator; interest on the investment in land, buildings, livestock, machinery, and taxes.

Table 15—Summary of most profitable systems outlined for different-sized farms

	System E 50-acre	System E 100-acre (70 acres cultivated)	System E 100-acre (90 acres cultivated)	System D No. 2 150-acre (100 acres cultivated)	System D No. 2 150-acre (140 acres cultivated)	System 200-acre (180 acres cultivated)
Total acres.....	50.00	100.00	100.00	150.00	150.00	200.00
Acres cultivated.....	48.00	70.00	90.00	100.00	140.00	180.00
Value of land.....	\$ 7,000.00	\$11,000.00	\$14,000.00	\$16,500.00	\$21,000.00	\$28,000.00
Value of farm build- ings <sup>1</sup> .....	470.00	750.00	880.00	780.00	950.00	1,200.00
Value of farm machin- ery.....	290.00	320.00	350.00	410.00	390.00	460.00
Value of livestock....	755.00	1,210.00	1,415.00	1,255.00	1,950.00	2,505.00
Number of work stock.	2	4	4	4	6	6
Acres in crops:						
Cotton.....	11.00	18.00	23.00	38.00	52.00	67.00
Corn.....	12.00	19.00	27.00	20.00	34.00	42.00
Oats.....	7.50	12.00	14.00	14.00	19.00	23.00
Cane hay.....	3.50	6.00	7.00	7.00	9.00	11.00
Sudan pasture.....	10.00	15.00	19.00	21.00	26.00	37.00
Acres permanent pasture.....	4.00	28.00	8.00	47.00	7.00	16.00
Acres in farms lead....	2.00	2.00	2.00	3.00	3.00	4.00
Hours of man labor on crops.....	982.50	1,585.00	2,045.00	2,340.00	3,315.00	4,215.00
Hours of horse labor on crops.....	1,287.00	2,066.00	2,662.00	2,972.00	4,192.00	5,351.00
Number of productive livestock:						
Dairy cows.....	5	7	9	7	12	15
Hogs.....	1,400 lbs.	1 sow	2 sows	1 sow	2 sows	3 sows
Sheep.....		30		80		30
Poultry.....	150	210	290	220	390	470
Hours man labor on livestock.....	1,440.00	2,240.00	2,750.00	2,520.00	3,650.00	4,620.00
Farm receipts.....	\$ 1,208.89	\$ 2,125.32	\$ 2,639.28	\$ 3,330.00	\$ 4,549.87	\$ 5,118.57
Products used in home	249.64	274.64	274.64	294.64	299.64	309.64
Farm expenses.....	534.02	817.22	947.83	1,107.59	1,419.69	1,799.69
Expected net return, including products used in home.....	924.51	1,582.74	1,966.09	2,522.05	3,429.82	4,228.52
Labor cost, if hired, ex- cluding operator <sup>2</sup> .....		193.20	363.92	375.36	745.84	1,074.95
Earnings of operator and returns on invest- ment.....	924.51	1,389.54	1,602.17	2,146.69	2,683.98	3,153.56

<sup>1</sup>Excluding the value of the residence.

<sup>2</sup>Hired labor is charged at 16 cents per hour. The number of hours is obtained by adding 10 per cent (as overhead) to the hours shown for crops and livestock and deducting 3,000 hours as operator's labor.

The chances appear about even for a return for these items of approximately \$925.00 for 50-acre farms similar to System E, \$1,600.00 for 100-acre farms (90 acres in cultivation) similar to System E, \$1,390.00 for 100-acre farms (70 acres in cultivation) similar to System E, \$2,680.00 for 150-acre farms (140 acres in cultivation) similar to System D, No. 2; \$2,145.00 for 150-acre farms (100 acres in cultivation) similar to System D, No. 2; and \$3,155.00 for 200-acre farms (180 acres in cultivation) similar to System D. If the value of the products furnished the home were deducted in each case, the remainder would represent the cash return left for the upkeep of the home, living expenses, taxes, savings, and investments. As stated previously, fair to good management is assumed in calculating the expected returns for each system. A more capable manager is required for the larger farms. With unusually good management, returns larger than those shown will be obtained from any of the systems. However, a good manager will usually make larger profits operating a large unit than by operating a small one and, in the case of the system on the smaller farms, if the farmer has a capacity to supply exceptional management it will usually pay him to consider a larger acreage.

There is a best size of farm for every farmer at a given time, depending largely on the kind of farming and upon his ability and inclinations. The amount of property that one has and the credit that one can command are important factors in determining the size of farm that will be operated at any particular time. However, one should try to determine the size of farm that can be handled most effectively as well as the kind of farming that gives best results. The material presented in this Bulletin should be helpful in reaching conclusions in this connection.

### PLANNING FOR A PERIOD OF YEARS

In trying to decide whether or not the system of farming that is being followed is as profitable as some other system that might be followed, one should look about in his own community or in some other communities that have similar conditions, and consider the results that other farmers are getting with other systems. A system that is giving good results on one farm may not give good results on another farm, even in the same community, since no two farms are exactly alike, but this general appraisal of other systems is a good starting place. From it one should get a general idea of crops and livestock adapted to his conditions and how they may be combined into profitable systems of farming.

In reaching a decision as to which of a number of systems that are being considered will likely give best results, definite statements for the different systems should be worked out. These statements are often called farm budgets, and they should show as accurately as can be determined the expenses, receipts and net returns that may reasonably be expected from the different systems considered.



If these budgets are to be helpful in reaching sound conclusions, they must be based on normal crop requirements and yields, normal livestock requirements, and normal production for the area under consideration. Also prices which are most likely to prevail for the products to be sold and for the items to be bought should be used. Therefore, before budget statements are prepared, the crops and livestock that are to be considered should be listed and normal requirements, yields and products recorded for each on the acre or per head basis as indicated by Tables 3, 4, 5 and 6. Then the products to be sold and the items to be bought should be listed and the prices expected under usual conditions in the section recorded for each as indicated by Table 7. Farm building, farm machinery, fence and automobile expenses for the different systems should then be estimated as indicated by Table 6. The yields, production requirements, overhead expenses and prices listed should be those that are most likely to prevail for the particular farm and systems being considered.

The next step in making a farm budget is to decide on the crops and livestock that are to be included. The crops are listed and acreage and requirements and cost of other purchased items recorded as shown by Section A in Table 9. The crops are then listed again in the same order as in the preceding farm and the production, amounts to be fed livestock and the value of the products sold indicated as shown in Section B.

Next, list the different classes of livestock and enter the number and requirements of each and cost of items to be bought opposite as shown in Section C. On another form, record the livestock and livestock products, the quantities to be fed, used in the home, and sold, and the value of the quantities to be sold and used in the home as shown in Section D.

Finally, totals of quantities and values are brought forward from Sections A, B, C and D, and the overhead items estimated as shown in Section E. When these different entries have been totaled as indicated in Section E of Table 9, the net return for the system considered is obtained and the budget is complete.

Budgets should be worked out in this way for the different systems being considered. These budget statements should then be compared, and the farmer, with his own qualifications and aptitudes in mind, should be able to select the system to be followed. It is not usually necessary to make comparisons of this kind involving other systems each year. Abrupt changes in a system of farming are expensive and often involve the necessity of learning new things or buying new equipment. When a system is decided upon, it should be followed until general economic conditions have materially changed or marked changes have taken place on the farm.

#### PLANNING FOR THE COMING YEAR

While the same general system of farming should usually be followed for a period of years, it may not be possible or advisable to grow the same acreage of crops or keep the same numbers of the different types

of livestock each year. Conditions on the farm change from year to year. Conditions outside the farm, particularly those affecting prices, change from time to time, and whenever changes of either kind occur modifications are advised in the system of farming.

Table 16.—Expected returns for different systems for 100-acre farms with varying prices of cotton.

System	Returns per system with varying prices		
	16 cent	20 cent	12 cent
A.....	\$ 1,499.16	\$ 2,111.16	\$ 887.16
B.....	1,677.34	2,180.54	1,174.14
C.....	1,841.88	2,201.88	1,481.88
D.....	1,947.55	2,222.11	1,672.99
E.....	1,966.09	2,163.89	1,768.29
F.....	1,943.94	2,075.94	1,811.94

The expected returns on farms of different systems for 100-acre farms (90 acres cultivated) with cotton at different prices are shown in Table 16. In this table the figures opposite the 16-cent price figure for cotton are brought forward from Table 10. The expected returns for these same systems have been calculated with cotton at 20 cents a pound and with cotton at 12 cents a pound, the prices for the other products remaining the same as in the preceding calculations. It will be observed that with cotton at 16 cents a pound, E-System, with approximately one-fourth of the cultivated land in cotton, is the most profitable. With cotton at 20 cents a pound, D-System, with approximately three-eighths of the cultivated land in cotton, is the most profitable. With cotton at 12 cents a pound, F-System, with approximately one-eighth of the cultivated area in cotton, is the most profitable.

If one were following a system that provided for keeping approximately one-fourth of the cultivated area in cotton and conditions affecting cotton prices indicated that, instead of a 16-cent price for cotton, a price considerably higher would be obtained, it would be advisable to increase the acreage of cotton somewhat and reduce the acreage of other crops. On the other hand, if conditions affecting cotton prices indicated a price considerably lower than 16 cents a pound, it would be advisable to decrease the acreage of cotton somewhat and increase the acreage of other crops. It probably would not be advisable in either case to increase or decrease the acreage of cotton as much as the returns shown in Table 16 indicate, since even minor adjustments of this kind affect the entire farming system. Whenever conditions indicate that prices of some products are likely to be high or low during a particular year as compared to other products, minor modifications of farm plans should be considered. Comparisons involving minor changes of this kind are advisable at the beginning of each year. It is in connection with such changes that information relative to both production trends and market prospects should prove valuable.

## SUMMARY AND CONCLUSIONS

The systems of farming in the Black Waxy Prairie Belt of Texas are strikingly uniform and characterized by a single crop—cotton. This enterprise is the source of more than 90 per cent of the gross farm income of the area. Despite the high degree of uniformity in organization, significant variations are found scattered throughout the region.

The net income from farms on which detailed records and accounts were kept showed a marked tendency to increase with an increase in the size of farm, but there were noticeable exceptions. One 83-acre farm made an average annual net income for the three-year period of \$1,780.00, while one of 79 acres averaged only \$643.00 for the same period. This 83-acre farm showed a higher average income than three farms whose acreages averaged 95, 137 and 129, respectively. Evidently the difference in net returns was not due altogether to a variation in size. The farmer and the organization and operation of the farm are important factors in this connection.

The conclusions reached in this study are based upon the results obtained on 500 farms in 1922, a detailed study of a few carefully selected farms in 1925, 1926 and 1927, experimental data applicable to conditions in the area, and a careful study of the prevailing prices in the section in recent years. From the data thus secured, normal crop yields, livestock production, crop and livestock requirements, and probable prices, were determined.

Based on these normal yields, requirements and prices, several systems of farming have been outlined for 50-, 100-, 150- and 200-acre farms. These systems vary in organization from those in which all cultivated land is in cotton to those in which only one-eighth of the cultivated land is devoted to cotton. Feed crops for farm livestock have been substituted for reductions in cotton acreage.

Invariably the net returns from these systems were found to be lowest for those in which all of the cultivated land was in cotton, and to increase up to a point at which about one-fourth of the cultivated land was devoted to cotton, provided the reduction in cotton acreage was used effectively in growing feed crops for livestock. Systems with one-fourth to one-half of the cultivated land in cotton showed larger net incomes than did larger or smaller cotton acreages. The variations in returns for systems within this range are not very great, and when compared with the differences in farms and in farmers are not considered sufficiently significant to justify general conclusions.

In other words, a farmer with special aptitude for handling livestock and operating a farm well adapted to growing feed crops as compared with other farms in the region will probably get the largest net returns by growing only a small acreage of cotton, and in exceptional cases might find it profitable to displace cotton entirely. On the other hand, a farmer unusually successful in growing cotton, on a farm well adapted to cotton, will probably find it profitable to keep as much as one-half of the cultivated land in cotton, and in exceptional cases even more.

When a profitable system of farming has been worked out, the same basic plan should usually be followed for a period of years. It is seldom wise to make abrupt changes, and certainly not until they are justified by careful study. It may not be possible or advisable, however, to grow the same acreage of each crop or keep the same numbers of the different types of livestock each year. Conditions on the farm change from time to time. Crop failures occur and livestock diseases are to be reckoned with. Conditions outside the farm also change. Often for a given year facts will be available that will indicate particularly favorable prices for some products or unfavorable prices for others. In such cases increases in some lines of production and decreases in others may be advisable. In making such changes, however, one should consider the probable prices at the time the products are to be ready for the market rather than the prices prevailing at planting or breeding time.

## APPENDIX

Table 17.—Man-labor requirements per acre, by operations, for cotton, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop	Yield per acre Lb. lint	Hours labor, except picking		Seed (bushels)		Hours Labor														
							Stalk disposal		Seed bed preparation		Planting		Cultivating		Chopping and hoeing		Picking		To gin		Miscellaneous
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	
11	49.00	207.20	874.00	17.84	40.00	.82	41.00	1.05	176.00	3.59	72.00	1.47	239.00	4.88	280.00	5.71	66.00	1.35			
7	78.00	251.70	1428.00	18.31	69.00	.87	41.00	1.00	145.00	1.86	130.00	1.67	419.00	5.37	438.00	5.62	141.00	1.81			
18	64.00	226.20	1227.00	19.17	47.50	.74	54.00	.84	223.00	3.48	120.00	1.88	424.00	6.62	352.00	5.50	35.00	.55	19.00	.30	
12	146.00	215.80	3011.00	20.62	140.00	.96	73.00	.61	599.00	2.73	170.00	1.16	714.00	4.89	1181.00	8.09	242.00	1.66	232.00	1.59	
6	38.00	201.00	830.25	21.85	30.00	.79	43.50	1.21	106.50	2.80	60.00	1.58	212.00	5.58	332.25	8.74	70.00	1.84	6.00	.16	
19	224.00	215.40	5004.00	22.34	221.00	1.00	88.50	.41	733.00	3.41	309.50	1.38	1334.00	5.96	2079.50	9.24	239.00	1.07	44.50	.20	
4	95.00	266.60	2175.50	22.90	47.50	.50	117.00	1.23	277.50	2.92	139.00	1.46	663.00	6.98	752.00	7.92	4251.50	44.75	140.50	1.48	
21	54.00	152.60	1260.00	23.30	54.00	1.00	63.50	1.18	161.50	2.99	78.50	1.45	292.50	5.42	486.00	9.00	1520.00	28.15	106.50	1.97	
23	124.00	252.20	3066.00	24.72	129.00	1.04	104.50	1.01	386.50	3.12	246.50	1.99	1153.00	9.30	1015.50	8.19	152.00	1.22	8.00	.06	
13	52.00	253.40	1289.00	24.78	52.00	1.00	59.00	1.13	127.50	2.45	88.50	1.70	367.00	7.06	531.50	10.22	107.50	2.07	8.00	.15	
15	66.00	203.10	1723.50	26.11	66.00	1.00	52.00	.79	210.50	3.19	175.00	2.65	452.50	6.86	737.00	11.17	93.50	1.42	3.00	.04	
22	81.00	256.50	2218.00	27.38	83.50	1.03	102.00	1.36	204.50	2.52	111.00	1.37	453.00	5.63	1171.50	14.46	156.00	1.92	17.00	.21	
2	36.60	140.00	1003.50	27.42	36.60	1.00	36.00	1.22	83.50	2.28	57.50	1.57	283.00	7.73	447.50	12.23	1282.00	35.03	41.00	1.12	
16	51.00	120.70	1436.00	28.15	51.60	1.01	16.50	.49	235.00	4.61	105.50	2.07	318.50	6.24	623.00	12.22	†		137.50	2.70	
14	89.00	217.70	2512.50	28.22	88.50	1.00	89.00	1.00	304.00	3.42	190.50	2.14	561.00	6.30	1244.00	13.98	68.00	.76	56.00	.63	
3	62.00	202.70	1925.00	31.00	62.00	1.00	31.00	.50	201.00	3.24	125.50	2.02	523.00	8.44	899.00	14.50	113.00	1.82	20.00	.32	
1	36.00	234.80	1195.00	33.19	36.00	1.00	44.50	1.44	147.50	4.10	82.00	1.72	308.50	8.57	524.50	14.57	2320.50	64.46	60.50	1.68	
8	127.00	282.90	4234.75	33.34	115.00	.91	199.25	1.61	442.50	3.25	589.00	*4.33	1202.00	9.46	1618.00	12.72	186.00	1.46			
20	42.00	222.10	1421.50	33.84	49.50	1.18	60.50	1.44	217.00	5.17	55.00	1.31	220.50	5.25	768.00	18.28	1416.50	33.73	63.00	1.50	
9	13.50	131.50	500.25	37.05	12.00	.89	14.00	1.17	81.75	6.06	37.00	2.74	145.50	10.78	199.50	14.78	408.00	30.22	10.00	.74	
10	133.20	199.80	4939.50	37.08	136.00	1.02	115.00	.92	1071.00	8.04	335.50	2.52	1073.00	8.06	1883.00	14.14	171.00	1.28	275.00	2.06	
5	79.00	202.60	3107.75	39.34	38.00	.48	90.00	1.14	226.75	2.87	140.50	1.78	683.00	8.64	1770.00	22.40	2041.75	34.03	142.00	1.80	
17	225.00	182.10	9689.00	43.06	262.00	1.16	200.00	.89	1653.00	7.35	491.00	2.18	2184.00	9.62	4666.00	20.74	304.00	1.35	211.00	.94	
Av.	85.45	208.04	.....	28.53	.....	.95	.....	.96	.....	3.97	.....	1.97	.....	7.23	.....	12.20	.....	39.28	.....	1.41	.....

\*High because entire crop was rolled and a part replanted.

†Contract labor—hours not reported.



Table 18.—Man-labor requirements per acre, by operations, for cotton, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre Lb. lint	Hours labor, except picking		Seed (bushels)		Hours Labor															
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed preparation		Planting		Cultivating		Chopping and hoeing		Picking		To gin		Miscellaneous	
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
18	50.5	207.19	976.25	19.33	35.00	.71	.....	.....	160.75	3.18	98.0	1.94	291.0	5.76	355.0	7.03	.....	.....	49.5	.98	10.50	.21
6	68.0	265.24	1452.25	21.36	77.00	1.13	46.50	.73	118.50	1.74	83.25	1.22	442.0	6.50	613.0	9.01	.....	.....	128.0	1.88	6.00	.09
26	104.5	284.89	2385.25	22.83	125.00	1.20	57.75	.60	390.00	3.73	94.25	.90	544.0	5.20	1083.0	10.36	.....	.....	300.0	2.87	20.00	.19
4	156.6	308.02	3595.00	23.04	200.00	1.28	173.50	1.14	297.50	1.71	201.00	1.29	758.0	4.83	1787.0	11.45	.....	.....	408.0	2.61	.....	.....
10	49.6	232.04	1135.00	23.16	55.00	1.12	42.00	1.05	169.00	3.45	62.00	1.25	305.0	6.22	434.0	8.86	.....	.....	115.0	2.35	.....	.....
5	101.0	284.02	2551.00	25.26	195.00	1.04	104.00	1.03	192.00	1.90	115.00	1.14	455.0	4.50	1361.0	13.47	.....	.....	228.0	2.26	36.00	.36
15	45.3	250.31	1160.50	25.62	50.00	1.10	53.00	1.23	90.00	1.99	100.50	2.22	319.0	7.04	527.5	11.64	.....	.....	46.0	1.01	9.00	.20
7	54.0	325.42	1442.50	26.71	42.00	.78	56.00	1.10	194.00	3.59	52.00	.96	314.0	5.81	676.5	12.53	.....	.....	141.0	2.61	8.50	.16
8	145.0	331.21	3910.00	26.78	85.00	.58	91.00	.62	362.00	2.48	225.00	1.54	645.0	4.42	2096.0	14.36	7101.5	48.34	235.5	1.62	3.00	.02
11	36.5	*302.74	980.50	26.86	32.50	.89	46.00	1.67	129.50	3.55	57.00	1.56	207.5	5.68	384.0	10.52	.....	.....	144.5	3.96	.....	.....
19	63.0	177.82	1699.00	23.97	55.00	.87	20.00	.61	111.00	1.76	75.00	1.19	343.5	5.45	1053.5	16.72	.....	.....	92.0	1.46	.....	.....
1	36.0	130.11	977.00	27.14	45.00	1.25	42.50	1.18	104.00	2.89	53.00	1.47	211.0	5.86	521.5	14.49	909.0	25.25	33.0	1.00	.....	.....
24	222.0	284.73	6054.50	27.27	229.00	1.03	155.50	.72	695.00	3.13	216.00	.97	1608.0	7.24	3184.5	14.34	.....	.....	195.5	.88	.....	.....
13	87.6	218.52	2446.50	28.12	80.00	.92	62.50	.90	254.00	2.92	110.00	1.26	538.0	6.18	1293.0	14.86	.....	.....	189.0	2.17	.....	.....
9	114.0	251.35	3237.00	28.39	90.00	.79	106.50	.93	296.00	2.60	151.00	1.32	610.0	5.35	1885.0	16.53	.....	.....	179.5	1.57	.....	.....
12	27.0	214.26	771.25	28.56	25.00	.92	26.50	1.32	85.25	3.16	50.50	1.87	150.5	5.57	334.5	12.39	.....	.....	56.0	2.07	.....	.....
25	41.0	96.88	1192.50	29.08	40.00	.97	28.00	1.46	137.00	3.34	57.00	1.39	319.0	7.78	608.5	14.84	846.0	20.63	43.0	1.05	.....	.....
23	17.6	174.77	529.50	30.08	18.00	1.02	12.50	.71	77.00	4.37	37.50	2.13	121.5	6.90	248.0	14.09	.....	.....	32.0	1.82	.....	.....
27	106.8	368.44	3229.50	30.24	90.00	.84	59.00	.55	230.00	2.15	183.00	1.74	704.0	6.59	1559.5	14.60	5487.0	51.38	238.0	2.23	44.00	.41
2	97.0	186.57	2948.50	30.40	99.00	1.02	72.00	.76	617.00	6.36	121.50	1.25	554.5	5.71	1460.0	15.05	2285.5	23.56	101.5	1.05	.....	.....
16	54.5	254.92	1721.00	31.58	51.00	.93	42.75	.84	224.25	4.11	73.00	1.34	486.0	8.92	820.0	15.04	.....	.....	75.0	1.38	.....	.....
14	106.5	227.08	3463.25	32.52	100.00	.94	130.50	1.22	536.75	5.04	111.00	1.04	1338.0	12.56	1306.0	12.26	.....	.....	.....	.....	40.00	.33
17	94.4	194.19	3121.25	33.03	84.00	.89	90.50	1.12	219.25	2.32	143.00	1.51	458.0	4.85	2062.0	21.84	.....	.....	87.5	.93	.....	.....
30	53.0	191.47	1904.50	35.93	40.00	.75	35.00	.66	149.50	2.82	97.00	1.83	355.0	6.70	1214.0	22.90	1597.0	30.13	54.0	1.02	.....	.....
2	84.0	148.97	2484.50	38.82	67.00	1.05	67.75	1.25	201.25	3.14	114.50	1.79	512.5	8.00	1428.0	22.31	.....	.....	81.5	1.27	70.50	1.10
21	59.0	297.83	12338.00	39.63	55.00	.93	37.00	.63	240.00	4.07	108.00	1.83	404.0	6.85	1375.5	23.31	3311.0	56.12	134.0	2.27	.....	.....
22	232.0	238.51	10423.25	44.93	282.00	1.21	243.25	1.31	692.00	2.98	334.00	1.44	2015.0	8.68	6448.0	27.79	.....	.....	310.0	1.34	.....	.....
Av.	84.65	254.08	.....	29.81	.....	.99	.....	.93	.....	3.04	.....	1.37	.....	6.57	.....	15.80	.....	39.97	.....	1.70	.....	.29

\*Includes 8.14 pounds per acre damage done by pipe line.

†Contract labor.

‡Includes 84 hours gratis labor.

Table 19.—Horse-labor requirements per acre, by operations, for cotton, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop	Yield per acre lb. lint	Hours labor				Seed (bushels)		Hours Labor										
			Hours labor		Seed (bushels)		Stalk disposal		Seed bed Prep.		Planting		Cultivating		To gin		Miscellaneous		
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	
7	78.00	251.70	1568.00	20.10	69.00	.87	82.0	2.00	442.00	5.67	206.00	2.64	838.0	10.74	282	3.62	.....	.....	
12	146.00	215.80	3818.00	26.15	140.00	.96	174.0	1.45	1380.00	9.45	340.00	2.33	1428.0	9.78	488	3.34	8.0	.05	
6 <sup>1</sup>	38.00	201.00	1038.75	27.34	30.00	.79	87.0	2.42	280.75	7.39	120.00	3.16	424.0	11.16	127	3.34	.....	.....	
11	49.00	207.20	1368.00	27.91	40.00	.82	82.0	2.10	503.00	10.26	138.00	2.82	507.0	10.35	132	2.69	.....	.....	
19	224.00	215.40	6326.00	28.24	224.00	1.00	259.5	1.24	2255.50	10.07	619.00	2.76	2668.0	11.91	478	2.13	46.0	.20	
16 <sup>2</sup>	51.00	120.70	1521.00	29.82	51.60	1.01	45.0	1.34	568.00	11.14	211.00	4.14	637.0	12.49	.....	.....	60.0	1.18	
22	81.00	256.50	2419.00	29.86	83.50	1.03	166.0	2.21	772.00	9.53	222.00	2.74	905.0	11.17	312	3.85	42.0	.52	
18	64.00	226.20	1954.00	30.53	47.50	.74	64.0	1.69	673.00	10.52	240.00	3.75	844.0	13.19	70	1.09	19.0	.30	
2	36.60	140.00	1131.00	30.90	36.60	1.00	48.0	2.18	293.00	8.00	115.50	3.16	566.0	15.46	82	2.24	33.0	.90	
21	54.00	152.60	1672.50	30.97	54.00	1.00	90.0	1.67	545.00	10.09	157.00	2.91	595.5	11.03	208	3.85	77.0	1.42	
14	89.00	217.70	2796.00	31.41	88.50	1.00	192.0	2.16	942.00	10.58	348.00	3.91	1122.0	12.61	136	1.53	56.0	.63	
5	79.00	202.60	2546.75	32.24	38.00	.48	158.0	2.00	706.75	8.95	262.00	3.32	1358.0	17.19	284	3.59	21.0	.26	
13	52.00	253.40	1695.00	32.60	52.00	1.00	110.0	2.12	464.00	8.92	164.00	3.15	734.0	14.12	215	4.13	8.0	.15	
4	95.00	266.60	3106.00	32.69	47.50	.50	265.0	2.79	918.00	9.66	272.00	2.86	1317.0	13.86	230	2.95	46.0	.48	
15	66.00	203.10	2185.50	33.11	63.00	1.00	104.0	1.58	673.50	10.20	310.00	4.70	905.0	13.71	187	2.83	6.0	.09	
3	62.00	202.70	2129.50	34.34	62.00	1.00	76.0	1.22	544.50	8.78	241.00	3.89	1041.0	16.79	204	3.29	14.0	.22	
23	124.00	252.20	4461.50	35.98	129.00	1.04	254.5	2.47	1185.00	9.56	433.00	3.49	2277.0	18.36	304	2.45	8.0	.06	
1	36.00	234.80	1313.50	36.49	36.00	1.00	84.0	2.71	390.50	10.85	124.00	3.44	562.0	15.61	121	3.36	3.0	.08	
20	42.00	222.10	1559.00	37.12	49.50	1.18	121.0	2.88	706.50	16.82	110.00	2.62	441.0	10.50	124	2.95	56.5	1.34	
9	13.50	161.50	549.50	40.70	12.00	.89	28.0	2.33	147.50	10.92	63.00	4.67	291.0	21.56	20	1.48	.....	.....	
8	127.00	282.90	5443.50	42.86	115.00	.91	398.5	3.21	1179.00	8.67	1102.00	8.10	2392.0	18.83	372	2.93	.....	.....	
10 <sup>3</sup>	133.20	199.80	6211.00	46.63	136.00	1.02	222.0	1.94	2856.50	21.44	605.00	4.54	2146.0	16.11	355	2.66	190.5	1.43	
17	225.00	182.10	12317.00	54.74	262.00	1.16	592.0	2.63	5910.00	26.27	883.00	3.92	4328.0	19.24	594	2.64	10.0	.04	
Av.	85.45	208.04	.....	35.17	.....	.95	.....	2.07	.....	12.33	.....	3.69	.....	14.41	.....	2.81	.....	.....	.42

<sup>1</sup>10 additional tractor hours in seed bed preparation.<sup>2</sup>12 additional tractor hours in seed bed preparation.<sup>3</sup>22 additional tractor hours in seed bed preparation.

Table 20.—Horse-labor requirements per acre, by operations, for cotton, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre lb. lint	Hours labor		Seed (bushels)		Hours Labor												
							Stalk disposal		Seed bed Prep.		Planting		Cultivating		To gin		Miscellaneous		
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	
8	146.00	331.21	3482.25	23.85	85.0	.58	273.25	1.87	957.50	6.56	434.5	2.98	1290.0	8.83	473.0	3.24	6	.04	
19	63.00	177.82	1507.50	23.93	55.0	.87	43.50	.69	387.00	6.14	198.0	3.14	687.0	10.90	184.0	2.92			
18 <sup>1</sup>	50.50	207.19	1212.50	24.01	36.0	.71			291.50	5.77	196.0	3.88	582.0	11.52	99.0	1.96	21	.41	
17	94.40	194.19	2302.50	24.39	84.0	.89	191.25	2.02	639.25	6.77	274.0	2.90	907.0	9.61	175.0	1.85			
4	156.00	308.02	3858.50	24.73	200.0	1.28	347.00	2.22	777.50	4.98	402.0	2.58	1516.0	9.72	816.0	5.23			
5	101.00	284.02	2520.00	24.95	105.0	1.04	276.00	2.73	576.00	5.70	230.0	2.28	910.0	9.00	458.0	4.51	36	.36	
1	36.00	130.11	978.00	27.17	45.0	1.25	91.00	2.53	287.50	7.99	106.0	2.94	419.5	11.65	70.0	1.94			
9	114.00	251.35	3176.00	27.86	90.0	.79	213.00	1.87	1079.00	9.45	302.0	2.65	1220.0	10.70	354.0	3.10			
6	68.00	265.24	1932.00	28.41	77.0	1.13	127.00	1.87	461.00	6.78	172.5	2.54	884.0	13.00	251.0	3.69	12	.18	
15	45.30	250.31	1316.50	29.06	50.0	1.10	111.50	2.46	296.00	6.53	137.0	3.02	632.0	13.95	192.0	4.24	27	.60	
24	222.00	284.73	6516.25	29.35	229.0	1.03	428.75	1.93	2048.50	9.23	432.0	1.94	3216.0	14.49	391.0	1.76			
27	106.80	368.44	3148.50	29.48	90.0	.84	173.50	1.62	664.00	6.22	354.0	3.31	1475.0	13.81	456.0	4.27	24	.22	
26	104.50	284.89	3087.75	29.55	125.0	1.20	204.00	1.95	772.75	7.39	188.5	1.80	1088.0	10.41	600.0	5.74	40	.38	
20	53.00	191.47	1587.00	29.94	40.0	.75	105.00	1.98	523.00	9.92	138.0	2.60	710.0	3.40	108.0	2.04			
12	27.00	214.26	810.00	30.00	25.0	.92	53.00	1.96	225.00	8.33	101.0	3.74	301.0	11.15	108.0	4.00			
13	87.00	218.52	2621.50	30.13	80.0	.92	188.50	2.17	770.00	8.85	220.0	2.53	1065.0	12.24	378.0	4.34			
7	54.00	325.42	1689.00	31.28	42.0	.78	112.00	2.07	545.00	10.09	104.0	1.92	628.0	11.63	282.0	5.22	17	.31	
10	49.00	232.04	1543.00	31.49	55.0	1.12	79.00	1.61	491.00	10.02	121.0	2.47	603.0	12.37	230.0	4.69			
25	41.00	96.88	1303.00	31.78	40.0	.97	49.00	1.19	416.00	10.15	114.0	2.78	638.0	15.56	86.0	2.10			
11 <sup>2</sup>	36.50	*302.74	1222.00	33.43	32.5	.89	92.00	2.52	290.00	7.94	114.0	3.12	417.0	11.42	289.0	7.92			
22	232.00	238.51	7909.00	34.09	282.0	1.21	444.50	1.91	2146.50	9.25	668.0	2.88	4030.0	17.37	620.0	2.67			
3	64.00	148.97	2217.75	34.65	67.0	1.05	184.75	2.89	605.00	9.45	219.0	3.42	997.5	15.58	159.0	2.48	48	.75	
2	97.00	186.57	3460.00	35.67	99.0	1.02	216.00	2.23	1689.00	17.41	243.0	2.50	1109.0	11.43	203.0	2.09			
21	59.00	297.83	†2200.50	37.30	55.0	.93	112.05	1.91	760.00	12.88	216.0	3.66	786.0	13.32	†268.0	4.54			
16	54.50	254.92	2042.75	37.48	51.0	.93	92.00	1.89	686.75	12.60	142.0	2.60	972.0	17.83	150.0	2.75			
23	17.60	174.77	680.00	38.34	18.0	1.02	31.00	1.73	285.00	15.06	75.0	4.26	243.0	13.81	34.0	3.94			
14	106.50	227.08	4368.00	41.01	100.0	.94	306.00	2.87	1270.00	11.92	222.0	2.08	2276.0	21.37	252.0	2.37	40	.37	
Av.	84.65	254.08	.....	30.05	.....	.99	.....	.....	2.23	.....	8.72	.....	2.38	.....	12.95	.....	3.38	.....	.32

\*Includes 8.14 pounds per acre damage done by pipe line.

†Includes 168 hours gratis labor.

†41.75 additional tractor hours in seed bed preparation.

†14 additional tractor hours in seed bed preparation.

Table 21.—Man-labor requirements per acre, by operations, for corn, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop	Yield per acre (bu.)	Hours labor		Seed (bushels)		Hours Labor													
							Stalk disposal		Seed bed preparation		Planting		Cultivating		Thinning and hoeing		Harvesting		Miscellaneous	
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
21	20.50	20.50	295.50	14.41	3.50	.17	5.00	1.00	25.00	1.22	39.0	1.90	51.0	2.49	51.5	2.51	89.0	4.34	3.0	.15
13	17.00	20.70	248.00	14.59	2.00	.12	13.50	.79	37.50	2.20	34.0	2.00	58.0	3.41	46.0	2.71	52.0	3.06	7.0	.41
15	24.00	15.05	366.00	15.25	3.00	.12	29.50	1.23	51.50	2.14	116.5	4.85	52.0	2.17	4.0	4.00	112.5	5.62	.....	.....
17	20.00	3.80	308.00	15.40	5.00	.25	24.00	1.20	56.00	2.80	87.0	4.35	40.0	2.00	35.0	1.75	66.0	3.30	.....	.....
23	24.00	9.40	403.50	16.81	3.50	.14	19.50	.81	53.00	2.21	90.0	3.75	72.0	3.00	64.0	2.67	105.0	4.38	.....	.....
2	21.50	10.40	414.50	19.28	2.70	.12	13.00	2.74	48.00	2.23	76.5	3.56	116.0	5.40	71.0	3.30	70.0	5.26	20.0	.93
18	10.50	20.60	204.00	19.42	2.00	.19	10.00	.95	31.00	2.95	16.0	1.52	55.0	5.24	48.0	4.57	50.0	4.76	.....	.....
22	13.00	23.07	253.00	19.46	1.50	.12	28.00	2.15	26.00	2.00	12.0	.92	31.0	2.38	87.0	6.69	69.0	5.31	.....	.....
7	8.00	45.00	172.00	21.50	1.00	.12	8.00	1.00	12.00	1.50	8.0	1.00	54.0	6.75	15.0	1.88	75.0	9.38	.....	.....
1	13.00	23.07	303.50	23.35	1.62	.12	14.00	1.08	35.00	2.69	22.0	1.39	67.0	5.15	72.5	5.58	91.0	7.00	2.0	.15
11	11.00	27.30	260.00	23.63	1.50	.14	12.00	1.09	31.00	2.82	24.0	2.18	57.0	5.18	81.0	7.36	55.0	5.00	.....	.....
9	7.00	8.60	174.50	24.90	2.00	.28	3.00	.43	42.00	6.00	14.0	2.00	48.0	6.86	27.0	3.86	21.0	3.00	15.5	2.21
6	7.50	17.33	188.75	25.17	12.50	.26	6.75	.90	13.50	1.80	46.0	4.84	33.5	4.47	29.5	3.93	59.5	7.93	.....	.....
3	13.00	12.90	376.00	28.92	1.25	.10	12.00	.92	28.00	2.15	50.0	3.85	64.0	4.92	84.5	6.50	122.0	9.38	19.5	1.50
19	7.00	18.30	234.50	33.50	1.00	.14	8.50	1.21	20.00	2.86	50.0	7.14	37.0	5.28	90.0	12.86	29.0	4.14	.....	.....
14	16.00	21.90	560.50	35.00	2.00	.12	38.00	2.38	38.00	2.38	65.0	4.06	45.0	2.81	212.5	13.28	162.0	10.12	.....	.....
16	.63	15.87	22.50	36.00	.08	.12	.....	.....	1.50	2.38	4.5	7.14	5.5	8.73	4.0	6.35	4.0	6.35	3.0	4.76
5	3.00	16.70	118.25	39.40	.38	.12	3.00	1.00	10.25	3.42	*34.0	1.70	17.5	5.83	38.5	12.83	11.0	3.67	4.0	1.33
20	15.00	18.10	647.00	43.13	3.00	.20	6.00	1.50	45.50	3.03	50.0	3.33	65.5	4.37	70.0	4.37	401.0	2.67	9.0	.60
Av.	13.24	17.03	.....	22.03	.....	.16	.....	1.22	.....	2.40	.....	3.30	.....	3.85	.....	4.95	.....	6.34	.....	.75

\*20 acres planted.

†In addition 2,400 pounds of fodder per acre on 1.25 acres were produced.

‡Planted and replanted 9.5 acres, harvested only 7.5 acres.

§High—replanted all.

Table 22.—Man-labor requirements per acre, by operations, for corn, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor											
							Stalk disposal		Seed bed preparation		Planting		Cultivating		Thinning and hoeing		Harvesting	
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
18	14.20	46.55	236.25	16.64	4.00	.28	12.00	.84	26.25	1.85	32.00	2.25	38.0	2.68	45.0	3.17	83.0	5.84
7	7.50	32.00	154.50	20.60	1.00	.13	6.00	.80	16.00	2.13	12.00	1.60	44.0	5.87	41.5	5.53	35.0	4.67
20	2.20	45.45	46.50	21.14	.25	.11	1.00	.45	3.50	1.59	4.00	1.82	6.0	2.73	20.0	9.09	12.0	5.45
14	16.20	37.04	345.75	21.34	2.50	.15	11.50	.72	108.75	6.71	32.00	1.98	54.5	3.36	27.0	1.67	112.0	6.91
4	8.25	30.30	177.00	21.45	1.50	.18	9.00	1.09	23.00	2.79	14.00	1.70	26.0	3.15	49.0	5.94	56.0	6.79
19	19.00	36.74	414.00	21.79	3.50	.18	24.50	1.29	50.00	2.63	35.00	1.84	98.5	5.18	101.0	5.32	105.0	5.53
25	16.20	23.15	376.50	23.24	2.12	.13	.....	.....	57.00	3.52	27.00	1.67	94.5	5.83	102.0	6.30	91.0	5.62
6	7.00	35.00	168.00	24.00	1.00	.14	5.50	.78	12.00	1.71	18.00	2.57	15.5	2.21	52.0	7.43	64.0	9.14
2	20.00	45.00	487.00	24.35	3.25	.16	18.00	.90	30.00	1.50	64.00	3.20	76.0	3.80	134.0	6.70	137.0	6.85
22	26.00	37.50	638.25	24.55	3.00	.12	18.75	.72	82.50	3.17	115.00	4.42	76.0	2.92	166.0	6.38	180.0	6.92
27	25.70	43.58	671.75	26.14	5.50	.21	14.25	.55	58.50	2.28	130.50	5.08	119.5	4.65	162.0	6.30	187.0	7.28
11	8.70	†47.24	235.00	27.01	1.50	.17	10.00	1.15	50.00	5.75	25.00	2.87	42.5	4.88	76.5	8.79	30.0	3.45
13	14.70	33.06	417.00	28.37	2.00	.14	15.00	1.02	30.00	2.04	20.00	1.36	66.0	4.49	221.0	15.03	65.0	4.42
9	13.25	49.96	393.50	29.70	2.00	.15	.....	.....	29.00	2.19	35.00	2.64	62.5	4.72	135.5	10.23	125.5	9.47
24	4.40	27.27	130.75	29.72	2.00	.44	3.25	.74	15.50	3.52	34.00	7.73	34.0	7.73	24.0	5.45	20.0	4.54
26	18.60	32.26	563.25	30.28	2.00	.11	7.25	.51	69.25	3.72	47.25	2.54	59.0	3.17	235.5	12.66	135.0	7.26
12	7.50	46.67	248.25	33.10	1.25	.16	7.75	1.03	46.00	6.13	13.00	1.73	38.0	5.07	73.5	9.80	70.0	9.33
10	1.80	38.89	60.00	33.33	*1.50	.22	.50	.28	7.50	4.17	*25.00	3.73	2.0	1.11	6.0	3.33	19.0	10.56
1	13.00	46.15	445.00	34.23	5.00	.38	25.50	1.96	65.50	5.04	85.00	6.54	77.0	5.92	97.0	7.46	94.0	7.23
3	8.00	44.62	346.25	43.28	1.50	.19	5.25	.66	16.00	2.00	39.00	4.88	48.5	6.06	130.5	16.31	98.5	12.31
17	13.00	30.77	586.25	45.10	1.75	.13	14.50	1.12	25.75	1.98	17.00	1.31	112.0	8.62	302.0	23.23	115.0	8.85
Av.	12.63	38.54	.....	26.92	.....	.18	.....	.92	.....	3.10	.....	3.11	.....	4.49	.....	8.30	.....	6.92

\*Planted 6.7 acres and replanted 5 but harvested only 1.8 acres.

†Includes 4.02 bushels per acre damage done by pipe line.



Table 23.—Horse-labor requirements per acre, by operations, for corn, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop.	Yield per acre (Bu.)	Hours Labor															
			Hours labor		Seed (bushels)		Stalk disposal		Seed bed Prep.		Planting		Cultivating		Harvesting		Miscellaneous	
			Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
21	20.50	20.50	429.50	20.95	3.50	17	10.0	2.00	100.00	4.88	41.5	2.02	102.0	4.98	170	8.29	6	.29
11	11.00	27.30	249.00	22.63	1.50	14	24.0	2.18	86.00	7.82	48.0	4.36	66.0	6.00	25	2.27		
23	24.00	9.40	552.50	23.01	3.50	14	36.5	1.52	177.00	7.38	135.0	5.62	138.0	5.75	66	2.75		
15	24.00	15.05	591.00	24.62	3.00	12	43.0	1.79	146.50	6.10	189.5	7.90	104.0	4.33	108	5.40		
22	13.00	23.07	322.00	24.76	1.50	12	38.0	2.92	100.00	7.69	24.0	1.85	62.0	4.77	98	7.54		
13	17.00	20.70	438.00	25.76	2.00	12	27.0	1.59	143.00	8.41	73.0	4.29	116.0	6.22	58	3.41	21	1.24
7	8.00	45.00	210.00	26.20	1.00	12	16.0	2.00	36.00	4.50	32.0	4.00	84.0	10.50	42	5.25		
14	16.00	21.90	431.50	26.97	2.00	12	78.0	4.88	120.00	7.50	88.0	5.50	81.5	5.00	64	4.00		
17	20.00	3.80	567.00	28.40	5.00	25	72.0	3.60	234.00	11.20	147.0	7.35	80.0	4.00	44	2.20		
6	7.50	17.33	216.00	28.80	2.50	33	13.5	1.80	40.50	5.40	62.0	6.53	67.0	8.93	33	4.40		
1	13.00	23.07	403.00	31.00	1.62	12	28.0	2.15	98.00	7.54	44.0	3.38	135.0	10.38	94	7.23	4	.31
2	21.50	10.40	698.00	32.00	2.70	12	19.0	4.00	192.00	8.93	153.0	7.12	232.0	10.79	100	4.94		
18	10.50	20.60	348.00	33.14	2.00	19	20.0	1.90	104.00	9.90	94.0	6.10	110.0	10.45	50	4.75		
9	7.00	8.60	264.00	37.70	2.00	28	6.0	.86	82.00	11.71	14.0	2.00	96.0	13.71	42	6.00	13	2.28
5	3.00	16.70	116.25	38.70	.38	12	6.0	2.00	31.25	10.42	34.0	11.33	35.0	11.67	10	3.33		
3	13.00	12.90	521.00	40.08	1.25	10	24.0	1.85	152.00	11.69	76.0	5.85	128.0	9.85	114	8.77	35	2.69
20	15.00	18.10	607.00	40.46	3.00	20	12.0	3.00	182.00	12.13	422.0	8.13	99.0	6.60	186	12.40	6	.40
19	7.00	18.30	289.50	41.20	1.00	14	25.5	3.64	62.00	8.86	70.0	10.00	74.0	10.57	58	8.28		
16	.63	15.87	27.00	42.80	.08	12			4.50	7.14	9.0	14.28	5.5	8.73	8	12.70		
Av.	13.24	17.08		28.92		16		2.40		8.27		5.62		7.21		5.56		1.03

Table 24.—Horse-labor requirements per acre, by operations, for corn, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor									
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed Prep.		Planting		Cultivating		Harvesting	
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
9	13.25	49.96	298.00	22.49	2.00	.15			102.00	7.70	19.0	1.43	81	6.11	84	6.34
13	14.70	33.06	345.00	23.47	2.00	.14	45.00	3.06	90.00	6.12	20.0	1.36	90	6.12	100	6.80
4	8.25	30.30	208.50	25.27	1.50	.18	18.00	2.18	59.50	7.21	23.0	2.79	52	6.30	56	6.79
16	14.20	46.55	376.50	26.51	4.00	.28	25.50	1.80	89.00	6.27	96.0	6.76	72	5.07	94	6.82
20	2.20	45.45	61.00	27.73		.25	3.00	1.36	14.00	6.36	8.0	3.64	12	5.45	24	10.91
27	25.70	43.58	728.00	28.36	5.50	.21	41.75	1.62	162.00	6.30	109.0	4.24	232	9.03	184	7.16
19	19.00	36.74	550.00	28.95	3.50	.18	49.00	2.58	187.00	9.84	35.0	1.84	197	10.37	82	4.32
6	7.00	35.00	203.50	29.07	1.00	.14	16.50	2.36	42.00	6.00	36.0	5.14	31	4.43	78	11.14
7	7.50	32.00	224.00	29.87	1.00	.13	12.00	1.60	44.00	5.87	24.0	3.20	88	11.73	56	7.47
2	20.00	45.00	641.00	32.05	3.25	.16	54.00	2.70	170.00	8.50	103.0	5.15	152	7.60	138	6.90
14	16.20	37.04	522.50	32.25	2.50	.15	29.50	1.82	240.00	14.81	32.0	1.98	109	6.73	112	6.91
26	18.60	32.26	600.50	32.28	2.00	.11	28.25	1.52	222.75	11.98	84.5	4.54	118	6.34	147	7.90
22	26.00	37.50	852.25	32.78	3.00	.12	40.75	1.57	261.50	10.06	168.0	6.46	98	3.77	284	10.92
11	8.70	147.24	289.50	33.28	1.50	.17	18.00	2.07	112.00	12.87	37.5	4.31	85	9.77	37	4.25
25	16.20	23.15	587.00	36.23	2.12	.13			195.00	12.04	27.0	1.67	189	11.67	176	10.86
17	13.00	30.77	529.00	40.69	1.75	.13	30.75	2.36	69.25	5.33	17.0	1.31	182	14.00	230	17.69
3	8.00	44.62	326.75	40.84	1.50	.19	17.75	2.22	63.00	7.88	23.0	2.88	97	12.12	126	15.75
24	4.40	27.27	189.75	43.12	2.00	.45	8.25	1.88	34.50	7.84	39.0	8.86	68	15.45	40	9.09
12	7.50	46.67	349.50	46.60	1.25	.17	15.50	2.07	92.00	12.27	26.0	3.47	76	10.13	140	18.67
10	1.80	38.89	88.00	48.89	*1.50	.22	1.50	.83	17.50	9.72	*35.0	5.22	4	2.22	30	16.57
1	13.00	46.15	670.50	51.58	5.00	.38	51.00	3.92	160.50	12.35	9.62		154	11.85	178	13.69
Average	12.63	38.54		32.58		.18		2.23		9.15		4.10		8.25		9.03

\*Planted 6.7 acres and replanted 5 bu; harvested only 1.8 acres.

†Includes 4.02 bushels per acre damage done by pipe line.

Table 25.—Man-labor requirements per acre, by operations, for oats, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor									
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed Prep.		Planting		Harvesting		Miscellaneous	
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
17.....	*40.00	15.50	130.00	3.20	9.0	3.00					4.00	1.33	126.0	3.15		
7.....	40.00	67.50	214.00	5.30	124.0	3.10			16.0	.40	40.00	1.00	134.0	3.35		
14.....	5.00	44.00	50.00	10.00	15.0	3.00	4.00	.80	16.0	3.20	8.00	1.60	22.0	4.40		
15.....	17.50	33.40	192.50	11.00	42.5	2.43	6.00	2.40	3.5	.44	73.50	4.20	103.5	5.91	6.0	.34
9.....	3.10	37.00	38.00	12.26	7.5	2.42	1.50	.48			12.50	4.03	24.0	7.74		
22.....	14.00	62.80	176.00	12.57	38.0	2.71	12.00	.86			25.00	1.78	149.0	10.64		
12.....	42.00	28.40	545.50	12.99	100.0	2.38			135.0	3.21	33.50	.80	269.0	6.40		
23.....	18.00	42.30	248.50	13.80	40.0	2.22	30.00	1.67	10.0	.56	15.00	.33	193.5	10.75		
11.....	9.00	66.70	125.50	13.94	15.0	1.67	20.00	2.22	10.0	1.11	8.00	.89	87.5	9.72		
6.....	5.00	31.60	70.00	14.00	15.0	3.00	6.00	1.20	4.5	.90	16.00	3.20	39.5	7.90	4.0	.80
20.....	†21.50	26.60	311.00	14.46	46.0	2.79	6.00	.86	67.0	4.32	79.00	4.79	159.0	7.40		
21.....	7.50	28.00	110.50	14.70	23.0	3.07					64.00	8.53	46.5	6.20		
8.....	6.50	48.10	103.25	15.88	16.0	2.46	38.75	5.96			8.50	1.31	56.0	8.62		
18.....	3.00	46.60	49.00	16.33	10.0	3.33					19.00	6.33	30.0	10.00		
2.....	16.40	19.70	274.00	16.70	64.0	3.90	14.00	.85			55.00	3.35	199.0	12.13		
19.....	21.00	40.50	381.50	18.16	60.0	2.86	86.00	4.10			48.00	2.28	247.5	11.78		
3.....	21.00	62.95	404.25	19.25	46.0	2.19	13.50	.64			19.75	.94	342.5	16.31	28.5	1.36
1.....	5.00	36.00	99.50	19.90	20.0	4.00			6.5	1.30	44.00	8.80	30.0	6.00	19.0	3.80
16.....	14.00	38.70	314.50	22.46	34.0	2.42					42.50	1.70	262.0	18.71		
10.....	9.30	37.70	220.50	24.40	26.0	2.80			10.0	1.08	114.50	12.31	96.0	10.32		
5.....	3.00	38.93	88.50	29.50	9.0	3.00					21.50	7.17	67.0	22.33		
13.....	8.00	77.60	255.50	32.00	24.0	3.00	2.50	.56	11.0	3.14	10.00	1.25	229.0	28.62		
Average.....	14.99	42.29		13.35		2.72		1.81		1.80		2.43		8.83		1.18

\*All volunteer but 3 acres.

†Only 16.5 acres were planted.

Table 26.—Man-labor requirements per acre, by operations, for oats, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor										
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed Prep.		Planting		Cultivating		Harvesting		
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	
25.....	7.50	43.20	54.00	7.20	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	183.00	24.40
15.....	4.00	16.72	36.50	9.12	10.00	2.50	1.50	.75	4.00	1.00	4.0	1.00	.....	.....	.....	20.00	5.00
6.....	15.00	33.70	153.50	10.23	50.00	3.33	7.00	.64	6.00	1.09	18.0	1.20	20.0	1.33	.....	96.50	6.43
19.....	5.00	39.60	53.00	10.60	9.00	1.80	1.50	.75	2.00	1.00	20.0	4.00	.....	.....	.....	23.50	5.70
18.....	18.40	42.61	212.25	11.54	30.00	1.63	.....	.....	15.25	.93	46.0	2.50	.....	.....	.....	143.00	7.77
26.....	24.80	51.61	303.25	12.23	84.00	3.39	19.25	.78	40.00	1.61	61.0	2.46	.....	.....	.....	50.00	2.02
11.....	4.80	50.00	68.00	14.17	15.00	3.12	5.00	1.04	.....	.....	4.0	.83	.....	.....	.....	54.00	11.25
24.....	52.00	49.27	836.00	16.08	†100.00	3.26	31.50	4.09	125.50	2.41	184.5	6.01	.....	.....	.....	384.50	7.39
27.....	81.70	66.25	543.75	17.15	35.00	1.10	7.25	.56	115.50	3.64	13.0	.41	.....	.....	.....	408.00	12.87
3.....	22.50	35.51	392.00	17.42	78.00	3.47	22.00	1.22	80.00	3.56	32.5	3.67	.....	.....	.....	207.50	9.22
10.....	3.40	58.53	59.50	17.50	12.00	3.53	2.50	.74	10.00	2.94	12.0	3.53	.....	.....	.....	38.00	11.18
2.....	5.00	34.40	92.50	18.50	12.00	2.40	2.50	.50	.....	.....	5.0	1.00	.....	.....	.....	85.00	17.00
7.....	6.00	48.38	113.50	18.92	13.50	3.08	5.00	.83	5.00	.83	40.0	6.67	25.5	4.25	.....	35.50	5.92
16.....	5.80	56.21	111.50	19.22	15.00	2.59	4.75	.82	17.75	3.06	7.0	1.21	.....	.....	.....	82.00	14.14
14.....	23.00	50.81	457.50	19.89	60.00	2.61	19.50	1.08	120.50	5.24	24.0	1.04	.....	.....	.....	291.00	12.65
17.....	7.40	51.15	149.50	20.20	32.00	4.32	17.50	2.36	.....	.....	20.0	2.70	.....	.....	.....	107.00	14.46
1.....	5.00	58.00	110.50	22.10	*	.....	.....	.....	33.50	6.70	.....	.....	.....	.....	.....	61.00	12.20
22.....	48.00	29.71	1069.00	22.27	†27.50	3.44	17.50	2.69	411.00	8.56	16.0	2.00	.....	.....	.....	623.00	12.98
13.....	5.30	43.40	129.00	24.34	12.00	3.26	6.00	1.13	.....	.....	12.0	2.26	.....	.....	.....	96.00	18.11
8.....	5.00	54.00	129.25	25.85	14.67	2.93	3.25	.65	3.50	.70	28.5	5.70	.....	.....	.....	88.50	17.70
12.....	4.50	55.78	131.25	29.17	12.00	2.67	4.75	1.06	16.25	3.61	6.5	1.44	.....	.....	.....	101.25	22.50
Average.....	14.48	45.56	.....	17.12	.....	2.72	.....	1.19	.....	3.87	.....	2.62	.....	2.17	.....	.....	10.47

\*All volunteer.  
 †40 acres volunteer.  
 ‡21.3 acres volunteer.

Table 27.—Horse-labor requirements per acre, by operations, for oats, Rockwall and Collin Counties, 1925.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor										
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed Prep.		Planting		Harvesting		Miscellaneous		
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	
17.....	40.00	15.50	136.0	3.40	9.0	3.00						16.0	5.33	120	3.00		
7 <sup>1</sup> .....	40.00	67.50	348.0	8.61	124.0	3.10						168.0	4.20	180	4.50		
9 <sup>2</sup> .....	3.10	37.00	38.0	12.26	7.5	2.42	3.0	5.97				25.0	8.06				
23 <sup>3</sup> .....	18.00	42.30	268.0	14.80	40.0	2.22	50.0	2.78	40	2.22		60.0	3.33	118	6.55		
16 <sup>4</sup> .....	14.00	38.70	234.0	16.71	34.0	2.42						170.0	6.80	210	15.00		
18.....	3.00	46.60	52.0	17.33	10.0	3.33						32.0	10.67	20	6.67		
15.....	17.50	33.40	337.0	19.26	42.5	2.43	8.0	3.20	14	1.75	163.0	9.31	152	8.68			
6.....	5.00	31.60	103.0	20.60	15.0	3.00	15.5	3.10	9	1.80	43.5	8.70	35	7.00			
2.....	16.40	19.70	366.0	22.18	64.0	3.90	28.0	1.71			110.0	6.71	242	14.76			
3.....	21.00	62.95	470.5	22.40	46.0	2.19	40.5	1.93			79.0	3.76	333	15.86	18	8.6	
8.....	6.50	48.10	157.5	24.23	16.0	2.46	67.5	10.38			34.0	5.23	56	8.62			
14.....	5.00	44.00	122.0	24.40	15.0	3.00	8.0	1.60	54	10.80	32.0	6.40	28	5.60			
21.....	7.50	28.00	183.0	24.40	23.0	3.07					116.0	15.47	67	8.93			
11.....	9.00	66.70	232.0	25.80	15.0	1.67	52.0	5.78	20	2.22	24.0	2.67	126	14.00			
22.....	14.00	62.80	371.0	26.50	38.0	2.71	33.0	2.36			64.0	4.57	174	12.43			
12.....	42.00	28.40	1114.0	26.52	100.0	2.38			364	8.67	134.0	3.19	352	8.38			
19.....	21.00	40.50	558.0	26.57	60.0	2.86	152.0	7.24			120.0	5.71	286	13.62			
20.....	21.50	26.60	572.0	26.60	46.0	2.79	12.0	1.71	158	10.19	153.0	9.58	244	11.35			
1.....	5.00	36.00	151.0	30.20	20.0	4.00			13	2.60	88.0	17.60	18	3.60	32	6.40	
10 <sup>5</sup> .....	9.30	37.70	293.0	32.50	26.0	2.80			30	3.22	222.0	23.87	41	4.41			
13 <sup>6</sup> .....	8.00	77.60	239.0	36.10	24.0	3.00	5.0	1.11	33	7.57	40.0	5.00	208	26.00			
5.....	3.00	38.93	111.0	37.00	9.0	3.00					34.0	11.33	72	24.00			
Average.....	14.99	42.29		19.73		2.72		4.74		6.11		6.18		9.34		1.92	

<sup>1</sup>48 additional tractor hours in harvesting and seed bed preparation.<sup>2</sup>2 additional tractor hours in harvesting.<sup>3</sup>14 additional tractor hours in harvesting.<sup>4</sup>9 additional tractor hours in harvesting.<sup>5</sup>9 additional tractor hours in harvesting.<sup>6</sup>5 additional tractor hours in harvesting.



Table 28.—Horse-labor requirements per acre, by operations, for oats, Rockwall and Collin Counties, 1926.

Farm No.	Acres in crop	Yield per acre (Bu.)	Hours labor		Seed (bushels)		Hours Labor									
			Total	Per acre	Total	Per acre	Stalk disposal		Seed bed Prep.		Planting		Cultivating		Harvesting	
							Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
11.....	4.80	50.00	50.00	10.42	15.00	3.12	10.00	2.08			14.0	2.92			26.0	5.42
25.....	7.50	43.20	104.00	13.87	*										238.0	31.73
19.....	5.00	39.60	72.00	14.40	9.00	1.80	3.00	.60	4.00	2.00	27.0	5.40			36.0	7.20
6.....	15.00	33.70	247.00	16.47	50.00	3.33	14.00	.93	12.00	2.18	54.0	3.60	40	2.67	118.0	7.87
15.....	4.00	16.72	69.00	17.25	10.00	2.50	4.25	1.06	12.75	3.19	16.0	4.00			24.0	6.00
18 <sup>1</sup> .....	18.40	42.61	320.00	17.39	30.00	1.63			42.00	2.56	126.0	6.85			148.0	8.04
27 <sup>2</sup> .....	31.70	66.25	620.75	19.58	35.00	1.10	21.75	.69	322.00	10.16	52.0	1.64			225.0	7.10
17 <sup>3</sup> .....	7.40	51.15	146.00	19.73	32.00	4.32	22.00	2.97			32.0	4.32			82.0	11.08
26.....	24.80	51.61	506.00	20.40	84.00	3.39	60.00	2.42	160.00	6.45	144.0	5.81				
16.....	5.80	56.21	137.75	23.75	15.00	2.59	10.50	1.81	57.25	9.87	28.0	4.83			42.0	7.24
8.....	5.00	54.00	121.00	24.20	14.67	2.93	9.00	1.80	7.00	1.40	49.0	9.80			56.0	11.20
24.....	52.00	49.27	1376.50	26.47	100.00	3.26	58.50	1.12	398.00	7.65	324.0	10.55			568.0	10.92
10.....	3.40	58.53	91.00	26.76	12.00	3.53	7.00	2.06	30.00	8.82	24.0	7.06			30.0	8.82
3.....	22.50	35.51	610.00	27.11	78.00	3.47	44.00	1.96	222.00	9.87	142.0	6.31			202.0	8.98
14.....	23.00	50.61	640.75	27.86	60.00	2.61	46.75	2.03	241.00	10.48	96.0	4.17			252.0	10.96
1.....	5.00	58.00	150.00	30.00					55.00	11.00					83.0	16.60
7.....	6.00	48.38	181.00	30.17	18.50	3.08	10.00	1.67	10.00	1.67	32.0	10.33	51	8.50	43.0	7.17
2.....	5.00	34.40	154.50	30.90	12.00	2.40	7.50	1.50			20.0	4.00			127.0	25.40
13 <sup>4</sup> .....	5.30	43.40	164.00	30.94	12.00	2.26	18.00	3.40			24.0	4.53			112.0	21.13
12.....	4.50	55.78	149.00	33.11	12.00	2.67	9.50	2.11	32.50	7.22	21.0	4.67			70.5	15.67
22.....	48.00	29.71	1732.75	36.10	27.50	3.44	36.75	.76	1256.00	26.16	24.0	3.00			412.0	8.58
Average.....	14.48	45.56		25.13		2.72		2.61		11.02		5.55		4.33		9.52

<sup>1</sup>19.25 additional tractor hours in harvesting and seed bed preparation.

<sup>2</sup>25 additional tractor hours in harvesting.

\*All volunteer.

<sup>3</sup>5 additional truck hours in harvesting.

<sup>4</sup>4 additional truck hours in harvesting.

Table 29.—Annual production, feed, pasture, and labor requirements per dairy cow.\*

No. of farm	Cows per farm	Lbs. of butter fat per cow	Pounds of concentrates fed						Pounds of roughage fed			Pasture days				
			Ground corn	Ground corn cob and shucks	Ground oats	Cotton seed meal	Bran	Other concentrates	Legume hay	Non-legume hay	Cotton seed hulls	Native	Legume	Small grain	After-math	Man-labor
1	8.0	429	.....	1500	750	375	375	.....	3000	1000	.....	.....	156	88	.....	150
2	7.3	385	.....	1370	685	685	.....	.....	.....	4110	1370	†247	.....	95	.....	246
3	9.1	336	.....	.....	.....	1143	571	.....	.....	440	5495	222	.....	.....	.....	190
4	14.5	335	.....	552	552	552	.....	559	.....	.....	3448	†133	.....	.....	19	139
5	24.4	300	533	.....	533	533	533	.....	.....	.....	1230	4795	203	.....	.....	117
6	14.2	297	.....	.....	.....	1831	.....	.....	.....	.....	4930	5493	270	.....	.....	205
7	6.9	290	.....	290	.....	870	.....	870	.....	.....	1739	3478	329	.....	.....	185
8	16.7	241	1557	.....	.....	1557	.....	599	.....	.....	1557	1916	127	.....	60	163
9	14.1	237	426	.....	.....	1028	.....	355	.....	.....	989	1418	276	.....	26	130
10	21.3	224	282	376	.....	376	282	216	1033	2066	.....	.....	190	87	.....	181
11	6.5	220	.....	1091	525	808	525	.....	.....	846	1154	.....	184	.....	.....	126
12	10.0	211	718	.....	.....	869	.....	609	1400	.....	.....	.....	77	77	90	191
13	13.1	171	.....	3359	.....	611	153	.....	.....	229	.....	.....	225	.....	.....	200
14	18.6	158	301	.....	172	1720	.....	430	.....	2688	645	188	.....	81	58	118
15	10.0	138	.....	.....	.....	700	.....	.....	.....	1200	4020	†341	.....	.....	.....	200

\*Survey—Collin, Dallas, and Rockwall Counties, 1927.

†Includes native, sudan and legume.

‡Johnson grass.

Table 30.—Production and feed requirements of hogs.\*

No. of farm	†Total pounds pork produced	Production								Feed fed per 100 pounds of pork					
		Fall				Spring				Corn (Bu.)	Cottonseed meal (Lbs.)	Skim milk (Gal.)	Tankage (Lbs.)	Shorts (Lbs.)	Oats (Bu.)
		No. sows farrowing	No. pigs born	Total No. pigs raised	Pigs raised per sow	No. sows farrowing	Total No. pigs born	Total No. pigs raised	No. pigs raised per sow						
1	18,520	12	108	65	5.42	12	104	73	6.08	11.70	.....	.....	.....	.....	1.00
2	9,126	3	26	16	5.33	4	47	34	8.50	10.26	31.78	.....	16.82	.....	.....
3	5,880	2	23	16	8.00	3	29	20	6.67	5.20	Wheat pas- remain- der of ye- ar.	.....	4.5 months.	Native	pasture
4	5,719	3	28	22	7.33	2	18	14	7.00	5.68	.....	.....	1.75	.....	.....
5	4,467	2	26	18	9.00	1	11	9	9.00	8.87	42.00	13.43	.....	.....	.....
6	4,195	2	17	15	7.50	2	15	12	3.00	4.91	.....	.....	.....	16.69	.....
7	3,754	2	14	14	7.00	2	14	14	7.00	4.24	.....	34.10	.....	58.07	.....
8	1,160	1	9	5	5.00	5	27	21	4.20	7.20	.....	.....	.....	5.17	2.16
Av.	.....	3.37	.....	.....	6.83	3.88	.....	.....	6.81	.....	.....	.....	.....	.....	.....

\*Survey—Collin, Dallas, Cooke, and Denton Counties, 1927.

†Not all pigs were raised as some were bought and fed out.

Table 31.—Annual production, feed, pasture, and labor requirements for sheep.\*  
(Per head basis.)

No. of farm	Number of ewes per farm	Lambs raised per ewe	Pounds of wool per ewe	Pounds of feed fed		Pasture days			Hours of man labor per ewe
				Oats and corn	Hay	Native	Small grain	After-math	
1	6	2.00	5.67			245	120		12.16
2	22	.91	7.00	7	7	265	80		2.59
3	19	1.53	7.26			215	150		4.10
4	43	1.14	7.13			215	89	61	5.05
5	80	1.39	6.33	18	75	255		75	1.30
6	22	1.04	8.36	73	182	125	120	120	4.13
7	24	1.58	7.08	33	83	245	59	61	5.33
8	15	1.13	9.20			275	90		6.06
9	26	1.08	5.76		77	229	75	61	2.26
10	28	1.21	9.90		36	229	75	61	4.57
Av.		1.27	7.20						3.60

\*Survey—Collin, Dallas, Denton and Rockwall Counties, 1927.

Table 32.—Farm prices of cotton for Texas as of December 1.  
(U. S. D. A. Yearbook.)

Year	Price per pound	Year	Price per pound	Year	Price per pound
1901.....	\$ 0.080	1910.....	\$ 0.140	1919.....	\$ 0.350
1902.....	.082	1911.....	.086	1920.....	.132
1903.....	.119	1912.....	.115	1921.....	.161
1904.....	.087	1913.....	.115	1922.....	.235
1905.....	.109	1914.....	.068	1923.....	.304
1906.....	.100	1915.....	.111	1924.....	.222
1907.....	.115	1916.....	.194	1925.....	.185
1908.....	.085	1917.....	.267	1926.....	.108
1909.....	.136	1918.....	.282	1927.....	.193

Average price entire period of twenty-seven years..... 15.8 cents  
 Average price pre-war period of thirteen years..... 10.8 cents  
 Average price post-war period of eight years..... 19.1 cents

Table 33.—Average annual prices received for farm products.

(Information secured from creameries, newspapers, mills, feed stores, ginners, and other reliable sources.)

Year	Butter fat* per lb	Hogs per cwt.	Fryers per lb.	Eggs per doz.	Hens per lb.	Cotton seed per ton	Lambs per cwt.	Wool† per lb.
1921.....	\$ .4194	\$ 8.38	\$ 0.23	\$ 0.30	\$ 0.18	\$ 25.00	\$ 7.79	\$ 0.164
1922.....	.3689	9.03	.23	.26	.16	35.00	9.93	.298
1923.....	.4212	7.75	.26	.25	.15	43.00	12.26	.389
1924.....	.4336	8.36	.27	.28	.15	37.00	13.72	.369
1925.....	.4184	12.15	.31	.32	.17	35.00	12.39	.385
1926.....	.4258	13.21	.28	.28	.19	23.00	12.00	.325
1927.....	.4343	10.40	.24	.23	.17	36.00	12.56	.307
Average.....	\$ 0.4174	\$ 9.90	\$ 0.27	\$ 0.27	\$ 0.17	\$ 33.43	\$ 11.43	\$ 0.320

\*Price delivered to creamery. Farm price approximately 3 cents less.  
 †U. S. D. A. Yearbook, weighted average price received by producers.

Table 34.—Average annual prices paid for feeds.

(Information secured from newspapers, mills, feed stores, ginners, and other reliable sources.)

Year	Corn per bu.	Oats per bu.	Bran per ton	Cottonseed meal per ton	Milo maize per cwt.	Johnson grass hay per ton	Prairie hay per ton
1921.....	\$ 0.78	\$ 0.56	\$ 29.00	\$ 41.00	\$ 1.79	\$ 17.00	\$ 20.00
1922.....	.69	.56	34.00	51.00	1.93	17.00	19.00
1923.....	1.12	.64	38.00	50.00	2.35	19.00	23.00
1924.....	1.15	.72	36.00	46.00	1.90	19.00	21.00
1925.....	1.34	.75	38.00	44.00	2.53	17.00	19.00
1926.....	1.05	.59	34.00	35.00	1.80	.....	22.00
1927.....	.74	.49	34.00	39.00	1.91	10.00	16.00
Average.....	\$ 0.98	\$ 0.62	\$ 34.71	\$ 43.71	\$ 2.03	\$ 16.50	\$ 20.00