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CONTENTS

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By D. GRAY MILEY
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This study was undertaken for the purpose of assembling information that will provide a description of the marketing systems and facilities available for handling the farm commodities produced in Mississippi. Inasmuch as there had not been an organized marketing research program conducted by the Mississippi Experiment Station, it was intended that this study provide the basic background information upon which to build a constructive research program. Therefore, throughout this report the purpose will be to explore the existing marketing practices and attempt to determine the adequacy of present marketing systems. No attempt was made to collect detailed information about any marketing situation; the purpose, rather, was to describe the marketing processes and assemble a list of the marketing facilities. It is expected that the problems brought to light by this study will be studied one by one in later detailed research projects to be conducted by the Agricultural Economics Department of the Mississippi Agricultural Experiment Station.

Commercial farm products often have to be moved considerable distances from the producer to the consumer. In order to be transported efficiently the produce has to be assembled in large quantities, sorted, packaged, loaded, and in the case of perishables, iced. Many products have to be processed before they reach the consumer and some that are produced only in short seasons have to be stored and made available as the trade demands them. There are many other functions such as, financing, risk-bearing, buying, and selling that have to be performed in the orderly movement of the produce from a large number of small farms to a larger number of consumers who often live considerable distances from the point of production. The performance of these marketing functions often costs as much as was spent in the production of the crop. The nature of the product usually determines the type of functions necessary to orderly market the crop. Perishable products such as peaches or fresh vegetables have to be moved quickly and usually have to be protected in transit by icing. On the other hand, cotton, wheat, or corn, can be stored and kept for a relatively long period of time before being processed or sold to the consumer. These factors all affect the processes and facilities necessary to efficiently handle any crop. It is essential, therefore, that the type of product, the quantity grown, the areas of production, and the existing marketing methods and facilities be known before an adequate appraisal of the marketing problems can be made.

VALUE OF FARM COMMODITIES

Mississippi had 291,092 farms in 1940. These farms occupied just over three-fifths (63.1 percent) of the State's entire land area. The average size of these farms was 65.8 acres. Land available for crops amounted to about one-third of the total land area and slightly over one-half of the land in farms. That is, of the total land area of 30,348,800 acres, 19,156,058 acres were in farms, of which 10,702,733 acres were available for crops. This means there were about 18,000,000 acres not being used for crops or improved pasture land.

During 1939, the 287,381 farms reporting to the Census Bureau, sold or traded $115,353,273 worth of farm commodities (table 1). By far the most important source of income was the group listed by the census as field crops including Irish and sweetpotatoes. This group of crops accounted for 81.5 percent of the total value of farm commodities sold or traded. Cotton lint and cottonseed are the two items that make up the greater part of the value of the field crops. The census does not give the value of these products sold, but rather reports the value of the cotton lint and cottonseed harvested. The two had a value of $90,116,356 for the 1939 crop year. It can be assumed that almost all the cotton lint and at least two-thirds of the cottonseed was sold. On this basis the value of the cotton crop sold amounted to about 85 million dollars in 1939 or about 75 percent of the total value of all farm commodities sold or traded.

Table 1—Value of farm products sold or traded in 1939 by 287,481 reporting Mississippi farmers, all types combined, detailed by classes of farm products sold[1]

Kind of products sold or traded	Number of farms reporting	Value		Percent of total
Field crops[2]	264,614		$94,023,240	81.5
Livestock and livestock products	123,714		17,023,874	14.8
Dairy products	34,021	$7,133,306		6.2
Livestock	60,923	6,588,145		5.7
Poultry and poultry products	91,858	3,028,364		2.6
Other livestock products	2,668	274,059		.3
Vegetables harvested for sale	13,294		1,668,661	1.5
Forest products	10,782		1,274,194	1.1
Fruits and nuts	17,946		962,649	.8
Horticultural specialties	199		400,655	.3
Total products sold or traded	287,841		$115,353,273	100.0
Farm products used by farm households	277,096		$43,514,669	———

[1]Adopted from 16th Census of U. S. Agriculture, 3rd Series.

[2]Includes Irish and sweetpotatoes. There were $4,858,006 worth of both harvested in 1939.

The next most important group of farm enterprises from a sales value standpoint was livestock and livestock products. This group of commodities had a value of $17,023,874, sold or traded, and accounted for about 15 percent of the total value of farm commodities. Dairy products, with 34,021 farms reporting $7,133,306 worth of products sold or traded, was the most important item in this group. Very close behind was livestock, with 60,923 farms reporting $6,588,145 worth of stock sold or traded. Poultry and poultry products were sold or traded by 91,858 farms and amounted to $3,028,364.

The value of vegetables harvested for sale, not including Irish and sweetpotatoes, was $1,668,661 and accounted for 1.5 percent of the total value of farm products sold or traded. The total value of Irish and sweetpotatoes harvested was $4,858,006, but there seems to be no reliable means of estimating the proportion that was sold.

There were 10,782 farms that reported forest products sold or traded, with a total value of $1,274,194. There is reason to believe that this figure is far too low. The State Department of Agriculture estimates that the farm income from forestry in 1942 was $20,000,000.

All fruits and nuts sold or traded had a value of $962,649 and accounted for .8 percent of the total value of farm products.

All the above figures are for 1939 as reported by the United States Census. They give a fairly accurate indication of the relative importance from a sales value standpoint of the farm commodities produced in Mississippi.

COTTON

PRODUCTION

As far back as available statistics go, cotton has been the major farm enterprise for a large majority of farms in Mississippi. There were 2,102,000 acres planted to cotton in 1879, and as far back as 1839 there were 504,965 bales produced in the State (table 2). The largest number of acres was planted in 1930, when 4,142,000 acres were harvested, but the highest production was in 1937 when 2,561,778 bales were harvested. For the 33-year period, 1909 through 1941, Mississippi has averaged producing 1,294,402 bales of cotton per year. This cotton has been produced on an average of 3,095,152 acres, or a 33-year average yield of 209 pounds per acre. Based on a simple average of the season average yearly prices received by growers of 15.25 cents per pound for the same 33 years, the cotton crop has returned to Mississippi farmers an average of $98,698,152 per year.

The average yield per acre for both Mississippi and the entire Cotton Belt has had a tendency to increase during the past 7 years. The average of 396.0 pounds for Mississippi for 1942 is the highest per acre yield of any year on record. The average yields for Mississippi have been higher than those for the Cotton Belt during 27 of the past 35 years.

Cotton is grown generally throughout the State, but the greatest concentration is in the Delta (figure 1). Other points of concentration are the Black Pairie and parts of the Brown Loam and Longleaf Pine Areas. However, except for a group of counties in the southeastern part of the State, cotton is a major farming enterprise in almost every area.

Table 2—Cotton acreage harvested, total production, yield per acre: Mississippi and United States, and seasons average price received by farmers in the United States, Mississippi, 1839-1942[1]

Year	Acres	Total production running bales	Yield per acre (pounds)		Average price per pound (U.S.)
			Miss.	U. S.	
1839	.....	504,965	.....	.....	.....
1849	.....	484,292	.....	.....	.....
1859	.....	1,202,507	.....	.....	.....
1869	.....	564,938	.....	.....	.....
1879	2,102,000	963,111	229.1	.....	.....
1884	2,389,000	883,200	184.8	.....	.....
1889	2,891,000	1,154,725	199.7	.....	.....
1894	2,841,000	1,231,227	220.2	.....	.....
1899	2,902,000	1,239,373	213.5	185.0	6.98
1904	3,841,000	1,774,464	231.0	213.7	8.98
1909	3,237,000	1,073,105	165.8	156.5	13.52
1910	3,322,000	1,212,104	182.4	176.2	13.96
1911	3,389,000	1,169,066	172.5	215.0	9.65
1912	2,863,000	1,004,396	175.4	201.4	11.50
1913	2,961,000	1,251,841	211.4	192.3	12.47
1914	2,936,000	1,217,883	207.4	216.4	7.35
1915	2,580,000	925,509	179.4	178.5	11.22
1916	3,106,000	800,190	128.8	165.6	17.36
1917	2,476,000	886,269	179.0	167.4	27.09
1918	2,964,000	1,193,122	201.3	164.1	28.88
1919	2,854,000	950,907	166.6	165.9	35.34
1920	2,891,000	900,371	155.7	186.7	15.89
1921	2,590,000	816,961	157.8	132.5	17.00
1922	2,902,000	985,787	169.8	148.8	22.88
1923	2,971,000	622,617	104.8	136.4	28.69
1924	2,999,000	1,116,350	186.1	165.0	22.91
1925	3,618,000	1,985,524	274.4	173.5	19.61
1926	3,732,000	1,857,525	248.9	192.9	12.47
1927	3,323,000	1,346,489	202.6	161.7	20.19
1928	3,875,000	1,462,021	188.6	163.3	17.99
1929	4,037,000	1,875,979	232.3	164.2	16.79
1930	4,142,000	1,458,488	176.1	157.1	9.46
1931	3,994,000	1,719,454	215.3	211.5	5.66
1932	3,788,000	1,161,188	153.4	173.5	6.52
1933	2,830,000	1,132,152	200.0	212.7	10.17
1934	2,530,000	1,121,332	221.6	171.6	12.36
1935	2,740,000	1,226,295	223.8	185.1	11.09
1936	2,998,000	1,862,515	310.6	199.4	12.33
1937	3,421,000	2,561,778	374.4	269.9	8.41
1938	2,533,000	1,665,956	326.9	235.8	8.60
1939	2,540,000	1,536,263	302.4	237.9	9.09
1940	2,500,000	1,238,286	247.7	252.5	9.89
1941	2,498,000	1,387,558	277.7	231.9	16.80
1942	2,482,000	1,975,000	396.0	.....	.....

[1]Adapted from: **Cotton Production and Distribution, Season of 1940-41,** Bulletin No. 178, Bureau of the Census, p. 20, and **Agricultural Statistics, 1942,** U. S. D. A., p. 100.

The acreage and yield per acre for each type-of-farming area for the last four census years are shown in table 3. For the State there was a decided reduction in acreage for the 1939 crop year as compared to the previous census periods. This reduction, needless to say, was due

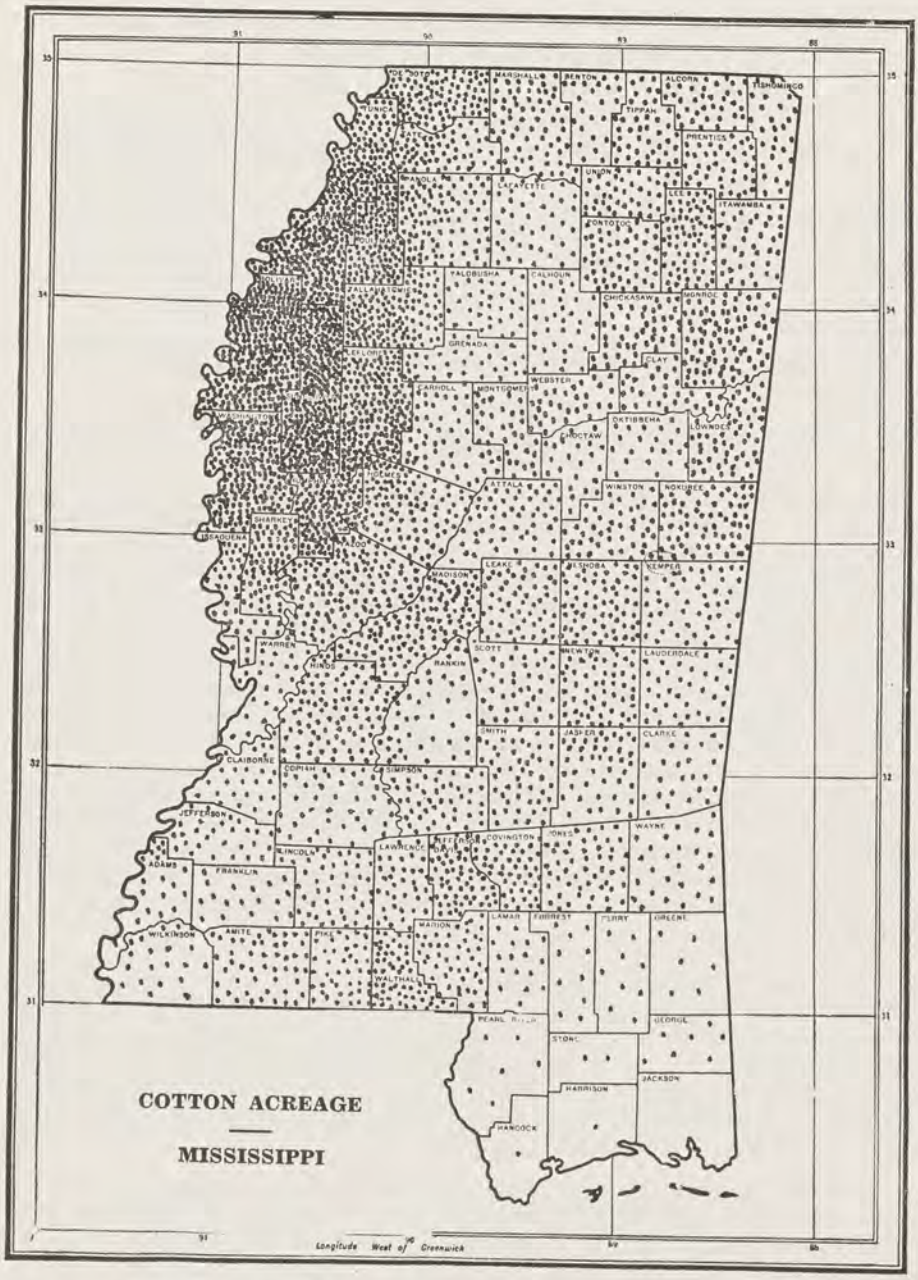

Figure 1. Distribution of cotton acreage in Mississippi, 1939.
1 dot = 500 acres
Source: Census of Agriculture, Bureau of the Census, 1940.

Table 3—Cotton acreage and yield per acre by type-of-farming areas: Mississippi, census years 1909-1939

Area	Acreage				Yield per acre (pounds)				
	1939	1929	1919	1909	1939	1929	1919	1909	Average
Delta	931,311	1,534,389	1,115,720	804,565	451	285	205	218	287.5
Brown Loam	572,582	901,983	794,227	1,078,079	274	203	142	149	183.4
Clay Hills	382,173	630,333	399,448	633,613	188	212	136	149	173.2
Oktibbeha	10,615	24,475	17,250	34,305	103	161	108	127	130.1
Black Prairie	170,742	332,719	235,474	377,370	141	203	133	127	153.1
Copiah	20,354	28,101	29,804	57,480	204	168	103	172	160.1
Upper Coastal Plain	77,406	134,813	82,720	129,167	158	183	143	143	155.2
Longleaf Pine	263,074	389,227	254,473	271,364	271	199	125	191	197.1
Lower Coastal Plain	20,235	32,329	18,580	13,690	155	155	132	202	157.4
Gulf Coastal	793	1,165	691	578	313	234	184	184	184.5

largely to government regulations. However, there were noticeable shifts taking place in the various areas before the government programs were started. For example, the acreage in cotton in the Delta steadily increased from 1909 through 1929. On the other hand, cotton acreages in the Brown Loam, Oktibbeha, Black Prairie, and Copiah Areas showed a rather definite tendency to decline long before the period of government restrictions. The Clay Hills and Upper Coastal Plain Areas remained about the same, but the cotton acreage showed a tendency to increase in the Longleaf Pine and Lower Coastal Plain Areas. These were natural and, no doubt, desirable adjustments that were coming about of their own accord. One objection to a program of restricted acreages is that it tends to maintain existing relationships. That is, the producers in all areas are allowed to plant a certain percentage of the acreage they planted at some period in the past. The trends in production in the various areas are usually ignored. The result of such a program is to hold in abeyance long-time adjustments that would take place if economic forces were allowed to take their natural course.

For the 3 census years, 1919 through 1939, the Delta had 38 percent of the cotton acreage planted in the State. From this acreage 48 to 55 percent of the State's cotton was produced. This serves to emphasize the fact that the per acre yields are much higher in the Delta than elsewhere in the State (table 3). For the 4 census years the average yield in the Delta was 287.5 pounds per acre, while for all the other areas combined it was 176.2 pounds per acre.

During the past 12 years there has been marked improvement in the staple of cotton produced in Mississippi. For the 3-year period, 1928-1930, an average of 43.4 percent of the cotton produced was below 1 inch in staple length (table 4). The proportion of cotton in the shorter staple lengths has constantly decreased. During the 2-year period, 1940-1941, there was an average of only 6.7 percent of the cotton in the staple lengths below 1 inch. Of the cotton falling in this group only 1 percent was below 15/16 inch in staple length.

Table 4—Staple length of upland cotton ginned in Mississippi by periods, 1928-1941

Staple lengths	1928-1930 percent	1931-1933 percent	1934-1936 percent	1937-1939 percent	1940-1941 percent
13/16 inch and shorter	11.8	2.6	4.4	.8	.1
7/8-29/32 inch	19.0	13.5	8.4	3.3	.9
15/16-31/32 inch	12.6	13.9	14.2	13.4	5.7
1- 1 1/32 inch	11.3	14.0	17.6	30.7	30.3
1 1/16-1 3/32 inch	20.0	18.5	21.0	30.8	35.5
1 1/8-1 5/32 inch	19.2	28.4	26.9	15.2	19.2
1 3/16-1 7/32 inch	5.4	8.4	6.6	4.3	5.7
1 1/4 inch and longer	.7	.7	.9	1.5	2.6
Total percentage	100.0	100.0	100.0	100.0	100.0

On the other hand, the proportion of the cottons with staple lengths ranging from 1 inch to 1-3/32 inch has been constantly increasing. The percentage of cotton in these medium length groups has increased from 31.3 percent for the 3-year period 1928-1930, to 65.8 percent for the 2-year period 1940-1941.

It is interesting to note that there has been a decrease in recent years in the proportion of the cotton produced that falls in the staple lenghs above 1-1/8 inch. There was a considerable increase in the long staple cottons from the 1928-1930 period to the 1931-1933 period. However, since 1933 there has been a tendency for the proportion of long staple cotton to decrease. There was a slight increase in the proportion of the longer staple cottons produced in 1941-1942 than was produced in the previous period.

In summary it may be said that the real short staples of cotton have almost completely disappeared from farms in Mississippi. The medium length cottons have constantly increased during the last 12 years, while the long staple cottons have shown a slight tendency to decrease since 1933.

The grade of cotton ginned in Mississippi, by periods since 1928, is shown in table 5. All colors have been combined and only the grade designations are shown. During the past 14 years almost no cotton has been produced that graded as high as Middling Fair and Strict Good Middling. During the period 1928-1930, 14.2 percent of the cotton produced in Mississippi was Good Middling, but by 1939-1941 the proportion in this grade had declined to 1.6 percent. The proportion that graded Strict Middling has likewise declined from 40.3 percent during the period 1928-1930 to 17.2 percent during 1939-1941.

On the other hand, the proportion of the cotton that graded Strict Low Middling has increased constantly during the past 14 years. Only 9.8 percent fell in this grade in 1928-30 but in 1939-41, 31.5 percent of the cotton produced was Strict Low Middling. Also there has been some increase in the proportion of cotton that graded Middling. The most striking shift, however, has been from Good and Strict Middling to the lower grades of cotton.

Table 5—The grade of cotton ginned in Mississippi, by periods, 1928-1941

Grade	1928-1930 percent	1931-1932 percent	1933-1935 percent	1936-1938 percent	1939-1941 percent
Middling Fair	----	----	----	----	----
Strict Good Middling	.3	----	----	----	----
Good Middling	14.2	4.9	10.2	5.5	1.6
Strict Middling	40.3	42.6	49.8	29.4	17.2
Middling	29.9	35.5	30.2	31.3	41.2
Strict Low Middling	9.8	11.3	8.8	22.9	31.5
Low Middling	3.5	2.7	1.0	7.5	7.2
Strict Good Ordinary	1.4	2.0	----	2.2	1.0
Good Ordinary	.6	1.2	----	1.0	.3
Total	100.0	100.0	100.0	100.0	100.0

MARKETING

Cotton Lint

Almost all the cotton produced in Mississippi has to be sold abroad or to mills in other states. Since the beginning of the war, the only choice has been to sell to mills in this country or for shipment through Lend-Lease. In some of the southeastern states of the Cotton Belt much of the crop goes direct from the local markets to the cotton mills. Where this is possible, the marketing process is fairly simple. In Mississippi, however, only about 3.0 percent of the crop produced in the State is consumed in local mills. The remaining 97 percent has to move from the farms through the cotton marketing process to mills in other areas of this country and abroad.

In its journey from producer to manufacturer, cotton usually passes through several agencies that perform the marketing functions. Cotton has to be ginned, stored, compressed, sampled and graded, assembled, transported, insured, and sorted into even-running lots. In addition, it has to be sold; and where there is selling, there has to be risk-bearing and financing. To perform these functions there has come into existence an elaborate and complex marketing organization. This organization is old and has been developing over a long period of years. It has become filled with customs, traditions, and habits of procedure that would be difficult to change even though something better be suggested. Many of the men performing these functions have been in the business all their lives and have learned in the school of "hard knocks." For the most part the functions these men perform are essential in the orderly and efficient marketing of the cotton crop.

The preparation of cotton for market begins with the local gin. In Mississippi the usual procedure is for the producer to deliver his cotton to the gin of his choice. He pays a set fee for ginning, bagging, and ties (usually about $5.50 per bale), and sells the seed to the gin operator. Only occasionally do the gin operators buy the cotton. The ginner performs the service of ginning the cotton and buying the seed. The gin operators had an average investment of about $15,000 in permanent

equipment exclusive of land in 1935.[1] This would indicate a total investment of about $21,000,000 in ginning equipment in the State. This equipment is used for about three months during the year and remains idle for the other 9 months. The income for the ginning period has to be sufficient to cover the interest on the investment and the depreciation on the equipment and buildings for the entire year. At 4 percent the interest alone amounts to about $844,000 per year on the ginning equipment and buildings not including the land. The cost of gin operation and maintenance is ultimately paid by the producer, and any increase in the efficiency of the gin operations will result in some benefit to him as well as to the gin operator.

The actual paying of the gin fee is not usually a cash transaction. The gin operator simply deducts the fee from the amount due the producer for his seed. This practice probably results in the farmer paying less attention to the scale of fees than he would if he had to pay out the cash from his pocket.

Table 6—Ginning facilities in Mississippi,[1] by selected years, 1906-1941

Year	Number of active gins	Average saws per gin	Number of gins 4/80 equivalent[2]
1906	3,780	121	1,430
1909	3,283	135	1,387
1914	2,359	160	1,176
1919	1,695	185	982
1935	1,292	249	1,094
1940	1,280	264	1,142
1941	1,269	—	—

[1] **Cotton Production and Distribution, Season of 1919-20,** Bureau of Census, Bulletin 145, pp. 26-43; **Cotton Production in the United States, Crop of 1941,** Bureau of Census, p. 16; **Cotton Ginning Machinery and Equipment for Mississippi, 1935 and 1940.**

[2] Total number of saws divided by 320, the number of saws in a 4/80 gin (a gin with 4 stands and 80 saws per stand).

Historically there has been a reduction in the number of gins and an increase in the size of gins in Mississippi (table 6). In 1906 there were 3,780 active gins in the State, but by 1941 the number had declined to 1,269. This is a reduction of about 66 percent in the number of active gins. The average number of saws per gin was 121 in 1906, but by 1940 the number had increased to 264 or an increase of 118 percent. These figures indicate that there has been a definite tendency for the volume of cotton handled by each gin to increase over a long period of years. For instance in 1909 the 3,283 active gins had a volume of 327 bales per gin, whereas in 1941 the average was 1,093 bales per gin. From the standpoint of increased efficiency of gin operations this is a very desirable shift.

[1] Paulson, W. E.: "Cost and Profit of Ginning Cotton in Texas," Texas Agricultural Experiment Station, Bulletin No. 606, 1942. In this study of 1200 gins the average investment in buildings and equipment was $18,848 and in land, $1,098 per gin. The average gin in Texas had 4.2 stands in 1935, whereas the average Mississippi gin had 3.3 stands.

That there is still more room for improvement in the performance of the ginning operation is indicated by reference to table 7. The 214 active gins in the Clay Hills Area, for example, had an average of only 545 bales per gin for the 1941 crop year. On the other hand, the 459 gins in the Delta for the same year ginned 1,699 bales per gin. The average gin in the Delta had 3.6 stands or ginning units in 1940. For the same year the average for the Clay Hills was 3.2 stands per gin (table 8). Using these averages and applying them to the active gins in 1941, there were 472 bales per gin stand in the Delta and only 170 bales per gin stand in the Clay Hills. No area except the Delta had an average of as many as 300 bales per gin stand in 1941. The State average was 322 bales per gin stand. The 108 idle gins were not included in these calculations.

Table 7—Number of active and idle gins, bales of cotton produced, and number of running bales ginned per active gin and per stand in Mississippi by type-of-farming areas, crop year of 1941[1]

Area	Gins		Bales produced	Bales ginned	
	Active	Idle	1941	Per gin	Per stand
Delta	459	31	780,020	1,699	472.1
Brown Loam	284	28	270,545	953	280.2
Clay Hills	214	29	116,632	545	170.3
Oktibbeha	6	1	1,534	256	77.4
Black Prairie	104	10	76,062	731	228.6
Copiah	13	2	7,382	568	195.8
Upper Coastal Plain	42		29,501	702	212.8
Longleaf Pine	134	6	100,907	753	221.5
All other	13	1	4,975	380	123.4
Total	1,269	108	1,387,558	1,093	321.6

[1]**Cotton Production in the United States,** Crop of 1941, Bureau of Census, p. 16; **Cotton Ginning Machinery and Equipment for Mississippi, 1940,** Bureau of the Census.

Table 8—Total number of gin stands, average stands per gin, total number of saws and average saws per gin stand by type-of-farming areas, Mississippi, 1935 and 1940[1]

Area	Gin stands				Saws			
	Total		Average per gin		Total		Average per stand	
	1935	1940	1935	1940	1935	1940	1935	1940
Delta	1,679	1,765	3.5	3.6	130,900	138,820	77.96	78.65
Brown Loam	1,083	1,082	3.4	3.4	81,460	83,170	75.22	76.87
Clay Hills	755	785	3.1	3.2	55,790	59,170	78.89	75.38
Oktibbeha	21	26	2.6	3.3	1,530	1,970	72.86	75.77
Black Prairie	371	361	3.3	3.2	27,900	27,340	75.20	75.73
Copiah	51	44	3.4	2.9	3,720	3,290	72.94	74.77
Upper Coastal Plain	147	151	3.2	3.4	11,010	11,600	74.90	76.82
Longleaf Pine	458	483	3.2	3.4	34,650	36,770	75.66	76.13
All other	40	43	2.9	3.1	3,000	3,250	75.00	75.58
Total	4,605	4,740	3.2	3.4	349,960	365,380	76.00	77.08

[1]**Cotton Ginning Machinery and Equipment for Mississippi, 1940,** Bureau of the Census.

There was an increase of about 3 percent in the number of gin stands between 1935 and 1940 (table 8). On the other hand, there was a 4.4 percent increase in the number of gin saws for the same period. This indicates that the new gin stands installed were of the more modern 80-saw type. The average number of saws per stand was 76 in 1935, and had increased to 77 by 1940. The average gin in Mississippi in 1935 had 3.2 stands whereas the average was 3.4 in 1940.

Table 9—Kind of power employed in the operation of gins in Mississippi, by type-of-farming areas, 1935 and 1940

Area	Number of gins using each kind of power									
	Steam		Diesel		Gas		Electric		Water	
	1935	1940	1935	1940	1935	1940	1935	1940	1935	1940
Delta	99	44	190	251	28	32	167	160	—	—
Brown Loam	126	63	95	120	37	63	78	75	2	—
Clay Hills	102	52	55	87	57	46	40	57	5	4
Oktibbeha	3	2	—	1	3	3	1	2	—	—
Black Prairie	39	33	18	22	12	13	43	45	—	—
Copiah	11	8	2	3	—	—	5	4	—	—
Upper Coastal Plain	16	6	12	11	3	12	14	17	1	—
Longleaf Pine	55	29	48	62	12	18	25	29	7	5
All others	8	6	2	3	1	1	2	4	—	—
Total	459	243	422	560	153	188	375	393	15	9

Source: **Cotton Ginning Machinery and Equipment**, Bureau of the Census, 1940.

The type of power employed in the operation of gins in Mississippi is shown in table 9. The number of steam power gins declined sharply from 1935 to 1940. There was a decrease in every area in the State and for the entire State the decline was 47 percent in steam-operated gins. This decline was offset by increases in the number of gins using Diesel, gas, and electric power. The largest increase was in the use of Diesel power, there being 33 percent more gins using this type of power in 1940 than in 1935. There was an increase of 23 percent in the use of gas power, and 5 percent in the use of electric power for the same period.

In 1935 there were 35 seed cotton driers in the State, but by 1940 there were 200 driers. One hundred and twenty-five or 62.5 percent of these driers were in the Delta.

The gins in Mississippi are concentrated in the same areas as the acreage of cotton (figures 1 and 2). For the crop of 1935, 78 percent of the seed cotton produced in Mississippi was hauled less than 5 miles to a gin; 20 percent was hauled from 5 to 10 miles, and only 2 percent was hauled over 10 miles.[2] Usually the gins with the smallest volumes are located in the areas with sparse cotton production. The efficient performance of the ginning function, as well as other marketing functions, depends on the volume to be handled. For this reason, the producer who lives in an area that has a small volume of any farm product that

[2]Wright, J. W.: "Marketing Practices in Producers' Local Cotton Markets," U. S. D. A., B. A. E., Mimeographed, 1938, p. 65.

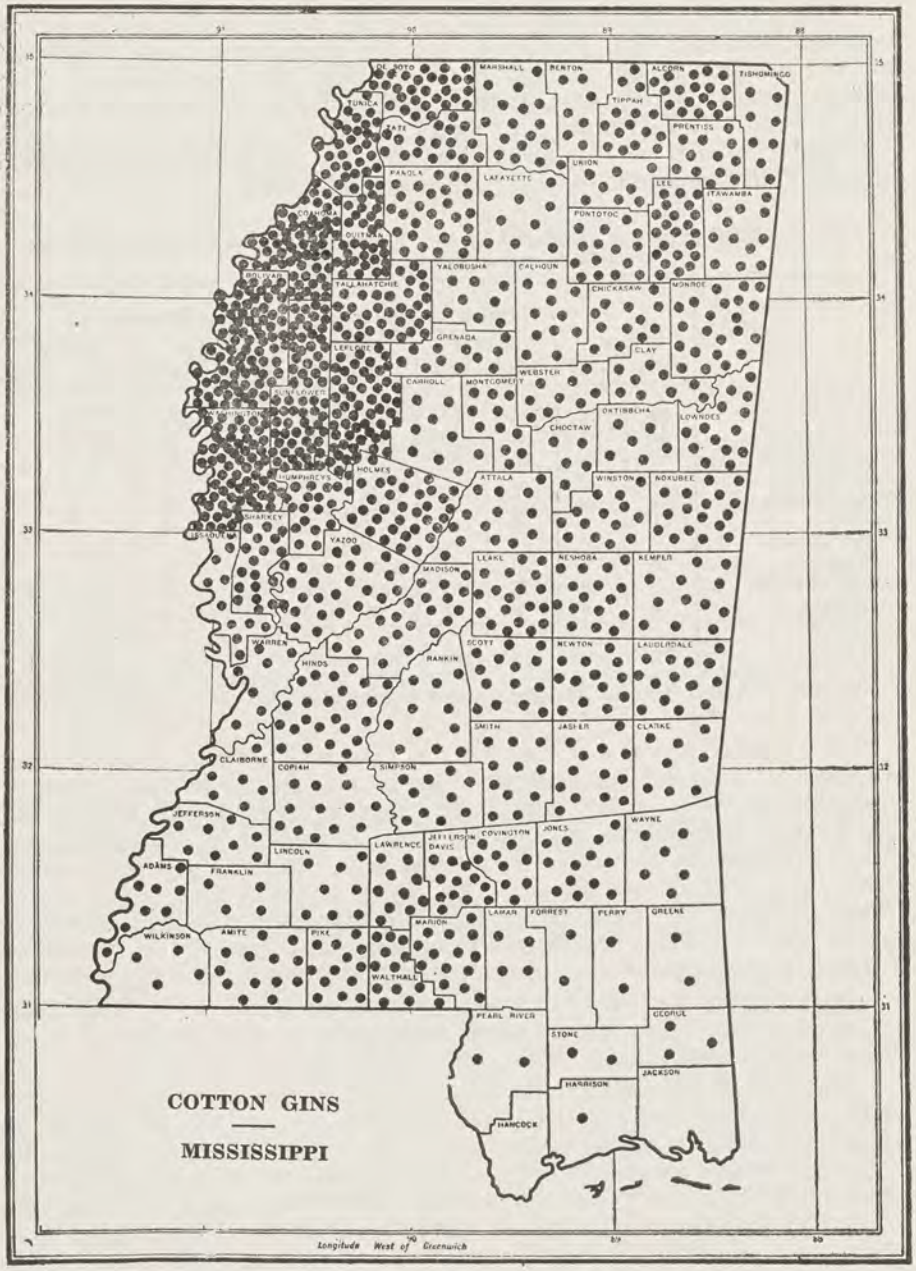

Figure 2. Distribution of active cotton gins in Mississippi, 1941.
1 dot = 1 gin

Source: Cotton Production in the United States, Crop of 1941. Bureau of the Census, p. 16.

has to be processed and shipped out to other areas, will almost always be at a disadvantage and will have to pay more for the marketing services than those producers located in areas of more concentrated production.

The importance of volume on the cost of operating gins has been forcefully demonstrated by studies conducted at the Texas Experiment Station by Dr. W. E. Paulson.[3] From these studies and others[4] it has been determined that the average gin needs at least 1,000 bales of cotton to "break even." It has already been shown (table 7) that there was not an area in Mississippi in 1941 outside the Delta in which gins had an average of as much as a thousand bales per gin. There seems to be little question but that there are still many low-volume, high-cost gins operating in Mississippi. For a cotton crop the size of that produced in 1941 (1,387,558 bales), and with ginning charges at the conservative figure of $5.50 per bale, the farmers of the State paid $7,631,569 for the ginning service, bagging, and ties. For the much larger crop of 1942 the total cost amounts to about $10,000,000. It is obvious that any increase in the efficiency of the ginning operation that results in a decrease in ginning costs will be of great value to producer and ginner alike.

For the crop year 1941, 11.5 percent of the cotton crop in Mississippi was lowered in grade because of rough or "C" preparation. This means that 159,569 bales were reduced in price because the cotton was ginned while green or wet. To some extent the farmer is at fault for delivering green and wet cotton to the gin and insisting that it be ginned. On the other hand, the preparation of wet or green cotton can be greatly improved by the installation and proper use of drying equipment. Cotton is commonly reduced at least one grade because of rough preparation. Based on the discounts for the 4-year period, 1937-1940, the average discount for Strict Low Middling, 15/16-inch cotton was 57 points. If we assume that the cotton was reduced just one grade, from Middling to Strict Low Middling, the cost to the farmers for rough preparation in 1941 was about $455,000. For a larger crop such as the one for 1942 the cost would be at least a half million dollars.

Some progress is being made in the reduction of the amount of rough preparation by the work with one-variety cotton communities and the regular check provided by the Smith-Doxey classing. The records of the cotton specialist[5] of the Mississippi Extension Service shows that the rough preparation for the one-variety cotton gins is much lower than the State average for all gins. In 1942 the one-variety gins had 3.5 percent rough preparation, while the average for the State was 11.7 percent.

Gins in Mississippi are largely privately owned and operated. In 1941 there were 110 cooperative gins in the State or about 8 percent of the total.

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[3]Paulson, W. E.: "Cost and Profit of Ginning Cotton in Texas," Texas Agricultural Experiment Station, Bulletin No. 606, 1942.

[4]New Orleans Bank for Cooperatives, "Farmers Co-ops in Mississippi."

[5]Willis, J. W.: "1942 Annual Report," Extension Agronomist, Mississippi Extension Service.

From the gin, the greater part of the cotton grown in Mississippi moves directly to the compresses and warehouses before it is sold. For the 1935-36 cotton season, only 5 percent of the cotton was sold immediately after ginning.[6] The usual procedure in the hill sections of the State where there are adequate warehousing facilities, is for the gin operator or the producer to deliver the baled cotton to the warehouse. The producer is given a warehouse receipt and a cut sample for each bale of cotton. He then offers his cotton to the local buyers who make bids based on their estimate of the value of the cotton represented by the sample. These samples are taken by licensed and bonded warehouses and are accepted by the entire cotton trade. In most cases the samples are sealed when they leave the warehouse, and the first buyer that examines them has to break the seal. Other buyers that later examine the samples have to take the producers' word that no substitutions have been made. Cotton buyers throughout the State agree that only a few farmers abuse this privilege.

In the study referred to above it was found that 48 percent of the growers sold their cotton to the first buyer interviewed, while 30 percent interviewed 2 buyers, 16 percent interviewed 3 buyers, 5 percent 4 buyers, and 1 percent interviewed 5 buyers before selling.[7] For the most part, growers in Mississippi are so situated that they can have a choice of buyers. In many small communities, however, there are only part-time buyers, and in some places only one or two of these.

For the 1935-36 season 29 percent of the cotton in Mississippi was bought by independent local buyers, 17 percent by representatives of cotton merchants, 26 percent was handled by cooperatives, 1 percent by supply merchants who used to handle large percentages, and 27 percent was handled by cotton factors.[8] A recent check in all the major cotton markets of the State revealed that there had been only slight changes in this situation. Because of the fact that the Cotton Cooperative Association is no longer in operation, the proportion handled by cooperatives is less now than then. This, of course, has resulted in a higher proportion of the crop being handled by the other groups. The only large cooperative marketing organization handling cotton in the State now is the **Staple Cotton Cooperative Association** of Greenwood.This association handles about one-third of the cotton grown in the Delta. However, the Mississippi Federated Cooperatives has handled some cotton during the past few years. A majority of the cotton handled by this organization has gone into the Government loan. For the period June 16, 1941 to June 15, 1942, the Federated Cooperatives placed 14,214 bales of cotton in the loan. In addition to these two cooperatives, the Farm Security Administration has sponsored a cooperative organization to handle the cotton grown by its clients. This is a new organization and has operated only one season.

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[6]**Wright, J. W.: "Marketing Practices in Producers' Local Cotton Markets,' USDA, BAE, mimeographed, 1938.**

[7]**op. cit., p. 71**

[8]**op. cit., p. 69**

When expressed as a percentage of the State total the cotton handled by factors is misleading. The important markets where factors operate are located in the Delta at Greenwood, Clarksdale, and Greenville. In these three markets from 75 to 90 percent of the cotton is sold from factors' tables. The cotton factor or broker simply acts as an agent for the producer or for anyone else who wants to sell cotton in this fashion. He places the cotton samples on tables in his place of business where they show to best advantage and can be examined by prospective buyers. If the factor gets what he thinks is a satisfactory bid, he checks with the owner of the cotton to see if he will accept the bid. If so, the sale is completed. The usual factor charge for this service is 20 points or an average of about $1.00 per bale. Outside of these three markets almost all of the cotton is bought outright by the various types of cotton buyers.

The cotton compress and warehouse plays an important part in the cotton marketing process. Where the warehousing facilities are adequate, the marketing process moves rather smoothly and trading is done on the basis of a sample which is accepted by all branches of the trade. However, where there is no bonded or licensed warehouse to do the storing and sample-taking, the marketing process takes quite a different turn. In such cases there are usually platforms or gin yards where the buyers go to see and sample the bales of cotton. If the offers are satisfactory and sales are made, the buyer takes title to the cotton and moves it to the warehouse of his choice. Where rail facilities are available, the cotton is usually "floated" to the nearest compress and warehouse. The "floating" privilege is an agreement between the railroads and the cotton trade whereby the cotton is shipped to the warehouse and the freight charge added to the bill of lading. The freight is paid when the cotton is resold. This privilege applies only to the first shipment, that is, where the cotton is moving into the warehouse for the first time.

The location of the compresses and warehouses in Mississippi in 1941 is shown in figure 3. These facilities are adequate to handle the cotton produced in any normal year. Their total capacity is around two million bales. In the areas where the volume of cotton is not large enough to support a warehouse or compress the cotton has to move longer distances, and consequently this phase of the marketing process is more expensive than for the more concentrated areas. It is possible and quite desirable, however, that efficiencies be introduced into the handling of cotton in these sparse areas so that the old system of selling off the wagon or off the gin yard or platform be improved upon. Just how this can be done will have to await further study of this phase of cotton marketing.

From the first buyers the cotton usually moves into the hands of the cotton merchants. In the case of the local independent buyer the cotton is sold direct to the large merchants. Only a few of the larger local buyers have mill connections. In the case of the local representatives of the large cotton merchants the purchases of each representative are reported regularly to the central office. These central offices usually re-

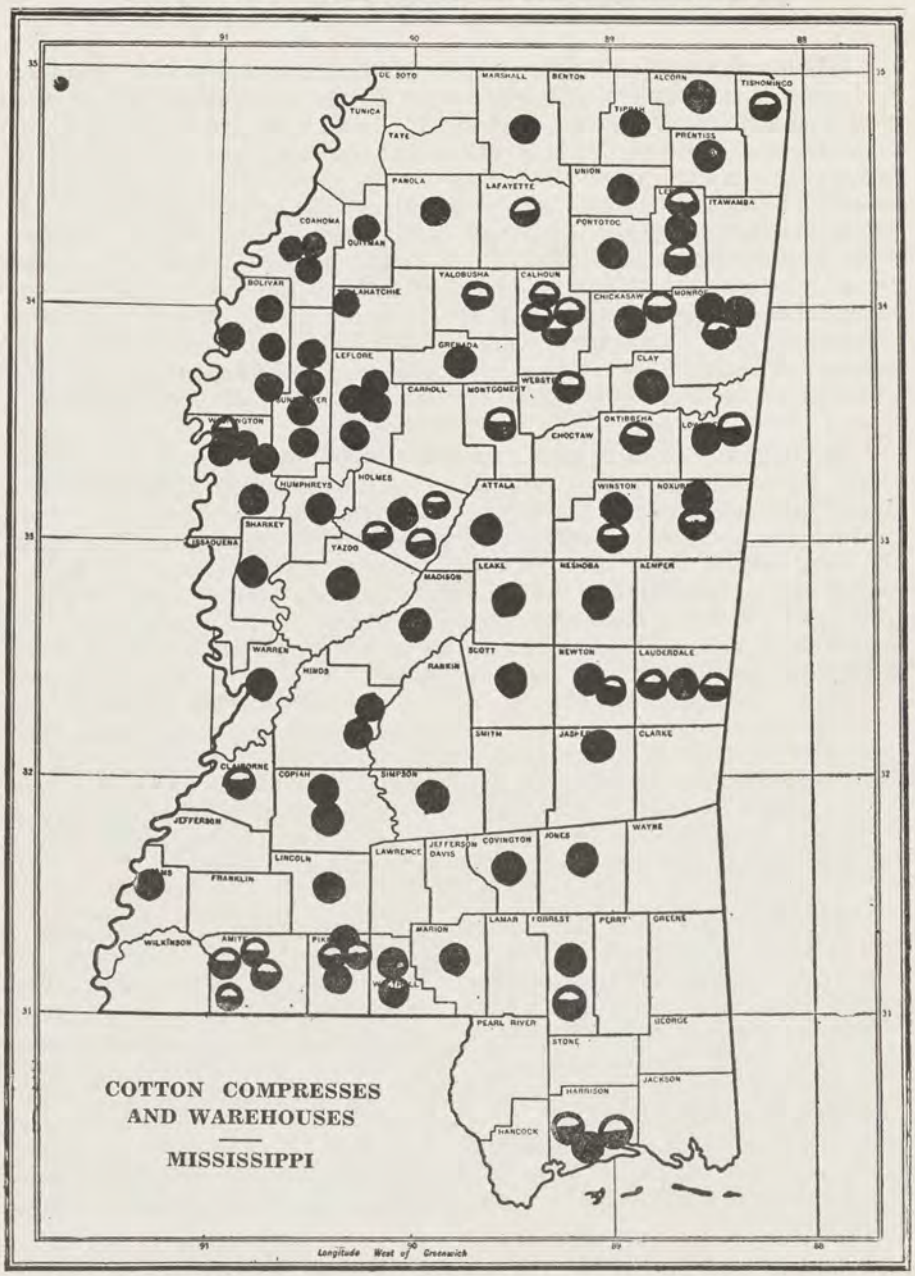

Figure 3. Location of compresses and branch warehouses of cotton compress and warehouse companies and independent warehouses.

● **Compress and warehouse companies**

⊖ **Independent warehouses**

Source: Index of Manufacturers in Mississippi, Miss. Board of Development.

quest new samples from the warehouse where the cotton is stored. All these samples are then classed by skilled classers employed by each firm and the cotton placed in even-running lots. They are then offered for sale to the mill trade, the seller usually guaranteeing the cotton to be as described. If the mill buyer rejects the cotton on the ground that it is not as described and the seller does not agree, he can submit the samples to the Cotton States Arbitration Board at Atlanta, Georgia, where a decision will be rendered. If the Board determines the cotton is as described, the mill has to take it at the agreed price; if not as described, the seller has to adjust the price or sell elsewhere. The transfer of cotton from the local buyers or representatives to the cotton merchant is a book transaction. The cotton itself is usually not moved until the merchant is ready to ship it to the mill.

In summary, the steps that cotton takes from producer to the spinner are about as follows:

1. Producer to local buyer
2. Local buyer or representative to cotton merchant
3. Cotton merchant to domestic spinner through mill broker or buyer

During normal times cotton for export usually goes about as follows:

1. Producer to local buyer
2. Local buyer or representative to cotton merchant
3. Cotton merchant to foreign importer
4. Foreign importer to foreign spinner through mill broker[9]

There are many variations to the above pattern, but these seem to be the most important channels taken by cotton on its way from the producer to the spinner. It is a long and costly process. Just how costly and what progress has been made in reducing the cost appears not to have been adequately determined. Until this is done, any suggestions as to improvements that might be made will be immature.

In recent years, however, there has been an attempt to eliminate some of the marketing costs by having all the cotton classed before it leaves the farmer's hands. At present, each buyer and merchant either does his own classing or hires classers to perform this service. Thus, each large cotton merchant maintains a corps of classers.

If the performance of this function could be concentrated in one place and could be done so that the entire cotton trade would accept the classes, it would mean a very large saving in the cost of cotton marketing. To try out such a scheme the Smith-Doxey cotton classing offices were established in connection with a program of one-variety cotton community development. The idea was to get the farmers in organized groups to grow one variety of cotton and have samples of each bale sent from the gin to the nearest cotton classing office for classification. The grade and staple would be sent back to the farmer and he would then sell on the basis of the government class.

The establishment of the one-variety communities in Mississippi has made progress. There were 208 such communities approved for 1942. They had 16,505 members, who planted 250,811 acres of cotton and produced 188,831 bales. Of this amount, samples of 98,808 bales were sent

[9]**op. cit., p. 7**

to the classing offices at Jackson, Mississippi and Memphis, Tennessee.

One of the main objectives of the classing program has been defeated due to the fact that almost no one in the cotton trade in Mississippi accepts, or will buy on the basis of, the government class. In answer to questions designed to find why this was true, a large variety of opinions was obtained. In the hill sections of the State the buyers were almost unanimous in their statements that the cotton was over-classed. On the other hand, the buyers in the Delta stated that it was under-classed. Almost all local buyers said they could not sell the cotton on the basis of the government class, therefore, they could not buy on that basis. In many cases the practice of taking press box samples was questioned. The usual practice for many of the gins in the one-variety area has been to take a press box sample to send away for classing. The farmer, of course, gets his report based on this sample. The accepted practice in the trade is to cut a sample from each side of the bale. Thus, the buyer gets a cut sample which may or may not agree with the press box sample. If they should differ, the buyer naturally offers a price on the basis of the sample he sees. The farmer has been led to believe that his sample and grade are correct and that he can sell on that basis. When he finds that he cannot, confusion results.

Many buyers expressed a definite willingness to use the official grades if they become generally accepted. At present almost all the buyers insist on having a sample to see for themselves what the cotton will class. This is true for loan cotton as well as for that sent from the one-variety communities. Such being the case, the good the Smith-Doxey classing has done has been limited to the extent of giving the farmer a better idea of what his cotton is worth. This is one of the main advantages of the classing service. It places the producers who have a class on their cotton in a much better bargaining position than those who do not have it.

The cotton trade feels that there will not be general acceptance of official government classing as the only basis for trading until the human element is more completely removed from the classing process. At present a lot of strictly human judgment is involved, and no two classers, however good, will put the same class on each bale of a large lot of cotton. The difficulties involved are apparent when the elements taken into account in arriving at a cotton class are examined. Three factors are considered: grade, staple, and character. The grade is determined by the color, amount of foreign material, and preparation. These are determined entirely by observation and where available, by comparison with an official standard. The staple length is judged by observation and is supposed to be given in intervals of thirty-seconds of an inch. Needless to say, it is practically impossible for the human eye to judge correctly to a thirty-second of an inch the length of cotton fiber in every case. The other factor, character or strength of the fiber, is also a matter of judgment and perhaps even harder to determine by a mere hand examination than are the other factors. It can be readily seen that where so much judgment is involved there will always be differences of opinion. Members of the cotton trade feel that if they are going to risk their money

in buying cotton, they want to risk it on their own opinion rather than some other person's. Because of the difficulties involved, a rather long period of training and experience is required to become an expert cotton classer. The cotton merchant is risking his money on his ability to properly class and value cotton. Often he has a particular mill account that takes a specified type of cotton. He knows what this mill wants and he is always on the lookout for cotton that will fill that need.

So far, it seems that the system of government classes has not been worked out to the extent that it is generally adapted to the filling of the specified mill demands. The cotton people do not feel that the present classes will ever be generally accepted by the trade so that cotton can be sold throughout the marketing process on the basis of description. It goes without saying that if any classing system is to achieve its maximum usefulness, it must be acceptable to and used by a majority of people in the cotton trade. These observations apply only to conditions as they were found in Mississippi. Reports indicate that the classing service has been more generally accepted in many of the other cotton states.

Some recent research conducted at the Ginning Laboratories of the Cotton and Fiber Branch of the Food Distribution Administration on the spinning quality and breaking strength of the different classes and varieties of cotton shows promise of doing much to improve the present system of classing cotton. The results of some of this work were recently published in a bulletin issued by the Texas Experiment Station.[10] The tests conducted so far indicate that the variety of cotton is the most important factor determining its spinning quality. The staple and grade have not proved to be adequate measures of strength and spinnability. These recent tests have shown that variety is another important factor that supplements grade and staple as measures of quality and that the real spinning strength can be judged only when all three are taken into consideration.

A short summary of the research results obtained at the Ginning Laboratory at Stoneville, Mississippi, was given recently by Mr. Francis L. Gerdes. He said in part:

> "Cotton research conducted, sponsored, and encouraged by Federal, State, and private agencies during the past 15 years, is paying high dividends and making distinct contributions to the wartime cotton program. During this brief time, numerous practical developments of considerable value have been effected, and many practices have been modified or introduced as a result of this intensified work on the part of research workers. New concepts of cotton problems have been developed, and ideas about a number of aspects have been changed. Many of us can remember when it was generally thought in some quarters that rough ginning was caused to a great extent by fast saw speeds. Now we have data which prove beyond a shadow of a doubt that increas-

[10] "Gearing Texas Cotton to War Needs," Texas Agricultural Experiment Station, Bulletin 624, 1942.

ed saw speed reduces rather than increases rough ginning, and that the density of the seed roll is virtually the only mechanical factor in ginning that influences ginning preparation.

In the early years of the development and advocacy of the cotton gin drying processes by the U. S. Cotton Ginning Laboratory, it was thought by some consumers of cotton that this practice was generally injurious to the spinning quality of cotton. Through research, we have been able to sufficiently refine and modify the process and its use to overcome this criticism; and now at least 3 million bales of cotton are annually conditioned by this process with consequent improvements in ginning preparation of the cotton. The drying process in the early years of its adoption was criticized further on the basis of its alleged adverse effect on storage qualities of seed ginned from seed cotton conditioned in driers. Systematic investigations revealed that the drying of green, damp, or wet cotton before ginning did not increase the rate of deterioration of the seed in storage but actually caused retardation of the formation of free fatty acid.

Through ginning investigations conducted over a period of years, it has been proved that where one gin gives a higher gin turnout than another, the spinning quality of the cotton is not necessarily impaired by the higher turnout. Of course, when the seed are 'skinned', so to speak, additional mill waste and neppier yarns result. By maintaining loose seed rolls, employing high saw speeds—600 to 700 revolutions per minute—and modern design saws of full diameter and in good condition, we have found that we can obtain a more nearly perfect removal of usable fibers from the seed, and increase turnout without the inclusion of substaple fibers.

In other fields of work, where cotton fiber and spinning tests have been used as a tool in determining quality relationships, many more important findings have been brought forward. In the field of cotton breeding, it has been definitely established that the variety of cotton is the most important single factor affecting spinning quality, and that staple length is not as important as once believed by many of us concerned with cotton production and marketing problems. It has also been definitely determined that place of growth is not nearly so important as generally conceded in influencing spinning quality of cotton."[11]

Another long recognized fault of the present cotton marketing system is that it has maintained the practice of "hog round" or "point" buying in the farmers' local markets. That is, buyers have paid about an

[11]Gerdes, F. L.: "Current Cotton Testing Activities Relating to Quality Improvement," pp. 1-2.

average price for the cotton sold in each market and have not paid premiums for the better qualities of cotton. This has tended to discourage the farmer in his attempts to produce better quality cotton. However, it is the opinion of many competent and reliable cotton buyers that this situation is gradually being improved and that each farmer is getting about what his product is worth. A combination of factors is bringing about this desirable situation. The influence of cooperatives in handling and selling on a graded basis has helped to force buyers to quit "hog round" buying. The very close check that the central offices of the cotton merchants keep on their local and district representatives forces them to stay about in line on their classing and pricing of the cotton they buy. In almost all the markets where there is sufficient volume, there is keen competition, with the result that many of the more inefficient local buyers have been forced to give better service or go out of business. It is usually in the smaller, low volume markets where there is not enough cotton to attract the large cotton merchants that the old system of "point" buying is still maintained.

This is not to say that there is no further room for improvement in the larger markets but simply to emphasize the fact that efficiencies in the marketing system are much more difficult of attainment in the sparser areas than the more concentrated centers of production. There is no ready made answer to the marketing problems in any area and especially is this true for low-volume area. It is very likely that short-sighted, snap-judgment efforts to solve the marketing problems coupled with the prevalent attitude among farm people and many professional workers that the way to solve the problems is to eliminate the "middleman", have done more to delay improvements in the marketing system than to bring them about. Long-time, desirable improvements usually come about as a result of a systematic and thorough study of the existing marketing situations.

Cottonseed

As mentioned previously, in most instances the cottonseed is bought by the ginner who in turn sells it to the oil mills. The cash farm income from cottonseed has greatly increased during the past 3 years (table 10).

Table 10—Cash farm income from cottonseed, proportion of total income from cotton represented by cottonseed, farm income per ton of seed, value of crude products from a ton of seed and oil content, Mississippi, 1940-42

Year	Cash income from cottonseed	Percent income from seed is of value of lint and seed	Farm value per ton of cotton-seed	Value of crude products from ton of seed	Percent oil content
1940	$ 9,161,000	14.1	$16.48	$39.89	17.7
1941	26,341,000	17.8	41.48	67.82	16.6
1942	33,270,000	15.2	.....	.....	—

Source: Bureau of the Census, Cotton Production and Distribution in the United States, Crop Years, 1939-40, 1940-41, and 1941-42, Bulletins 177, 178, and 179. Bureau of Agricultural Economics, U. S. D. A. Farm Income, 1942.

The farm value per ton of cottonseed was $16.48 in 1940 and by 1941 had increased to $41.48 per ton. The value of the crude products from a ton of cottonseed has likewise increased during the past 3 years; however, the margin between the value of the cottonseed and the crude products has remained about the same.

The percentage of oil extracted from the cottonseed grown in Mississippi is fairly high. The average oil content for all the seed crushed in 1940 was 17.7 percent, and in 1941 the seed had an oil content of 16.6 percent.

For the 3-year period 1940-1942 the 41 oil mills in Mississippi crushed an average of 570,171 tons of cottonseed per year (table 11). From this quantity of cottonseed there was produced an average of 195,255,000 pounds of oil, 240,709 tons of cottonseed cake and meal, 140,829 tons of cottonseed hulls, and 165,727 bales of linters. The combined value of these products averaged about $28,000,000 each year for the 3-year period 1940-42.

Table 11—Cottonseed crushed and cottonseed products produced in oil mills in Mississippi during 1940, 1941, and 1942

Year	Cottonseed crushed	Crude cottonseed products			
		Oil	Cake and meal	Hulls	Linters
	ton	pounds	tons	tons	bales
		(000)			
1940	641,291	219,915	277,429	158,001	176,503
1941	502,290	177,452	206,655	127,130	146,201
1942	566,931	188,399	238,044	137,357	174,476
Average	570,171	195,255	240,709	140,829	165,727

Source: Bureau of the Census, Cotton Production and Distribution, Seasons 1939-40, 1940-41, and 1941-42, Bulletins 177, 178, and 179.

Normally a ton of cottonseed produces an average of about 333 pounds of cottonseed oil, 860 pounds of cake and meal, 504 pounds of cottonseed hulls, and 177 pounds of linters. These are average figures for the cottonseed crushed in Mississippi for the 3-year period, 1938-1940.

Cottonseed oil is used almost entirely as an edible oil. Only the very poor qualities are used for other purposes, mainly in soap making. The greater part of the oil is used in shortening and various salad oils and dressings. An increasing amount is being used in margarine, but the expansion of markets for this entirely wholesome table spread has been hampered by Federal and State trade barriers. In 1942, 48 percent of the margarine produced was made from cottonseed oil. Some of the restrictions are: the margarine manufacturer has to pay $600 for an annual federal license; then he pays a federal tax of ten cents a pound if the margarine is colored; one quarter of a cent if it is white. The wholesaler pays $480 for a license to sell the colored product and $200 for the white. In addition each retailer pays a $6.00 license fee. On top of the federal taxes many states add other restrictions. The state of Wisconsin, for instance, has a manufacturers tax of $1,000, a sales tax of 15 cents a pound, a wholesaler's license costs $500, a retailer pays $25, and boarding houses $5.

At one time Mississippi had a tax on margarine but it has been removed. The only law affecting the sale of margarine in the State now is one that requires the containers to be plainly marked and specifies that all eating establishments that serve margarine shall hang cards on which are printed the words "Oleomargarine Used Here" opposite the tables or other places where guests are served. Eating establishments that color and serve margarine have been subjected to the $600 tax on manufacturers. Even school lunch rooms come in this classification. That is, if a school lunch room buys and colors margarine it is classed as a manufacturer and is subject to federal tax.

Federal and State discrimination set up under the guise of revenue laws actually costs the producers and consumers of margarine more than they bring in in revenue. This cost falls heaviest on the families who are least able to pay it. Families in the lower income groups who have never been able to buy much butter furnish the greatest present and potential market for margarine.[1]

The location of the cotton oil mills in Mississippi is shown in figure 4. Nearly half of these mills are located in the Delta. Outside the Delta, with the exception of the four mills in Jackson, the oil mills are fairly well distributed over the State. In many of the outlying areas, however, the seed has to be transported considerable distances from the cotton gins to the nearest oil mill. A large proportion of the seed from the sparsely settled areas is hauled in trucks.

The grading of cottonseed is in many respects more difficult even than the grading of cotton lint. Because of the fact that there are two main and two minor products obtained from cottonseed, it is necessary to take several factors into account when arriving at a grade for cottonseed. In the early attempts to grade cottonseed, only the oil content was considered. However, it was found later that the cottonseed cake and meal was almost as valuable as the oil. In fact, during some years, the cake and meal are more valuable than the oil. More recent attempts to develop suitable grades for cottonseed have been based almost entirely on the oil content and the quantity and quality of cottonseed cake and meal.

The United States Department of Agriculture began research for the purpose of developing cottonseed grades in 1917. With the exception of one short interruption, this work has been continued until the present time. The Department of Agriculture representatives have worked very closely with the National Cottonseed Products Association and the cottonseed grades in use at the present time are the results of the joint efforts of these two organizations.

No attempt will be made here to give any detailed information about the development of cottonseed grades nor the details of the present grading system. This detailed information has been given in other publications.[2] However, in order to show the difficulties involved in properly

[1]Howell, L. D., "Internal Trade Barriers for Margarine," Journal of Farm Economics, Vol. XXV, No. 4, Nov. 1943., p. 793.

[2]Meloy, G. S.: "Development of Standards for Grades of Cottonseed," Bureau of Agricultural Economics, Washington, D. C., June 1935; "Rules Governing Transactions Between Members of the National Cottonseed Products Association, 1942-43."

grading cottonseed, some examples will be given to show the actual processes involved in arriving at the grade of a lot of cottonseed.

The factors considered in grading the seed are the oil content, the percent of ammonia in the cake and meal, the percent of free fatty acids, the moisture content, and the foreign matter. The correct determination of most of these factors requires controlled chemical analyses. After these analyses are made, the grade is determined by a combination of what is known as a quantity index and a quality index. The quantity index is arrived at by a revision of what is known as the oil-cake reciprocal method. It was found that a change of approximately one-fourth of 1 percent of the oil content when the ammonia content remains constant, results in a unit change in the quantity index. Also, when the oil content remains constant, a change of one-sixth of 1 percent in the ammonia content results in a unit change in the quantity index. These facts suggested the formula that is used for calculating the quantity index. That is, 4 times the percentage of oil, plus 6 times the percentage of ammonia, plus 5, equals the quantity index. For example, if a lot of seed had 18.5 percent of oil and 3.5 percent of ammonia, the quantity index would be arrived at as follows:

4 x 18.5 =	74.00
6 x 3.5 =	21.00
Plus	5.00
Quantity Index	100.00

It can be readily seen from this example that seed with different amounts of oil and ammonia will have different quantity indices.

The quality index is arrived at by considering the moisture content, the free fatty acids, and foreign matter. For example, superior quality cottonseed are those seed that contain not more than one-half of 1 percent foreign matter, not less than 9 percent nor more than 10 percent moisture, and not more than one-half of 1 percent free fatty acids in the oil. Seed having these characteristics are given a quality index of 102. Other and lower quality designations are made for seed having higher proportions of foreign matter, moisture content, and free fatty acids.

The grade of cottonseed is arrived at by a combination of the quantity and quality indices. An illustration of the method of calculation is as follows:

Superior Quality No. 2 Analysis: 18.6% oil, 3.94% ammonia, 9.5% moisture, 0.50% free fatty acids, 0.5% foreign matter.

4 x 18.6 =	74.40
6 x 3.94 =	23.64
Plus	5.00
Quantity Index =	103.04
Quality Index =	102.00

$$\frac{103.04 \times 102}{100} = 105.10 = 105$$

Because of the difficulties involved, it is not possible to make grade determinations on small lots of cottonseed. The rules of the National Cottonseed Products Association specify that its members shall determine the grade on all lots of seed having as much as 10 tons. For lots of smaller quantities, prices are based on the average analysis of cotton-

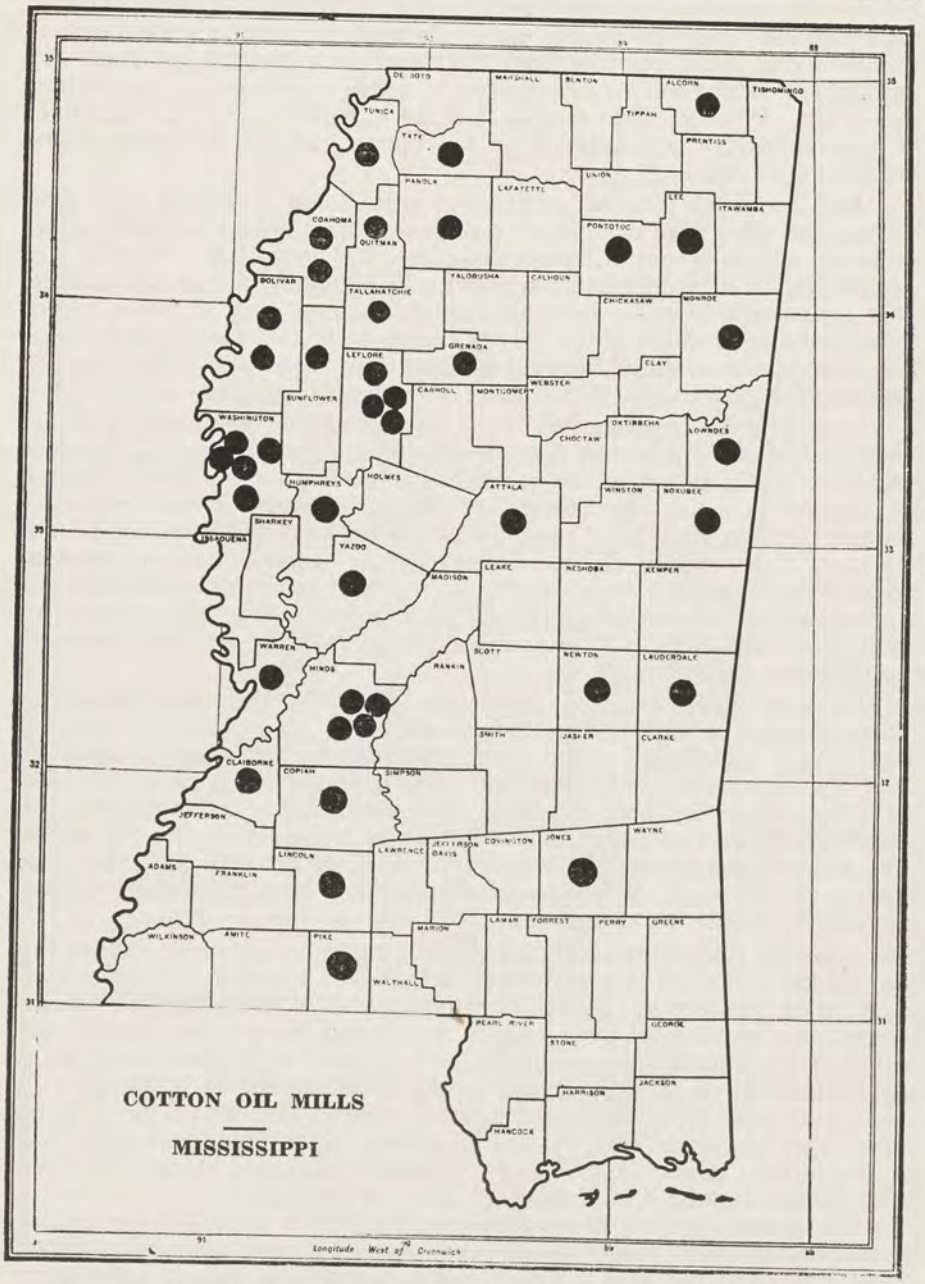

Figure 4. Distribution of cotton oil mills in Mississippi, 1942.
1 dot = 1 cotton oil mill

Source: Index of Manufacturers in Mississippi, Mississippi Board of Development.

seed coming from the same area. Because of the fact that trained chemists and technical chemical apparatus are needed in grade determination, it has not been possible to grade cottonseed at any place except the oil mills. This means that the oil mills buy large quantities of their supply of cottonseed from the cotton gins on the basis of the grade of the seed.

Any one truck load or car load of seed going to the oil mills may contain the seed from a number of different farms. An attempt is made at the oil mill to get an adequate sample of the entire load of seed. For sampling seed a "trier" has been developed for getting the proper sample. This instrument is somewhat like a large auger and is bored down through the seed to the bottom of the car or truck and then pulled out so that a sample is obtained from all sections of the seed pile. Samples are usually taken from about 10 places in each carload of seed.

Thus far, the grading technique developed for cottonseed has not been such that the producer has received much benefit from the grading process. The expense of the grading system is so great that it cannot be applied to small lots. Therefore, except in cases where a farmer controls a rather large lot of seed, the producers have not been able to sell the seed on a graded basis. Under such a system, the farmers who produce high quality seed usually do not get much, if any more, for them than the farmers who produce poor quality seed. The ginners in most communities usually pay about the same price for all cottonseed regardless of its quality.

Because of this situation, there has been little emphasis placed on the production of high quality cottonseed either by farmers or research institutions. Almost all cotton breeding research has been directed toward the improvement of cotton lint. The cottonseed has been regarded as a by-product by both producer and researcher. Consequently, the usual procedure has been for the farmer to choose the gin that would give him the best service in the preparation of his lint and take what was offered for his seed. Such a system does not offer the farmer a fully competitive market for cottonseed.

However, the great emphasis being placed on oil seeds during the war period is having a tendency to change this situation. Even though a producer does not sell in a competitive market, if he checks the regular government cottonseed price reports, he should have a fair idea of the value of his seed before making a sale. There is a great need for a simple method of arriving at the grade of cottonseed in small lots. It could not be as scientific as the present method and would need to be based very largely on the average oil content for varieties and areas and on the foreign matter in the seed. Research designed to develop such a simplified method would seem to be very desirable.

The present system of marketing cottonseed is probably the logical result of a situation where a plant produces joint products, one of which is dominant and the other is considered a by-product. In fact, until about 60 years ago, the cottonseed was considered to be a complete waste. A further complication is the fact that the nature of the two products is such that the same marketing system cannot very well handle both products. Another point to consider is the fact that the seed are naturally

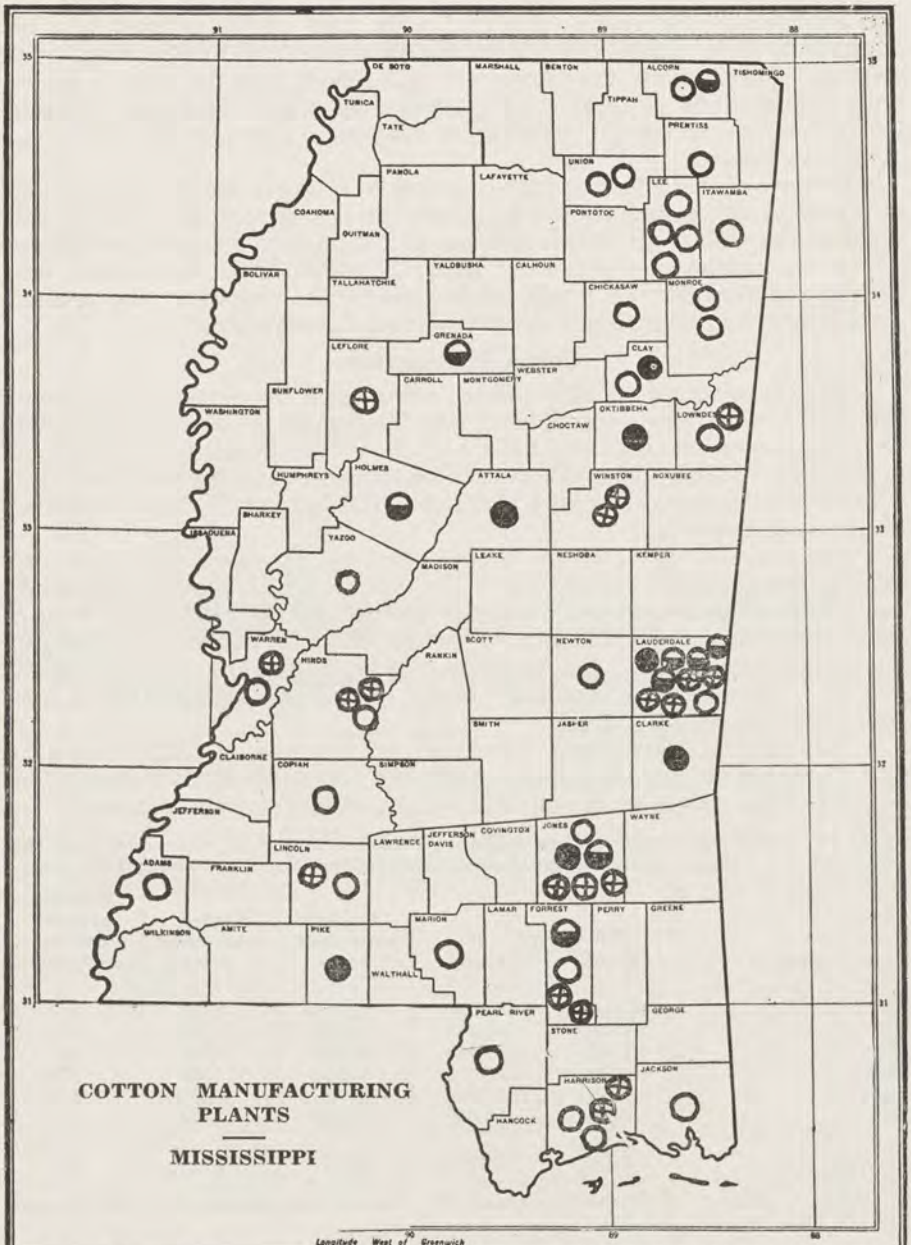

Figure 5. Distribution of cotton mills, hosiery mills, garment and mattress factories in Mississippi, 1942.

● **Cotton mills** ○ **Garment factories**

◒ **Hosiery mills** ⊕ **Mattress factories**

Source: Mississippi Index of Manufacturers, Miss. Board of Development.

concentrated at the cotton gins and with most of the present ginning equipment, it is rather difficult to separate one producer's seed from another. Furthermore, the movement of the seed from the gins to the oil mills can be done more efficiently when they are concentrated in large lots at the gin. At the gin, therefore, is the logical place for the cottonseed to change hands.

In view of this situation any attempts to improve the present system of handling cottonseed should be based on a thorough study of its advantages as well as its disadvantages and should give careful consideration to the nature of the product being handled. It is very likely that greater progress can be made by systematically improving the present system than by attempting to substitute alternative systems.

Cotton Manufacture

The manufacture of cotton products has never developed to any great extent in Mississippi. According to the Mississippi Index of Manufacturers, there were seven cotton mills including two thread mills operating in the State in 1942. In addition to these there were 29 garment factories, 9 hosiery mills, and 19 mattress factories. The location of these industries is shown in figure 5.

The shift of the spinning industry to the South did not bring any mills to Mississippi. Instead, most of the mills which moved southward went to the Carolinas and Georgia. From 1937 to 1942 there was a steady decline in the number of active cotton spindles operating in Mississippi (table 12). The decrease was from 181,096 in 1937 to 133,840 in 1942. By way of comparison, North and South Carolina each had over 5,000,000 active spindles.

The mills in Mississippi consumed an average of 53,231 bales of cotton during the 6-year period, 1937-1942. This is an average of 3.1 percent of the cotton produced in the State during the same period.

Table 12—Total and active cotton spindles, cotton and linters consumed and the percent the cotton consumed is of the total production, Mississippi, 1937-1942

Year	Cotton spindles		Cotton consumed bales	Linters consumed bales	Percent of total cotton production
	Total	Active			
1937	206,164	181,096	52,821	1,485	2.1
1938	209,016	168,440	38,265	1,282	2.3
1939	165,440	159,440	39,640	1,941	2.6
1940	150,704	150,704	45,058	1,928	3.6
1941	151,830	132,246	86,017	1,569	6.2
1942	138,312	133,840	57,583	1,556	2.9
Average	170,244	154,294	52,231	1,627	3.1

Source: Bureau of the Census, Cotton Production and Distribution, 1939-40, and 1941-42, Bulletins 177 and 179.

LIVESTOCK

CATTLE PRODUCTION

From 1920 to 1928 there was a gradual decrease in the number of cattle and calves on farms in Mississippi (figure 6). On January 1, 1920,

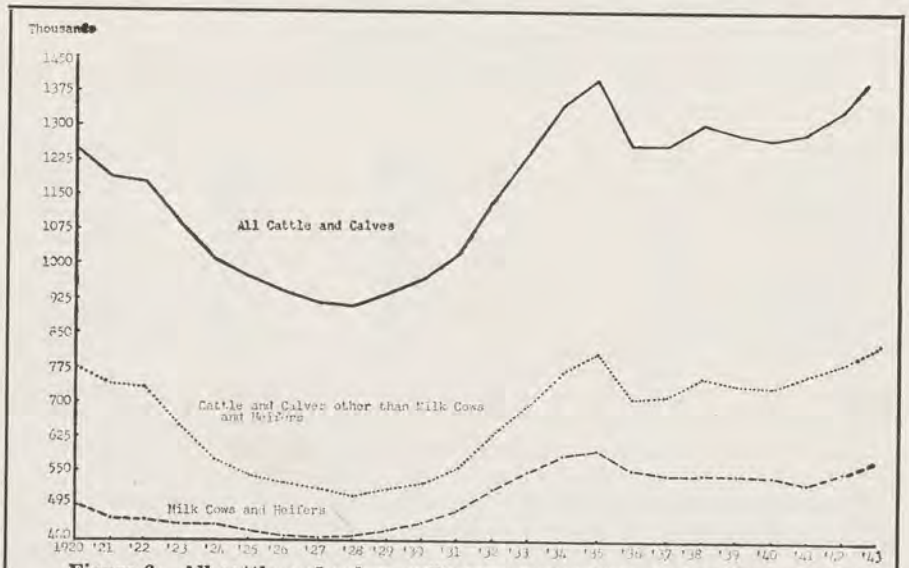

Figure 6. All cattle and calves, milk cows and heifers, and cattle and calves other than milk cows and heifers on farms in Mississippi on January 1, 1920 to 1943.

Source: Livestock, Meats, and Wool Market Statistics and Related Data 1941. AMA, USDA, 1942.

there were 1,250,000 head of cattle and calves on farms in the State, and by the same date in 1928 the number had declined to 912,000 head. There was a decline in all types of cattle, but the reduction was much more pronounced for the cattle and calves kept for beef than for milk cows and heifers.

From 1928 to 1935 there was a period of pronounced expansion of all types of cattle. The increase was greater for beef type animals than for the dairy groups. However, both groups reached their peak in 1935. The number of milk cows and heifers on farms declined to about 500,000 on January 1, 1936, and remained fairly close to that figure until the beginning of the war. During the past 2 years there has been a slight increase, due largely to impetus brought about by the war conditions. The number of other types of cattle has not varied greatly during the past 8 years, but there has been a very slight tendency to increase during this period, especially during the last 3 years. These figures apply to the State as a whole and do not give a picture of what has been happening within the several types of farming areas within the State.

In order to get an indication of the shifts within the State, the census reports for cattle were summarized for the last several periods. It will be noted from table 13 that the number of cows and heifers milked was about the same in 1939 as in 1919 for the Delta, Brown Loam, Clay Hills, Copiah, and Upper Coastal Plain Areas. There were definite increases in the Oktibbeha, Black Prairie, Lower Coastal Plain, and Gulf Coastal

Table 13—Number of cows and heifers milked, by type-of-farming areas, Mississippi, 1909-1939

Area	1919	1929	1939
Delta	43,478	29,735	40,756
Brown Loam	120,748	111,205	122,449
Clay Hills	115,912	104,211	113,682
Oktibbeha	7,640	13,392	16,257
Black Prairie	43,357	49,220	66,210
Copiah	8,091	7,831	8,266
Upper Coastal Plain	17,616	14,853	18,027
Longleaf Pine	62,692	41,683	54,194
Lower Coastal Plain	5,026	8,040	12,061
Gulf Coastal—	2,846	3,516	4,585
Total	427,406	383,686	456,487

Areas. The only noticeable decrease was in the Longleaf Pine Area. For the entire State there were a few over 29,000 more milk cows and heifers in the State in 1939 than in 1919. There was, however, a noticeable increase in the number of milk cows and heifers in all areas between 1929 and 1939. In the past it has been characteristic for the number of dairy animals to increase during periods of distress such as wars or low prices of cotton, and to decrease when the emergency was over or when cotton prices went higher. The Oktibbeha and Black Prairie Areas have been exceptions, however, and have consistently increased in the number of dairy animals on farms.

The number of cows and heifers 2 years old and over kept mainly for beef production for the recent census years is shown in table 14. There was a 61 percent decrease in beef cattle, as measured by number of cows and heifers 2 years old and over, between 1920 and 1930. This tendency was reversed during the next decade and between 1930 and 1940 there was a 56 percent increase in the number of cows and heifers kept for beef production. On a percentage basis the greatest increase between 1930 and 1940 was in the Delta. There was a 320 percent increase in this area during this period. Beef cattle had almost completely disappeared from many counties in the Delta by 1930, there being a 78 percent decrease between 1920 and this date. As mentioned before, during the period after the first World War and until the beginning of the government restriction programs, the Delta was becoming more and more specialized in cotton production. It was not until some acreage was forced out of cotton that there was any great amount of feed or pasture produced for livestock. With the increased feed and pasture grown on land taken out of cotton there has been a rather rapid increase in beef cows and heifers. However, because of certain rulings that have been in effect that did not count permanent pasture as cropland, many of the pastures used so far have been of a temporary nature to keep from having the crop acres reduced.

The Brown Loam Area had more cows and heifers of the beef type than any other area, and in numbers had by far the greatest increase

Table 14—The number of cows and heifers 2 years old and over kept mainly for beef production, by type-of-farming areas, Mississippi, 1920-1940[1]

Area	1920	1930	1940
Delta	6,017	1,298	6,748
Brown Loam	95,457	41,429	57,340
Clay Hills	22,658	5,737	11,679
Oktibbeha	942	373	1,265
Black Prairie	11,636	16,402	14,694
Copiah	7,633	5,136	5,525
Upper Coastal Plain	1,627	976	2,166
Longleaf Pine	25,535	8,327	15,710
Lower Coastal Plain	23,535	6,796	10,180
Gulf Coastal	9,579	4,336	5,282
Total	204,619	79,886	124,594

[1]Figures for 1930 and 1940 are the number on hand as of April 1, of each year. Data for 1920 are given for January 1.

between 1930 and 1940. On a percentage basis, however, there was only a 38 percent increase during this period. The Brown Loam Area had 40 percent less beef type cows and heifers in 1940 than in 1920.

In all the other areas, except the Black Prairie, Copiah and Gulf Coast Areas, there were large increases in beef type cows and heifers kept on the farms. In the Black Prairie and Gulf Coastal Areas there were slight declines, while there was only a small increase in Copiah County.

It is recognized that the census figures leave much to be desired in the matter of comparability between census years as well as in the question of total coverage, especially for livestock, but it is believed that for the purpose of showing trends and comparison between areas they are fairly indicative of actual happenings.

The location of beef cow herds in Mississippi in 1939 is shown in figure 7. The cows and heifers 2 years old and over kept mainly for beef production is a good measure of the beef cattle herds in the State. This figure, however, does not give any indication of the areas where feeder cattle are bought and fattened out. The number of cattle sold (as shown in figure 11) gives a better idea of this phase of beef cattle production. The beef cattle herds are concentrated in four areas of the State, the most important of which is the lower part of the Brown Loam in southwestern Mississippi.

There is another area of concentrated beef cattle herds in the northern part of the Brown Loam including parts of DeSoto, Tate, Panola, Marshall, and Lafayette Counties. There is probably a higher proportion of pure-bred breeding herds in this section than any other section of the State.

The third area of concentrated beef herds is in the southern counties of the Black Prairie, including parts of Chickasaw, Monroe, Clay, Oktibbeha, Lowndes, and Noxubee Counties.

The fourth area is the open range, cut-over section of southern Mississippi. The northern part of the area extends up into the Central

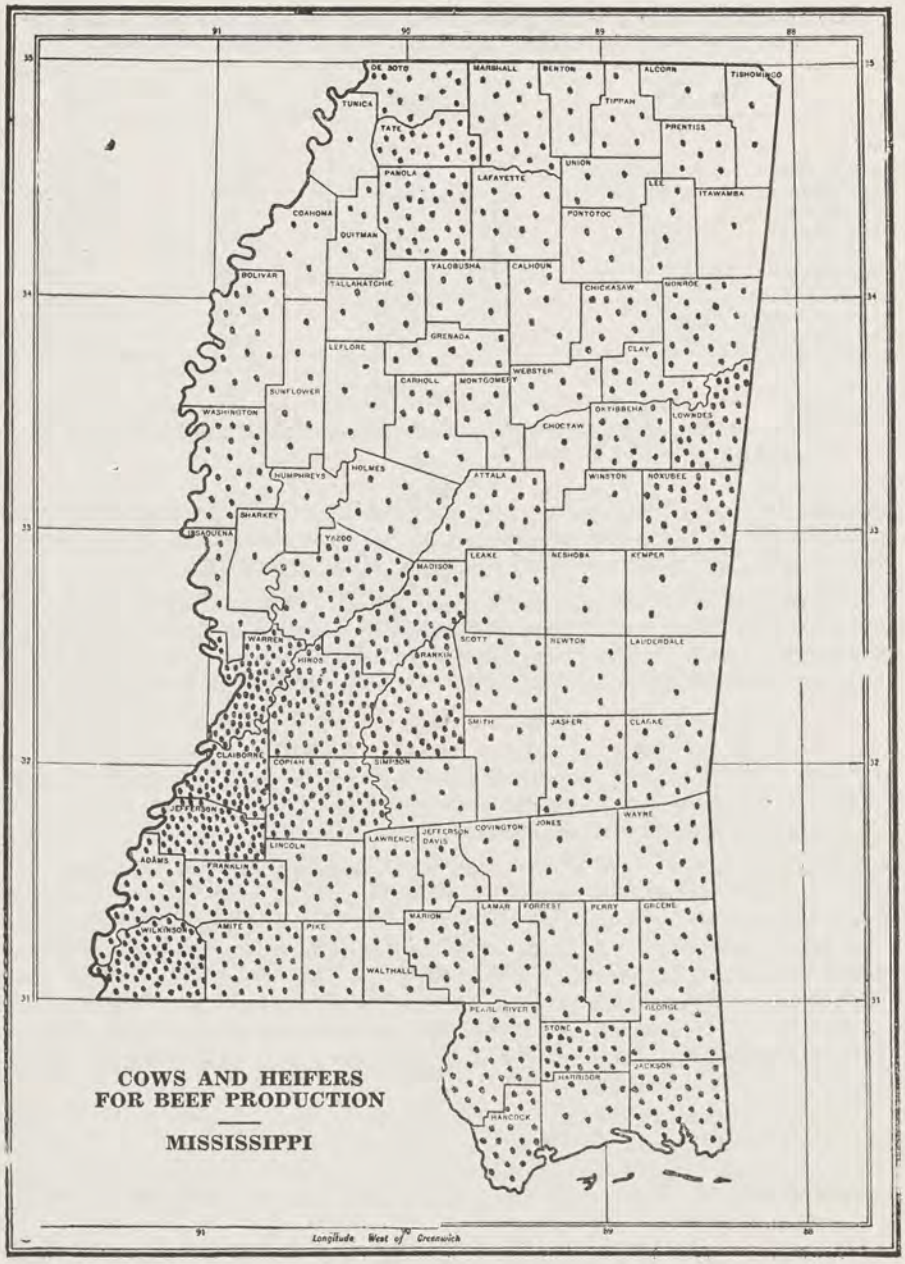

Figure 7. Distribution of cows and heifers 2 years old and over kept mainly for beef production, on April 1, 1940, Mississippi.

1 dot = 100 head

Source: Census of Agriculture, Bureau of the Census, 1940.

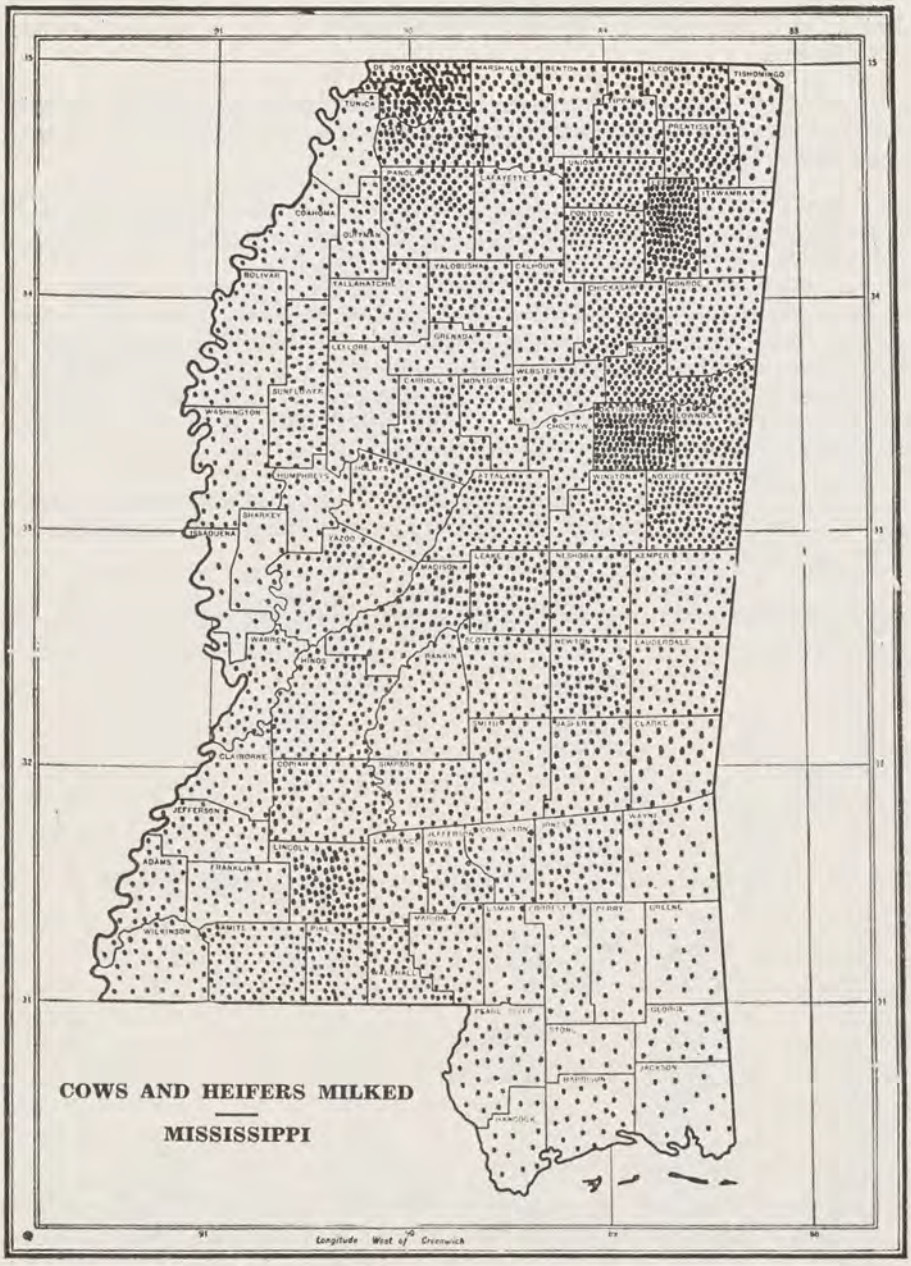

Figure 8. Distribution of cows and heifers milked in Mississippi, 1939.

1 dot = 100 head

Source: Census of Agriculture, Bureau of the Census, 1940.

Prairie and includes all or parts of about 12 counties in southeastern Mississippi.

A more detailed description of the beef cattle enterprises in Mississippi is given in a recent bulletin issued by the Extenson Service of Mississippi State College.[1]

The distribution of all cows milked in 1939 is shown in figure 8. Cows kept for production of milk for home use as well as those producing milk for commercial purposes were included in this figure. It is readily seen that milk cows are rather generally distributed over the State, with definite concentrations in the commercial milk producing areas. The points of heaviest concentration are in the Black Prairie, especially in Oktibbeha and Lee Counties. The counties in the Memphis Milk Shed, particularly DeSoto, also have large numbers of milk cows. Likewise the counties in the southern part of the State that serve the New Orleans market are well supplied with dairy animals.

As will be shown in another section of this report, the dairy cattle are concentrated in those areas where there are established markets for milk and other dairy products.

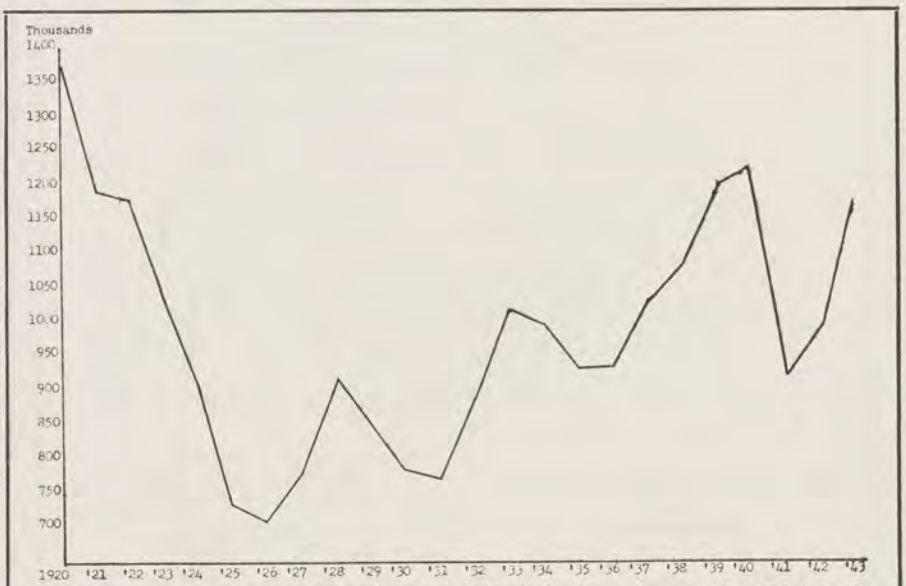

Figure 9. Hogs and pigs on farms in Mississippi on January 1, 1920 to 1943.

Source: Livestock, Meats, and Wool Market Statistics, 1941, AMA, USDA, 1942.

[1]Newell, Paul F. and Grissom, E. E.: "Beef Cattle Enterprises," Extension Bulletin 118 (30 M), 1942.

HOG PRODUCTION

At the close of the first World War there were more hogs and pigs on farms in Mississippi than there have been at any date since that time. The number of hogs and pigs on farms on each January 1 since 1920 is shown in figure 9. It should be noted that there was a very sharp decline in the number of swine on farms from January 1, 1920, to the same date in 1926. During this 6-year period there was a reduction from 1,370,000 to 700,000 or almost a 50 percent decline in hog numbers.

Since 1926, however, there has been a definite upward trend in the number of hogs and pigs on farms at the beginning of each year. There have been definite cycles of hog production, but the low point in each succeeding cycle has been higher than the previous low point. Normally, the hog cycle is five to six years from peak to peak. With the exception of the long decline after the first World War, the cycles have been regular and uniform in Mississippi for the past 20 years. Since 1941, there has been a large increase in hog numbers in the State and the present indications are that on January 1, 1944, there will be more hogs on farms in Mississippi than at any similar date since 1920.

The census data on hog numbers are not altogether comparable between census periods. However, an indication of the relative importance of the hog enterprise on Mississippi farms can be obtained by a comparison of the number of hogs on farms in the various type-of-farming areas for the most recent years (table 15).

The Delta is the only area in the State that had more hogs on April 1, 1940, than on January 1, 1920. Between 1930 and 1940 there was a 66 percent increase in hog numbers in the Delta. The Clay Hills, Black Prairie, Upper Coastal Plain, and the Longleaf Pine Areas also had increases in hog numbers between 1930 and 1940. On the other hand the

Table 15—Number of hogs and pigs on farms in Mississippi for census years, 1910 to 1930, by areas

Area	Number of hogs on farms			
	1940[1]	1930[2]	1920[3]	1910[4]
Delta	213,853	129,391	196,166	194,383
Brown Loam	235,856	240,315	402,317	437,123
Clay Hills	137,615	124,968	290,502	218,302
Oktibbeha	6,494	7,811	13,919	11,355
Black Prairie	56,950	50,059	119,277	85,639
Copiah	8,960	9,403	18,565	22,587
Upper Coastal Plain	19,987	18,721	48,552	35,155
Longleaf Pine	101,420	87,960	208,799	197,821
Lower Coastal Plain	34,602	48,989	56,815	64,681
Gulf Coastal	10,172	15,164	18,399	25,073
Total	825,909	732,781	1,373,311	1,292,119

[1]April 1, 1940, hogs and pigs over 4 months of age
[2]April 1, 1930, all swine
[3]January 1, 1920, all swine
[4]April 15, 1910, all swine

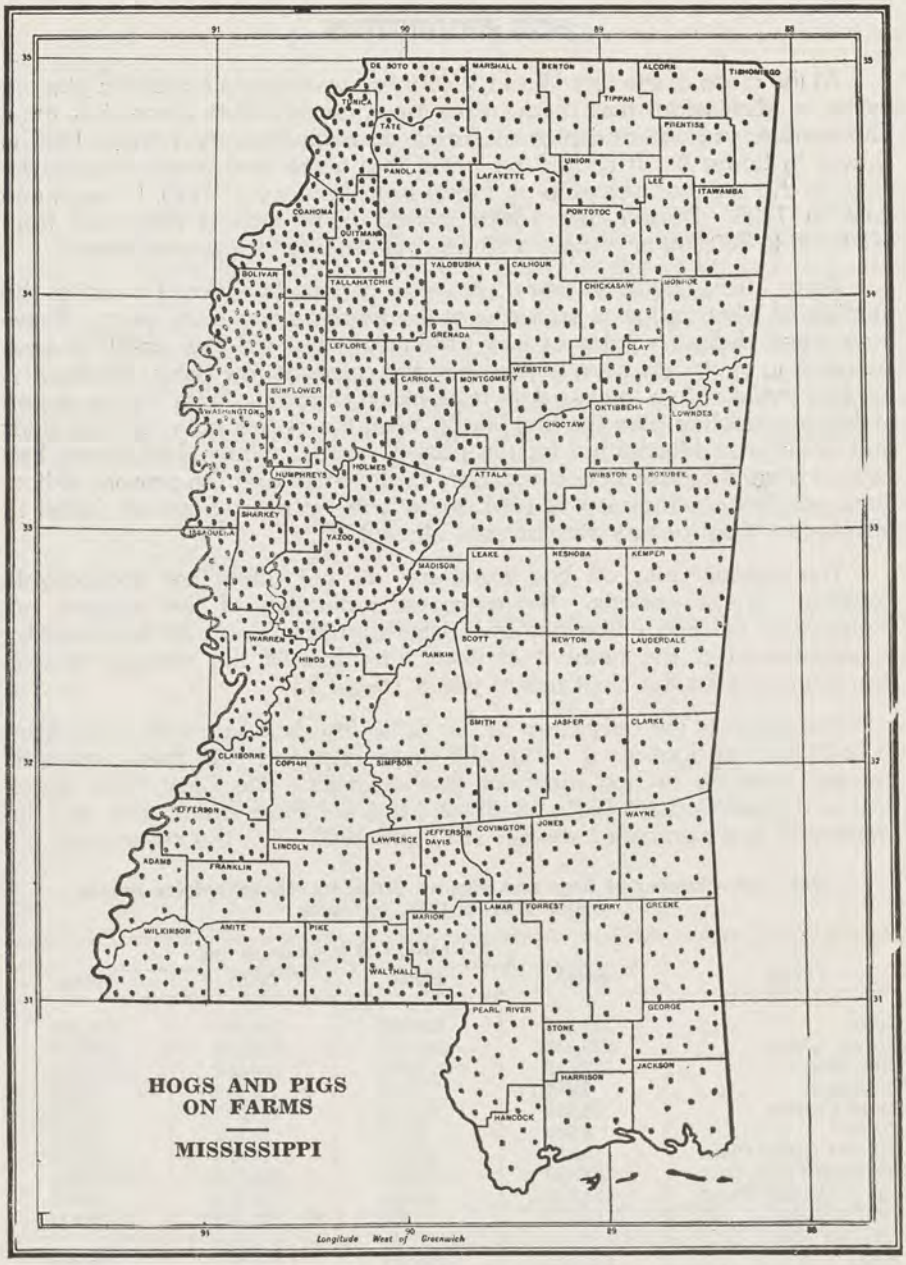

Figure 10. Distribution of the number of hogs and pigs over 4 months old on farms in Mississippi on April 1, 1940.

1 dot = 500 head

Source: Census of Agriculture, Bureau of the Census, 1940.

Brown Loam, Oktibbeha, Copiah, Lower Coastal Plain, and Gulf Coastal Areas all had constant decreases in hog numbers for the past three or four census periods.

There were 56 percent more hogs on farms in Mississippi on April 15, 1910, than there were on April 1, 1940. The distribution of swine on farms in Mississippi on April 1, 1940, is shown in figure 10. The area of greatest concentration is the Delta and some of the surrounding counties in the Brown Loam. Outside of this one concentrated area hogs are scattered fairly uniformly throughout the State. In many sections hogs are kept mainly to raise meat for home use. If prices are high and feed is available, many of the farmers fatten and sell the surplus not needed at home. If feed is not plentiful, many pigs will be sold as feeders.

The hog enterprise on many farms in Mississippi can be increased or decreased as fast as biological forces will allow. That is, many farmers have a brood sow or two around the place whose main purpose is to produce pigs to be used for meat at home. However, if the price of pork is high, it is not difficult for the farmer to keep an extra gilt for an increase in hogs the next year. If prices are low, the number can be reduced as fast as pigs on hand can be put in shape to be sold. For the major portion of the hill section of the State, the hog enterprise takes the form described above. There are, however, some areas that regularly produce hogs on a commercial scale. These areas are shown in figure 13 which gives the distribution of hogs and pigs sold in 1939.

MARKETING

Cattle and Hogs

Because of the fact that cattle, calves, and hogs usually go through the same marketing channels, they will be discussed together in this section. In some cases sheep and lambs are handled on the same markets. However, because of the small number of sheep and lambs sold in Mississippi, they are usually handled in special sales sponsored by the Extension Service of Mississippi State College.

According to the latest census there were 149,116 cattle sold from farms in Mississippi during 1939. The distribution of cattle sold is shown in figure 11. Both beef and dairy cattle are included in this figure. It will be noted that there were relatively few cattle sold in the Delta Area. However, several of the counties in the Brown Loam, surrounding the Delta, sold fairly large numbers of cattle. In addition there were large numbers of cattle sold from farms in the southern counties of the Black Prairie Area. As has already been pointed out, these are counties where there is a large concentration of dairy animals. Therefore, many of the cattle sold in this area are young cows that are being shipped for replacements in other states, or are cows that have been culled from the dairy herds and are being sold for slaughter. Also, there are many grade jersey bulls and steers sold from the farms in these areas.

The livestock industry is important in the open range cut-over area in the southern part of the State, but because of the sparse grazing available, there are fewer cattle sold than in some other areas of the State. There are fairly large numbers of cattle sold in the Longleaf Pine Area

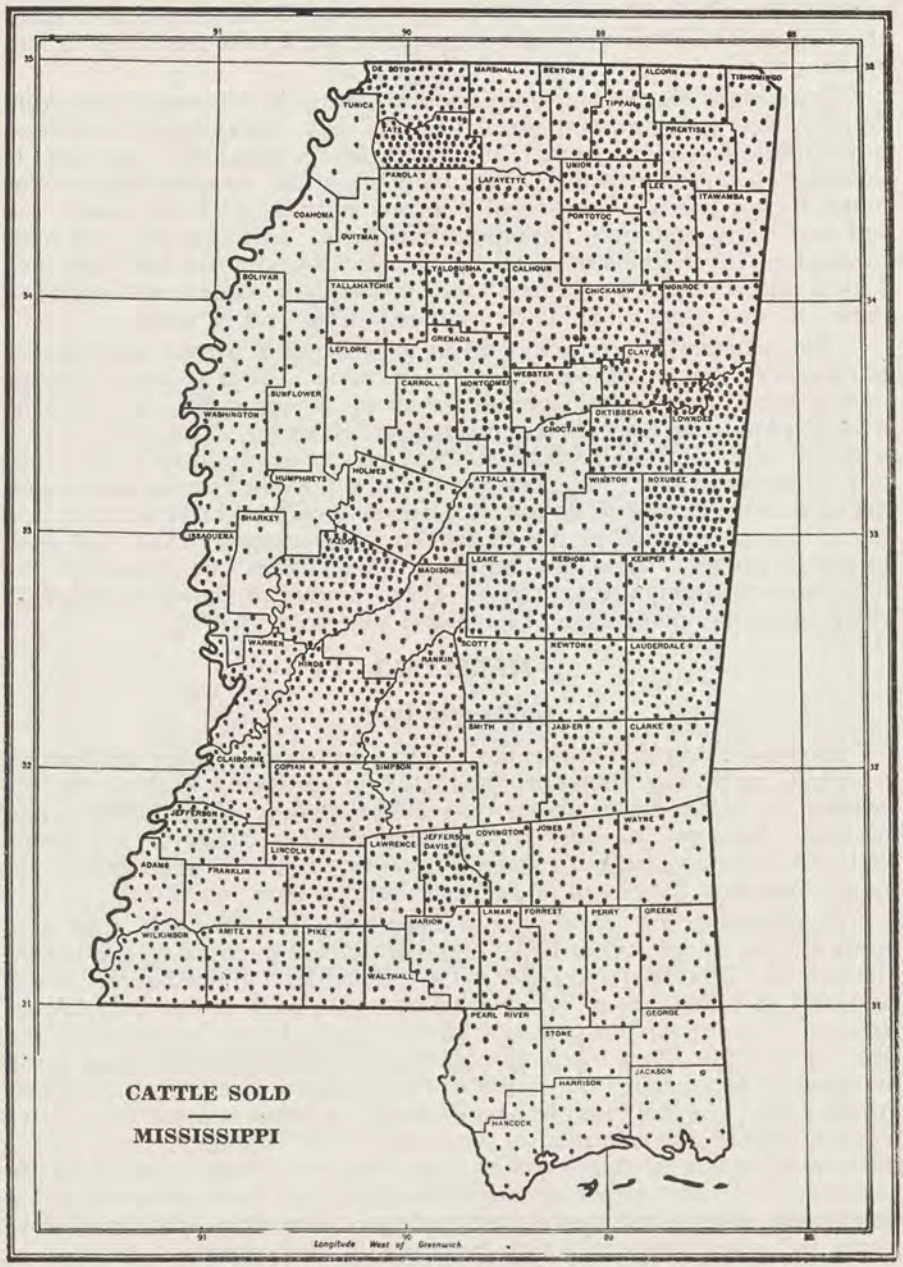

Figure 11. Distribution of cattle sold, Mississippi, 1939.

1 dot = 50 head

Source: Census of Agriculture, Bureau of the Census, 1940.

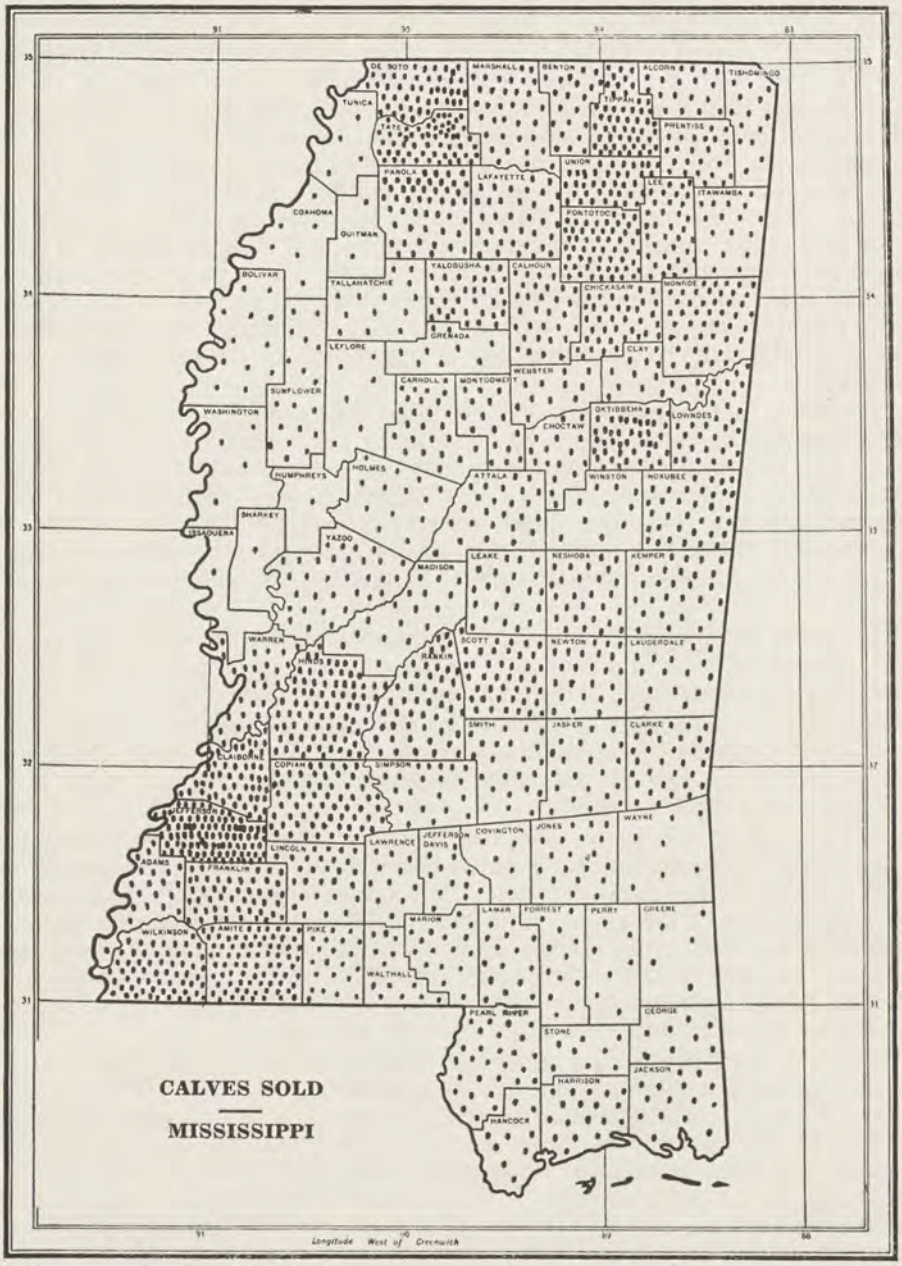

Figure 12. Distribution of calves sold, Mississippi, 1939.

1 dot = 50 head

Source: Census of Agriculture, Bureau of the Census, 1940.

and the southern part of the Brown Loam Area. This latter area is one of the most highly concentrated beef cattle areas in the State, but it is made up largely of cow herds for calf production.

During 1939 there were 104,101 calves sold from farms in the State. The distribution of calves sold is shown in figure 12. It is apparent at once that the sale of calves is concentrated in the southern Brown Loam counties. It is customary in this area to sell the calves born each spring in the fall of the same year. They are sold at from six to eight months of age and go for immediate slaughter as grass and milk fat calves, or are sold as feeder calves. The only other areas where large numbers of calves are sold are the dairy areas of the Memphis Milk Shed and in the Black Prairie and surrounding counties. A large proportion of these are very young dairy calves that are a by-product of the milk producing process.

During 1939 there were 196,302 hogs and pigs sold from farms in Mississippi. The distribution of these sales is shown in figure 13. The sale of hogs and pigs did not follow any type-of-farming area. The greatest concentrations were in Washington, Yazoo, Warren, and Claiborne Counties. However, there were relatively heavy sales in almost all the counties in the northern part of the State. The inclusion of both hogs and pigs does not give an indication of either the fat hog or feeder pig sales.

Except for George County and the counties along the western border, the number of hogs and pigs sold in the southern part of the State were not very large but were fairly uniform throughout this area.

The actual methods of the sale for the various types of livestock are not greatly different from area to area in the State. However, the livestock marketing system has been developing and in recent years has made considerable progress.

Until about ten years ago the livestock of all types produced in Mississippi was sold to local meat markets, local livestock dealers, or in some cases, where there was enough volume, was shipped by truck or by rail to one of the central markets. There were no well-established livestock markets in the State. The stock that was produced in excess of local needs was often shipped by rail to St. Louis, Chicago, Memphis, or some other large central market. Only the large producers and some livestock dealers were able to make such shipments.

Since the early thirties, however, there has developed a system of livestock auction markets that covers almost all the State. There were 40 of these markets operating in 1942, locations of which are shown in figure 14. A majority of these markets hold sales one day per week. A few, however, have sales once in 2 weeks, and in one case only one sale per month is conducted. It will be noted that the only sales in the southeast section of the State are at Laurel and Hattiesburg, with two auction markets in each of these towns. It is necessary for the livestock produced in this area to be hauled considerable distances to market. A part of this stock goes to markets in Mobile, Alabama, and New Orleans, Louisiana.

The northwestern section of the State does not have any local markets.

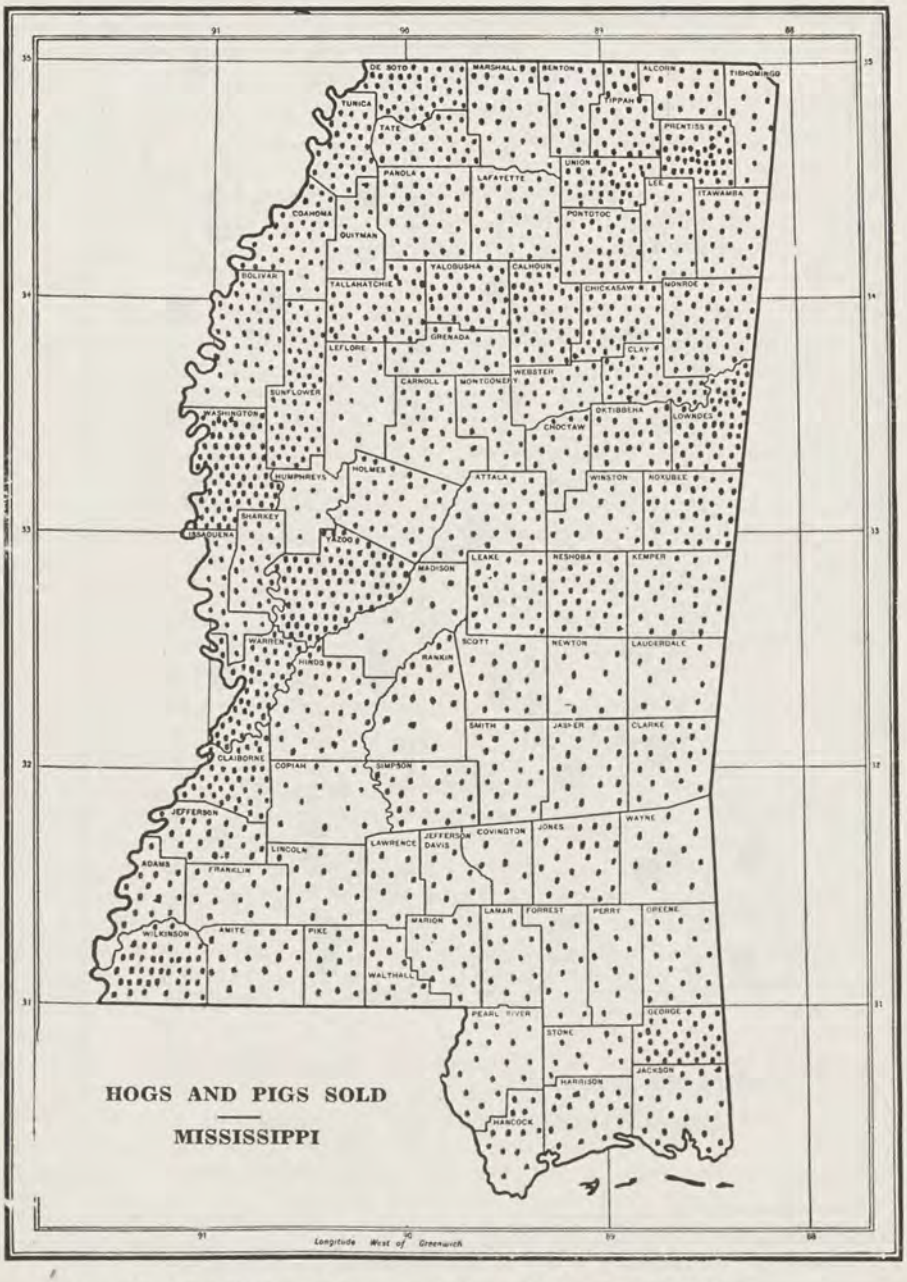

Figure 13. Distribution of hogs and pigs sold, Mississippi, 1939.

1 dot = 100 head

Source: Census of Agriculture, Bureau of the Census, 1940.

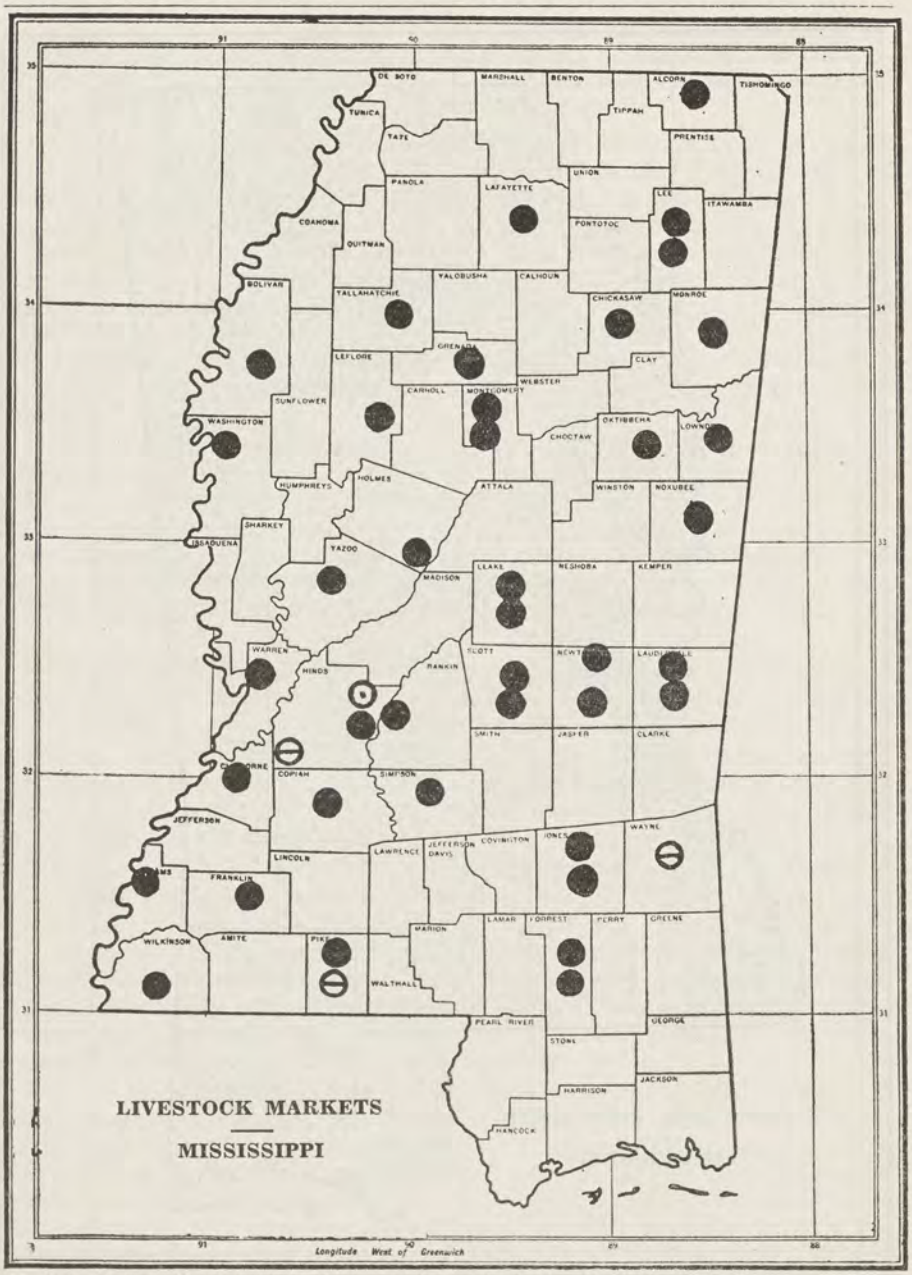

Figure 14. Distribution of livestock markets in Mississippi, 1942.

● **Auction markets**

⊖ **Auctions—not operating**

⊙ **Central markets**

Source: Records of Economics Division, Mississippi Extension Service, and a survey conducted by the author.

Almost all the livestock produced in this area goes direct to the stockyards in Memphis. Producers in this area find that they save enough on commissions to pay them to haul their stock to Memphis.

There is only one central livestock market in Mississippi. The Union Stockyards in Jackson offers a market for livestock on any sale day in the year. No commissions are charged. The stock is bought outright and paid for on a grade basis. The buyers on this market are order buyers and ship their stock almost entirely by rail. Normally, from 1,000 to 1,200 carloads of stock (hogs and cattle) are shipped from this market each year.

The stock is brought to the auction market by farmers and local livestock dealers. At the unloading chute each animal is usually given a number, and a tag bearing the number is fastened in the animal's ear. At most markets the number, or numbers, and the owner's name are recorded on a ticket and passed to the auctioneer's table as the animals enter the ring. As the stock is sold, the person keeping the records of the sale records the price. If the animals are sold by weight, the ticket is then passed to the weigh master who records the proper weights. Next the ticket is carried to the main office of the auction sale where the record is completed, the commissions deducted, and the checks made out. There are many variations to this system but in general the sales follow a fairly uniform procedure. The most efficiently operated auctions have the records completed and the check ready for the consignor a few minutes after the auctioneer declares the sale.

The operator of the sale usually acts as the ringmaster and when the stock comes into the ring, he usually starts the bidding. To properly perform this function, he must know livestock and livestock prices. It is up to him to start the bidding at a point low enough that he will not have to buy the stock and yet high enough to insure the consignor the best possible price. The success of the auction sale depends upon the ability of the manager to satisfy both the seller and the buyer. Almost all the auction market operators are, in addition, livestock dealers. They buy stock and sell it at their own auctions, or they buy at their own auctions and resell at a later date on their own markets, or take the stock elsewhere for sale. Many market operators go to other auction markets in the State and buy stock to sell direct to farmers in their community or to sell in their auction rings.

The auction sales usually have a definite order in which they sell each type of livestock. That is, all the hogs will be sold, then cattle, and finally, horses and mules. Other sales may use a different order. It is the usual practice to sell slaughter and feeder stock by weight. All the sales that were operating in 1942, with the exception of two that were open only part of the year, were equipped with scales. The usual practice is to weigh animals which sell by weight after they leave the auction ring. Dairy cows and heifers, breeding stock, small pigs, and miscellaneous stock, such as kids and goats, are commonly sold by the head.

The animals are not mixed as to ownership, but when one consignor has several animals that are different in type, the ring masters usually

make some attempt to sort the stock into fairly uniform groups. In most cases very little attempt is made to sort the stock, particularly hogs, before they go into the ring. It was noted frequently that a bunch of hogs ranging from very small pigs to fat slaughter hogs would all be run into the ring. The ring master would pick out two or three of the best fat hogs and sell them. They would then be separated from the group and passed out of the ring. Successive selections and sales would be made until all the group were sold. Often the same practice was followed with cattle.

The stock sold at the auction markets is bought by a variety of persons. Many farmers buy replacements at these sales. Local dealers, order buyers, and representatives of packing plants, are the most important buyers. Some of the smaller markets do not have sufficient volume of any particular type of stock to attract outside buyers, and it follows that the only buyers at these markets are the farmers and local dealers. But the larger markets attract the order buyers, large dealers, and representatives of the packing plants.

Along with the development of the livestock auction market has come an increase in the number of livestock dealers or traders. On the basis of permits granted by County War Boards, there are around 1,600 such dealers in Mississippi. This is an average of about 20 dealers per county. Some counties have as high as 60 dealers. The livestock buyer usually has a pickup truck with high sideboards, and in many cases goes from farm to farm to buy stock and assemble it until sale day. Many livestock dealers are farmers and spend only a part of their time dealing in livestock.

For the most part these dealers perform a necessary service, but the same service could probably be done by a smaller number of persons. A large proportion of the farmers who produce livestock in Mississippi are small operators having only a few head of stock to sell each year. It is not economical for them to own a livestock truck to carry the few head they have to market. Therefore, they have to hire someone to do the hauling or sell outright to a dealer who is equipped to handle the stock. It appears that a large number of these small farmers prefer to sell outright to the dealers. Almost all the trading between the producer and the dealer is on a per head basis. The dealer makes his return by being able to judge correctly the weight of the animals he is buying, because he usually buys by the head and sells on a weight basis.

Many of the livestock dealers buy stock at the auction markets and resell to farmers in their community, or take it to other auction markets, or packing plants, or to the central markets. There is considerable evidence of speculation by the livestock dealers. That is, at almost every sale there are one or more buyers who just sit and wait for what appears to them to be a bargain. At dull points in the sale during the course of an afternoon, they may pick up two, three, or a half dozen animals.

Between many of the smaller auctions and the larger auctions, central markets, and packing plants, this speculative buying is a necessary part of the system because, as mentioned previously, the smaller auction sales cannot attract large livestock buyers. Consequently, the stock from the small sales has to be assembled at larger sales so there will be enough volume to attract the large buyers, who have to be assured of enough stock

to allow for economical transportation before they will enter a market. The livestock dealer performs this service of assembling.

This is not to say that it takes all the nearly 1,600 persons that are dealing in livestock in Mississippi to perform this service. There is probably an excess amount of buying and selling on markets of about equal size. Some animals are "worn out" by being hauled from market to market. The fact that an animal can be bought on one market today and sold at a profit on a nearby market of equal size tomorrow is evidence that it did not bring its full value at the first sale. In addition, there are probably too many dealers running around over the country from farm to farm buying livestock. However, the exact nature of the service being performed and the costs involved have not been determined. Definite statements about the performance of this function and suggestions for its improvement cannot be made without making an analysis of the system as it is now operating in more detail than was possible in a preliminary descriptive study.

The usual charge for selling livestock at the auction markets in Mississippi is 5 percent of the gross value of the animals sold. Many markets add to this a small per head charge for yardage, usually 10 cents per head. However, some markets in the eastern part of the State charge 5 percent commission and in addition charge 25 cents per head yardage, 5 cents for weighing, and 2 cents per head for insurance. For small sales where several animals are involved, this amounts to from 6 to 8 percent of the value of the animals. For example, suppose a farmer had 10 feeder pigs that sold for $10.00 each or a total sale value of $100.00. The charges would be as follows:

$100.00 x 5% =	$5.00
10 pigs x 25c =	2.50
10 pigs x 5c =	.50
10 pigs x 2c =	.20
Total =	$8.20

The total equals $8.20 or 8.2 percent of the total value of the 10 pigs. If only one animal was involved in the hundred dollar sale, the total charge would be only 5.3 percent of the sale value.

The usual charges for selling livestock on the auction markets in the neighboring states of Louisiana and Arkansas are 4 percent of the sale value plus a small yardage fee that ranges from 5 to 20 cents per head.[1] Sixty-four percent of the markets in Louisiana charged 4 percent or less for auction selling.

In a study of livestock auctions in the United States made by the Farm Credit Administration, it was found that 89 of the 176 auctions reporting charged a percentage of gross sales.[2] Sixty percent of those making their charges on a percentage of gross sales basis charged 3 percent and 17 percent charged 4 percent. Many other references to studies

[1]Baker, J. M.: "Louisiana Livestock Auction," L. S. U., Agricultural Economics Department, Mimeographed Circular No. 10, 1940, p. 8; Osgood, O. T., and White, J. W.: "Livestock Auctions in Arkansas," Arkansas Agricultural Experiment Station, unpublished manuscript.

[2]Randall, C. G. and Mann, L. B.: "Livestock Auction Sales in the United States," Farm Credit Administration, Bulletin No. 35, 1939, p. 65

of charges for auction selling could be given, but these are sufficient to show the range of commissions charged.

Almost without exception these studies show that the usual commissions are 3 to 4 percent of the gross sales plus a small yardage fee, usually from 5 to 20 cents per head. As has already been pointed out, almost all the markets in Mississippi charge a 5 percent commission plus a similar or larger yardage fee.

From information obtained from 20 of the 40 auctions in Mississippi, it was estimated that the total volume of livestock sold on all markets in 1942 amounted to about $20,000,000 or an average of about $500,000 per auction. About three-fourths of this amomunt was from cattle and the other one-fourth from hogs. This does not mean that there was a farm income of twenty million dollars from auction-marketed livestock in 1942, because many animals go through the sales two or three times during a year. Dealers carry stock from one sale to another, and in addition, feeder stock is sold in large numbers in the winter and early spring and is sold again in the fall as fat stock. It is not possible to eliminate these duplications. Consequently, the estimate given is the total dollar volume of business done by all the markets operating in 1942 and is therefore a rough indication of the gross sales value of livestock sold at the auction markets.

If a commission charge of 5 percent is applied to this gross sale value, it amounts to a total of about a million dollars, or an average of around $25,000 per auction market per year. It should be pointed out immediately that this is only an estimate of the average gross income in 1942 of the auctions operating in the State and does not in any way reflect the profitableness of the operation. The costs of operating these markets are not known and no statement about the net income can be made until reliable cost data are available.

The average income and expenses of 28 large auctions scattered over the country were obtained by the Farm Credit Administration for 1937.[3] These auctions handled livestock with an average gross value of slightly over a million dollars. They were considerably larger than the average market operating in Mississippi in 1942, but were no larger than several of the big markets in this State. The 28 markets studied had an average gross income from all sources of $28,147. All expenses including salaries and wages averaged $23,836 per auction. The average net income was $4,311. The total income on these markets including commissions, feed and bedding, yardage, and all other income amounted to an average of 2.5 percent of the gross sale value of livestock handled. The total expenses amounted to 2.3 percent of the gross sale value of livestock sold. Thus, the net operating margin was .2 percent of the sale value.

One auction in the State is owned cooperatively by a group of livestock producers. The facilities were put up at a total cost of $10,600. The completed market was then leased to one of the members who operates it the same as any other market. The members who furnished the original capital can sell any amount of stock they want to at any sale

[3] **op. cit.**, p. 105

for a 3 percent commission. Any non-members who use the market are charged from 3 to 5 percent, depending on the volume sold. This market started operating in October of 1941 and has held two sales each month since that date.

The auditor's report for the first 17 sales conducted at this market shows that the average commissions paid for these first sales amounted to 3.5 percent of the gross sales. The total costs of operation amounted to 2.96 percent of the gross sales. In other words, there was a net income of .54 percent of the gross sales. During the first 18 months of its operation this market handled about $1,400,000 worth of livestock. On this basis, the net income for this market would have been $7,560 for the 18-month period or at a rate of $5,040 per year. This amount of net income was based on an average commission charge of 3.5 percent.

However, these figures are for only one market and cannot be considered as representative of the livestock markets in the State. They are given only as a statement of what has been accomplished at this one market.

There seems to be general agreement among farmers and livestock dealers that the development of the present system of auction markets has done much for the livestock industry in the State. These markets have many advantages. They have brought a ready cash market for almost every type of livestock within reach of a majority of the farmers in the State. They bring the producer and the buyer together and thus contribute to a better understanding of the problems of each by the other. Many persons mentioned their educational value. Farmers who attend the sales see the premiums paid for the better stock and learn the characteristics possessed by these good animals.

On the other hand, there are certain very obvious disadvantages to the markets as they are now operated. One of the most serious drawbacks is the spread of disease, particularly hog cholera. In some instances the hog markets have been almost completely destroyed because of a cholera epidemic that could be traced directly to the market. Some unscrupulous dealers and producers have been known to carry exposed or infected hogs and sell them in the auction rings. Unfortunately, there are no effective means in the hands of the State sanitary authorities for dealing with such cases. Actually, the only safe thing for any farmer to do who buys hogs to carry to his place is to have them vaccinated immediately and not put them with other stock until he is sure they are sound.

The disease problem, however, is not confined to the auction markets. There is always danger from communicable diseases where stock is assembled. It would seem, then, that all due precautions should be taken at each assembly point to keep the spread of disease as low as possible. The contrary to this situation is the rule in Mississippi. No effective supervision of any kind is provided for by State statute. As a result not many operators do any cleaning or disinfecting between sales. Many of the markets looked as though they had never been cleaned.

Another objection to the auction sales as they are operated in

Mississippi is the rough treatment the animals receive. It was observed at many markets that cows and hogs were beaten badly by rough handlers who hit them with sticks or boards. Few people realize the damage done to a fat hog when he is hit across the ham with a stick. There is usually a large bruised place that is a total loss when the animal is slaughtered. The same applies to fat cattle. The walking cane serves its purpose as the symbol of the stockman, but it should never be used to hit an animal except in self protection. A harmless quirt made of some material such as a small piece of rope that will sting the animal will do the job just as effectively as a stick, and it will do no damage to the animal.

Selling on many of the markets is slowed up by groups of people in the auction ring. Often there are so many people in the ring that the buyers cannot see the animals. The stock gets frightened, and will not enter the ring, or if it does, runs around, among and behind the spectators where the real buyers cannot see it. Often the pigs have to be chased around and around among the people in the ring before they can be caught and passed out to the scales after they are sold. Part of this congestion in the ring is due to a lack of seating facilities to accommodate all the people who usually attend the sales. Many sales have very poor seating and ring arrangements, and in others where there is ample seating space, the crowds still fill the ring. It would seem to be the part of wisdom to have the seats near the ring reserved for buyers, and allow no one in the ring except the necessary handlers. Those who come just to see should not be allowed in the ring or in the buyers' seats, but should be provided seats back away from the ring where they can observe without interfering with the efficient operation of the sale. With such an arrangement, the auctioneer could give his attention to the buyers and catch all the bids. In some cases it was observed that bids were missed and the stock sold for less than it would have been if all the bids could have been registered.

There are many other points about the auction markets that should be considered. There is danger of getting too many markets in some areas so that they become merely farmers' and dealers' trading posts. There are several small towns in the State at present where there are two markets operating with hardly enough volume to support one. Regular, expert testing of scales should be provided. The practices of auctioneers buying on their own account, or market managers buying and reselling on their own market as well as many others, should be thoroughly examined.

As already mentioned, these markets have meant much to the livestock industry in Mississippi, but it is likely that their continued successful performance of the marketing services will depend upon their ability to rid themselves of some of their most objectionable features. Their most severe test is likely to come in the adjustment period at the close of the war. A thorough and objective analysis of the operations of a sample of these markets with the view of helping them improve their services and get in a better position to meet the coming adjustment period would seem to be a worthwhile contribution to the livestock industry in the State.

There is no reliable basis for estimating the proportion of the total livestock sold in the State that goes through the auction markets. Many of the large producers of better quality cattle and hogs follow the practice of selling direct to the large markets in the nearby states and some ship in carload lots to more distant markets. Often the large producer has enough volume to pay him to own his own truck, or to hire a truck to haul his stock to market. However, there are only a very few areas in Mississippi where there are producers large enough to economically perform this service for themselves. Many of them who own trucks do custom hauling for their neighbors.

In addition to the regular auction sales a number of special sales are held each year. The Extension Service of Mississippi State College and the State Livestock Association sponsor a series of livestock shows and sales each year, and also a series of special fall sales of fat and feeder calves. For the most part, the animals sold at these sales are produced by members of the 4-H Clubs and Future Farmer organizations, and the sales are held mainly for their educational value. The stock is all graded and sold at auction on a grade basis.

Mississippi has become noted for its fine herds of Jerseys and consequently, has a developing demand for breeder and replacement stock. In order to get an indication of this demand, the records of animals shipped out of the State were tabulated from the health certificates issued by the Mississippi Livestock Sanitary Board. These records show that approximately 18,510 animals were shipped from the State during 1942 for which health certificates were issued (table 16). Because of incompleteness, some of the certificates were not usable, and it is possible that the total might reach 20,000. Animals going into Alabama have

Table 16—Number, origin, and destination of livestock shipped from Mississippi that were given health certificates by the Livestock Sanitary Board in 1942

Destination State	City of origin								
	Meridian	Tupelo	Okolona	Starkville	Winona	Natchez	Columbus	Others	Total
Alabama	5,088	28	1	2,739	[illegible]	.....	302	175	8,333
Arkansas	.....	34	.....	9	32	.....	.....	53	128
Florida	154	381	40	213	.....	.....	.....	13	801
Georgia	54	.....	.....	6	.....	.....	.....	53	113
Illinois	.....	475	.....	.....	71	.....	607	69	1,222
Indiana	.....	.....	.....	.....	.....	.....	137	5	142
Iowa	.....	23	.....	.....	.....	.....	.....	3	26
Kentucky	446	808	3,382	65	110	511	165	49	5,536
Louisiana	58	170	.....	9	.....	417	.....	338	992
Minnesota	.....	.....	.....	.....	.....	320	.....	.....	320
Missouri	.....	44	16	.....	62	.....	.....	7	129
Ohio	.....	.....	.....	.....	70	.....	.....	.....	70
Tennessee	126	78	.....	.....	125	.....	90	69	488
Texas	35	.....	.....	.....	.....	.....	.....	70	105
Wisconsin	.....	53	.....	.....	.....	.....	.....	16	69
Others	.....	.....	.....	.....	.....	.....	.....	36	36
Total	5,961	2,094	3,439	3,401	470	1,248	1,301	956	18,510

to have an inspection showing that they are free from ticks. For this reason, a large proportion of the stock that was shipped from Starkville, Columbus, and Meridian into Alabama were issued a certificate stating that they were free from ticks and were going for immediate slaughter.

It will be noted that relatively large numbers of cattle were shipped from Starkville and Meridian into Alabama. Almost all of this stock went for immediate slaughter. For instance, the cattle from Meridian went mainly to slaughtering plants in Birmingham, Tuscaloosa, Montgomery, Demopolis, and Greensboro. From Starkville the stock went largely to packing plants at Tuscaloosa, Bessemer, and Greensboro. In addition to the cattle, about 600 head of slaughter hogs went from Starkville to these plants. All these hogs were hauled by truck and about 77 percent of the cattle that went from Starkville into Alabama also were hauled by trucks. The other 23 percent or about 12 carloads were shipped by rail. From Meridian 39 percent of the cattle went into Alabama by rail and the remainder by truck.

A large proportion of the cattle that went to all the other states were Jersey breeding or replacement stock. For the State there were around 12,000 head of this type of stock shipped out in 1942. Almost all of these were either young Jersey cows or springer heifers. For instance, the 3,382 cattle that were shipped from Okolona into Kentucky were almost all 1- to 2-year-old Jersey heifers. On the other hand, a large proportion of the cattle that went to Florida from various points in the State were 3- to 4-year-old cows.

The widespread demand for these dairy animals indicates that there is an opportunity for many dairy farmers in Mississippi to produce and sell a limited number of good quality Jersey heifers each year. Of course, it would be foolish for any farmer to sell his best young stock, but if he can take care of his own replacements, and in addition raise some to sell, he can certainly supplement his income by so doing.

There are six packing plants in the State. They are located at West Point, Tupelo, Jackson, Clarksdale, Greenville, and Meridian. All of these plants slaughter stock that is consumed within the State. They do not enter into interstate trade and are not subject to Federal supervision. All except two of these plants slaughter almost entirely for use in the city where they are located. In addition to these plants there are many local and farm slaughterers who provide meat for the markets in almost every town in the State. No information is available that gives the extent of this market for livestock. There are no Federally inspected packing plants or slaughter houses in Mississippi.

The only Federal supervision that affects the livestock industry within the State is that which is given to five of the auction markets that have been posted as provided by the Packers and Stockyards Act. This act provides that any market which has as much as 20,000 square feet of space in pens and other facilities, exclusive of runways and alleys, shall be posted and supervised as provided in the Act.

Dairy Products

It is estimated that there were 1,359,000,000 pounds of milk produced in Mississippi in 1942. Of this amount the equivalent of 673,000,000

Table 17—Sales and value of dairy products in Mississippi, 1942

Item	Quantity	Price per unit	Value of sales
Farm butter sold, lbs	1,300,000	$ .32 lb.	$ 416,000
Butterfat sold, lbs.	5,680,000	.39 lb.	2,215,000
Milk sold wholesale, lbs.	461,000,000	2.60 cwt.	11,986,000
Milk and cream retailed, qts.	22,000,000	.114 qt.	2,508,000
Combined sales of butter, cream, and milk, lbs.	673,000,000	2.54 cwt.	17,125,000
Value of milk products consumed in household			$17,069,000
Gross farm income from dairy products			$34,194,000

Source: Agricultural Statistician, Bureau of Agricultural Economics, Gulfport, Mississippi.

pounds were sold in the form of butter, cream, or milk. The milk manufacturing plants received the equivalent of 386,876,000 pounds or 57.5 percent of the milk sold, for which they paid a total of $8,951,200. This was an average of $2.31 per hundredweight. The milk delivered to the manufacturing plants was used as follows: 23 percent for butter, 31 percent for evaporated and condensed milk, 33 percent for cheese, and 13 percent for ice cream. In terms of finished products the following were produced in Mississippi in 1942: butter, 4,160,451 pounds; evaporated and condensed milk, 59,414,850 pounds; cheese, 10,474,744 pounds; ice cream, 3,120,772 gallons; and dried or powdered skim milk and buttermilk, 1,508,272 pounds.

The quantities and values of the various dairy products sold in 1942 are shown in table 17. Only about half, or about 673,000,000 pounds, of milk produced was sold. This is the combined sales of milk, cream, and butter converted to a whole milk equivalent. The average value per hundredweight of milk was $2.54 or a total sale value of $17,125,000. For the most part Mississippi farmers sell milk at wholesale and the price is based on a hundred pounds of milk. During 1942 there were 461,000,000 pounds of milk sold at wholesale. This is 68.5 percent of the combined sales of butter, cream, and milk. The milk sold at wholesale brought an average price of $2.60 per hundred pounds. This milk is sold both to the manufacturing plants and to wholesale dealers who distribute retail milk. The milk that goes for retail distribution has to be of higher quality than the milk for processing, consequently the retail milk brings a higher price. This accounts for the fact that the average price for all wholesale milk is higher than the price of that which goes to the processing plants.

There has been a marked increase in the sale of milk from farms in Mississippi during the past 30 years (table 18). Almost without exception the gallons of milk sold have increased in each area for each 10-year period since 1909. However, the most noticeable increase was during the decade from 1919 to 1929. During this period there was an increase

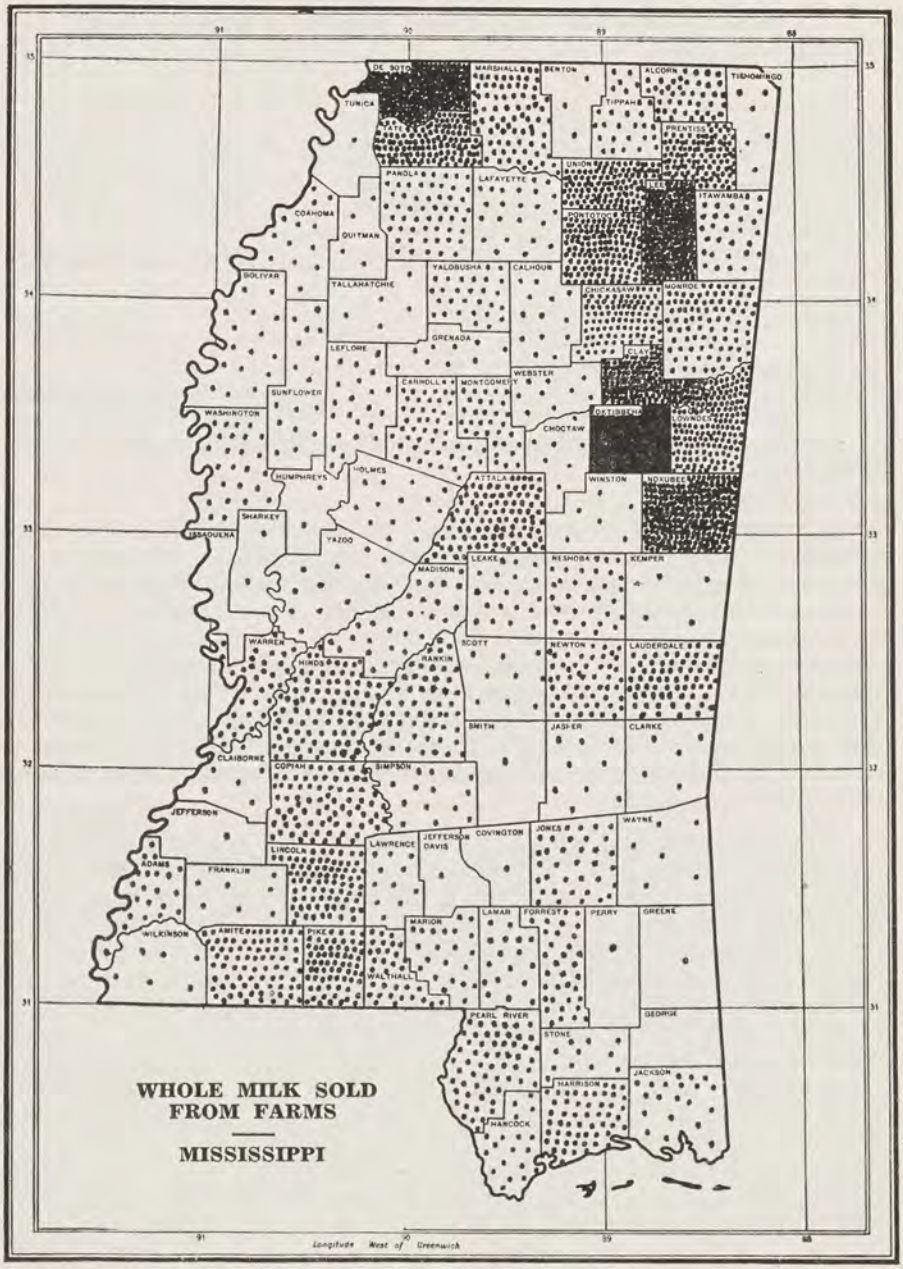

Figure 15. Distribution of whole milk sold from farms in Mississippi, 1939.
1 dot = 10,000 gallons

Source: Census of Agriculture, Bureau of the Census, 1940.

Table 18—Gallons of whole milk sold from farms in Mississippi by type-of-farming areas, 1909, 1919, 1929, and 1939

Area	Amount of milk sold			
	1939 Gallons	1929 Gallons	1919 Gallons	1909 Gallons
Delta	1,060,753	772,640	271,097	117,372
Brown Loam	10,756,163	9,106,242	1,950,435	1,047,412
Clay Hills	6,928,044	5,047,339	541,727	263,547
Oktibbeha	3,537,938	2,397,255	15,358	7,613
Black Prairie	11,237,401	6,356,856	226,264	113,421
Copiah	669,827	785,131	168,697	17,048
Upper Coastal Plain	1,250,218	1,086,089	56,688	44,863
Longleaf Pine	2,083,443	1,697,867	511,059	82,859
Lower Coastal Plain	1,052,604	467,492	187,369	82,495
Gulf Coastal	917,858	628,950	165,112	189,467
Total	39,494,249	28,345,861	4,093,806	1,966,097

Source: Census of Agriculture, Bureau of the Census, 1909, 1919, 1929, and 1939.

of 592 percent in the gallons of whole milk sold. In 1939 there were 39,494,249 gallons of milk sold in the State. This is a total of about 340 million pounds. In addition, farmers sold around 2,392,000 pounds of butterfat in the form of cream, or an equivalent of about 53 million pounds of 4.5 percent milk. Besides the milk and cream sold, Mississippi farmers made and sold 1,565,595 pounds of butter during 1939.

The distribution of whole milk sold in 1939 is shown in figure 15. A glance at this figure shows that the production of milk for sale is concentrated in several areas. The most important area is the Black Prairie, in which area the heaviest concentrations are in Oktibbeha, Lee, Noxubee, and Clay Counties. The majority of the milk produced in this area is sold to processing plants. Likewise, the milk produced in Attala and surrounding counties, and in the Lincoln County area goes to processing plants. The highly concentrated production in DeSoto, Tate, and Marshall Counties goes to Memphis for consumption as fluid milk. The New Orleans market is served by counties in the southern part of the State. Within the State there are concentrations of milk production around the larger cities such as Jackson, Meridian, Greenville, Laurel, Hattiesburg, and Gulfport.

The sale of butterfat in the form of cream is concentrated in some of the Black Prairie and Clay Hill counties. The distribution given in figure 16 shows a heavy concentration in Oktibbeha and the surrounding counties. A large number of the Clay Hill counties sell considerable quantities of cream. The type of facility available will usually determine the type of product that is produced. If these two figures (figures 15 and 16) are looked at together, it is readily seen that a large part of the milk and cream sold in Mississippi is produced in the northeastern portion of the State.

The distribution of the milk processing plants that operated in the State in 1942 is shown in figure 17. It will be observed that the creameries are usually located in or near the counties where the most cream is

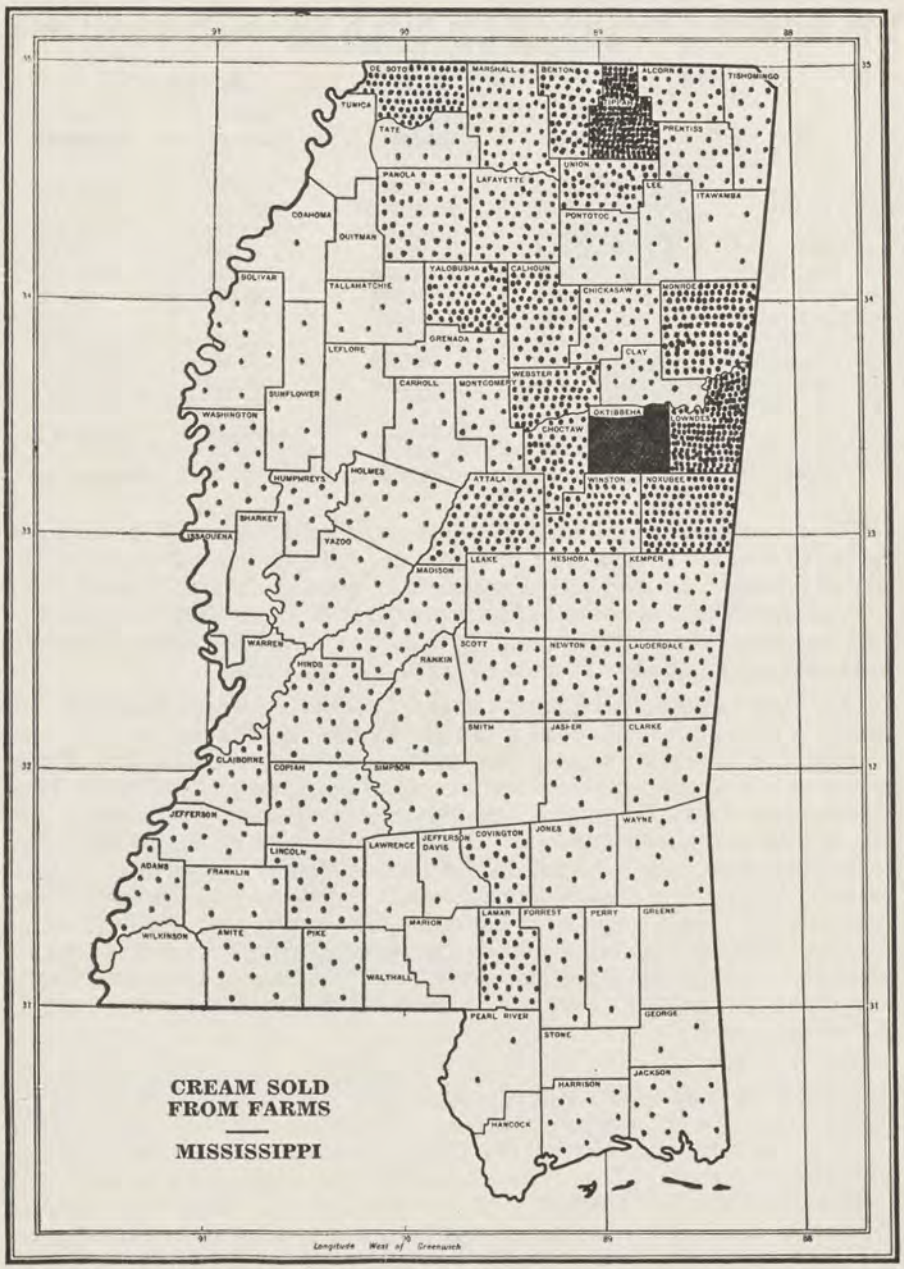

Figure 16. Distribution of cream sold from farms in Mississippi, 1939.

1 dot = 1,000 pounds of butterfat

Source: Census of Agriculture, Bureau of the Census, 1940.

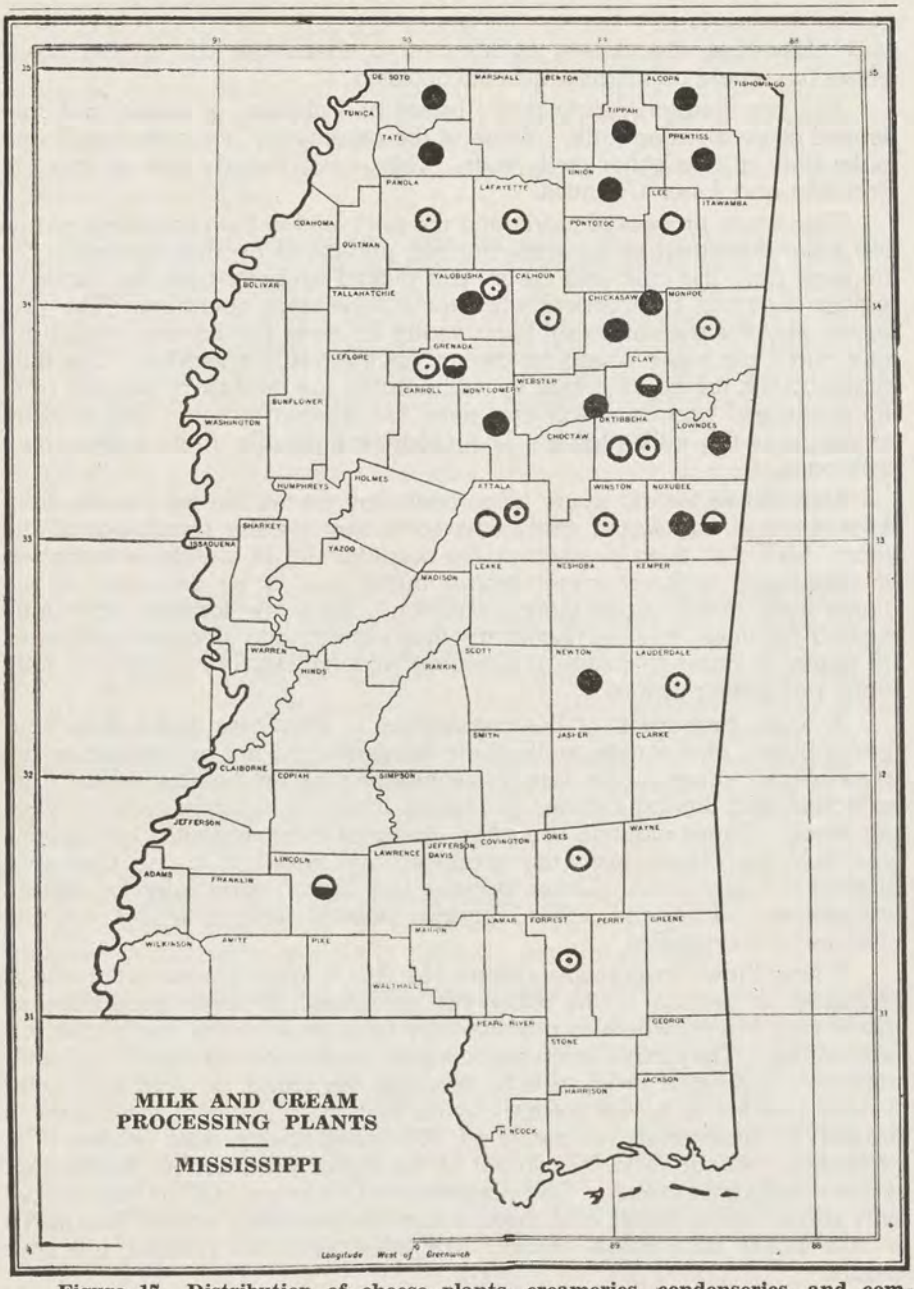

Figure 17. Distribution of cheese plants, creameries, condenseries, and combination plants in Mississippi in 1942.

⊙ **Creameries** ○ **Condenseries**

● **Cheese plants** ◒ **Combination**

Source: Dairy and Creamery Laws and Report of Dairy Industry, Department of Agriculture and Commerce, Jackson, Mississippi, 1942.
Index of Manufacturers, Mississippi Board of Development, Jackson, Mississippi.

sold. Likewise, the cheese plants and condenseries are in the areas where the whole milk sales are concentrated.

The combination plants make butter and cheese, or butter and condensed or evaporated milk. Some of the creameries are quite small and make only a little butter each year. This is particularly true of those in Grenada and Jones Counties.

The actual process of marketing the milk sold to the processing plants has been described in a recent bulletin published by this Station.[1] For the most part, the milk and cream are picked up at or near the farms at regular intervals by truckers who are independent operators. The producers pay the truckers a set fee, usually 25 cents per hundredweight for milk and 2 cents per pound for cream, for the hauling service. The milk plants collect the hauling fees by withholding the necessary amount from the producers' checks which are given twice each month. The truckers collect from the milk plants. The producers usually furnish their own milk cans.

Milk deliveries are made twice each day during the hot months from April through September and once each day for the remainder of the year. Milk that is to be used in the manufacture of cheese, evaporated or condensed milk, or sweet cream butter has to be delivered to the plants fresh and in good clean condition. Very few farmers have milk cooling facilities, so it is necessary that regular and frequent deliveries be made in order to insure a constant and satisfactory supply of milk to the processing plants.

A large proportion of the creameries in the State make only sour cream butter, and consequently their deliveries are not as regular as the other plants. Some of the larger creameries pick up the sour cream from collection and buying stations at regular intervals, usually once or twice per week. These stations are often operated independently by persons who buy the cream from the producer and resell it to the creamery offering the best price. Other stations buy cream especially for certain creameries, while still other buying stations are operated by the creameries themselves.

It was shown previously (figure 16) that a large amount of cream is produced in certain of the Clay Hill counties. A large proportion of this is sour cream which is produced by farmers who are not located on milk routes. They have some surplus milk during the spring and summer months. The usual practice is to separate the cream or skim it off after it rises and sell it to the cream buying stations. Some of the cream is hauled to creameries as much as 200 miles away from where it is produced. About 75 to 80 percent of the butter produced in Mississippi is made from sour cream. The Cooperative Creamery at Starkville makes only sweet cream butter and there is another creamery or two that make a little butter from sweet cream. All the others use nothing but sour cream.

The production of milk for fluid consumption is limited to areas around the towns and cities in the State and the areas that serve the

[1]Mebus, W. C., "Problems in the Transportation of Milk from Farms to Milk Plants." Agricultural Exeriment Station Bulletin No. 382, June, 1943.

fluid milk markets in Memphis and New Orleans. In the northern part of the State, especially in DeSoto and Tate Counties, there is a large group of dairies that produce milk for the Memphis market. Many of these dairymen belong to the Mid-South Dairy Association. The association sells the milk to retail dairy products distributors in Memphis. These dairies are all under the sanitary supervision of the health authorities of the city of Memphis.

In the southern part of the State, especially in Amite, Pike, Walthall and Pearl River Counties, there is another group of dairies that serve the New Orleans milk market. The milk is picked up at the farms by truckers who deliver it to cooling stations. From the cooling stations it is hauled in tank trucks to points in Louisiana where it is bottled and prepared for the New Orleans trade. The New Orleans health authorities supervise the sanitary conditions on the farms that produce milk for sale in that city.

Within the State, all the larger cities and towns have dairy products dealers who buy wholesale milk from the producers and retail it to the consumers. Almost all the smaller towns and some of the larger ones are supplied milk by some local dairymen who produce, bottle, and retail their own milk.

In all instances the orderly marketing of milk is dependent upon the efficient operation of milk trucks. Almost all the milk sold in Mississippi, whether processed or consumed fresh, is hauled from the farm to the buyer by truck. There are several hundred milk routes that are covered by trucks once or twice every day. The cost of operating these routes runs into a considerable sum of money, but it is an essential service. If one assumes an average price of 25 cents per hundred pounds for the nearly 387 million pounds of milk delivered to processing plants in 1942, the total amount paid by milk producers would be nearly a million dollars for the hauling service. The charge of 25 cents is not far from correct. In the study referred to above, it was found that the average cost for the routes included in the study was 23 cents per hundredweight. The costs are probably a little higher for the State, because many of the routes not included in the study operate in sparsely populated areas.

A systematic study of the transportation of milk, area by area, with the view of eliminating the problem of duplicating routes and increasing the volume hauled by each route, would no doubt result in a considerable reduction in the cost of milk hauling. Many studies of this type have been made in other areas with very good results. In Wisconsin, for example, an estimated 40,000 fewer truck miles are being traveled each day as a result of systematic studies in each area and changes suggested to reduce truck travel. This is an equivalent of 15 million truck miles per year.[2] Several studies made in the New England states indicate that similar results have been experienced in those states.[3] The results of these studies naturally could not be applied to Mississippi conditions, but

[2]"Economic Information for Wisconsin Farmers," College of Agriculture, Madison, Wisconsin, April, 1943, p. 4.

[3]Hammerberg, D. O., "Wartime Problems of Conservation of Transportation", Journal of Farm Economics, Vol. XXV, February, 1943, p. 147.

the principles developed and the procedures followed should furnish valuable guides in the conduct of any similar work to be done in this State.

As has already been pointed out, the manufacturing milk industry in the State is built around the processing plants. Before a plant can operate efficiently and profitably, it has to be assured of a sufficient volume of milk. Some types of plants require more milk than others for efficient operation. For instance, a condensery has to have more volume than a creamery or cheese plant, because of the differences in machinery and other equipment as well as in the processes necessary in the two operations. For this reason a cheese plant or a creamery might succeed in an area where a condensery would fail. The potential volume will usually determine the type of plant to be put in any area.

When the milk plants first started coming into Mississippi, they had to be established largely on the basis of the expected milk production. Some of them judged correctly; others did not. The successes and failures since that time tell the story. Almost all of the early plants had to operate for a time at a loss or on a "break even" basis, because enough milk to operate a successful plant of any kind just does not come overnight. On the other hand, a plant cannot afford to locate where there is no milk being produced. Rather, it goes where there is potential production and the outlet it furnishes causes an increase in production. Thus the plant and the dairy industry grow together and the success of each depends upon the satisfactory service it renders to the other.

The influence of volume on the successful operation of milk processing plants has been demonstrated in numerous studies in all parts of the country.[4] For the most part, the principles developed in these studies are general and have to be interpreted for local areas in the light of existing conditions. Analytical studies to show the relationship of volume to the successful operation of the various types of milk plants in Mississippi would be of considerable value to existing plants and would form a basis for extending plants into new areas.

Poultry and Poultry Products

It is estimated that about 45,500,000 dozen eggs were produced in Mississippi in 1942. Of the eggs produced, about 28,417,000 dozen were sold. The average farm price was 26 cents per dozen, and the total cash income from sales of eggs was $7,388,000.

In addition to eggs, the official estimates indicate that approximately 15,146,000 head of chickens, excluding commercial broilers, were raised in 1942. Of the chickens produced, about 8,288,000 were sold. The average weight was slightly over 3 pounds per bird and the average price was 18.8 cents per pound, so that the 25,178,000 pounds of poultry sold in 1942 brought the farmers a cash income of $4,733,000. The income from commercial broilers produced in 1942 was $746,000.

In other words, the estimated value of the chickens and eggs sold from farms in Mississippi during 1942 was about $12,867,000. These are official estimates furnished by the Bureau of Agricultural Economics. In

[4]Bressler, R. G., Jr.: "Economics of Scale in the Operation of County Milk Plants", New England Research Council and others, Boston, Massachusetts, 1942.

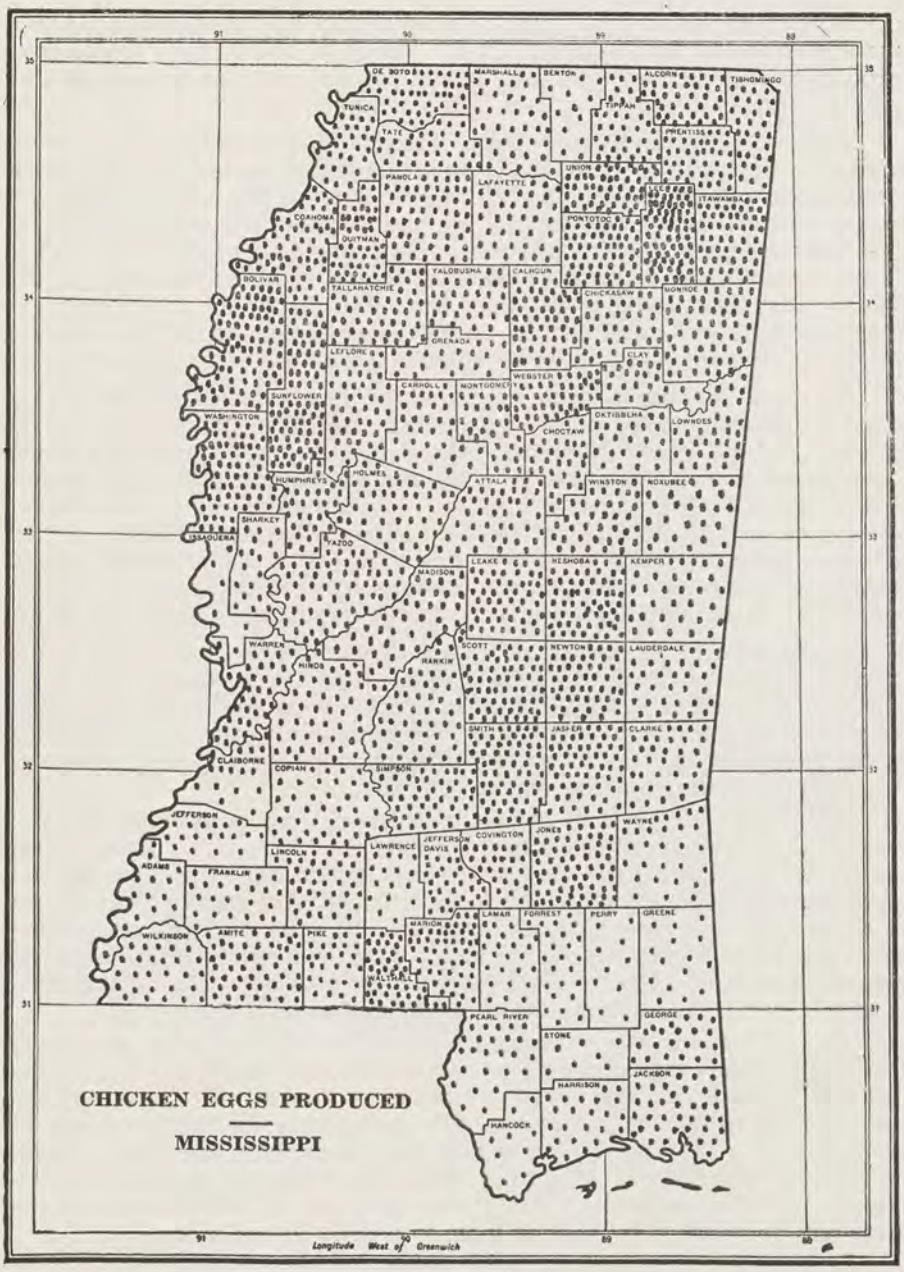

Figure 18. Distribution of chicken eggs produced in Mississippi, 1939.

1 dot = 10,000 dozen

Source: Census of Agriculture, Bureau of Census, 1940.

addition to chickens and eggs it is estimated that there were 143,000 turkeys raised in Mississippi in 1942. The total value of all the turkeys produced was around $400,000, based on an average weight of 12.5 pounds and an average price of 22.5 cents per pound.

Eggs are produced generally throughout the State. There is a tendency, however, for chickens to be concentrated more heavily in some areas than others (figure 18). There is a tendency, for example, for egg production to be heavier in Lee and surrounding counties than in the other counties around this area. Eggs are also produced in rather large quantities in a group of counties in the south central part of the State. Scott and Newton Counties from the center of this area. In addition, there are considerable quantities of eggs produced in some of the Delta counties, especially Washington, Sunflower, and Bolivar.

The total number of eggs produced, however, does not give a very good indication of the commercial importance of the poultry industry in any area of the State. The eggs sold would be a better measure of the commercial importance of the industry, but unfortunately the 1942 census did not include a tabulation of this item. Certain areas sell a much higher proportion of the eggs produced than others; the more thickly settled counties naturally consume more eggs than the sparsely settled areas. Therefore, it is possible to get from the total egg production only a rough indication of the commercial importance of egg production in the State.

In the case of chickens, the census gives a county tabulation of the number sold from farms in 1939 (figure 19), which shows that more chickens are sold in Rankin, Scott, Smith, and some nearby counties than in any other counties in the State. There are, however, concentrations in the Northeast Prairie and surrounding counties, as well as in some of the counties in the southern end of the State.

The actual buying and selling of chickens and eggs in Mississippi has for years been centered largely around the local store. Except for a relatvely small number of commercial producers, the majority of chickens and eggs are produced in farm flocks kept mainly as a source of meat and eggs for home consumption. In spite of inadequate care, the chickens in the farm flocks produce a surplus of eggs during February, March, April, and May, or until the weather gets hot. During the summer, fall, and winter months the production of eggs is quite low.

For a long time many farmers have followed the custom of trading their eggs at the local stores for groceries and other supplies. During the periods of low egg production the local store keeper sells these eggs to his other customers, or perhaps to a trucker who sells them to stores in a nearby city. During the months of low production, there is a deficit of eggs in Mississippi. Naturally there are surpluses in some of the better poultry areas and on some farms throughout the State, but all the eggs can be handled by shifting them to nearby deficit areas.

Perhaps the most serious problem faced during the summer months is the low quality of the eggs when they reach the market. Many farmers come to town only once per week and consequently the eggs are brought to market mostly on Saturday. Some of the eggs are a week old when they reach the local store. Not many of the stores have cold

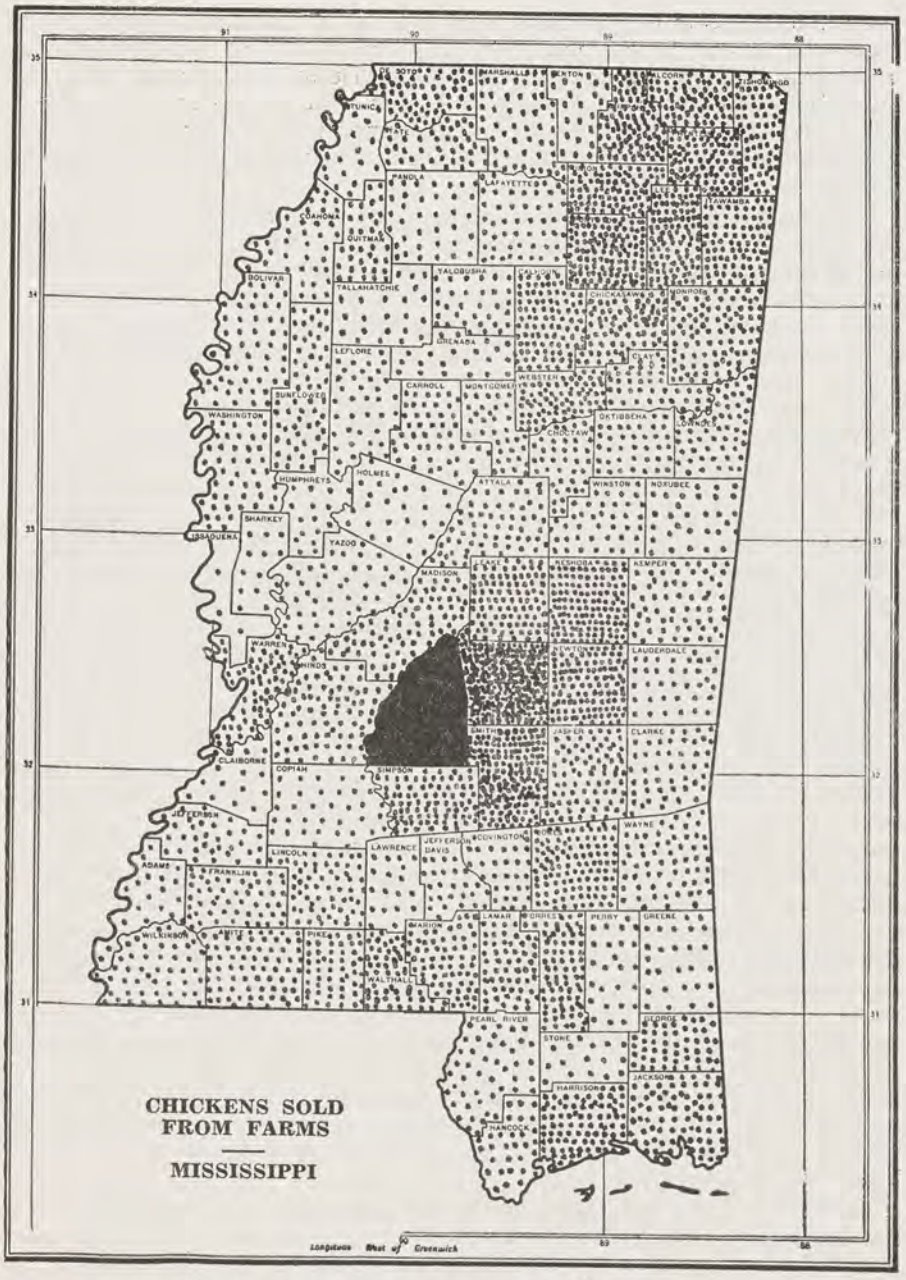

Figure 19. Chickens sold from farms in Mississippi, 1939.

1 dot = 500 head

Source: Census of Agriculture, Bureau of the Census, 1940.

storage facilities to handle eggs, and as a result the eggs often reach the consumer two or three weeks after they are laid or go into cold storage in central markets for later consumption. During this period they will have been hauled considerable distances and at the same time will have been subjected to the normal summer temperatures. It requires little imagination to picture the condition of many of these eggs when they finally reach the consumer.

The problems involved in handling eggs during the slack hot months are quite clear; the solution of these problems is not so easy to arrive at. In the first place the farmers who have farm flocks are almost always small producers with not enough volume to justify the expenditure of much time and money in providing the facilities and taking the precautions necessary to assure the delivery of good quality eggs to the local stores. Another point is the fact that when all the eggs are assembled in the local trading center there is usually not enough volume to support an efficient marketing system throughout the year. Consequently, such a system as has been developed has been in connection with local stores that have the handling of eggs as only a part of their business.

There has developed a group of egg and poultry dealers that usually serve a territory of several towns or communities. These dealers usually have a centrally located place of business where they buy direct from the local producers, but, in addition, they make regular trips into the surrounding territory and buy eggs and poultry from the local stores. They thus serve as an outlet for the surplus accumulated by these local merchants. A problem often encountered by many of the local store operators, especially those located in small out-of-the-way places, is that they do not have enough volume during the low production season to pay the dealers to continue the truck service to collect their eggs. Therefore, during part of the year the store keepers have no market outlet for the eggs they buy, and for many that do have a market, pick-ups are made only once in 2 weeks. As long as the volume is not enough to support more adequate handling facilities the quality will be poor, and at certain seasons the prices will fall to ruinously low levels.

Normally the egg and poultry dealers have found their best outlets in the markets of Memphis and New Orleans. At the time when Mississippi has its greatest surplus of eggs there is a surplus in almost all other areas. During such times the surplus eggs usually move to the egg drying plants or into the hands of wholesalers who store them until the supply is not so great. The fact that the volume of eggs has not been sufficient in many areas in Mississippi to support a marketing system that will move the eggs into these regular channels, results in an accumulation of eggs in these areas during the short surplus period and consequently, often causes a very low price.

Almost none of the dealers make any attempt to buy or sell eggs on a graded basis. The usual transaction is made on what is known as a "current receipt" basis. "Current receipt" eggs are yard run eggs that have not been graded. In other words, they are average eggs with all sizes and qualities included. Some dealers pay a small premium, usually one to two cents per dozen, for white infertile eggs. The system of marketing in many local egg markets is such that it is very difficult to

do any type of grading. For example, a very large proportion of the eggs that are sold at Eupora in Webster County are brought in on Saturday. One firm employs from six to eight persons on Saturdays during the peak season to do nothing but count eggs and transfer them from the farmers' baskets and buckets to egg crates. Only a few farmers have as many as a crate of eggs per week. It will be quite difficult to work out a scheme to grade all of these eggs on Saturday so that the farmers get paid on a graded basis. As a rule, the dealers do not have cold storage space and they are anxious to move the eggs as quickly as possible in order to avoid any further lowering of the quality. Consequently, the eggs are often loaded out to markets in Memphis on Saturday night or Sunday morning; otherwise they remain in the store building over the week end. Somewhat the same situation is repeated many times in local egg markets throughout the State.

A rather interesting system of handling eggs and poultry has been developed in Scott, Rankin, and parts of the surrounding counties. A group of feed dealers started several years ago to develop the poultry industry in that section of the State. They organized regular routes through the country and began selling and delivering feed, poultry supplies and equipment, and young chicks to the farmers along these routes. In addition to making these deliveries the route operators picked up the eggs and chickens that were for sale. They developed outlets for these products and by making regular collections at the farms have been able to put a good average product on the market. Many of these operations are financed by the dealers; that is, they buy and place among farmers baby chicks, together with the supplies and equipment necessary to raise broilers. The dealers then collect and market the broilers and make a settlement with the producer. In the case of eggs and other poultry, the usual practice is to make a monthly settlement.

As shown previously (figures 18 and 19) the production of both eggs and chickens for sale is concentrated in this area. In addition to being both sellers and buyers the dealers serve in an advisory capacity to the poultry producers. It is probably true that the advice is flavored by the particular brand of feed handled, but in spite of this the continual growth of the industry over a period of years is evidence that the development has been mutually beneficial to both producer and dealer.

Cooperative marketing of poultry and eggs has not been attempted on any large scale until recently, although one cooperative poultry producers organization in the State has been operating since 1929. This organization, known as the "United Poultry Producers," is located at Ocean Springs, in Jackson County. There are at present about 125 members, most of whom are commercial poultry producers. The organization has been able to develop a very good demand for their "Gulf Coast" white infertile eggs. All eggs are carefully graded. All producers are expected to gather the eggs from the nests four times each day and to deliver them to the cooperative headquarters at least twice per week. The volume of eggs handled has increased from 2,554 cases in 1930 to 8,257 cases in 1943. In addition to eggs and poultry the cooperative handles feed and poultry supplies.

During the past 4 years the Marketing and Poultry Divisions of the Mississippi Extension Service have been working with certain branches of the Mississippi Federated Cooperatives in the establishment of a cooperative marketing system for eggs. The main headquarters for the organizations that are operating at present are at Hattiesburg, Grenada, and Booneville. The branch at Booneville started operating this year, while the Grenada branch has been operating 3 years, and the one at Hattiesburg about 3 years. The territory around each of these main locations is served by truck route operators that make regular egg collections at assembly points along the routes. The location of the main headquarters of the counties they serve, and the location of some of the main poultry and egg dealers in the State are shown in figure 20.

The eggs that are assembled at points along the routes are packed in cases by the operators of the collecting stations. Each cooperator's eggs are kept separated so that returns can be made to each producer on a graded basis. If a producer has less than a case, the ticket bearing the number of dozen and the producer's name is placed in the case between the layers that separate his eggs from another producer's. The persons operating the collecting stations are usually paid a small fee for performing this service. The majority of the eggs are graded at the main headquarters, and usually in about a week each producer is given a statement showing the quantity of eggs he had in each grade together with the price of each grade.

Since the beginning of the war almost all the eggs collected at Hattiesburg and Grenada have been going to army camps. Before the war the cooperatives were having some difficulty in establishing satisfactory outlets that would pay a sufficient premium to take care of the costs of grading. The temporary demand furnished by the army camps helped solve that problem for the present. It is likely, however, that the same problem will return with considerable force at the close of the present conflict. It is very important that a lot of thinking and studying be done now to try to help improve our present poultry and egg marketing system. The logical point at which to begin such planning would be a detailed and objective analysis of all phases of our present system with the view of revealing its major faults and developing a sound program of improvement.

A few turkeys are produced on some farms in almost all the counties in the State, but turkeys are of commercial importance in only a few counties. In most areas turkeys are handled by the regular poultry dealers. However, the Marketing and Poultry Divisions of the Mississippi Extension Service have been conducting special turkey sales in four counties at which considerable numbers of turkeys are sold. A Thanksgiving and Christmas turkey pool is conducted each year. All the turkeys are sold on a graded basis. At the two sales in 1942 a total of 155,426 pounds were sold for $40,949. Almost two-thirds of the turkeys sold were from Noxubee County. The others came mainly from Oktibbeha and Lowndes Counties with a few from Kemper County.

Sheep, Lambs, and Wool

The distribution of sheep and lambs sold from farms in Mississippi in

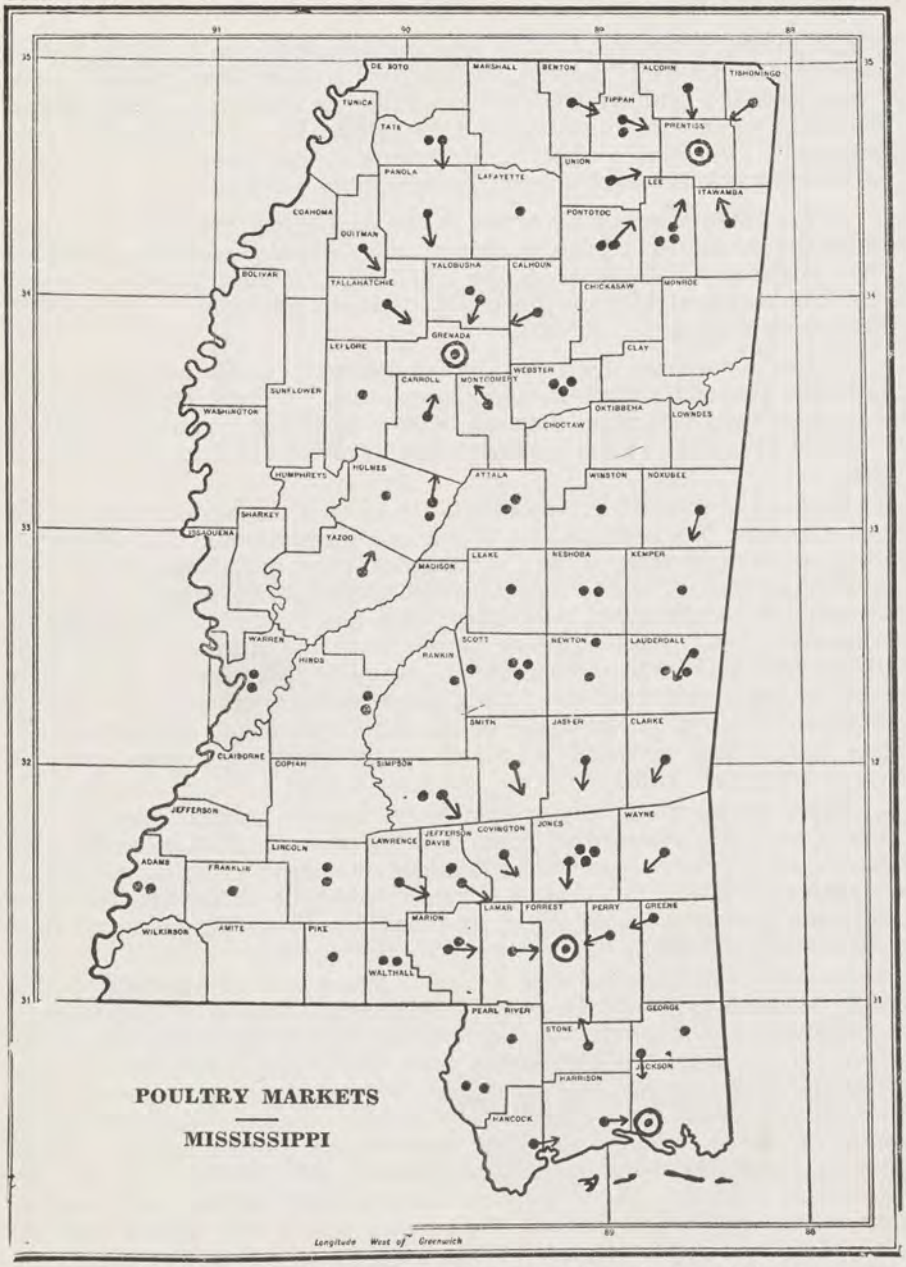

Figure 20. Distribution of the cooperative egg and poultry marketing organizations and some of the main poultry and egg dealers in Mississippi, 1942.

⊙ **Cooperative headquarters**

●→ **Areas served by cooperatives**

● **Poultry and egg dealers**

1939 is shown in figure 21. The greatest concentration is in the Lower Coastal Plain and Gulf Coastal Counties. In this area sheep are kept under range conditions and are maintained largely for their wool. Such sheep and lambs as are sold are usually taken direct from the range and sold "gate run." Because of their hardy nature many ewes from this area are sold to producers farther north for foundation herd stock.

In the other areas many of the lambs and sheep are sold at special lamb sales sponsored by the Marketing and Animal Husbandry Divisions of the Mississippi Extension Service. In 1942, four lamb pools and sales were conducted at Macon, Starkville, and Jackson, and a total of 853 lambs were sold at the four sales.

In the summer of 1943 six lamb sales were conducted at Macon, Starkville, Jackson, Natchez, and Greenwood. A total of 2,491 sheep and lambs were sold at an average price of $9.89 per hundred pounds or a total of $17,640. All the lambs at these sales were sold on a graded basis.

Because of the fact that there has not been a large volume of lambs in any area, it has been difficult to get any great amount of competition in any lamb markets or at the special sales. The only large slaughterer of lambs anywhere within reasonable distance of Mississippi producers is located at Montgomery, Alabama. This firm bought all the lambs at each sale in 1943. Market prices were paid for the grades of lambs sold, but the sale was largely a matter of assembling the lambs and taking what the one bidder offered. This is not given as a criticism but merely a statement of fact. There is no regular market for sheep or lambs in the State except that which is provided by the auction markets and the special lamb pool sales.

There are so few lambs offered at the regular auction markets that there is no ready demand for those that are offered. The assembling of fairly large numbers of lambs in one place, as is done in the special sales, so that even one large buyer can afford to bid, no doubt results in the producers getting a higher price than they would get by following any other method of sale.

The wool that is produced in South Mississippi is handled by the South Mississippi Wool Growers Association. This is a cooperative organization of wool producers that has been operating since 1912. Each county in the main wool-producing area has a local organization with a board of directors, and representatives of these local organizations form a board of directors for the larger association. Usually the county agent serves as the secretary of the local organization. In the spring of each year the producers report to the county agent about the quantity of wool he expects to shear. These estimates are brought together and a notice sent out to wool buyers all over the country that a sale will be held on a certain date of about so much wool. On the specified date the board of directors of the association meets and considers the offers. Full authority for accepting a bid is vested in this board.

In 1942 the association sold six cars or about 300,000 pounds of wool. Usually the wool is divided into about four groups, as: clear grease wool, light burry, medium burry, and hard burry.

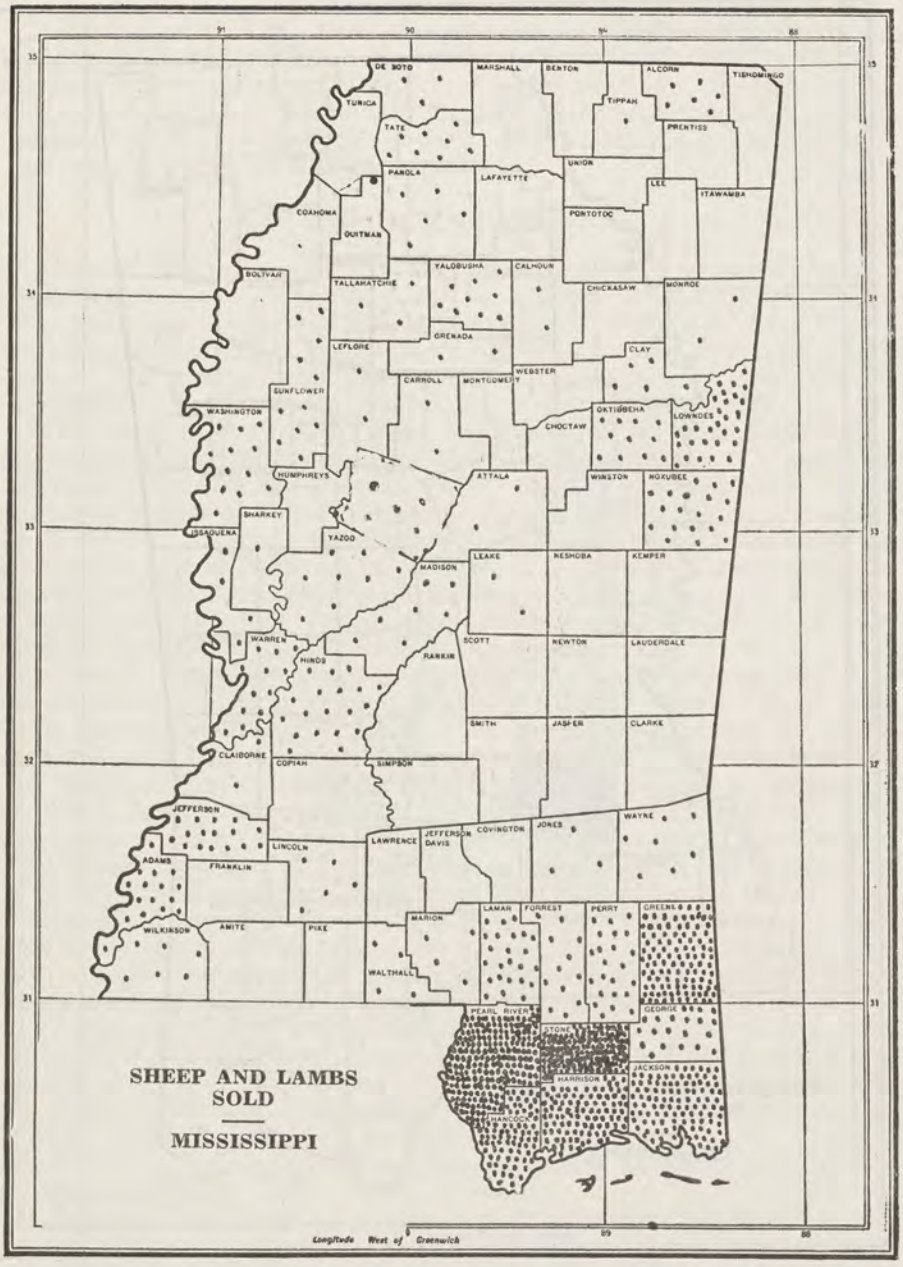

Figure 21. Distribution of sheep and lambs sold in Mississippi, 1939.

1 dot = 25 head

Source: Census of Agriculture, Bureau of the Census, 1940.

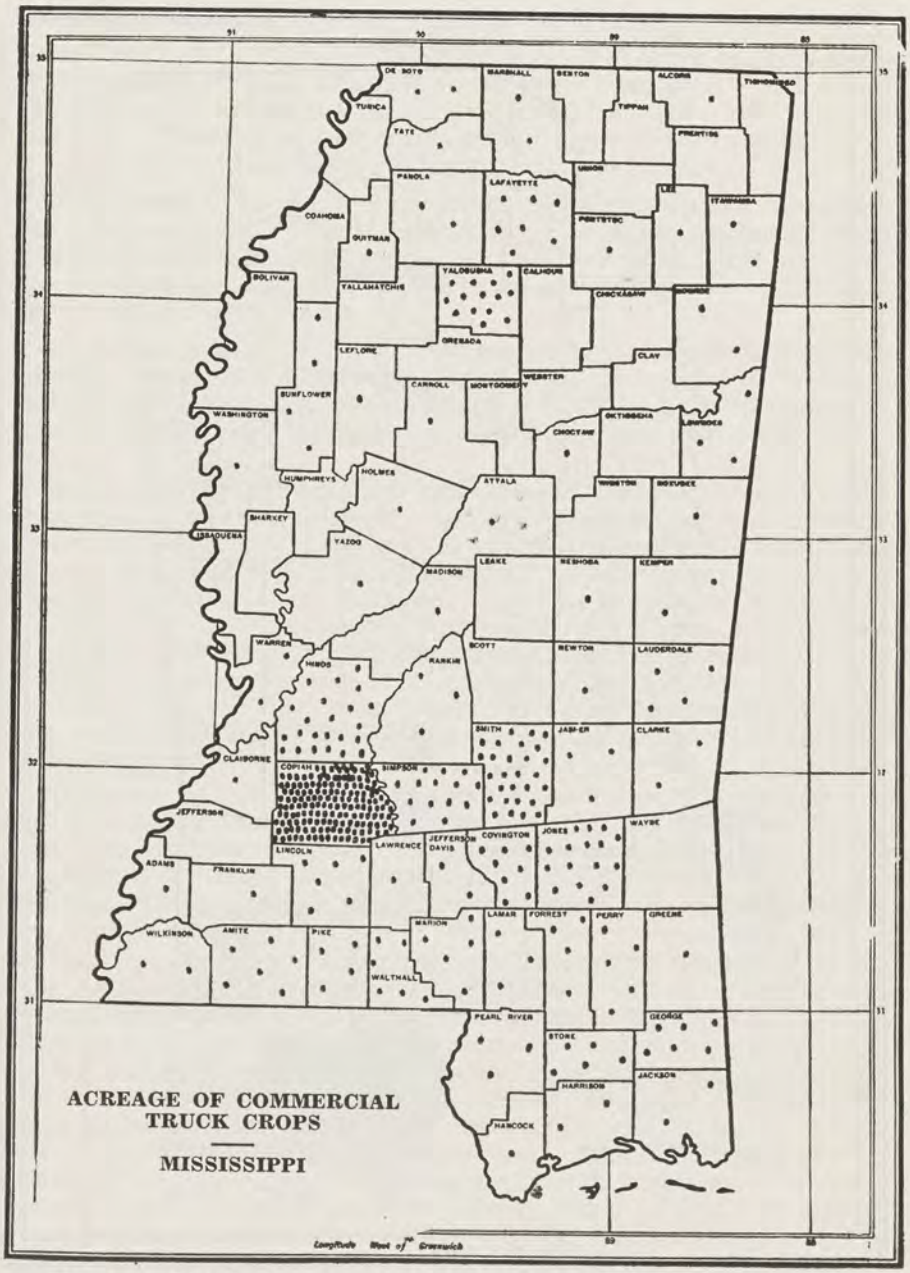

Figure 22. Distribution of vegetables (exluding Irish and sweetpotatoes) harvested for sale in Mississippi, 1939.

1 dot = 100 acres

Source: Census of Agriculture, Bureau of the Census, 1940.

In other areas of the State, the wool is handled in special wool pools that are conducted similar to the lamb pools. In 1942, three pools were conducted at which a total of 29,300 pounds of wool were sold for $12,900 or an average of $.44 per pound. In 1943 seven pools were conducted. The volume increased to 57,555 pounds and the total sale value to $26,475. The average price was $.46 per pound.

TRUCK CROPS

During 1939 there were 38,634 acres of vegetables harvested for sale in Mississippi. Irish and sweetpotatoes are not included in this figure. The vegetables harvested for sale had a value of about $1,700,000. By far the greatest portion of this income was from tomatoes, cabbage, watermelons, string beans, and green peas. The distribution of the acreage of vegetables harvested for sale in 1939 is shown in figure 22.

A glance at this figure shows that almost all the commercial vegetables are planted in the southern one-third of the State. A majority of the commercial tomatoes, green peas, and a large proportion of the cabbage and snap beans are produced in Copiah County. However, some string beans and cabbages are produced in several counties in the southern portion of the State. Considerable quantities of beans, spinach, turnips, and other greens are produced for canning purposes in Jones, Marion, and Walthall Counties. Watermelon production is concentrated in Yalobusha, Smith, and Simpson Counties.

Sweetpotatoes are grown rather generally throughout the State. In the past, however, a large proportion of the farmers have planted only small patches of sweetpotatoes and have used them mainly for home consumption. This is particularly true for the northern half of the State. The distribution of the acreage of sweetpotatoes planted in Mississippi in 1939 is shown in figure 23. This figure includes both potatoes for home consumption and for commercial purposes; consequently, it gives only a very rough indication of the commercial importance of the sweetpotato crop. It will be noted that sweetpotato production is more heavily concentrated in the southern part of the State in what is known as the Longleaf Pine Area. More sweetpotatoes are produced for sale in these counties than in any other portion of the State; however, small quantities of potatoes are sold from some farms in almost all counties in Mississippi.

Small quantities of Irish potatoes are produced in almost every county in the State. In all except a few counties, however, these potatoes are consumed in the home. The only area in the State where Irish potatoes are produced in sufficient quantities to be of commercial importance is in Marion, Walthall, and small sections of surrounding counties. The distribution of the acres of Irish potatoes planted in Mississippi in 1939 is shown in figure 24.

As would be expected, the main vegetable markets in Mississippi are located in the areas where the crops are produced. In the Copiah County area the main markets are at Crystal Springs and Hazlehurst. At each of these places a certain section in the town has been designated as the market place. For example, at Crystal Springs a paved place between a railroad platform and the main street of the city is the meeting place of the farmer and the buyer. This place has been lined off so that the

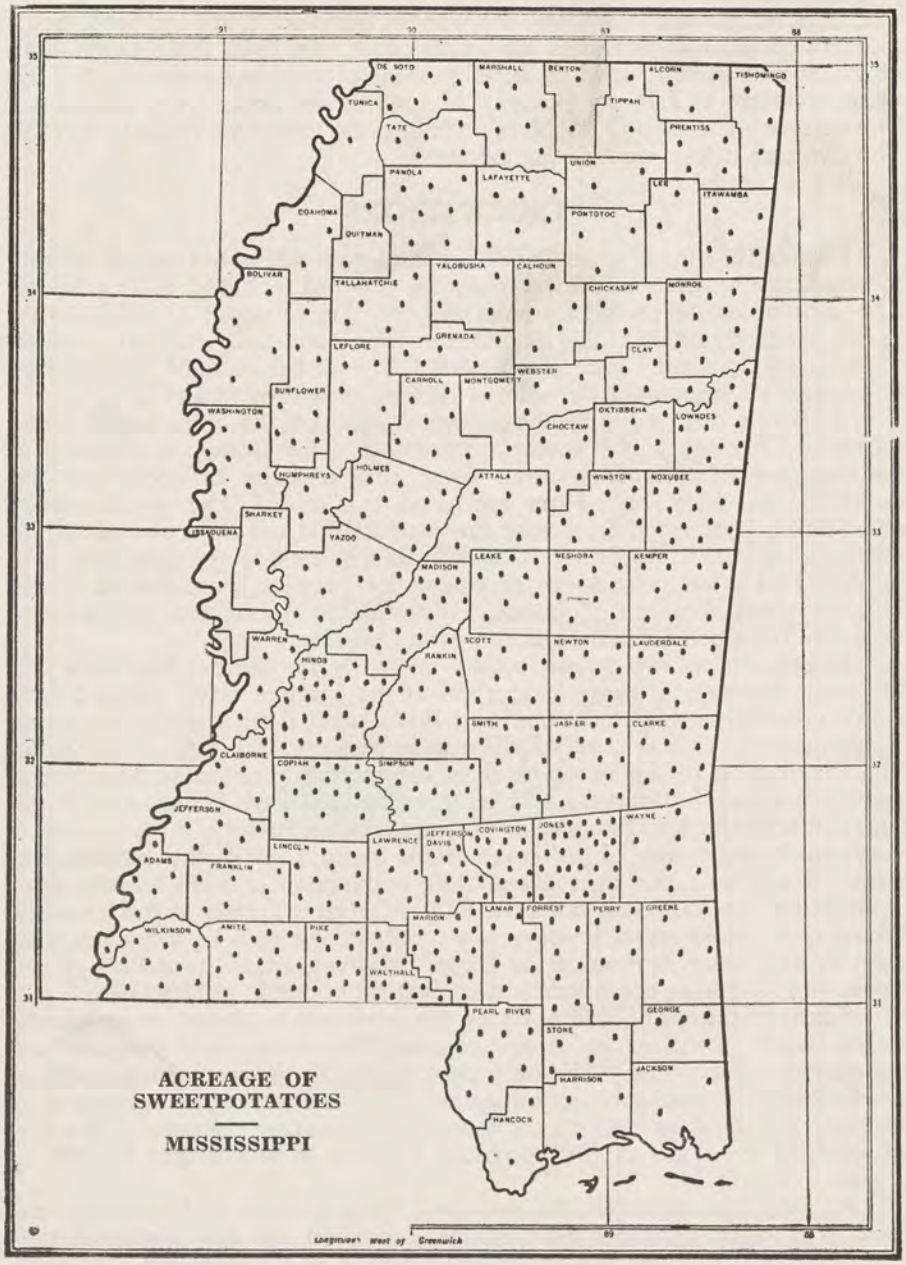

Figure 23. Distribution of acres of sweetpotatoes planted in Mississippi, 1939.

1 dot = 100 acres

Source: Census of Agriculture, Bureau of the Census, 1940.

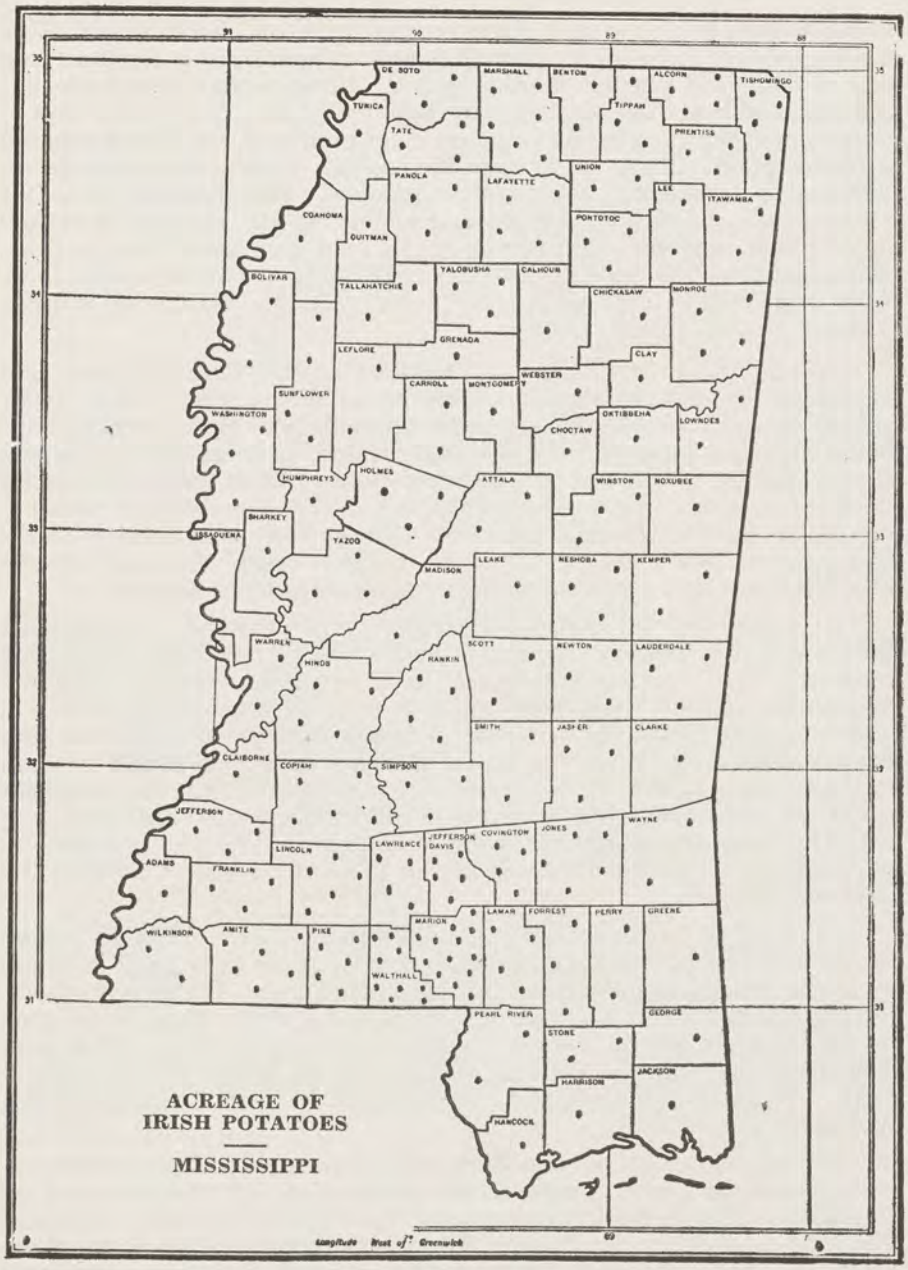

Figure 24. Distribution of acres of Irish potatoes planted in Mississippi, 1939.

1 dot = 100 acres

Source: Census of Agriculture, Bureau of the Census, 1940.

farmers drive in at one end of the market place and form several lines. As the farmers drive in, the buyers examine their loads of produce and one of them will place a beginning bid. Other buyers may raise this bid immediately. The farmers may take the highest bid at this time or may remain on the yard and contact other buyers to see if they can get a higher price. Thus, the farmers themselves act as auctioneers in arriving at a satisfactory sale for their produce. As sales are made the farmers pull out of line and proceed to the buyers' packing shed and unload their produce. The buyers at the yard give the farmers a ticket which indicates the price as well as the quantity of produce in the load. After each load is checked in at the packing house, the farmer is given a check for the amount due him.

This so-called market place or "hot spot" at both Crystal Springs and Hazlehurst is little more than a wide space in the road. There is no shelter at either place. It was observed at Crystal Springs that police officers kept the produce coming in and moving out in an orderly fashion. However, even with regular police supervision at times farmers would be lined up for a block or two away from the market place waiting to get to the proper point to sell their produce. Usually there was another period of considerable waiting in line at the packing shed. All this time the produce was being subjected to the hot sun and at times the rain.

At Hazlehurst no police supervision was provided, consequently during the rush periods the entire intersection of one main street was blocked. There was no particular order in which the vehicles came into the market place. They often came in from several directions and it was observed frequently that after a farmer had made a sale he had considerable difficulty getting out of the jam so that he could proceed to the packing house. It was observed in several cases that a farmer could get only one buyer to place a bid on his load. This was particularly true where there was a large number of loads in the market at the same time and the particular farmer in question had to park on the outside of the group.

On each of these markets there were usually from 10 to 15 buyers at all times during the day. Several of the buyers were local business men who make their permanent residence in the area. Others were itinerant buyers who follow the vegetable crops from area to area and as soon as the season is over in one place they move on to another. Some were specialized buyers who deal in only one crop; others bought several crops. There were usually from one to several buyers for each product brought to the market.

The main products sold on these two markets are cabbage, tomatoes, string beans, and green peas. These products are all bought on a field run basis. That is, the farmers usually bring them in as they pick them. The bids are made on the basis of the buyer's estimate of the value of the products. In the case of tomatoes, they are all brought to the local market in standard tomato field boxes. These boxes hold about a bushel of tomatoes and the farmer is paid so much per field box. At the packing shed the tomatoes are poured from the field boxes onto the conveyer belt of the cleaning and grading machinery. The field boxes are owned

by the growers and after being emptied are returned to them.

Tomatoes in the Copiah area are picked green and are wrapped and packed in lugs for shipment. In the packing process the tomatoes are usually brushed and waxed. They are sized by machines and wrapped and packed in the lugs by hand. The most common pack used in the Copiah area is what is known as the "bulged pack." The most common size of tomatoes packed for shipping is the 6x6 lug. There are, however, considerable quantities of the 6x7 size packed and shipped.

A large portion of the tomatoes shipped from Mississippi are sent out in carload lots. The packing sheds are usually located adjacent to railroad tracks and the packed lugs of tomatoes are loaded directly into the cars. After the tomatoes are loaded into the cars the buyers follow the practice of selling in carload lots to the regular produce trade in out-of-state markets. The local buyers follow the practice of selling all the tomatoes they can on an f. o. b. shipping point basis. In cases where satisfactory sales cannot be made on this basis, the loaded cars are rolled and an attempt is made to make a sale while the tomatoes are in transit. If a sale is made, the car is diverted to the buyer. If the local shipper should not succeed in selling the rolling car it is usually diverted to a broker or to an auction market.

The tomatoes produced in Mississippi in the spring season of 1943 were shipped to 31 states and the District of Columbia. The approximate number of carloads of tomatoes and cabbages going into the various states for the past three seasons is shown in table 19.

The largest receivers of Mississippi tomatoes were Pennsylvania, New York, Illinois, Virginia, North Carolina, and Massachusetts. Each of these states received more than 50 carloads during the 1943 season. Pennsylvania was the largest receiver with 150 carloads.

For the most part, Mississippi cabbages are handled by the same dealers that handle tomatoes. For shipment in carload lots, cabbages are usually packaged in 50-pound sacks. During the 1943 season, the cabbages produced in Mississippi were shipped into 30 different states and the District of Columbia. The largest single receiver of cabbage was Illinois. Other states that received over 50 carloads were Michigan, Missouri, New York, Ohio, and Pennsylvania.

The straight carlot shipments of green peas, cabbage, snap beans, and tomatoes for the past 17 years are shown in table 20. It will be noted that the carlot shipments of green peas were considerably lower during the past 5-year period than they had been during any other similar period since 1927. The shipments of cabbages and snap beans have varied from season to season during this period but there has been no definite tendency for the carlot shipments to increase or decrease. In the case of tomatoes, however, the average carlot shipments during the 4-year period from 1940 to 1943 were only about 1/4 as large as they were during the 4-year period from 1927 to 1930.

During the 1927 shipping season there were 4,849 carloads of tomatoes shipped from Mississippi but by 1943 the shipments had been reduced to 909 carloads. There has been a tendency during the past several years for the carlot shipments of tomatoes to decline in the Copiah area. The increased movement of tomatoes by truck may be

Table 19—Approximate distribution of Mississippi tomatoes and cabbage based on original billings and diversions, 1941, 1942, and 1943

Destination State	Tomatoes			Cabbage		
	1941	1942*	1943*	1941	1942	1943
Alabama	9	10	6	1	.....	1
Arkansas	.....	1	1	.....	2	2
California	.....	.....	.....	4	.....	.....
Colorado	7	2	1	10	11	6
Connecticut	3	3	.....	17	16	14
District of Columbia	24	31	22	26	6	2
Georgia	20	5	12	.....	1	.....
Illinois	43	84	52	303	365	129
Indiana	15	27	21	96	79	27
Iowa	18	25	16	38	34	38
Kansas	2	9	.....	5	10	2
Kentucky	26	63	28	9	29	21
Louisiana	1	3	2	.....	15	6
Maine	5	1	6	6	6	6
Maryland	22	25	47	1	8	9
Massachusetts	56	24	51	66	81	22
Michigan	16	33	26	88	118	64
Minnesota	12	9	5	45	56	29
Missouri	4	18	13	13	43	51
Nebraska	2	5	.....	9	12	7
New Jersey	.....	.....	4	.....	5	.....
New York	69	75	99	112	110	66
North Dakota	1	2	1	2	2	1
North Carolina	62	32	61	1	1	.....
Ohio	43	75	39	140	171	65
Oklahoma	.....	2	3	4	5	7
Pennsylvania	104	132	150	143	219	81
Rhode Island	14	7	3	6	6	11
South Carolina	11	2	11	2	1	.....
South Dakota	.....	3	.....	1	3	1
Tennessee	34	62	56	4	8	25
Texas	.....	.....	1	1	3	19
Vermont	1	4	2	1	3	1
Virginia	102	89	86	.....	8	1
Washington	.....	1	3	.....	.....	.....
West Virginia	15	45	24	14	24	28
Wisconsin	7	13	8	14	21	10
Wyoming	.....	.....	.....	4	2	.....
Total	748	922	860	1,186	1,452	752

Source: **Review of 1943 Marketing Season, Mississippi Vegetables and Tomatoes,** Ralph G. Risser, W. F. A.

*Through June 22.

sufficient to partially offset this decline. After taking this factor into account, however, the decline in tomato shipments is still striking. As a result of efforts to find the causes for this decline several factors were found that might help in solving this particular problem. The farmers of this area are almost unanimously agreed that the tomatoes should be packed on the farms. They blame the rough treatment given the tomatoes in running them through the packing sheds for the fact that Mississippi

Table 20—Straight car shipments Mississippi vegetables and tomatoes, 1927-1943

Season	Green Peas	Cabbage	Snap Beans	Tomatoes
1927	243	710	143	4,849
1928	250	1,249	192	3,230
1929	199	1,689	312	4,099
1930	234	931	310	3,451
1931	282	1,148	208	2,683
1932	46	718	284	2,869
1933	100	796	45	2,408
1934	166	1,991	418	3,012
1935	132	1,674	339	2,355
1936	266	2,159	438	2,331
1937	237	2,086	221	2,104
1938	173	2,496	195	2,863
1939	90	2,494	170	1,990
1940	20	1,517	54	937
1941	62	1,580	132	858
1942	96	1,957	153	1,217
1943	----	985*	115*	909*

*Through June 21 only.

tomatoes have not been able to successfully compete in northern markets with tomatoes from other areas.

It seems that before the packing sheds were built the farmers did all the picking and packing on their farms. The tomatoes were picked in the early pink stage and were packed in 2-quart baskets. The baskets were then packed in tomato crates with six baskets to a crate. During the summer of 1942 eighty farmers in the Copiah Truck Area were interviewed in connection with a survey of production and marketing problems. Sixty-three of the 80 farmers said that the grading and packing of tomatoes should be done on the farm. Only 13 farmers indicated that the packing should be done at the packing sheds as at present. The other four farmers did not know where it should be done. These farmers claimed that as long as tomatoes were packed in this fashion they had no difficulty in disposing of them at satisfactory prices. Furthermore, they are very definite in their statements that the green wrapped tomatoes that are being packed at the present packing sheds are the main cause of most of their troubles.

Another and perhaps more important factor in the decline of tomato shipments has been the increased competition from other areas, particularly Texas. The shipping season for the Mississippi tomatoes has been limited to from two to three weeks in the middle of June. During some years the season is even shorter. The prices of Texas tomatoes on the same markets are almost always higher than those for Mississippi tomatoes. During the 1943 season the prices of U. S. No. 1, 6x6 tomatoes averaged higher for Texas than for Mississippi tomatoes on every market for which official quotations are available. For example, the simple average price of Mississippi U. S. No. 1, 6x6 tomatoes on the Philadelphia market during the 1943 season was $3.67 per lug; whereas, on the same days Texas tomatoes designated as the same size and quality sold for an average of $4.34, or a difference of $.67 per lug. More Mississippi to-

matoes go to Philadelphia than to any other market. The averages for the Chicago market were $3.37 for Mississippi and $3.82 for Texas, and for the New York market the averages were $3.88 for Mississippi and $4.00 for Texas. Other markets had similar differences. This same situation was true for the 1942 season.

Many explanations are given as to why this difference in prices has persisted. Among them are that the Mississippi tomatoes are often not mature, that they are bruised in packing, and that they are mashed in the process of putting the lid on the bulged pack. Whether or not these charges are true is not definitely known and probably will not be known to the satisfaction of all concerned until more factual information is available.

The farmers often blame the shippers, or the middlemen, for the low prices they receive. The common accusation is that the middlemen are taking a large profit and leaving the farmers with very little. The basis for such accusations is the fact that the farmers sell their produce to the local shippers and very often they have only a faint idea of the costs involved in carrying the produce through the packing house and shipping it to the central markets. The actual costs and margins involved in the handling and shipping process are not known. The prices to the growers are not quoted by the government reports. Due to the fact that the farmers sell their tomatoes in field boxes on an ungraded basis and the tomatoes are sold by the local buyers on a packed basis it is difficult to determine farm prices that are comparable with the dealers' prices. Until such information is available there is no basis for making any objective statements about the margins being taken by the local dealers. A research study designed to describe and provide the costs involved in each step of the marketing of tomatoes as well as the other main crops produced in the Copiah area should do much to furnish basic information upon which to base suggestions for solving the problems faced by this area. If after the war is over, the trends that were in operation for several years before the present war are resumed, it does not require much imagination to picture the situation in this area ten to fifteen years from now.

Several attempts have been made in the past to improve the marketing of vegetables and tomatoes in the Copiah area. For the most part these attempts have been designed to force adjustments by introducing a competing marketing organization in the form of a cooperative association. A few years ago the Copiah County Truck Growers Association was organized. As has been done in most cases the farmers were persuaded to become members of the organization by assuring them that by so doing they would be guaranteeing themselves a higher price for their produce. They were further assured that by cooperating in the formation of their own organization they could eliminate the middleman and many of the functions he performs.

With such a program the organization was launched with much gusto and lasted for only a few years. The management attempted to sell largely to chain stores and thus eliminate some of the costs involved in going through the regular channels of trade. It was soon discovered that the chain store buyers went to the areas where the produce was

cheapest and that they bought much of their supplies in crowded markets. They did not furnish a steady and regular market for any one area or organization and therefore could not be counted on as a sole outlet. The cooperative organization soon found itself in difficulty and was unable to return to the growers a price equal to that being paid by the local dealers. Sponsors of the cooperative claim the dealers were willing to increase their prices in order to hasten the failure of the cooperative. However, the fact remains that the cooperative organization was not able to fulfill the glowing promises that had been made to the growers and they gradually withdrew their support.

The experience of this cooperative will probably make it very difficult for a similar organization to operate successfully in this area for a long time. In fact, it is doubtful whether any further attempts should be made to organize a cooperative in this area at any time in the near future. It is likely that more progress will be made by doing everything possible to work with the existing marketing agencies in an effort to improve the services they are rendering than in trying to organize a competing organization.

Outside of the main Copiah County trucking area there are other and smaller markets for vegetables. Two of these markets are at Laurel and Hattiesburg. There is only one main buyer in each of these markets. The main vegetables handled in these markets are string beans and various types of greens, but some cabbages and Irish potatoes are handled at each place.

The largest market for Irish potatoes is at Columbia in Marion County. Almost all the potatoes produced in Marion County are handled by three potato dealers in Columbia. These dealers follow the practice of grading the potatoes as they are brought in from the farms. After the potatoes are graded the farmers are paid on a graded basis. The dealers load the potatoes in cars and attempt to sell them on an f. o. b. shipping point basis. There are also considerable quantities of Irish potatoes shipped from Tylertown in Walthall County and from Bassfield in Jefferson Davis County. The marketing process in these two areas is very similar to that indicated for the Columbia potato market. Outside of these three main shipping points there are usually from 1 to as many as 20 carloads of potatoes shipped from each of the 20 to 25 shipping points in southern Mississippi. For the 11-year period from 1931 through 1941, there was an average of 421 carloads of Irish potatoes shipped from Mississippi each year.

Even though sweetpotatoes have been grown and sold rather generally throughout Mississippi for a long time, there has never been a well organized marketing system developed for handling this crop. For the most part, sweetpotatoes are sold to local stores or to truckers who haul them from the hill sections into the Delta or to out-of-state markets. The potatoes produced for sale in most of the areas have not been of sufficient volume to justify the establishment of an efficient marketing organization. In the past, many of the potatoes have been sold green at digging time or have been stored in banks on the farm. There is usually considerable loss when potatoes are banked, and after being removed from the banks the sweetpotatoes do not keep satisfactorily. This system has resulted

in placing on the market sweetpotatoes that are often of questionable quality. The shipment of sweetpotatoes in carload lots has almost completely ceased in Mississippi. For the 3-year period, 1939 to 1941, there was an average of four cars per year shipped from the State. By way of comparison, in 1931, 201 carloads of sweetpotatoes were shipped from the State. Some of this decrease is offset by increased movement by trucks.

The increased competition from high quality potatoes put on the market from other areas has resulted in a complete loss of almost all the out-of-state markets to Mississippi farmers. There is little question but that Mississippi farmers can produce and supply the markets with good quality sweetpotatoes. However, the production and marketing of high quality sweetpotatoes for table use has to be accompanied by a rather rigid system of supervision and inspection. This is true because the consumer of sweetpotatoes in Northern markets demands a rather plump, medium-sized potato that is relatively free of strings and waste. In developing outlets for sweetpotatoes only the most desirable sizes should be offered to the trade. The demand for the sweetpotato is constantly increasing and will probably increase at an even faster rate after the present war is over.

There seems to be no good reason why Mississippi farmers cannot profit by this increased demand for sweetpotatoes. In order to take advantage of this demand it will be necessary to have sweetpotatoes produced in concentrated areas in sufficient quantities to justify the establishment of an efficient marketing system. Along with such a system it will be necessary to have a rather rigid system of government inspection to insure that only the better quality potatoes are put on the market.

To be marketed most advantageously the sweetpotato must be handled in properly constructed curing and storing houses. The Extension Horticultural Department estimates that there are around 500 curing and storing houses in Mississippi, having an average capacity of around 600 bushels or a total capacity of about 300,000 bushels of sweetpotatoes. It is expected that an additional 500 houses will be constructed this year as a result of the present sweetpotato program. If done, it will give a total curing and storing capacity on the farms for around 600,000 bushels of potatoes.

During 1942 Mississippi produced about 7,000,000 bushels of sweetpotatoes. Normally only around 25 to 30 percent of the crop is sold. It is readily seen that the prospective storage capacity is sufficient to handle only a small proportion of the total crop. The storage houses are scattered over a rather large area, though it is likely that there will be enough concentrated in an area or two in the State to provide sufficient volume to develop an efficient marketing organization. If this development is encouraged and given the proper supervision and inspection, there is a very good chance that Mississippi can regain its rightful place in the sweetpotato markets.

Vegetables for processing are produced in considerable quantities in some areas in southern Mississippi. There were eight canning plants, one pickle factory, and one starch plant in operation in 1942. The

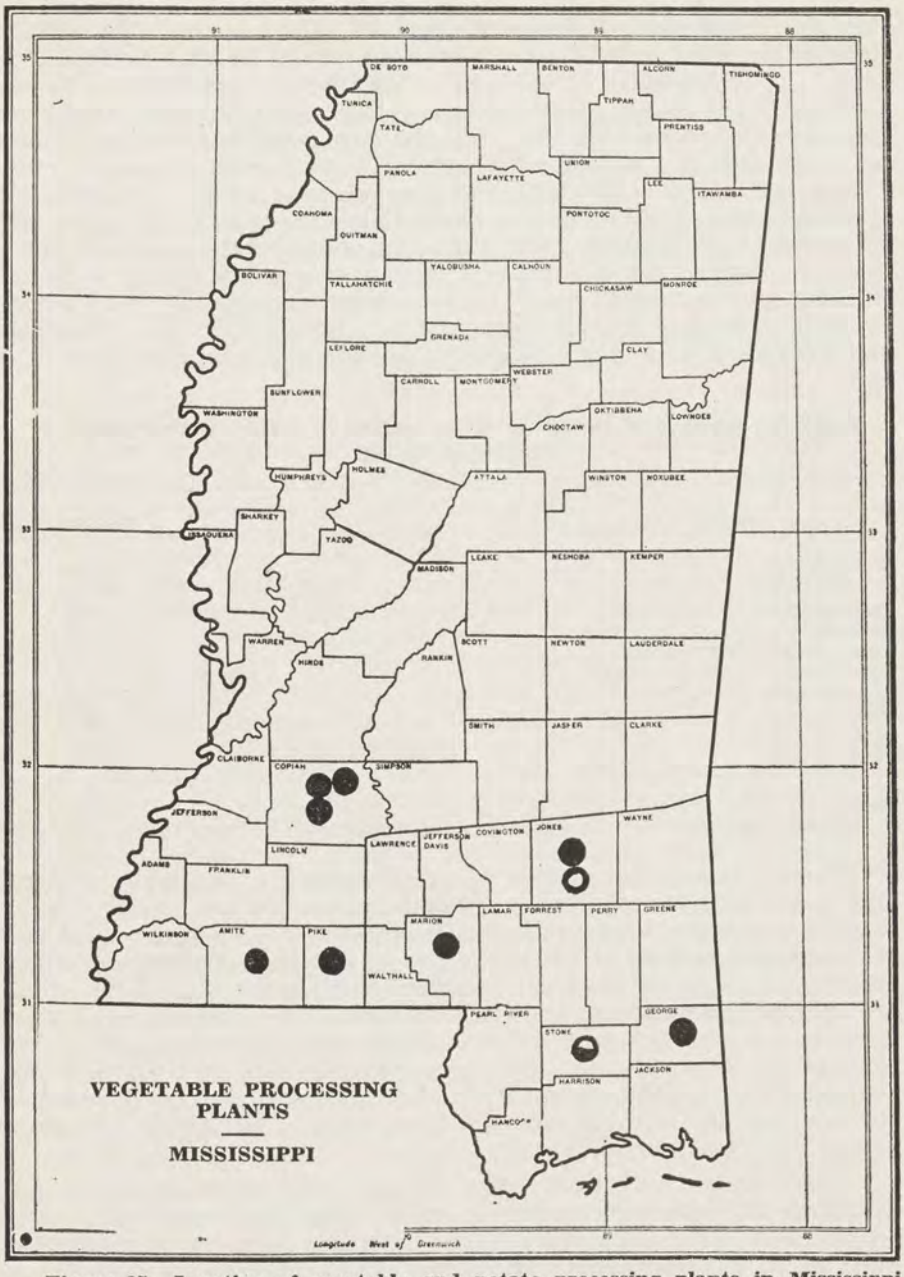

Figure 25. Location of vegetable and potato processing plants in Mississippi in 1942.

- ● Canning plants
- ◒ Pickle plant
- ○ Starch plant

location of these plants is shown in figure 25. The tonnage of the various kinds of products canned by the canning plants in 1942 is shown in table 21. On the basis of tonnage of the raw products canned, sweetpotatoes, string beans, tomatoes, and spinach were the most important products processed during 1942. For the most part, the tomatoes canned are those that are left after the regular fresh tomato season is over. Almost all the other products are planted on contract especially for canning purposes. The canning plants follow the practice of contracting for processing vegetables before the crops are planted, a practice which tends to assure them a sufficient volume of produce to carry on an efficient operation each year. During years of especially high prices for the fresh produce there is some trouble on account of contract breaking and the plants have difficulty getting enough produce to operate at a profit.

Table 21—Tonnage of various products canned by eight canning plants in Mississippi in 1942

Product	Tons canned
String beans	2,766
Sweetpotatoes	3,550
Peppers (pimento)	436
Spinach	1,416
Turnips and mustard greens	613
Pole beans	310
Crowder peas	550
Beets	307
Okra	251
Tomatoes	2,091
Total	12,290

These canning plants serve as a balance to the vegetable industry. That is, the farmers in the areas where the plants are located are always assured of getting canning prices for their produce. There is not the risk of a complete loss as is often the case in the areas where vegetables are produced entirely for fresh consumption. On the other hand, there are no fabulous profits to be made in producing crops for processing. The return is usually modest but it is steady and can be counted on and planned for throughout the crop year. In an area, such as southern Mississippi, that is in between the large commercial vegetable areas, it is likely that the canning plants will continue to furnish an important part of the demand for truck crops.

In this connection it would seem wise to work toward a program that would insure a reasonable return to the canning plants each year. The farmers may see an opportunity to gain by selling to the fresh trade during some years, but their long-time welfare would probably be served best by selling enough to the plants every year to assure an efficient operation. In some instances the farmers have completely destroyed their most regular and steady markets by breaking their contracts during seasons when the prices for fresh produce were unusually good. A program for solving

this problem to the best interest of both grower and canner has been suggested in a recent bulletin published by the South Carolina Agricultural Experiment Station. The program suggested is as follows:

> If fruit and vegetable growers look wisely to their long-run interests, they will not starve canneries for raw products even when the fresh-market prices are high; otherwise, no secondary market may be available when it is needed to stave off disaster. And with a little forethought and planning by the parties concerned, the problem can be solved for the benefit of both growers and canners. A general idea of an approach to the problem may be outlined as follows:
>
> Let fruit and vegetable growers contract with the cannery to deliver to it at regular intervals during the canning season a certain minimum quantity (measured by acreage, by volume, or by a formula involving both) of the product involved, and to part with it at a previously specified price. The quantity of raw products thus contracted for by the canner should be sufficient under normal conditions to keep him operating at 25 to 35 percent of full capacity (which this study indicates is usually sufficient to allow a profit). The grower should be free to raise as many additional products as he wishes for sale in the fresh fruit and vegetable markets, and the canner should have no claim on them so long as the grower delivers the contractual minimum amount to the cannery. At the same time, however, the canner should be obligated to buy all of the products produced by growers with whom he has contracts (up to his full capacity for handling raw products) at the price agreed upon for the minimum contractual amount. This would assure the growers of a secondary market at a stated price even though the price in the fresh markets should fall to a ruinously low level. It is necessary that the minimum contractual amount of raw products be less than sufficient to enable the cannery to operate at full capacity; otherwise it could not serve as a market for **additional** surplus products, and the farmers would gain no market insurance to compensate them for selling part of their product to the cannery at low prices when they could have obtained better prices elsewhere.
>
> Canners in South Carolina cannot afford to pay the average market price for fruits and vegetables, nor can they afford to stand idle because of lack of raw products during the greater parts of some seasons. At the same time, under present conditions and prices, farmers in most sections of the State cannot afford to produce fruits and vegetables solely to sell them to canneries. But if each side makes certain concessions and adjustments such as those mentioned above, it is believed that a continuing mutually profitable relationship can be established. Furthermore, as is demonstrated in a subsequent part of this report, canneries could afford to pay a higher price for raw pro-

ducts if their volume and certainty of operations were increased.

Another solution of the problem discussed above would be for the canneries to be owned by cooperative marketing associations of growers. Then it would make no difference in the permanency of the cannery whether or not it stood idle because all of the raw products were being sold at high prices in the fresh markets. The fixed costs of the cannery could be met with a part of the proceeds of such sales and the plant would always be ready to begin operations as soon as the prices of the fresh products fell to a level where it was more profitable to pack them and sell them in cans. The cost of the idle or partly idle cannery when prices are high could, under these circumstances, be designated directly as market insurance. This same type of cost is present under the other plan discussed, but it is not so clearly discernible.[1]

In addition to the produce handled by the regular canning plants, the pickle factory at Wiggins handles the cucumbers produced from 4,000 to 5,000 acres of pickling cucumbers each year. The cucumbers are contracted for in advance of the planting season each year and rarely does any one farm have more than an acre of cucumbers. There is a total of around 5,000 farms in 30 counties that produce pickles. The cucumbers are collected at some 15 brining stations and about 50 receiving stations that are located at convenient points in the pickle producing area.[2] The same price is paid for the cucumbers delivered at all these places. The cucumbers are graded and the growers get the contract price for the grades of cucumbers delivered.

From the receiving stations the cucumbers are carried to the nearest brining station or the main plant. From the brining plants pickles are delivered to the main plant in tank cars as they are needed throughout the year.

The sweetpotato starch plant at Laurel was built in 1934 by a grant from the Federal Emergency Relief Administration. The Department of Agriculture operated the plant through the Resettlement Administration and the Farm Security Administration until 1938. Since that time it has been operated as the Sweetpotato Growers, Incorporated, a cooperative organization with the operating funds loaned by the Farm Security Administration. The government has subsidized the production of sweetpotatoes for starch during most of the time since the plant started operating. Therefore, it has not been definitely established whether or not the plant can operate on its own, free of government subsidy, for any period of time. During 1942 the plant operated without subsidy and was able to pay an average of $11.67 per ton for 2,750 tons of sweetpotatoes. This was an average to the growers of $.32 per bushel.

[1]Stepp, James M. "An Economic Study of Commercial Fruit and Vegetable Canneries in South Carolina." South Carolina Agricultural Experiment Station Bulletin No. 342, p. 29.

[2]Anderson, W. S., "Growing Cucumbers for Pickling in Mississippi," Mississippi Agricultural Experiment Station Bulletin No. 355, 1941.

It is hoped that, by branching out into other activities that will help pay the heavy overhead costs, the starch plant can become a permanent outlet for sweetpotatoes. At the present time the plant is putting in the necessary equipment to dehydrate sweetpotatoes. It is expected that as markets are developed for table potatoes the starch plant will furnish a ready market for the jumbos, strings, and other potatoes that cannot be sold to the table potato trade. Research projects to aid this development would be very desirable. The Horticulture Department of the Experiment Station and the Regional Laboratory of the United States Department of Agriculture have already conducted considerable research along these lines and their results are very encouraging.

FRUITS AND NUTS

PEACHES

From a commercial standpoint fruits have never been of any great importance in Mississippi. The latest census reports that during 1939 there were slightly over 1,000,000 bushels of peaches produced in the State. For the most part, peaches are produced in small home orchards and are used largely for home consumption.

During some years in the past rather large quantities of peaches have been shipped out of the State in carload lots. For example, in 1931 there were 123 carloads of peaches shipped from Mississippi. Since that time rail shipments of peaches have almost entirely ceased. Between 1937 and 1941 only one car of peaches was shipped to an out-of-state market. This does not mean, however, that the sale of peaches has decreased by this amount. The method of handling peaches has changed from rail shipments to movement by truck. A large proportion of the peaches that are sold are bought at the orchard by truck buyers. Many of the owners of peach orchards have roadside markets and in recent years have disposed of substantial portions of their peaches in this manner. Because of the method of selling, it is difficult to get any reliable information about the quantity and value of the peaches sold.

PEARS

In addition to peaches, small quantities of pears are produced in every county in the State. During the 1939 season there were about 280,000 bushels of pears produced. Except for a few counties in southern Mississippi, almost all pears produced are consumed in the home. More pears are produced in Pearl River than in any other county in the State. As was the case with peaches, there have been years when considerable quantities of pears were shipped in carload lots to markets outside of Mississippi. For example, in 1936, 48 carloads were shipped by rail. Between 1937 and 1941, however, only nine cars of pears were shipped to out-of-state markets. At the present time almost all the pears that are sold are bought at the orchards by truck buyers who haul them to other points within the State or to more distant markets.

STRAWBERRIES

Small quantities of strawberries are produced in some counties scattered throughout the State. They are produced in commercial quantities, however, only in a very few areas, particularly Lauderdale County.

Based on the number of carlot shipments, the commercial importance of strawberries has been declining for the past 12 years. In 1931, 127 carloads of strawberries were sold from farms in Mississippi. Since that time there has been a constant decrease from year to year. In 1941, only 14 cars were sold. Almost all the strawberries that are sold in Mississippi move from the town of Lauderdale in Lauderdale County. They are loaded in cars at this point and are sold on an f. o. b. shipping point basis.

PECANS

During 1939 there were about 5,600,000 pounds of pecans produced in Mississippi. Pecan production is of greatest commercial importance in the Longleaf Pine, Lower Coastal Plain, and the Gulf Coastal Areas. In addition certain counties in the Delta produce considerable quantities of pecans. The heaviest producing counties are Jones, Lamar, Pearl River, Hancock, Harrison, Jackson, Coahoma, and Washington. About 1,270,000 pounds of pecans were produced in the Gulf Coastal Area in 1939.

In the Gulf Coastal Area the actual marketing of pecans is handled by three types of pecan buyers. All along the main highways, particularly around Bay St. Louis in Hancock County, there are roadside stands at which pecans of all types are sold. The operators of these roadside markets are usually pecan buyers who cater to the tourist trade. Most of them have been successful in developing a mail order business for pecans in small packages. In addition they sell shelled pecans, pecan candy, and pralines.

A second type of pecan buyer is that represented by the pecan shellers located within the State. These buyers have small pecan shelling establishments and in some cases have a retail store at which they sell all types of pecans and pecan products. These buyers usually secure most of their pecans by going from place to place and buying them from the producers. In some cases they buy pecans which are delivered to shelling plants by the producers or by pecan dealers. There are four pecan shelling plants in Mississippi. These plants are located at Gulfport, Jackson, Natchez, and Fruitland Park. During 1942 these plants shelled a total of around 2,600,000 pounds of pecans. However, not all of these were produced in Mississippi; some plants buy pecans produced in other states.

The third type of pecan buyer is represented by the agents of the large out-of-state pecan shellers. There are a rather large number of these buyers who spend their time, during and just after the pecan harvesting season, traveling from farm to farm purchasing pecans from the producers. Almost all these buyers have contracts with large shelling establishments in Texas and Missouri. The usual practice is for the shelling plants to agree to pay their agents a stated price for each pound of pecans delivered. The local agent makes the difference between this agreed price and the amount he has to pay for the pecans locally. When these agents have assembled sufficient quantities of pecans, the buying concerns usually send their trucks to the assembly point and move the pecans into the shelling plants.

TUNG NUTS

There are around 100,000 acres of tung trees growing in Mississippi

at the present time. During 1939 a total of 843,252 pounds of tung nuts were produced in the State, about 95 percent of which were produced in the Lower Coastal Plain area, and about 70 percent in Pearl River County. There are three tung nut crushers in the producing area in southern Mississippi. In addition there are crushers just over the State lines in Louisiana and Alabama. For the most part the large producers of tung nuts sell direct to the crushing mills, and in many instances the smaller tung nut producers also sell direct to the mills. Especially is this true where the producers are located close to the crushing plants.

In areas located some distance from the crushing plants, there are some buyers who purchase the nuts from the producers and then resell them to the crushers. One of the largest tung nut buyers, located in Gulfport, purchases tung nuts in almost all of the southern Mississippi producing areas and resells them to crushing plants in Mississippi and Louisiana. Even though the production of tung nuts is a fairly new enterprise in southern Mississippi, it seems that fairly adequate marketing facilities have been developed.

OTHER CROPS

CORN

The production of corn has always occupied more acreas of cropland in Mississippi than any other one crop. As is true in most Southern states, however, corn is produced almost entirely for home consumption. Even though corn is produced largely for home consumption there are surplus amounts on some farms and in some areas almost every year. During particularly good crop years there will be rather large quantities of corn sold. For the most part, the selling of corn is largely an exchange between the farmers who are fortunate enough to have a surplus and their neighbors who are not quite as fortunate. In addition to this farmer-to-farmer selling, almost every year there is some corn sold to truck buyers who haul it into the neighboring states. Often the truck operators will bring a load of produce of some type into Mississippi and buy a load of corn in order to have a full truck on the return trip. Because of this method of selling, it is difficult to make estimates of the quantity or the value of corn sold. Also, because of the fact that no one area produces a surplus of corn for any number of consecutive years, there has not developed any organized marketing system.

OATS

Oats are produced rather generally throughout Mississippi but are of commercial importance only in the Delta. Oat production was started in the Delta as a means of producing feed for workstock, and are still planted mainly for that purpose; but in recent years there has been a considerable increase in commercial oat production. So far, these surplus oats have been handled in much the same way as the surplus corn. That is, they are sold from farmer to farmer or are sold directly from the farm to truck buyers who haul them to other points within the State or to points in the neighboring states. In addition to these outlets, oats are bought by some of the large feed mills both within and without the State.

In recent years three small grain elevators have been operating in

the Delta, two at Greenville and the other at Inverness. The operators of these elevators buy grain outright or store it on a fee basis for the producers. The operators of these elevators have not found the demands for their services sufficient to expand their operations materially. The outlets for the oats they buy are rather limited, since they have not been able to compete successfully in the out-of-state markets in the South with the oats shipped in from other areas.

Before the beginning of the present war, a rather promising outlet was being developed by one of the elevator operators for clipped oats that were being shipped by water to points on the Gulf Coast of Florida for chicken feed. It was found that because of the relatively cheap water transportation, oats could be delivered to those points at a price that would enable them to compete successfully with oats from other areas. These shipments have ceased altogether and further developments of this market will have to wait until the close of the war.

If oats are to continue to increase in commercial importance in the Delta it will probably be necessary to develop a systematic method of marketing them within the State as well as to develop definite out-of-state markets for Mississippi oats.

SOYBEANS

It is estimated that 203,000 acres of soybeans were planted in Mississippi in 1942 to be harvested for beans. Sixty-four percent of these beans were grown in the Delta, 21 percent in the Brown Loam Area, and almost all of the remaining 15 percent were divided about equally between the Shortleaf Pine and Northeastern Prairie areas. The production of soybeans for beans has developed almost entirely since the beginning of the war.

The emphasis placed on the production of oil-bearing seeds has resulted in a tremendous increase in soybean production in Mississippi in the past 3 years. From a production standpoint soybeans compete with cotton in almost every phase of the production process from the planting of seed to the crushing of the beans. This being the case, the continued production of soybeans at the close of the war will depend very largely on the relative prices of soybeans and cotton.

Cotton farmers, like any other farmers, will not divert labor and machinery to other crops unless there is a very good chance that the income from the other crops will be more than the income from cotton. The soybeans that have been produced so far have been sold directly to the oil mills. The producers who are located close enough to the mills have delivered their soybeans to the crushing plants. In other cases, the oil mills have arranged for representatives to purchase soybeans at strategic points in the producing areas.

Because of the fact that the harvesting and crushing season for cottonseed competes with the harvesting and crushing of soybeans, there has been some difficulty in providing adequate storage space for the soybeans. At the time when soybeans are being harvested, the storage space at the oil mills is being filled to capacity with cottonseed, and but little storage space is available until some time in January or February for the beans harvested the previous fall. This problem has been fairly

adequately solved by putting the soybeans in sacks and storing them on the farms or in vacant store buildings until the oil mills can take them. Some oil mills in the Delta have solved the problem by stopping the cottonseed crushing operations as soon as sufficient soybeans are available to start crushing this crop. By following this procedure, they crush all of the soybeans immediately after the harvesting season and then resume their crushing of cottonseed.

Another problem faced by the oil mills is that the adequate storage of soybeans requires a different type of storage bin from those used for storing cottonseed. If soybeans are stored in bulk in the regular cottonseed bins, the tremendous pressure exerted by the beans around the bottom of the bins usually results in considerable bulging and in some cases the bursting of the bins. Some oil mill operators have partially solved this problem by putting some of the soybeans in sacks and stacking them around the outer edges of the storage bins and then putting bulk beans in the center. This practice has been satisfactory wherever it has been tried.

From what has been said it can be readily seen that the continued successful production of soybeans for beans in Mississippi will depend very largely on the successful solution of some of these more important marketing and storage, as well as production, problems. According to reports furnished by the Mississippi Cottonseed Crushing Association, the oil mills crushed a total of 35,991 tons of soybeans during the crushing season which ended August 1, 1943. Of the beans crushed, 28,167 tons were produced in Mississippi and the remainder were shipped in from Northern and Midwestern states.

The crushing capacity of the oil mills is sufficient to handle a considerable expansion in the production of soybeans provided adequate storage facilities can be provided to take care of the beans until the oil mills can take them. From the standpoint of the oil mills it should add much to the efficiency of their operations to be able to extend their crushing season to cover a larger portion of each year.

PEANUTS

The production of peanuts in Mississippi is another wartime venture. Previous to the outbreak of the war, only scattered small acreages of peanuts were planted anywhere in Mississippi. These small patches were used largely for home consumption or were used to fatten hogs. Since the beginning of the war, considerable effort has been expended in attempts to get farmers in some of the hill areas of the State to produce and harvest peanuts.

It is estimated that during 1942 there were about 60,000 acres of peanuts that were dug and threshed. This was an increase from 27,000 acres in 1941. The largest acreages of peanuts were planted in the hill counties in the southern part of the Shortleaf Pine Area. Thus far, however, almost all the peanuts have been planted in fairly small patches scattered over relatively large areas. Such a production pattern makes it almost impossible to harvest and thresh the peanuts economically. As is the case with soybeans, peanuts compete almost directly with cotton in every phase of the production, harvesting, and crushing processes.

If to these difficulties are added the additional problems brought about by harvesting and threshing small plots scattered over a large area, it is little wonder that farmers have been reluctant to accept their allotments of peanuts. The problems in connection with the harvesting and marketing of peanuts in Mississippi have been discussed in some detail in a recent publication by this Station.[1] It is pointed out in this report that there are opportunities for the successful introduction of peanuts as a profitable enterprise on some of the farms in the hill sections in southern Mississippi. The success of this enterprise, however, will depend on having the peanuts produced in large enough acreages on farms in fairly concentrated areas so that the harvesting and threshing process can be done efficiently.

During the war period and while the price of peanuts is fixed by the government at a fairly high figure, farmers may make some profit in spite of the inefficiency of the peanut harvesting and marketing process. It is too much to expect, however, that Mississippi farmers can successfully compete with peanut producers in the old established areas when the war is over, unless ways and means are introduced that will improve the present harvesting and marketing process.

FORESTRY PRODUCTS

The 1940 Census of Agriculture reports that 10,782 farmers in Mississippi sold a total of $1,274,194 worth of forestry products during 1939. As indicated earlier (table 1) the value of forestry products sold amounted to only 1.1 percent of the total value of all agricultural commodities sold during 1939. There is considerable evidence to indicate that this figure is too low. The Mississippi Department of Agriculture estimates that during 1942 there was a farm income from forestry products of around $20,000,000.[2]

The Severance Tax Division of the State Tax Commission in its annual report of tax collections for the year ending with May 1943 reported that for the previous 3-year period Mississippi forests produced a total of 7,405,260,497 board feet of forest products. This is an average of 2,500,000,000 board feet per year of all types of forest products converted to a board feet equivalent. Severance taxes were collected at the rate of 3 percent of the value of the products at the point of severance. During the 3-year period $882,349 were collected in taxes. This means that taxes were collected on a total of $29,411,623 worth of products for the period, or an average of $9,803,874 per year. These values are at the place of severance and are therefore, stumpage values. The amount and value of the forest products, by groups, that were sold during the period from June 1, 1942 to May 31, 1943 are shown in table 22.

Eighty-five percent of the total value of products on which severance taxes were collected was from logs. The report of the Severance Tax Division indicates, however, that the production of lumber has decreased during the past 3 years and the production of pulpwood has increased.

[1] McComas, P. S., O'Kelly, J. F., Welch, F. J.: "Peanuts for Oil," Agricultural Experiment Station, State College, Mississippi, Bulletin 376, March 1943.

[2] "Mississippi, Agricultural and Statistical," State Department of Agriculture, Jackson, Mississippi, June 1943.

Table 22—The amount, taxes collected, and total stumpage value of forest products sold in Mississippi for the 1942-43 tax year, by class of product

Class	Amount	Unit	Taxes collected	Rate per unit, cents	Total stumpage value
Logs	1,713,244,050	B. F.	$253,088	14.7	$8,436,263
Poles and piling	38,902,332	B. F.	8,169	21.0	272,316
Pulpwood	348,043,600	B. F.	26,103	7.5	870,109
Cordwood special	20,903,500	B. F.	5,017	12.0	167,230
Stumps and lightwood	503,076	Tons	3,773	.75	125,769
Turpentine	25,023	Bbls.	751	3.0	25,023
Total			$296,901		$9,896,710

Source: Third Annual Report, Timber Severance Tax Division, State Tax Commission, Jackson, Mississippi, for June 1, 1942 to May 31, 1943.

The first year (1940-41) the Severance Tax Law was in force, taxes were collected on 456,937 cords; during the most recent year (1942-43) taxes were collected on 911,917 cords of pulpwood.

A further indication of the importance of the forestry enterprise to the people of Mississippi can be had from a brief survey of the wood-using industries in the State. The distribution of the saw mills and other users of basic forestry products is shown in figure 26. According to the Mississippi Index of Manufacturers there were 1,067 sawmills and other businesses such as crate mills in the State in 1941. These basic timber-using industries are scattered throughout the State but there are definite concentrations in several counties in the northeastern corner of the State and in the southern counties of the Shortleaf Pine area. The entire southern portion of the State is served by a large number of sawmills which are rather uniformly distributed. These sawmills range in size from very small portable outfits that cut less than 3,000,000 board feet of lumber annually to the very large mills, a number of which cut more than 10,000,000 board feet annually. The sawmill buyers furnish a ready cash market for almost any type of timber that can be produced in Mississippi.

Another indication of the importance of the lumbering industry in Mississippi is given by the fact that in 1941 there was a monthly average of 28,603 workers employed in the lumber and timber basic products industry. These workers received an annual wage of $20,387,791 during 1941, according to the annual report of the Mississippi Unemployment Compensation Commission. In addition to the regular lumber and timber using industries, there are four pulpwood plants in the State, as shown in figure 26. These plants, located at Greenville, Meridian, Laurel, and Moss Point, employ a total of approximately 8,000 persons and have pulpwood buyers located in almost every county in the State. Usually these buyers will purchase the pulpwood on a stumpage basis and cut it and haul it themselves, or they will buy it at a specified amount per cord delivered to the nearest railroad station. Through this system a large proportion of the farmers in Mississippi have ready access to a

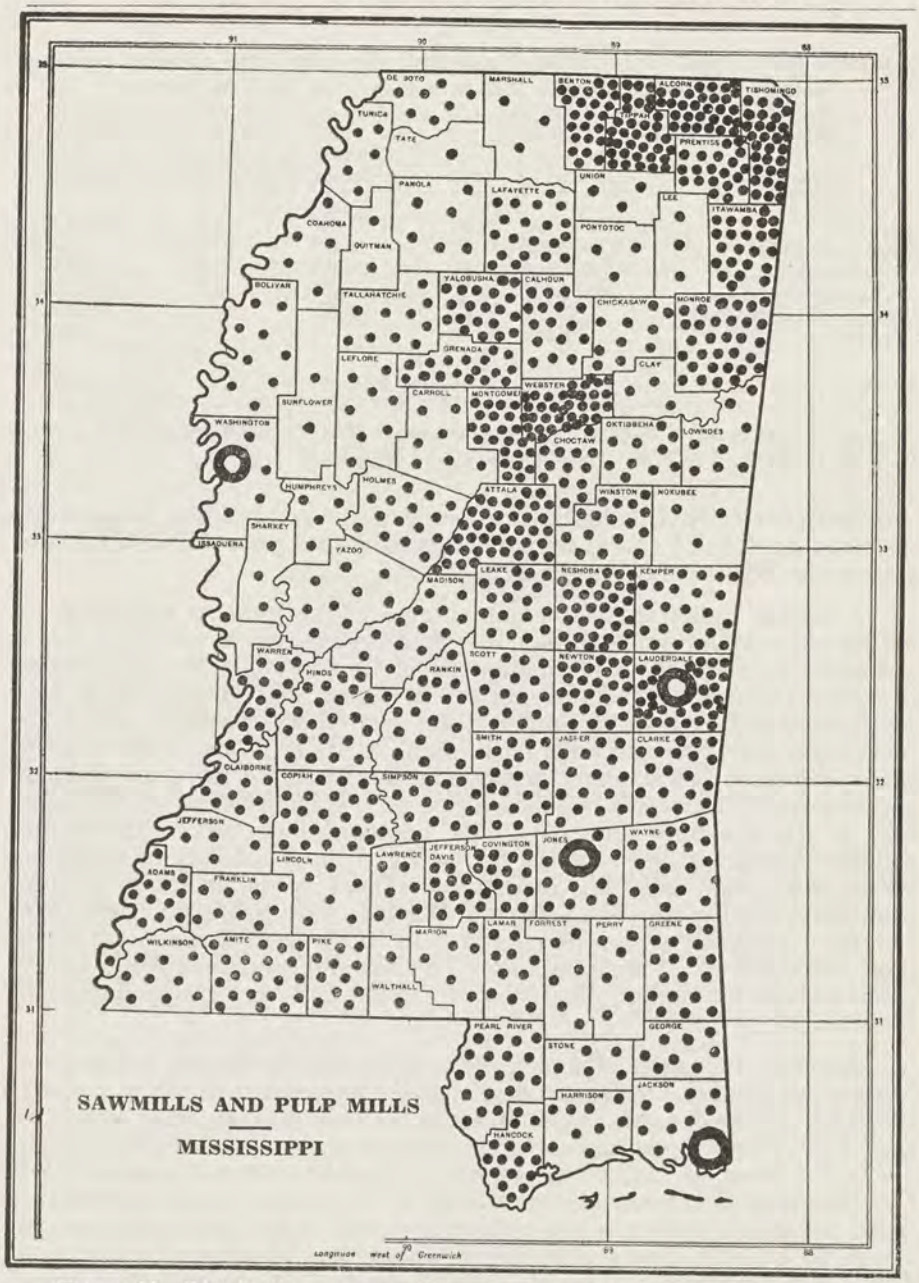

Figure 26. Distribution of sawmills and pulp mills in Mississippi in 1941.

● **Sawmill**

Pulp mill

Source: Mississippi Index of Manufacturers, Miss. Board of Development. Post-War Planning Atlas, Southeast Region, USDA.

cash market for their pulpwood.

In the past, the process of marketing forestry products has been such that many areas have been completely deforested. The practice of clean cutting has been followed rather generally for many years and has been encouraged by many small and some large sawmill operators. From the standpoint of sawmill operators, it is usually less costly to cut a block of timber clean than it is to do selective cutting, because the timber cutting and hauling crews can be more fully occupied in the actual process of cutting and hauling trees if they can take everything as they come to it, than they would be if they had to skip about and take only a tree here and there.

In many areas the sawmill operators have refused to buy timber if the producers insisted that they do selective cutting or have offered less money for their timber to farmers who wanted to do selective cutting. Another method used by sawmill operators in some areas to force the farmers to allow them to do clean cutting, is what might be called the "squeeze plan." That is, an operator with a portable sawmill will move to a community and start cutting the timber on those farms where the farm operators will allow him to do clean cutting. As the cutting progresses, the sawmill operator indicates that he will not buy any timber unless he can "take it all," and that those farmers who want to do selective cutting can wait until another sawmill comes along. Many of the farmers do not care to wait and are thus forced to sell their timber on a clean cut basis even though they prefer to sell it selectively. This practice is particularly effective in those areas that are served by small portable sawmills.

The fact that the woodlots were cut clean is not of itself so much of a crime. The real problem lies in the fact that no seed trees were left, or the land was not immediately planted in young trees. Where severance taxes are in effect, as they are in Mississippi, it is not so important for the land owner to harvest some timber each year, as is the case where ad valorem taxes are in effect. From the standpoint of efficiency in the marketing process, especially in cutting, loading, and hauling, it is much cheaper to harvest one crop of timber every 30 years than it is to go to the same plot for a few trees every year for 30 years. It may be that there is additional income from the sustained yield plots that offsets the economic advantage of clean cutting. In any case the difference is not as great for large acreages of timber as it is for small farm woodlots.

It is needless to say that a farmer with a small acreage of forest land cannot afford to own logging equipment just to harvest his own timber. Likewise it is often not practical for sawmill operators to move the necessary equipment and crews around from farm to farm to get only a few trees at each place. At least, this seems to have been the case in the past. It may be that as timber becomes scarcer and prices higher, the sawmill operators can afford to cut a few trees in a large number of places and still pay the producer a reasonable price.

There is another factor that has to be taken into account when increased prices for forest products are considered. This factor is the large number of substitutes that are available. In normal times when lumber

prices get high, the users of timber and timber products make substitutions wherever it is possible to do so. The large variety of substitutes available will make it rather difficult for timber prices to continue to increase. This being the case, it is likely that the greatest opportunity for increasing the income to the farmers is by finding ways and means of producing, harvesting, and marketing forest products more efficiently. The problems faced in bringing about these increases in efficiency and at the same time keep the land from being cut clean on the small farm woodlots are difficult to solve. They are so difficult, in fact, that few men have dared to tackle them; and as far as most of Mississippi is concerned the methods of harvesting and marketing timber from the farm forests are little advanced over what they were several years ago.

The combined forces of the State College, the State Forestry Department, and the United States Forest Service together with the Southern Forest Experiment Station, have made and are making tremendous strides forward. Their most noticeable progress thus far has been with the larger producers of forest products. They are also studying the problems of the owners of farm forests. There is a great need, however, for much additional study of the marketing problems of these small producers of forest products.

In recent years the General Education Board of New York City has become interested in the problems of owners of small forests. In order to aid the development of forests and the production of forestry products in the South, this organization has made grants totaling $187,450 to five universities in the South to aid in improving facilities and in carrying on research in various phases of forestry. In these grants were $62,100 for studies by two institutions in the field of farm forestry,[2] namely, the University of Arkansas and the University of Tennessee, and are to extend over a 3-year period. They are covering in detail the production and marketing problems of the owners of farm forests.

[2]General Education Board, New York, Annual Report, 1941, pp. 9-20.