8-1948

Marketing of cottonseed feed products in Tennessee

Fred R. Robertson Jr.

To the Graduate Council:

I am submitting herewith a thesis written by Fred R. Robertson Jr. entitled "Marketing of cottonseed feed products in Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

C. E. Allred, Major Professor

We have read this thesis and recommend its acceptance:

M. B. Badenhop

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

August 1, 1948

To the Committee on Graduate Study:

I am submitting to you a thesis written by Fred R. Robertson, Jr. entitled "Marketing of Cottonseed Feed Products in Tennessee." I recommend that it be accepted for nine quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

G. E. Allred
Major Professor

We have read this thesis
and recommend its acceptance:

Merton B. Badenhop

Robert D. Dewhirst

Accepted for the Committee

C. A. Mathes
Dean of the Graduate School

MARKETING OF COTTONSEED FEED PRODUCTS IN TENNESSEE

A THESIS

Submitted to
The Committee on Graduate Study
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

---

by

Fred R. Robertson, Jr.

August 1948

ACKNOWLEDGEMENTS

The writer wishes to express his appreciation to Professor C. E. Allred, Head, Department of Agricultural Economics and Rural Sociology, for assistance in planning the study and editing the manuscript. Helpful suggestions were received from Mr. M. B. Badenhop, Department of Agricultural Economics, and Mr. M. Lloyd Downen of the Agricultural Experiment Station, for which the writer is deeply grateful.

Acknowledgement is also due the managers of the cottonseed oil mills, feed mills, and to wholesale and retail feed stores for furnishing information on the marketing of cottonseed feed products.

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CHAPTER I

INTRODUCTION

The marketing of cottonseed feed products is an interlocking chain of distributing operations. These operations are performed in Tennessee in both simple and complex forms, and many changes have taken place in their development in recent years. In contrast with twenty-five years ago when some of the cottonseed oil mills made no local sales, considerable amounts of the products today are sold locally, direct to farmers and livestock feeders.[1] The products may be purchased at the cottonseed oil mills by livestock feeders, retailers, wholesalers, jobbers, brokers, and feed mill operators. Each of these may in turn sell to the other. There seems to be no clear-cut delegation of marketing functions to any of the existing marketing agencies. This report is the first attempt to bring together the information about the existing agencies and their functions and to develop it into a unified picture.

Purposes of the Study

This study is an analysis of the marketing practices and the marketing agencies of cottonseed feed products in Tennessee. It has four main objectives. The first objective is to determine the source of supply and the agencies marketing cottonseed feed products in this state;

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[1] T. A. Hughston, Merchandising Cottonseed and Cottonseed Products, a paper presented before the Eighth Annual Cotton Research Congress, Dallas, Texas, July 17, 1947, p. 6.

the second, to determine the importance of Tennessee as a market for these feeds and the competitive status of soybean and cottonseed meal; the third, to bring out some of the difficulties in marketing; and fourth, to show the purposes for which these products are used. It is not the purpose of this report to condemn or defend any of the marketing agencies, marketing practices, or any product, but to analyze the marketing situation in its present condition.

Importance of the Study

Much research in the feeding qualities of cottonseed feed products has been done, and many improved practices have evolved. Considerable research has also been directed toward the finding of new and improved industrial uses for these products, and many studies have been made of the marketing of cotton and cottonseed, but no detailed analyses have been made of the marketing of cottonseed feed products. The future progress and usefulness of cottonseed feed products are dependent upon more basic research, proper dissemination of the results, and upon finding new uses for the products now available.[2] This study reveals some of the marketing problems of these commodities. It is hoped that future studies will be made which will furnish valuable information to the industry and ultimately help to solve these problems.

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[2] Fred Hale and John Henry Baumgardner, Proceedings of the Second Cotton Research Congress, "Nutritional and Economic Influences on Future Uses of Cottonseed Feed Products," (June 25-28, 1941), pp. 59-60.

Source of Data

Information on the production and marketing of cottonseed feed products by Tennessee cottonseed oil mills was obtained by personal interview with twelve of the thirteen oil mill operators in the state. The location of these cottonseed oil mills is shown in Figure 1.

Data from feed mills were obtained by mailing questionnaires to the 344 grain mills of all types in the state as listed in the 1947 directory of Tennessee industries. Out of the 127 questionnaires returned, or 37 per cent, sixty-three, or 18 per cent, used some cottonseed meal or cake in the manufacture of mixed feeds (Figure 2).

A list of wholesale and retail feed dealers was secured from various city directories, telephone directories, and from county agents who furnished the names of dealers in their county. Five hundred and forty-four questionnaires were mailed to these feed dealers, of which 180, or 33 per cent, were returned. Of this return, sixteen dealers were classified as wholesalers and forty-three as retailers. One hundred and twenty-one of these dealers did not handle cottonseed feed products. Figures 3 and 4 show the location of these wholesale and retail feed dealers.

All of the tables in this analysis are the direct results of the survey except where the source for the secondary data used is indicated.

Scope of the Study

In analyzing the problem, it was necessary to consider certain broad divisions of the marketing process. Among those considered were

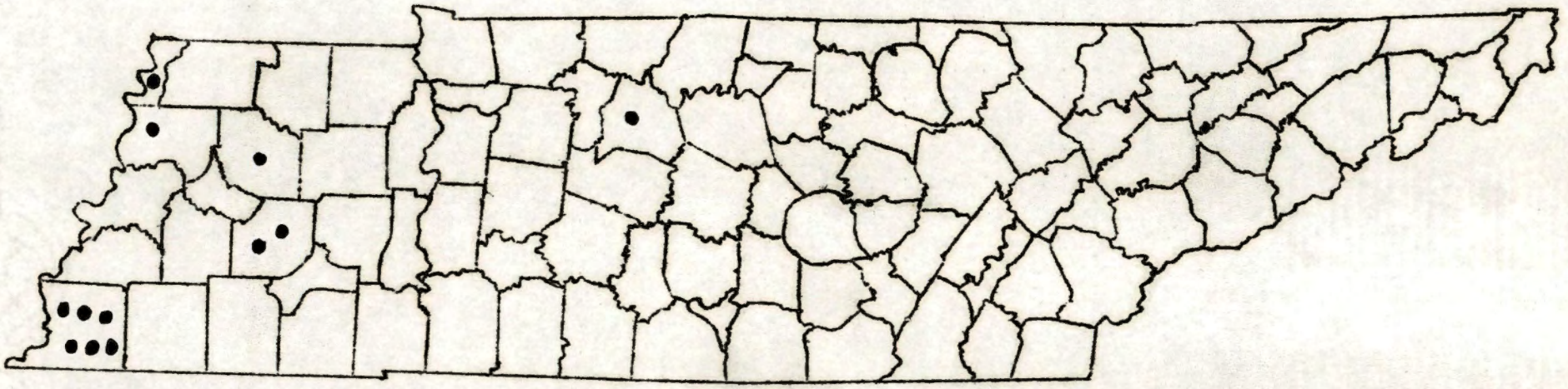

Figure 1

Location of Tennessee cottonseed oil mills surveyed, 1947

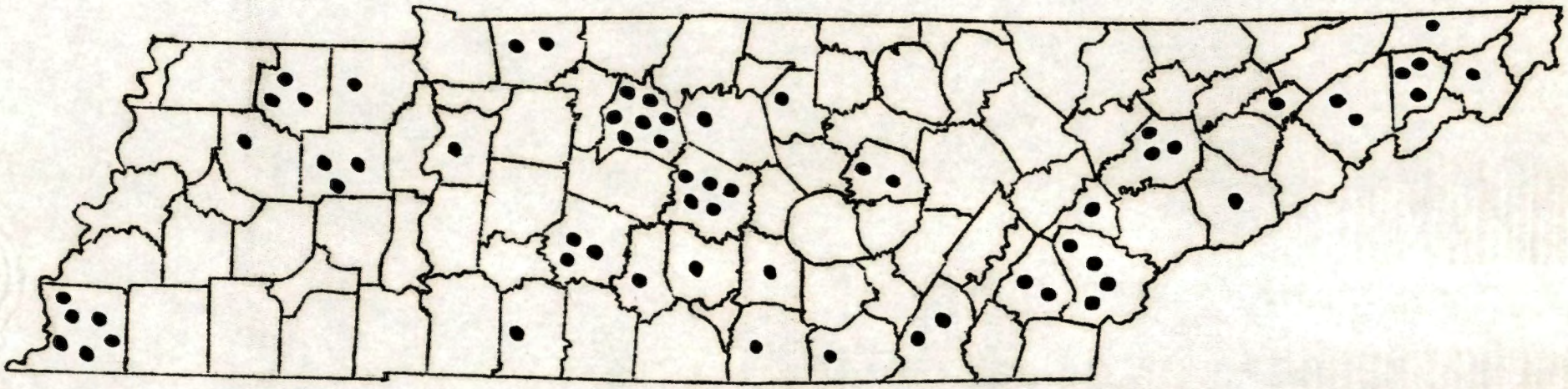

Figure 2

Location of Tennessee feed mills surveyed, 1947

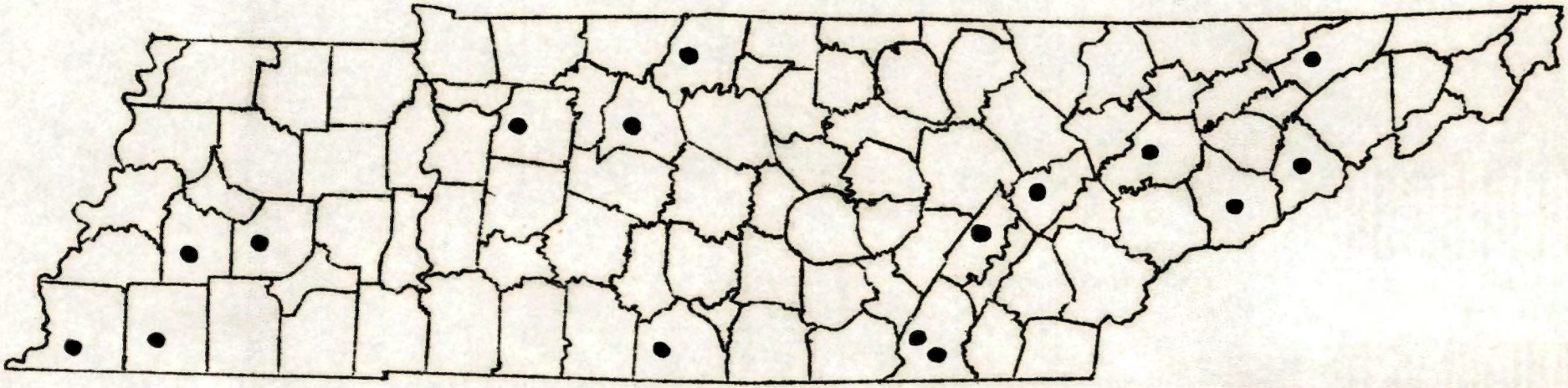

Figure 3

Location of Tennessee feed dealers surveyed selling cottonseed feed products wholesale, 1947

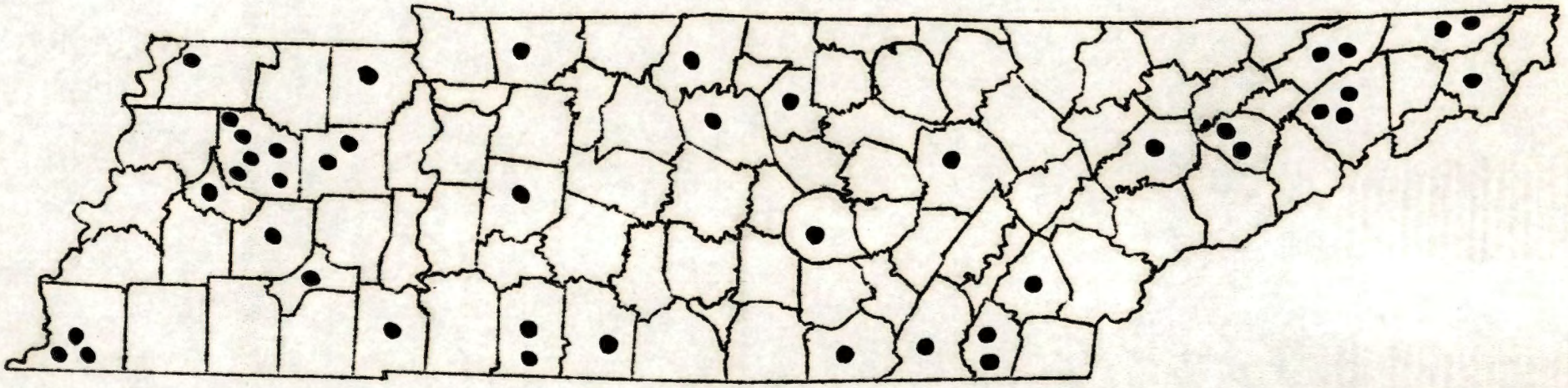

Figure 4

Location of Tennessee feed dealers surveyed selling cottonseed feed products retail, 1947

TABLE I

THE NUMBER OF SCHEDULES OBTAINED FROM DIFFERENT SOURCES HANDLING COTTONSEED FEED PRODUCTS IN TENNESSEE COUNTIES, 1946-47

County	Oil Mill Data	Feed Mill Data	Wholesale Feed Dealer Data	Retail Feed Dealer Data
Bedford	0	1	0	0
Bradley	0	0	0	2
Carroll	0	3	0	2
Carter	0	1	0	1
Chester	0	0	0	1
Cocke	0	0	1	0
Coffee	0	1	0	0
Crockett	0	0	0	1
Cumberland	0	0	0	1
Davidson	1	7	1	0
Dickson	0	0	1	0
Dyer	1	0	0	0
Fayette	0	0	1	0
Franklin	0	1	0	0
Greene	0	2	0	3
Gibson	1	1	0	6
Giles	0	0	0	1
Hamblen	0	1	0	0
Hamilton	0	2	2	1
Hardin	0	0	0	1
Hawkins	0	0	1	2
Haywood	0	0	1	0
Henry	0	1	0	1
Hickman	0	0	0	1
Humphreys	0	1	0	0
Jefferson	0	0	0	2
Knox	0	3	1	1
Lake	1	0	0	0
Lawrence	0	1	0	2
Lincoln	0	0	1	0
Loudon	0	1	0	0

(Continued)

TABLE I (Continued)

THE NUMBER OF SCHEDULES OBTAINED FROM DIFFERENT SOURCES HANDLING COTTONSEED FEED PRODUCTS IN TENNESSEE COUNTIES, 1946-47

County	Oil Mill Data	Feed Mill Data	Wholesale Feed Dealer Data	Retail Feed Dealer Data
Madison	2	0	1	1
Marion	0	1	0	1
Marshall	0	1	0	0
Maury	0	3	0	0
Monroe	0	4	0	0
Montgomery	0	2	0	1
McMinn	0	2	0	1
Obion	0	0	0	1
Rhea	0	0	1	0
Roane	0	0	1	0
Rutherford	0	5	0	0
Sevier	0	1	1	0
Shelby	6	6	1	3
Smith	0	1	0	1
Sumner	0	0	1	1
Sullivan	0	1	0	2
Warren	0	0	0	1
Washington	0	3	0	0
Weakley	0	3	0	0
White	0	2	0	0
Wilson	0	1	0	1
Total	12	63	16	43

(1) the production and disposition of cottonseed feed products by Tennessee cottonseed oil mills, (2) sources of supply and disposition of these products by Tennessee feed mills, and (3) sources of supply and disposition of the products by the wholesale and the retail feed dealers in the state. Separate consideration was given to the marketing problems in each division.

Definition of Terms Used

There was considerable divergency in the use of words descriptive of cottonseed feed products and their marketing agencies. It was considered desirable to decide upon certain uniform terminology. The following definitions were considered to be consistent with the use of the terms.

Cottonseed meal: A finely ground product of the cottonseed only, composed principally of the kernel, with such portions of the fiber or hull and oil as may be left in the course of manufacture.[3]

Cottonseed cake: A product of cottonseed only, in cake form, composed principally of the kernel, with such portions of the fiber or hull and oil as may be left in the course of manufacture.[4]

Cottonseed pellets: A product of cottonseed only, in cubed or pellet form, processed through a cubing or pelleting machine and composed principally of the kernel, with such portions of the fiber or hull and

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[3] Rules Governing Transactions Between Members, National Cottonseed Products Association, Memphis, Tennessee, p. 62.

[4] Ibid., p. 60.

oil as may be left in the course of manufacture.[5]

Cottonseed hulls: The residue of the cottonseed after the kernel, fiber, and oil have been removed, except that which is left in the course of manufacture.

Sized cake: Ground slab cake varying in size from three-eighths inch to one and one-half inches in diameter.

Cottonseed feed products: Cottonseed meal, cake, pellets, and hulls.

Cottonseed oil mill: A mill engaged in the crushing of cottonseed and the processing and manufacture of cottonseed products.

Feed mill: A mill engaged in the manufacture of livestock feed using cottonseed meal in some proportion.

Wholesaler: A feed dealer engaged in the sale of cottonseed feed products and selling over 50 per cent of these products wholesale.

Retailer: A feed dealer engaged in the sale of cottonseed feed products and selling over 50 per cent of these products retail.

Local trade: Buyers in the local area that buy cottonseed products from the cottonseed oil mills on a retail basis.

Month-ton storage cost: The cost of storing one ton of a cottonseed feed product for one month.

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[5] Ibid., p. 61.

CHAPTER II

THE IMPORTANCE OF COTTONSEED PRODUCTS

Uses

Cottonseed oil is used principally as a food. Approximately 95 per cent of the total production is normally used in the manufacture of fats, salad oils, margarine, and other foodstuffs, while the remaining five per cent is utilized in the manufacture of inedible products such as soap, paint, and lubricants.[1]

Cottonseed meal or cake is primarily a livestock feed. Its high protein content makes it particularly desirable for feeding purposes. A small amount of specially processed cake is used in the preparation of a cottonseed flour that is practically free of starch and rich in protein and vitamin B. This product is marketed principally in the form of bread, cake, cookies, and candies.[2] Some cottonseed meal is also used as a fertilizer.

Cottonseed hulls are also used principally as a feed for livestock. Hulls, however, differ from cake or meal in that they are a roughage rather than a protein concentrate. They are excellent carriers for cottonseed meal and grains, and many livestock feeders, particularly in the cotton belt, use them for this purpose. Hulls are also frequently

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[1] Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947, p. 19.

[2] Ibid., p. 22.

utilized by industrial firms in the manufacture of plastics and other industrial products.[3]

There are more uses for linters than for any of the other cottonseed products. During World War II, linters were used principally in the manufacture of smokeless powder.[4] Linters are also used in the manufacture of twine, wicks, carpets, upholstery, and plastics. Additional uses of cottonseed products are designated in Figure 5.

Value

The average value per ton of cottonseed crushed in the United States for the period 1936 through 1945 varied from approximately thirty-four dollars in 1937 to slightly more than seventy-five dollars in 1945, while the average value per ton was approximately fifty-five dollars (Table II). During these same years, the annual value of all cottonseed products manufactured ranged from $153,185,000 in 1938 to $308,774,000 in 1944, the average value for all products being $231,786,000 (Table III).

The sale of cottonseed oil averaged thirty dollars per ton of seed crushed, or more than 54 per cent of the total value; cottonseed meal and cake averaged more than sixteen dollars per ton, or nearly 30 per cent; and cottonseed linters and hulls accounted for about nine dollars per ton, or 16 per cent. The value of the sale of cottonseed products from a ton of cottonseed more than doubled from 1940 to 1945 (Figures 6 and 7).

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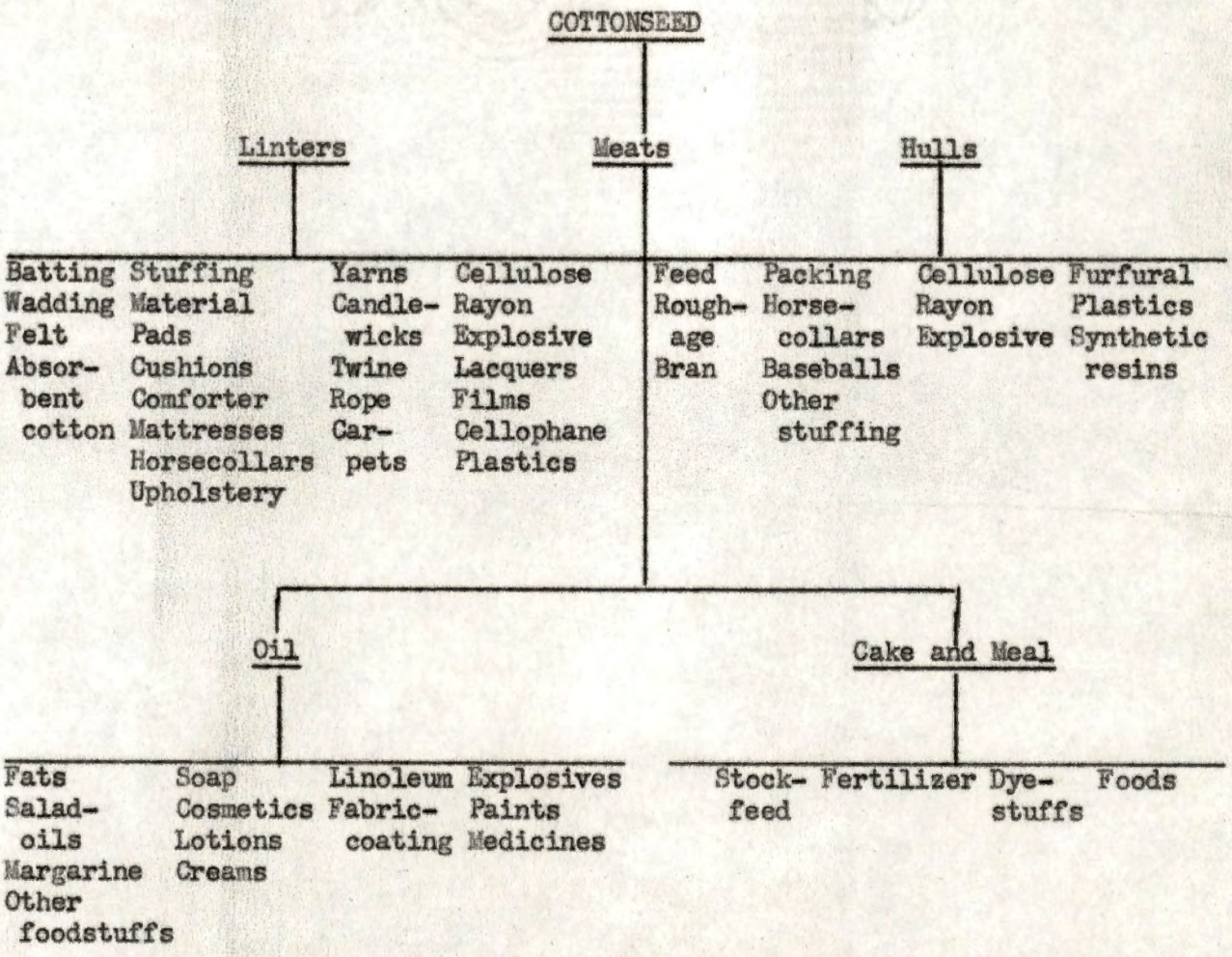
[3] Ibid., p. 23.

[4] Ibid., p. 24.



Source: Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947.

Figure 5. Principal Uses of Cottonseed and Its Products

TABLE II

COTTONSEED PRODUCTS: AVERAGE VALUE PER TON OF COTTONSEED CRUSHED AND PERCENTAGE OF TOTAL VALUE ACCOUNTED FOR BY EACH COTTONSEED PRODUCT, UNITED STATES, 1936-1945

Crop Year	Oil		Cake or Meal		Hulls		Linters		Total
	Dollars	%	Dollars	%	Dollars	%	Dollars	%	Dollars
1936	27.38	53.8	14.62	28.6	2.33	4.6	6.61	13.0	50.94
1937	19.20	57.3	9.93	29.6	1.42	4.2	2.99	8.9	33.54
1938	19.37	56.5	10.56	30.8	1.59	4.7	2.74	8.0	34.26
1939	18.68	48.7	13.01	33.9	2.10	5.5	4.56	11.9	38.35
1940	17.62	46.6	11.96	31.6	1.99	5.3	6.23	16.5	37.80
1941	37.86	58.2	16.86	25.9	1.97	3.0	8.36	12.9	65.05
1942	39.54	59.7	16.23	24.5	2.10	3.2	8.36	12.6	66.23
1943	39.83	54.3	22.45	30.6	3.00	4.1	8.02	11.0	73.30
1944	39.19	54.0	22.31	30.7	3.06	4.2	8.03	11.1	72.59
1945	40.52	53.4	23.53	31.0	3.21	4.2	8.63	11.4	75.89[a]

[a] This increase in total value over 1943 and 1944 resulted from increases in ceiling prices of products that occurred near the end of the 1945 crop year.

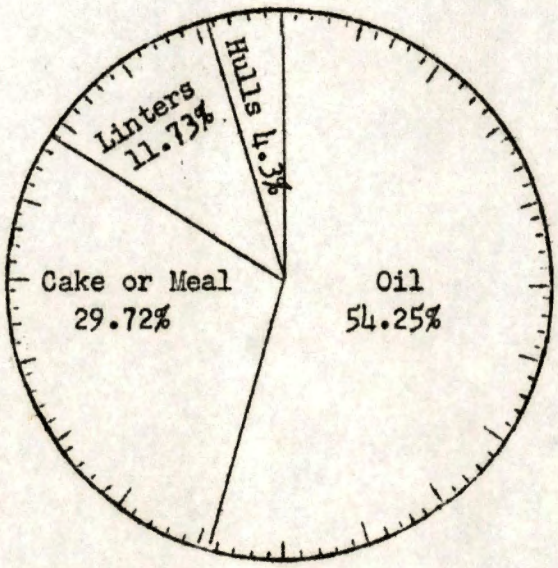
Source: Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947.

TABLE III

COTTONSEED: QUANTITY CRUSHED, PRODUCTS PRODUCED, AND VALUE OF PRODUCTS, UNITED STATES, 1936-1945 CROP YEARS

Crop Year	Cottonseed Crushed 1,000 Tons	Products Produced				Total Value of Products $1,000
		Oil 1,000 Lbs.	Cake or Meal 1,000 Tons	Hulls 1,000 Tons	Linters 1,000 Bales	
1936	4,498	1,363,978	2,031	1,144	1,127	229,183
1937	6,326	1,961,486	2,830	1,626	1,471	212,197
1938	4,471	1,409,414	2,023	1,161	1,113	153,185
1939	4,151	1,325,241	1,882	1,055	1,072	159,212
1940	4,398	1,425,471	1,954	1,107	1,208	166,236
1941	4,008	1,249,872	1,753	992	1,183	260,718
1942	4,498	1,400,534	1,995	1,085	1,354	297,888
1943	3,955	1,235,829	1,834	927	1,180	289,914
1944	4,254	1,324,039	1,954	984	1,247	308,774
1945	3,262	1,017,546	1,434	783	989	240,556

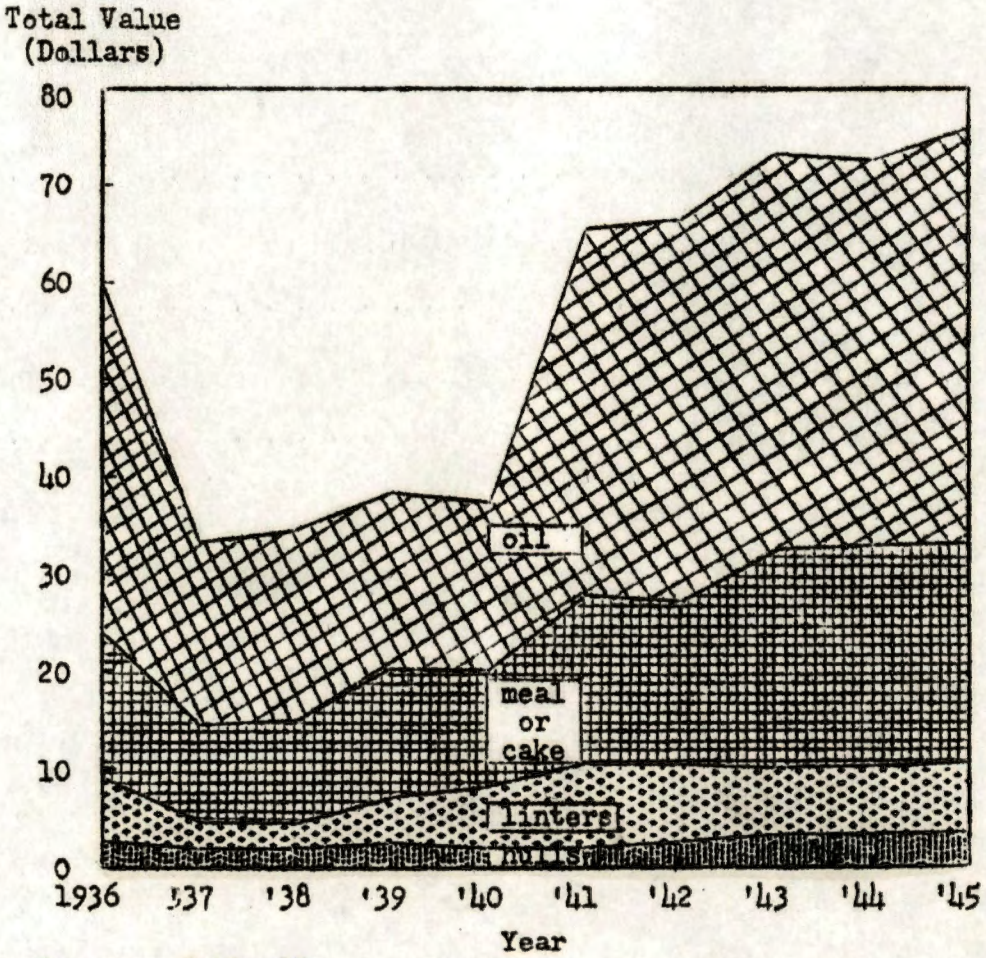
Source: Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947.



Source: Table II.

Figure 6 1

Percentage of the total value accounted for by each cottonseed product, United States, 1936-1945



Source: Table II.

Figure 2

Average value per ton of cottonseed crushed and the value of each cottonseed product, United States, 1936-45

This increase in value was because of the strong demand for fats and oils necessary for the production of war materials.

For each dollar received from the sale of cottonseed products during the period 1943 through 1945, the cottonseed oil mills paid nearly eighty-one cents for cottonseed. The farmer received approximately seventy-one cents for producing and delivering the cottonseed to the gin, while the ginner received ten cents for accumulating the cottonseed and delivering it to the oil mills. Out of the slightly more than nineteen cents retained by the oil mill, fifteen cents was used to cover the cost of operation, such as wages, salaries, power, and supplies. Oil mill profits during this period amounted to more than four cents for each dollar received from the sale of cottonseed products (Figure 8). This profit was taxable according to the federal income tax statutes which claimed 40 to 85 per cent of such profits.[5]

Production Trends

The trend in the production of cottonseed feed products in the United States during the period 1937 to 1947 has been slightly downward. In Tennessee, during this same period, production remained about the same (Figures 9 and 10).

The annual production of cottonseed meal and cake in the United States ranged from 2,830,420 tons produced in 1938 to less than one-half that amount, or 1,298,195 tons, manufactured in 1947. The average annual

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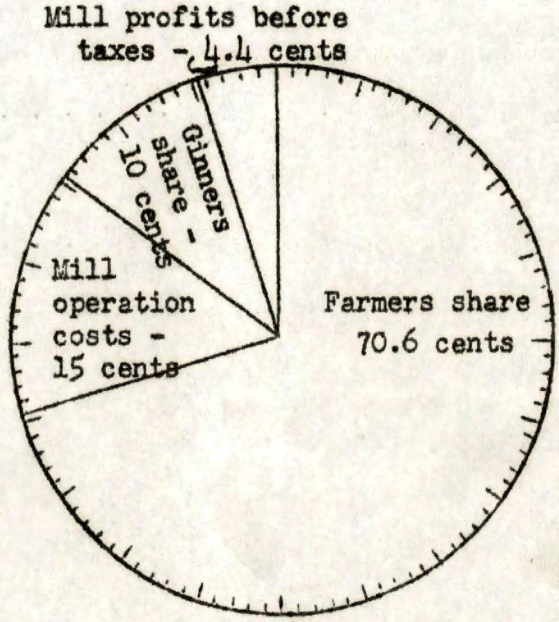
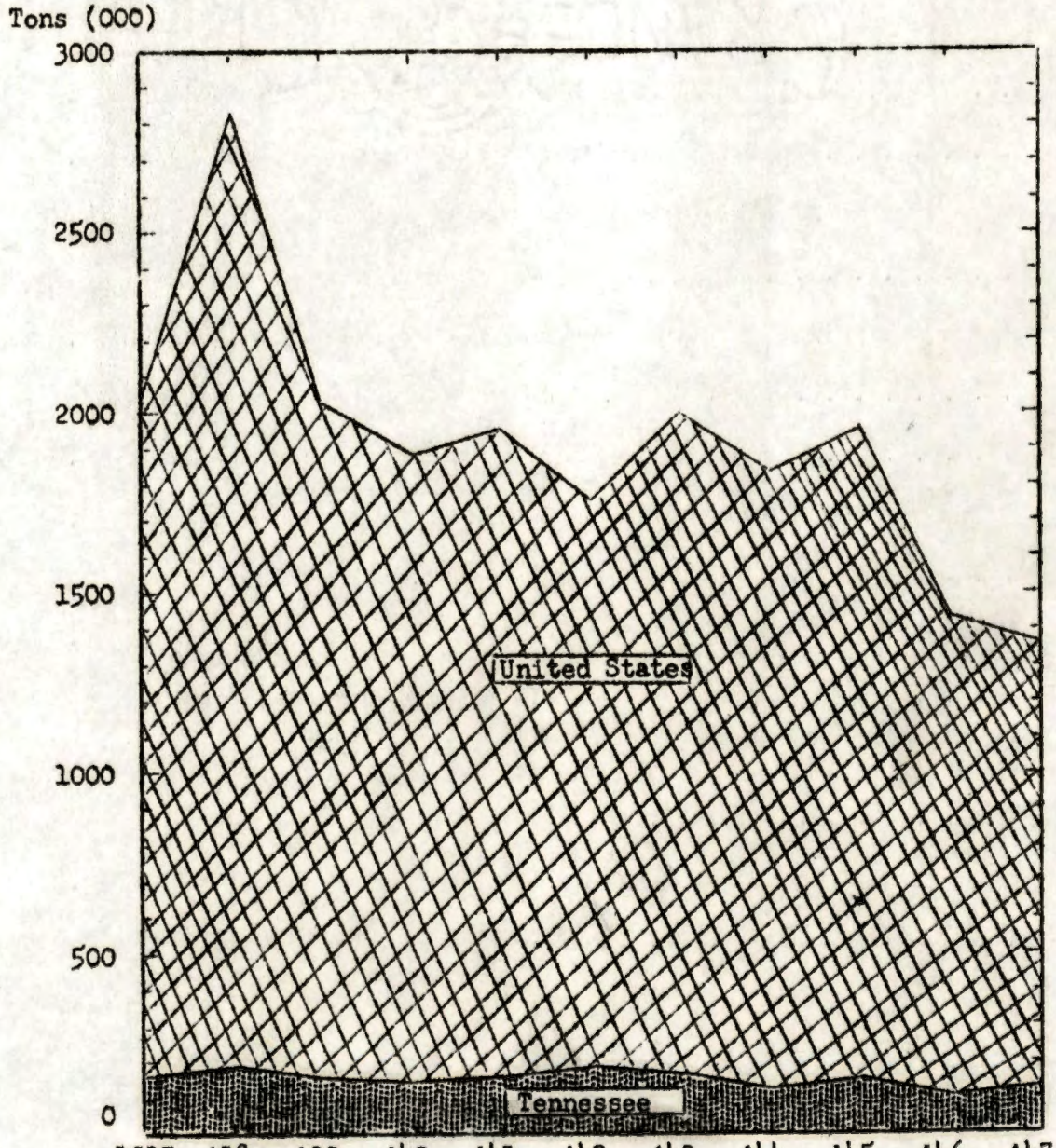
[5] Ibid., p. 13.



Source: Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947.

Figure 5

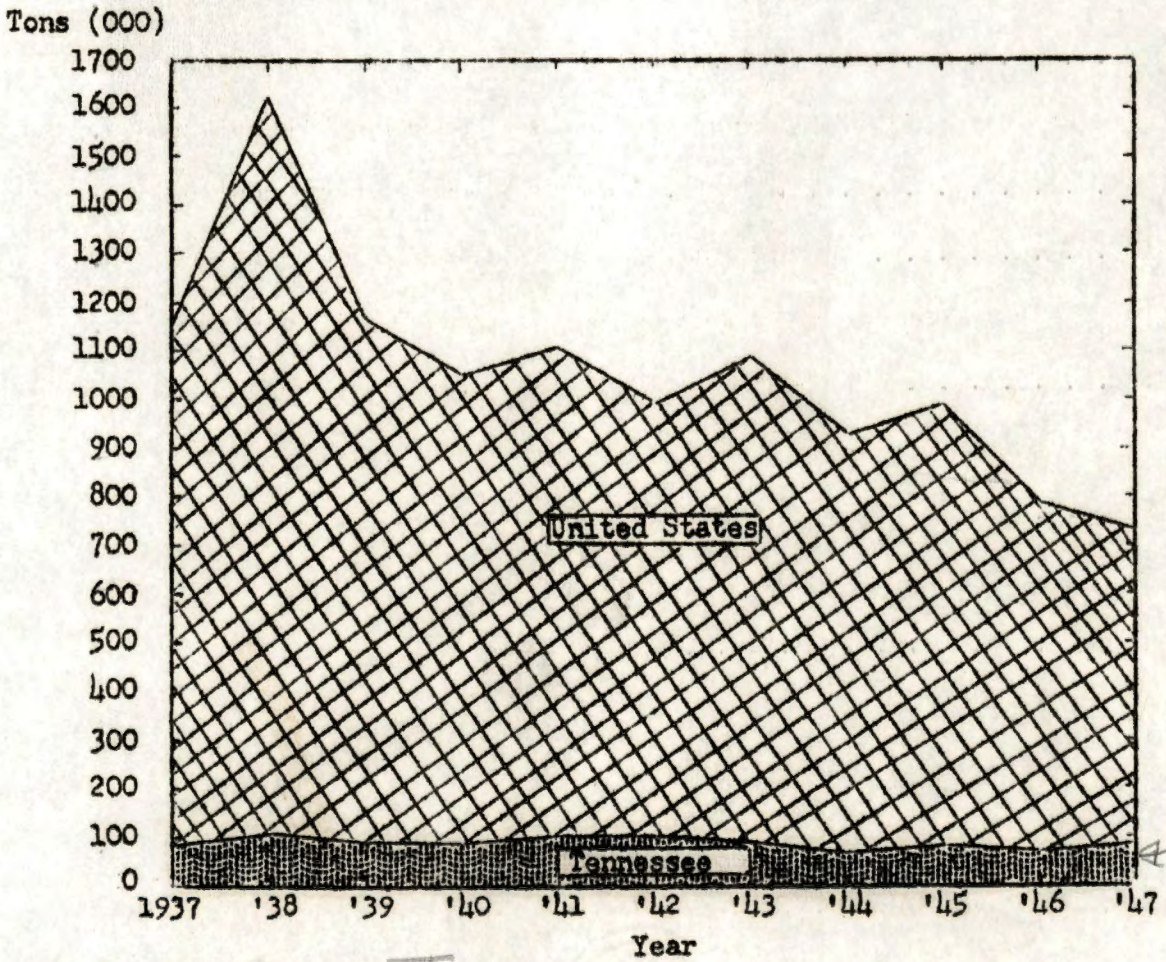
The distribution of income derived from the sale of cottonseed products, 1943-1945



Source: Table III

Figure 3

Cottonseed meal and cake produced by Tennessee and United States oil mills, 1937-47



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Source: Table III

Figure 4

Cottonseed hulls produced by Tennessee and United States oil mills, 1937-47

production for this period was 1,827,128 tons. In Tennessee, this production was somewhat more uniform, ranging between 106,474 and 181,549 tons, with the average being 151,077 (Table IV).

Cottonseed hull yearly production in the United States for these years averaged 1,050,609 tons, with its 1947 production of 692,741 tons less than one-half the 1,625,932 tons manufactured in 1938. Tennessee's production also varied between wide limits, ranging from 65,234 tons in 1944 to 111,720 tons in 1938, with the average production for the period being 89,154 tons (Table IV).

More than eight per cent of all the cottonseed meal and cake and nearly nine per cent of the cottonseed hulls produced from 1937 to 1947 came from Tennessee cottonseed oil mills, with the amount ranging from slightly above six per cent in 1938 to more than 10 per cent in 1942 for the cottonseed meal and cake, and from nearly seven per cent in 1938 to slightly above 11 per cent in 1947 for the cottonseed hulls (Table V).

The average quantity and per cent of the cottonseed products obtained from a ton of crushed cottonseed indicated in Table VI are cottonseed oil, 314 pounds, or approximately 16 per cent; cottonseed cake or meal, 901 pounds, or 45 per cent; cottonseed hulls, 496 pounds, or nearly 25 per cent; and cottonseed linters, 172 pounds, or slightly less than nine per cent. About six per cent is accounted for by manufacturing losses.

TABLE IV

COTTONSEED FEED PRODUCTS PRODUCED BY TENNESSEE AND UNITED STATES OIL MILLS, YEAR ENDING JULY 31, 1937-1947

	Products			
	Tennessee		United States	
Year	Cake and Meal (Tons)	Hulls (Tons)	Cake and Meal (Tons)	Hulls (Tons)
1937	160,074	86,155	2,031,488	1,144,138
1938	181,489	111,720	2,830,420	1,625,932
1939	157,581	97,134	2,032,341	1,161,079
1940	143,905	89,883	1,882,217	1,054,778
1941	157,848	101,328	1,953,589	1,107,222
1942	181,549	100,074	1,752,610	991,521
1943	169,885	97,785	1,994,611	1,085,034
1944	126,992	65,234	1,834,495	926,558
1945	151,826	82,320	1,954,111	984,218
1946	106,474	71,108	1,434,326	783,480
1947	124,222	77,956	1,298,195	692,741

Source: Cotton Production and Distribution, Bulletins 174-182, Bureau of the Census, Washington, D. C., 1946; Facts For Industry, Series M 17-3-58, Bureau of the Census, Washington, D. C., 1948.

TABLE V

THE PER CENT OF UNITED STATES PRODUCTION OF COTTONSEED MEAL, CAKE AND HULLS PRODUCED BY TENNESSEE OIL MILLS, 1937-1947

Year	Cake and Meal Per Cent	Hulls Per Cent
1937	7.88	7.53
1938	6.41	6.87
1939	7.75	8.37
1940	7.64	8.52
1941	8.08	9.15
1942	10.40	10.10
1943	8.52	9.01
1944	6.92	7.04
1945	7.77	8.36
1946	7.42	9.08
1947	9.57	11.30

Source: Table IV.

TABLE VI

COTTONSEED PRODUCTS: AVERAGE QUANTITY AND PERCENTAGE PRODUCED PER TON OF SEED CRUSHED, 1936-1945

Crop Year[a]	Oil		Cake or Meal		Hulls		Linters		Total[b]	
	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%
1936	303	15.2	903	45.1	509	25.4	156	7.8	1,871	93.5
1937	310	15.5	895	44.7	514	25.7	144	7.2	1,863	93.1
1938	315	15.8	905	45.2	519	25.9	154	7.7	1,893	94.6
1939	319	16.0	907	45.3	508	25.4	160	8.0	1,894	94.7
1940	324	16.2	888	44.4	504	25.2	171	8.6	1,887	94.4
1941	312	15.6	874	43.7	495	24.7	186	9.3	1,867	93.3
1942	311	15.6	887	44.3	482	24.1	190	9.5	1,870	93.5
1943	313	15.7	928	46.4	469	23.4	185	9.3	1,895	94.8
1944	311	15.6	919	45.9	463	23.1	182	9.1	1,875	93.7
1945	321	16.1	906	45.3	495	24.7	187	9.4	1,909	95.5

[a] Beginning August 1.

[b] Differences between this column and 2,000 lbs. or 100% is accounted for by manufacturing loss.

Source: Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947.

Number of Cottonseed Oil Mills

The number of cottonseed oil mills in the United States ranged from seven in 1860 to 817 in 1910. In Tennessee, the number ranged from one in 1860 to twenty-two in 1920. By 1947, the number in the United States decreased to 346, while in Tennessee the number was thirteen (Table VII).

The decline in the number of cottonseed oil mills in Tennessee and in the United States is probably due to the unused crushing capacity in the industry caused by an inadequate supply of seed and the tendency towards greater capacity per mill.[6]

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[6] M. L. Downen and E. J. Lebrun, Marketing Cottonseed in Tennessee, Monograph 233, Department of Agricultural Economics and Rural Sociology, Agricultural Experiment Station, University of Tennessee, December, 1947, p. 8.

TABLE VII

NUMBER OF COTTONSEED OIL MILLS IN THE UNITED STATES AND TENNESSEE IN SELECTED YEARS, 1860-1947

	Number of Oil Mills by Years									
	1860	1870	1880	1890	1900	1910	1920	1930	1940	1942
U.S.A.	7	26	45	119	369	817	675	520	446	426
TENN.	1	4	9	15	17	20	22	14	14	13
	1943		1944		1945		1946		1947	
U.S.A.	410		394		382		360		346	
TENN.	14		14		14		12		13	

Source: M. L. Downen and E. J. Lebrun, Marketing Cottonseed in Tennessee, Monograph No. 233, Department of Agricultural Economics and Rural Sociology, Agricultural Experiment Station, University of Tennessee, December, 1947; Facts For Industry, Series M 17-4-07, Bureau of the Census, Washington, D. C., 1947.

CHAPTER III

MARKETING OF COTTONSEED FEED PRODUCTS BY TENNESSEE COTTONSEED OIL MILLS

Location of the Cottonseed Oil Mills

Of the thirteen cottonseed oil mills in Tennessee, seven are located in Memphis, two in Jackson, one in Dyersburg, one in Tiptonville, one in Trenton, and one in Nashville. All are located in West Tennessee with the exception of the one in Nashville.

Production of Cottonseed Meal in Tennessee

The three largest cottonseed oil mills in Tennessee manufactured more than 55 per cent of the total annual production of cottonseed meal. The range in annual production per oil mill varied from approximately 4,000 to 37,000 tons. The average annual production for the twelve mills surveyed was approximately 11,500 tons. These data are less than the crushing capacity of the mills because maximum production would require an adequate amount of cottonseed available at all times to satisfy the demand of all the mills. This study revealed that this demand was not met.

The cottonseed crushing industry in Tennessee is highly competitive. Some of the small cottonseed oil mill operators feel that the larger mills are in an advantageous position in the industry. These advantages are in the procurement of cottonseed and in a market outlet for

the finished products. Some of the small oil mill operators feel that the larger mills sometimes follow the practice of raising the price of cottonseed and lowering the price of the manufactured product during the period that the cottonseed is being sold to the oil mills. This practice constitutes a problem of operation among some of the small independent oil mill operators.

Competition among mill operators to obtain cottonseed affects the marketing pattern of the cottonseed feed products. In order to obtain cottonseed from some of the ginners, the oil mill operators are required to sell these same ginners a specified amount of the cottonseed feed products. Information furnished by the oil mill operators indicated that part of these finished products were returned to the area that produced the cottonseed and resold, and that some were resold on the open market to the bidder paying the highest price.

According to the National Cottonseed Products Association,[1] the price that the oil mill will offer for cottonseed is determined by first computing the total value of the finished products obtained from a ton of cottonseed. From this value is subtracted the total cost plus the amount of profit the oil mill expects to earn on its investment. The value remaining is the price the oil mill will offer per ton of cottonseed. In practice, the mill generally meets its competitor's prices, even at the expense of some or all of its profits.

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[1] Cottonseed and Its Products, Third Edition, National Cottonseed Products Association, Memphis, Tennessee, 1947, p. 13.

Storage

All the cottonseed oil mills surveyed used storage facilities constructed of metal and/or wood. Storage for cottonseed meal was not considered a difficult problem. The common practice among the mill operators was to sell the cottonseed meal as quickly as possible after the manufacturing was completed and to store as much cottonseed as they could, during the cotton ginning season, for later use. Exact data as to the amount of storage space available was not disclosed by the oil mill managers because of their competitive position in the industry; however, the results of the study indicated that the amount of storage space available was adequate to meet the need.

Only a small amount of all cottonseed meal produced in Tennessee remains in storage for a very long period of time. This is attributed to the strong demand for cottonseed meal for livestock feeding purposes. Slightly more than 90 per cent of the cottonseed meal is stored for less than one week. Approximately seven per cent is stored for less than one month, while none of it remains in storage for a period of more than three to four months (Table VIII). In many cases, it was loaded into freight cars or trucks at the oil mills immediately after it was manufactured. The survey revealed that the small amount of the cottonseed meal that was held over for as long as four months was held principally for the benefit of the local trade. This was particularly true among the smaller oil mills located in dairying and livestock feeding areas. Some oil mill operators indicated that cottonseed meal was sometimes held for speculation purposes, but not for any great length of time. About one-half

TABLE VIII

STORAGE, SALE, AND SHIPMENT OF COTTONSEED MEAL BY TENNESSEE COTTONSEED OIL MILLS, 1946-47

Function	Per Cent of Production
Length of Storage	
Less than week	90.6
One week to month	6.7
One to three months	.4
Over three months	2.3
Total	100.0
Method of Storage	
Sacked	98.1
Loose	1.9
Total	100.0
Method of Sale	
Through brokers	47.0
To ginners	10.5
To dealers	21.8
To feed mills	11.4
Locally	9.3
Total	100.0
Area Shipped	
Outside state	64.6
Inside state	35.4
Total	100.0
Method of Shipment	
Rail	80.8
Truck	19.2
Total	100.0

of the operators reported that they always hedged in the commodity exchange market, on the supply of cottonseed meal held, as a precautionary measure against any decline in price that might occur.

More than 98 per cent of the cottonseed meal manufactured was sacked before being stored or sold (Table VIII). It was sacked in burlap bags weighing one hundred pounds net when filled. Some carload lots were shipped in bulk, but only three of the larger feed mills surveyed were equipped to handle cottonseed meal in this manner. One important factor that contributes to the packaging of cottonseed meal is the standards and qualifications that must be met before the cottonseed meal can be traded in the commodity exchange futures market. These standards and qualifications pertaining to packaging are:

> Packed 100 pounds net in uniform size bags of not less than: (a) new 8 oz. burlap, or (b) reconditioned 10 oz. burlap, or (c) new 36" - 4 yard cotton or equivalent strength, or (d) reconditioned 36" - 3½ yard cotton or heavier.[2]

Only two oil mill operators interviewed were able to furnish information relevant to month-ton storage cost. The amount given was fifty cents per ton per month for all cottonseed feed products.

Sale

Slightly less than one-half of all the cottonseed meal sold was marketed through brokers, while slightly more than one-fifth of the total amount was marketed through dealers. Another one-fifth of the product

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[2] Rules Governing Transactions Between Members, National Cottonseed Products Association, Memphis, Tennessee, 1945, p. 18.

was sold through ginners and feed mills. Less than 10 per cent was sold to local trade (Table VIII). In general, the smaller oil mills sold more of the cottonseed meal through brokers than did the larger ones. One-half of the oil mills studied sold more than 70 per cent of their cottonseed meal in this manner. This method of sale was most commonly practiced by the oil mills in and near Memphis. Some of the smaller oil mill operators thought that if they did not sell through brokers during periods of strong demand for cottonseed meal, they might have some difficulty in finding a profitable market for it when the demand was weak.

Shipment

Approximately two-thirds of the total production of cottonseed meal was shipped to areas outside of Tennessee (Table VIII). The geographic location of the mills and the fact that about one-half of the cottonseed meal was sold through brokers is chiefly responsible for this situation. Oil mill operators reported that practically all of the cottonseed meal sold through brokers was shipped to some point outside of the state.

Four-fifths of the total production of cottonseed meal was transported from the oil mills by rail. The remainder was hauled by motor truck (Table VIII). According to the mill operators, water transportation was used several years ago, but that method was too slow to justify its use even though the transportation rates were less than rail or truck rates. Most of the cottonseed meal sold through brokers and to large feed mills and dealers outside the oil mill area was transported by rail.

The local trade, feed dealers, ginners, truckers, and feed mills in the oil mill area accounted for most of the cottonseed meal transported by motor truck.

Utilization of Tennessee Produced Cottonseed Meal

Before scientific research discovered the value of cottonseed meal as a high protein feed, it was widely used for fertilizer purposes. During the period covered by this study, however, relatively insignificant quantities were used for that purpose. Such use was prohibited by government regulations during World War II. In 1947, two of the oil mill operators reported selling a carload each of cottonseed meal to Connecticut buyers where it was used to fertilize tobacco fields. Since about 1930, practically all of the output of cottonseed meal of the Tennessee oil mills has been used in some form or in some combination for feeding livestock.

Production of Cottonseed Cake in Tennessee

One-half of the cottonseed oil mill managers sold cottonseed cake. Three of the managers reported the manufacture and sale of sized cake, while three sold whole or slab cake. No oil mill operator had an annual sale of cottonseed cake of more than 850 tons. The average annual sale was approximately 445 tons per oil mill.

Storage

The same type of storage facilities were used for storing cottonseed cake as for storing cottonseed meal. Information furnished by the oil mill operators indicated that the amount of cottonseed cake sold was usually made on order and that it was either shipped out by rail or picked up by motor truck immediately upon completion of the manufacturing process. One of the oil mill operators stated that all cottonseed cake sold by his oil mill was stacked outside of the oil mill and soon thereafter loaded into a freight car for transportation to its destination.

The length of the storage period of cottonseed cake for all the oil mills surveyed was less than one week (Table IX). In most instances, it was picked up by trucks or loaded into freight cars within a two-day period. Eighty-one per cent of the total production of all kinds of cottonseed cake was sold and stored loose (Table IX). The amount sacked was sized cake, and it was usually sacked for the local trade.

Sale

More than four-fifths of the total production of cottonseed cake was sold through brokers, while the remaining amount was sold locally (Table IX). Four of the mills sold their total cottonseed cake production through brokers, while one oil mill sold all they manufactured to the local trade.

TABLE IX

STORAGE, SALE, AND SHIPMENT OF COTTONSEED CAKE BY TENNESSEE COTTONSEED OIL MILLS, 1946-47

Function	Per Cent of Production
Length of Storage	
Less than week	100.0
One week to month	0.0
One to three months	0.0
Over three months	0.0
Total	100.0
Method of Storage	
Sacked	19.0
Loose	81.0
Total	100.0
Method of Sale	
Through broker	81.3
To ginners	0.0
To dealers	0.0
To feed mills	0.0
Locally	18.7
Total	100.0
Area Shipped	
Outside state	70.4
Inside state	29.6
Total	100.0
Method of Shipment	
Rail	72.9
Truck	27.1
Total	100.0

Shipment

Slightly more than 70 per cent of the total production of cottonseed cake was shipped to markets outside the state. This percentage of out-of-state shipments can be attributed to the desirability of cottonseed cake for livestock range feeding. Nearly three-fourths of the total production of cottonseed cake was transported from the oil mills by rail, while slightly more than one-fourth of it moved to various market outlets by motor truck (Table IX). The large percentage shipped by rail was principally because most of the cottonseed cake manufactured is used in the West for range feeding of livestock.

Production of Cottonseed Pellets in Tennessee

The total production of cottonseed pellets in Tennessee is relatively insignificant when compared to the total production of cottonseed cake and meal. Only one of the oil mills surveyed manufactured this product. The production of pellets at this oil mill amounted to only five per cent of its total output of cottonseed cake and meal. This small output of pellets is probably due to the additional expense that is incurred in its manufacture and the demand for the product on the market. After the cottonseed cake slab has been cracked and screened into various sizes or ground into meal, an additional step is necessary to make pellets. The cottonseed meal is then moistened, heated, and run through a machine which compresses it into cubes or pellets of uniform size and texture.

Storage

The state's entire production of cottonseed pellets was sacked upon completion of the manufacturing process and was sold in less than one week (Table X).

Sale

Most of the cottonseed pellets were marketed through brokers and dealers, each of whom handled about two-fifths of the supply. Ginners took 10 per cent of the total amount, while the remainder was sold to the local trade (Table X).

Shipment

Three-fourths of the state's total production of cottonseed pellets was shipped to various market centers outside the state. Ninety per cent was shipped out by rail and 10 per cent by motor truck (Table X).

Production of Cottonseed Hulls in Tennessee

The three largest cottonseed oil mills manufactured approximately 56 per cent of the state's production of cottonseed hulls. The range in annual production by all the oil mills varied between 3,000 and 22,000 tons. The average production per oil mill was approximately 6,800 tons per year.

TABLE X

STORAGE, SALE, AND SHIPMENT OF COTTONSEED PELLETS BY TENNESSEE COTTONSEED OIL MILLS, 1946-47

Function	Per Cent of Production
Length of Storage	
Less than week	100.0
One week to month	0.0
One to three months	0.0
Over three months	0.0
Total	100.0
Method of Storage	
Sacked	100.0
Loose	0.0
Total	100.0
Method of Sale	
Through brokers	40.0
To ginners	10.0
To dealers	40.0
To feed mills	0.0
Locally	10.0
Total	100.0
Area Shipped	
Outside state	75.0
Inside state	25.0
Total	100.0
Method of Shipment	
Rail	90.0
Truck	10.0
Total	100.0

Storage

The same type of storage facilities were available for cottonseed hulls as for the other cottonseed feed products. Demand for cottonseed hulls was always strong, and storage was never considered a problem. Storage space available was considered adequate by all the oil mills.

Nearly all of the total cottonseed hull production was stored for less than one week (Table XI). In recent years, some of the oil mill operators never stored more than one day's production at a time. The small amount of cottonseed hulls held longer than one week was for the purpose of accommodating local dairymen and livestock feeders.

Eighty-five per cent of the total amount of cottonseed hulls produced was stored or sold loose (Table XI). The cottonseed hulls that were sacked were packaged primarily for dealers for resale. Ginners and the local trade usually bought the product in bulk.

Sale

Local trade purchased 35 per cent of the total cottonseed hull production. More than 28 per cent was sold to ginners, over two-fifths to feed mills, and more than eight and seven per cent, respectively, through brokers and dealers. Most of this feed product that was sold to ginners was returned to the area where the cottonseed was produced. The amount sold to feed mills was either resold wholesale or retail, or ground and sold as hull bran. The manager of one of the largest mills stated that its total production was ground into hull bran, while another

TABLE XI

STORAGE, SALE, AND SHIPMENT OF COTTONSEED HULLS BY TENNESSEE COTTONSEED OIL MILLS, 1946-47

Function	Per Cent of Production
Length of Storage	
Less than week	99.4
One week to month	.3
One to three months	.3
Over three months	0.0
Total	100.0
Method of Storage	
Sacked	15.0
Loose	85.0
Total	100.0
Method of Sale	
Through brokers	8.5
To ginners	28.3
To dealers	6.8
To feed mills	20.8
Locally	35.6
Total	100.0
Area Shipped	
Outside state	48.0
Inside state	52.0
Total	100.0
Method of Shipment	
Rail	34.6
Truck	65.4
Total	100.0

stated that 65 per cent of its total production was shipped out of the state for processing into hull bran. Cottonseed hulls marketed through dealers were for resale either wholesale or retail, and that which was marketed through brokers was principally for shipment outside of the state.

Shipment

Out-of-state shipments accounted for almost one-half of the shipments of cottonseed hulls to different market areas (Table XI). This percentage was high because the oil mills are located near the boundary line of cotton producing states. It was found that a common practice among ginners was to bring back a load of cottonseed hulls when they sold a load of cottonseed to the oil mills. Consequently, considerable quantities of the total hull production was shipped outside of the state but marketed within the trade area of the oil mill.

Because most of the cottonseed hulls are marketed locally to farmers, feed mills, and ginners, almost two-thirds of the total hull production was transported to the various marketing centers by motor truck, while slightly more than one-third was moved by rail (Table XI).

Utilization

Operators of ten of the oil mills stated that all of the cottonseed hulls they manufactured was sold as livestock feed. The other two oil mill managers also sold all of their production as feed except one and

three per cent, respectively, which was used in the manufacture of horse collars.

Relationship of Certain Marketing Functions to the Marketing of Cottonseed Feed Products

Storage

Cottonseed meal was stored longest of any of the cottonseed feed products. Even then, more than 90 per cent was stored for less than one week. Cottonseed meal has a good demand as feed for livestock in all parts of the United States. It is fed by itself as a protein supplement or is used as an ingredient in mixed feeds. Cottonseed meal that was kept primarily for the benefit of local livestock feeders was sometimes stored as long as three months (Table XII).

Cottonseed cake and pellets were stored for the shortest period of any of the cottonseed feed products. Generally, orders were placed for these products before they were manufactured; consequently, upon completion of the manufacturing process, they were immediately shipped to different marketing areas.

The next shortest period of storage was for cottonseed hulls. This was principally because the hulls were utilized largely in the areas adjacent to the oil mills. These hulls are about equal to hay in feed value, and since areas within the cotton growing section of the state are relatively low in hay production, they have a strong demand as a roughage for feeding livestock.

TABLE XII

LENGTH OF STORAGE OF COTTONSEED FEED PRODUCTS BY TENNESSEE OIL MILLS, 1946-47

Cottonseed Feed Products	Less Than Week	One Week to One Month	One Month to Three Months	Over Three Months	Total
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Meal	90.6	6.7	.4	2.3	100.0
Cake	100.0	0.0	0.0	0.0	100.0
Pellets	100.0	0.0	0.0	0.0	100.0
Hulls	99.4	.3	.3	0.0	100.0

Approximately all of the cottonseed meal was sacked because it is easier to handle for sale and feeding purposes in sacks. Many mills were unable to handle the bulk product due to a lack of storage and handling facilities.

Slightly more than four-fifths of the cottonseed cake was stored and sold loose. Practically all of the slab cake was stored and sold loose, while most of the sized cake was sacked before being sold. Mill operators stated that the slab cake can be handled readily in the bulk, while sized cake is handled more expediently if it is sacked.

All of the cottonseed pellets were sacked because it is a finished product and is easier handled for resale by wholesalers and retailers in this condition.

Like cottonseed cake, cottonseed hulls were practically all stored and sold loose. This product is bulky and can be satisfactorily handled loose. The expense of sacking and the cost of the sacks adds considerably to the cost of the finished product. Hulls that were resold at considerable distances from the oil mill areas were sacked for convenience (Table XIII).

Sale

Cottonseed meal was sold through more marketing channels than were cottonseed cake and pellets. The area for which there is demand for cottonseed meal manufactured in Tennessee includes most of the United States. The fact that nearly one-half of the total production of cottonseed meal was sold through brokers reflects this widespread demand.

TABLE XIII

METHOD OF STORAGE OF COTTONSEED FEED PRODUCTS BY TENNESSEE COTTONSEED OIL MILLS, 1946-47

Cottonseed Feed Products	Method of Storage		
	Sacked	Loose	Total
	Per Cent	Per Cent	Per Cent
Meal	98.1	1.9	100.0
Cake	19.0	81.0	100.0
Pellets	100.0	0.0	100.0
Hulls	15.0	85.0	100.0

Cottonseed cake was sold principally through brokers because most of the buyers were western range livestock feeders. Most of the sized cake was purchased by the local trade.

Cottonseed pellets were sold principally through brokers and dealers. None of the pellets were used by feed mills in the mixing of different kinds of feeds.

Like cottonseed meal, cottonseed hulls were sold through more marketing channels than was cottonseed cake and pellets. The demand for cottonseed hulls was primarily local. The importance of local demand for hull production is indicated by less than nine per cent being sold through brokers (Table XIV). The amount of this feed product handled by brokers was largely for out-of-state shipment intended mainly for industrial uses and to feed mills for conversion into hull bran. Most of the cottonseed hulls manufactured was sold to local trade through ginners, dealers, and by operators of the oil mills.

Shipment

From nearly two-thirds to three-fourths of all the cottonseed meal, cake, and pellets was shipped to market areas outside the state. About one-half of cottonseed hulls produced also found their market outside of Tennessee; however, the demand for them was primarily local. These large out-of-state shipments were principally because the oil mills were located near the boundary line of other cotton producing states (Table XV).

Rail shipments were the most common form of transportation for cottonseed meal, cake, and pellets, with 80.8 per cent, 72.9 per cent,

TABLE XIV

METHOD OF SALE OF COTTONSEED FEED PRODUCTS BY TENNESSEE OIL MILLS, 1946-47

Cottonseed Feed Products	Method of Sale					
	Through Brokers	To Ginners	To Dealers	To Feed Mills	Locally	Total
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Meal	47.0	10.5	21.8	11.4	9.3	100.0
Cake	81.3	0.0	0.0	0.0	18.7	100.0
Pellets	40.0	10.0	40.0	0.0	10.0	100.0
Hulls	8.5	28.3	6.8	20.8	35.6	100.0

TABLE XV

PER CENT OF COTTONSEED FEED PRODUCTS SHIPPED OUT OF AND REMAINING IN STATE FROM TENNESSEE OIL MILLS, 1946-47

Cottonseed Feed Products	Per Cent Shipped		
	Out of Tennessee	Within Tennessee	Total
Meal	64.6	35.4	100.0
Cake	70.4	29.6	100.0
Pellets	75.0	25.0	100.0
Hulls	48.0	52.0	100.0

and 90 per cent, respectively, being transported by this method. Rail transportation was the more economical and expedient means of moving these feed products to their various market outlets. Contrasting this situation, nearly two-thirds of the cottonseed hulls was shipped to their destination by truck (Table XVI). It is not practical to ship cottonseed hulls long distances because of the high cost of transportation resulting from the bulkiness of the product.

TABLE XVI

METHOD OF SHIPMENT OF COTTONSEED FEED PRODUCTS FROM TENNESSEE OIL MILLS, 1946-47

Cottonseed Feed Products	Method of Shipment		
	Rail	Truck	Total
	Per Cent	Per Cent	Per Cent
Meal	80.8	19.2	100.0
Cake	72.9	27.1	100.0
Pellets	90.0	10.0	100.0
Hulls	34.6	65.4	100.0

CHAPTER IV

MARKETING OF COTTONSEED FEED PRODUCTS BY TENNESSEE FEED MILLS

Data were used from sixty-three feed mills that used cottonseed meal in the manufacture of livestock feed. These feed mills were representative of all size groups.

Cottonseed Meal

Market Practices

The amount of cottonseed meal purchased by managers of Tennessee feed mills varied between two and 5,500 tons. The average quantity bought was approximately 343 tons per mill. Of all the feed mills, the nine largest purchased 63.2 per cent of the amount sold, or an average of 1,513.7 tons per mill. The other fifty-four feed mills bought 36.8 per cent of all the meal sold, or an average of only 147.6 tons (Table XVII).

All of the cottonseed meal consumed by sixty of the feed mills, accounting for 96 per cent of the meal handled, was sacked. Three of the feed mills surveyed handled the meal loose. Only these three large feed mills were equipped with cranes and shovels to unload the cottonseed meal and had storage facilities necessary for taking care of the product in bulk.

Twenty of the feed mills handling cottonseed meal used all they purchased in the manufacture of mixed feeds. The quantity of this product marketed in a mixed feed accounted for more than 85 per cent of the amount sold.

TABLE XVII

PURCHASES, PER CENT OF TOTAL AMOUNT PURCHASED, AND AVERAGE SIZE PURCHASE OF COTTONSEED MEAL BY TENNESSEE FEED MILLS, 1946-47

Range of Purchases	Number of Feed Mills	Per Cent of Total Amount Purchased	Average Size of Purchases
Tons		Per Cent	Tons
More than 2000	1	25.5	5500
1501 - 2000	1	9.3	2000
1001 - 1500	2	12.7	1370
501 - 1000	5	15.7	677
101 - 500	24	31.0	280
Less than 101	30	5.8	42
Total	63	100.0	

Market Outlets

In addition to the cottonseed meal utilized in mixed feeds, less than six per cent was also marketed wholesale as a protein supplement. Retail trade purchased the remaining nine per cent (Table XVIII). During the year studied, the retail price was considered very good and the demand strong; consequently, twelve of the smaller feed mills sold nearly one-half of the cottonseed meal they handled to the retail trade.

More than 44 per cent of the cottonseed meal purchased by the feed mills came from oil mills in Tennessee, while the remainder came from oil mills in Georgia, Alabama, Mississippi, Arkansas, Missouri, South Carolina, Illinois, and North Carolina.

About three-fourths of the cottonseed meal handled by feed mills was obtained through brokers, more than 21 per cent from oil mills, and slightly less than four per cent from truckers, ginners, jobbers, and wholesalers (Table XVIII).

Preference of Feed Mill Operators for Cottonseed and Soybean Meal

To be used in the manufacture of dairy feed, nearly 35 per cent of the feed mills preferred cottonseed meal and 19 per cent soybean meal. Slightly more than 46 per cent expressed no preference. Price was the factor determining preference for the one that was used in dairy feed. As a protein supplement in poultry feed, nearly five per cent of the feed mill operators expressed a preference for cottonseed meal, while more than 71 per cent preferred soybean meal. Almost one-fourth of the managers indicated that the price of these two supplements would largely determine which one they used. Soybean meal was liked better than cottonseed meal

TABLE XVIII

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED MEAL BY TENNESSEE FEED MILLS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	44.7
Other states	55.3
Total	100.0
Method of Purchase	
Through brokers	74.8
From oil mills	21.6
From others*	3.6
Total	100.0
Method of Sale	
In mixed feeds	85.1
Sold wholesale	5.9
Sold retail	9.0
Total	100.0

* Includes truckers, ginners, jobbers, and wholesalers.

by more than 57 per cent of the feed mill operators as a hog feed protein supplement; however, 10 per cent liked cottonseed meal better. Price again was the factor determining which of the two products was used by more than one-third of the managers of this marketing outlet (Table XIX). The principal complaint against the use of cottonseed meal in the manufacture of hog feed was the gossypol content of the meal.

Suggestions to Improve the Marketing of Cottonseed Meal by Feed Mill Operators

Numerous suggestions were offered by the managers of the feed mills to improve the marketing of cottonseed meal. These suggestions were classified and are listed below.

1. Package the cottonseed meal in closely woven bags that will prevent sifting.

2. Remove more of the cottonseed oil from the finished product.

3. Sell more cottonseed meal unsacked and in bulk.

4. Make the protein content of the cottonseed meal uniform and guarantee its analysis.

5. Keep out all of the cottonseed hull bran as possible.

6. Allow discounts on carload lot purchases rather than charge on a per ton basis regardless of the volume purchased.

7. Grind the cottonseed meal finer.

8. Remove as much gossypol as possible from the cottonseed meal.

TABLE XIX

PREFERENCE OF 63 TENNESSEE FEED MILL OPERATORS FOR COTTONSEED AND SOYBEAN MEAL AS PROTEIN SUPPLEMENT FOR SELECTED FEEDS, 1946-47

Types of Mixed Feed	Preference			
	Cottonseed Meal	Soybean Meal	No Preference	Total
	Per Cent	Per Cent	Per Cent	Per Cent
Dairy	34.9	19.0	46.1	100.0
Poultry	4.8	71.4	23.8	100.0
Hog	9.5	57.2	33.3	100.0

Cottonseed Cake

Market Practices

Only two feed mill managers purchased cottonseed cake, and the amount purchased by them was slightly under 1,900 tons. All of the cottonseed cake that was bought was ground into meal and was sold in a mixed feed. Slightly more than one-half of the cake bought came from oil mills in Tennessee, while the rest came from oil mills in Mississippi (Table XX).

Market Outlets

Practically all of the cottonseed cake was bought by feed mill managers through brokers (Table XX). Less than one per cent was purchased from the oil mills.

Cottonseed Hulls

Market Practices

Only six of the smaller feed mills handled cottonseed hulls. The size of the purchases ranged from ten to eighty tons per feed mill, with the average size being twenty-five tons. The hulls purchased were already sacked and ready for sale to the wholesale and retail trade. None of the cottonseed hulls were ground and sold as hull bran. Tennessee furnished 58 per cent of this supply, while Georgia and Alabama supplied the other 42 per cent.

Market Outlets

All the cottonseed hulls purchased by the feed mill managers were bought directly from the cottonseed oil mills (Table XXI). Seventy-six

TABLE XX

METHOD OF PURCHASE, ORIGIN OF PRODUCT, AND METHOD OF SALE OF COTTONSEED CAKE BY TENNESSEE FEED MILLS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	52.5
Mississippi	47.5
Total	100.0
Method of Purchase	
Through brokers	99.8
From oil mills	.2
Total	100.0
Method of Sale	
In mixed feeds	100.0
Total	100.0

TABLE XXI

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED HULLS BY TENNESSEE FEED MILLS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	58.0
Other states	42.0
Total	100.0
Method of Purchase	
From oil mills	100.0
Total	100.0
Method of Sale	
Sold wholesale	24.0
Sold retail	76.0
Total	100.0

per cent of the hulls was sold to the retail trade, compared to 24 per cent sold to different wholesale agencies.

A Comparison of the Source, Methods of Purchase, and the Methods of Sale of Cottonseed Feed Products by Tennessee Feed Mills

Source of Supply

Cottonseed meal was purchased from more market points outside of Tennessee than any other cottonseed feed product. This is principally because, in mixing feed, the feed mills had to buy this protein concentrate from wherever they could obtain it. Most of the states supplying this meal have supply sources located relatively close to the Tennessee state boundary, and often it was more expedient and less expensive to buy from these oil mills (Table XXII). Cottonseed cake that was purchased came from Tennessee and Mississippi. The two feed mills that handled this feed product were located in the Memphis trade area.

Tennessee, Alabama, and Georgia furnished the supply of cottonseed hulls for the six smaller sized feed mills. These feed mills were located near the oil mills of these states. None of the hulls purchased were transported any great distance from the oil mill before being sold.

Method of Purchase

Nearly three-fourths of the cottonseed meal purchased by feed mill operators was obtained through brokers and slightly more than one-fifth from the oil mills, while all but an insignificant amount of cottonseed cake and all of the cottonseed hulls were purchased through brokers (Table XXIII). The handling of cottonseed hulls was a sideline business engaged in by only a few of the smaller feed mills.

TABLE XXII

POINTS OF ORIGIN OF COTTONSEED FEED PRODUCTS MARKETED BY TENNESSEE FEED MILLS, 1946-47

Cottonseed Feed Products	States									
	Tenn.	Ga.	Ala.	Miss.	Ark.	Mo.	S.C.	Ill.	N.C.	Total
Meal	44.7	28.1	16.1	5.1	2.3	1.4	1.3	.8	.2	100.0
Cake	52.5	-	-	47.5	-	-	-	-	-	100.0
Hulls	58.0	20.7	21.3	-	-	-	-	-	-	100.0

TABLE XXIII

METHOD OF PURCHASE OF COTTONSEED FEED PRODUCTS BY TENNESSEE FEED MILLS, 1946-47

Cottonseed Feed Products	Method of Purchase			
	Through Brokers	From Oil Mills	From Others*	Total
	Per Cent	Per Cent	Per Cent	Per Cent
Meal	74.8	21.6	3.6	100.0
Cake	99.8	.2	0.0	100.0
Hulls	0.0	100.0	0.0	100.0

* Includes wholesalers, retailers, truckers, ginners, and jobbers.

Method of Sale

All of the cottonseed cake and more than 85 per cent of the cottonseed meal purchased by feed mills were used in mixing feeds. The remaining 15 per cent of the meal was sold through wholesale and retail outlets and accounted for nearly 47 per cent of the amount purchased by the wholesale and retail feed dealers (Table XXIV).

Retail marketing agencies handled slightly more than three-fourths of the cottonseed hulls sold. The strong demand for this product is the main reason that more than twice as much was sold through retailers than through wholesalers. No hulls were used in mixed feed because of a Tennessee state law prohibiting this practice.

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[1] Tennessee Feed Control Act, Division of Feed, Seeds, and Fertilizer, Nashville, Tennessee, p. 4.

TABLE XXIV

METHODS OF SALE OF COTTONSEED FEED PRODUCTS BY TENNESSEE FEED MILLS, 1946-47

Cottonseed Feed Products	Method of Sale			
	Sold in Mixed Feed	Sold Wholesale	Sold Retail	Total
	Per Cent	Per Cent	Per Cent	Per Cent
Meal	85.1	5.9	9.0	100.0
Cake	100.0	0.0	0.0	100.0
Pellets	0.0	0.0	0.0	100.0
Hulls	0.0	24.0	76.0	100.0

CHAPTER V

MARKETING OF COTTONSEED FEED PRODUCTS BY TENNESSEE WHOLESALE FEED DEALERS

A wholesale feed dealer was considered as a feed dealer who sold more than 50 per cent of the cottonseed feed products handled wholesale. Approximately 12 per cent of the sixteen dealers surveyed sold only through wholesale channels.

Cottonseed Meal

Marketing Practices

The purchases of cottonseed meal by wholesale dealers ranged from ten tons by a small dealer to six hundred tons by the largest dealer. The average size purchase was approximately 174 tons (Table XXV). All the cottonseed meal handled by wholesale feed dealers was sacked. Several wholesalers recognized the difficulty of storing this product with other feeds because of the meal sifting rather badly through the sacks.

More than 26 per cent of the cottonseed meal sold by wholesalers was manufactured in the oil mills of Tennessee, while nearly 74 per cent came from Georgia, North Carolina, Alabama, Mississippi, and Illinois.

Marketing Outlets

Over 47 per cent of the cottonseed meal purchased was through brokers, a little less than 46 per cent from oil mills, and nearly seven per cent from truckers and jobbers (Table XXV). Of these purchases,

TABLE XXV

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED MEAL BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	26.5
Other states	73.5
Total	100.0
Method of Purchase	
Through brokers	45.7
From oil mills	47.6
From others*	6.7
Total	100.0
Method of Sale	
Wholesale	81.8
Retail	18.2
Total	100.0

* Includes ginners, truckers, jobbers, and feed mills.

over four-fifths was sold through retail market outlets with less than 20 per cent going into wholesale channels.

Cottonseed Cake

One wholesaler reported the purchase of sized cottonseed cake. This sized cake was bought sacked from a Tennessee oil mill and was sold wholesale (Table XXVI). Slightly less than 1,900 tons of cottonseed cake was handled by feed mills and wholesale feed dealers. Most of the marketing of this product was done principally by brokers representing the oil mills or sold direct to the local trade.

Cottonseed Pellets

Only two dealers sold cottonseed pellets. These pellets were purchased from a jobber and were manufactured by a Tennessee oil mill. All were sacked and were marketed retail (Table XXVII).

Cottonseed Hulls

Nearly 30 per cent of the cottonseed hulls sold by wholesalers was manufactured in Tennessee oil mills, while a little over 70 per cent of the supply came from Georgia and Alabama (Table XXVIII). The size of purchases of the five wholesale feed dealers purchasing cottonseed hulls varied from fifteen to 210 tons, the average being approximately eighty-eight tons. All of the hulls bought were sacked. Slightly more than one-half of the supply of this cottonseed feed product was purchased by

TABLE XXVI

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED CAKE BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	100.0
Total	100.0
Method of Purchase	
From oil mills	100.0
Total	100.0
Method of Sale	
Wholesale	100.0
Total	100.0

TABLE XXVII

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED PELLETS BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	100.0
Total	100.0
Method of Purchase	
From others*	100.0
Total	100.0
Method of Sale	
Retail	100.0
Total	100.0

* Includes truckers, ginners, and jobbers.

TABLE XXVIII

POINTS OF ORIGIN OF COTTONSEED FEED PRODUCTS SOLD BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Cottonseed Feed Products	States						
	Ga.	Tenn.	N.C.	Ala.	Miss.	Ill.	Total
				Per Cent			
Meal	27.6	26.5	21.5	18.6	3.6	2.2	100.0
Cake	-	100.0	-	-	-	-	100.0
Pellets	-	100.0	-	-	-	-	100.0
Hulls	22.6	29.9	-	47.5	-	-	100.0

these wholesalers through brokers, more than 46 per cent direct from the oil mills, and nearly two per cent from truckers. Nearly 78 per cent of these hulls purchased was sold wholesale, compared to more than 22 per cent that was sold retail (Table XXIX).

A Comparison of the Source, Methods of Purchase, and Methods of Sale of Cottonseed Feed Products by Wholesale Feed Dealers

Source of Supply

The supply of cottonseed meal marketed by Tennessee wholesalers came from more states than did the other cottonseed feed products. Georgia, a neighboring state to the south, and Tennessee furnished more than one-half of this amount marketed. Many dealers in East Tennessee bought Georgia processed meal through brokers in Atlanta. The states supplying meal to Tennessee wholesalers, in order of importance, are Georgia, Tennessee, North Carolina, Alabama, Mississippi, and Illinois (Table XXIX). All of the cottonseed cake and cottonseed pellets purchased by these wholesalers came from Tennessee.

Nearly one-half of the hulls purchased came from Alabama, while Tennessee supplied nearly 30 per cent and Georgia 22 per cent. Most of the wholesale dealers sent their private trucks to the oil mills to pick up these cottonseed hulls. This practice was followed by all of the wholesalers located relatively close to the oil mills.

Method of Purchase

Cottonseed meal and cottonseed hulls were the only feed products purchased through brokers by the wholesalers. Most of these brokers were

TABLE XXIX

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED HULLS BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	29.9
Other states	70.1
Total	100.0
Method of Purchase	
Through brokers	51.8
From oil mills	46.4
From others*	1.8
Total	100.0
Method of Sale	
Wholesale	77.6
Retail	22.4
Total	100.0

* Includes truckers, ginners, and jobbers.

from out of the state because their market outlets were established outside the oil mill areas of Tennessee (Table XXX). All of the cottonseed cake was handled by one wholesaler who bought his supply from a Tennessee oil mill. The cottonseed pellets marketed were purchased from jobbers, and they were handled by two dealers. Only one mill in Tennessee manufactured pellets; consequently, the amount of this product sold is comparatively small.

Method of Sale

More than four-fifths of the cottonseed meal handled by the wholesalers was sold wholesale. The wholesale feed dealers sold all of the cottonseed cake they purchased wholesale and all of the pellets they purchased retail; however, the quantities handled by them was small (Table XXI). Nearly 78 per cent of the cottonseed hulls was also sold wholesale. The strong demand that existed for these products and the large margins of profit, when selling retail, were probably responsible for the amounts of these feed products being sold this way.

TABLE XXX

METHOD OF PURCHASE OF COTTONSEED FEED PRODUCTS BY WHOLESALE FEED DEALERS IN TENNESSEE, 1946-47

Cottonseed Feed Products	Method of Purchase			
	Through Brokers	From Oil Mills	From Others*	Total
	Per Cent	Per Cent	Per Cent	Per Cent
Meal	45.7	47.6	6.7	100.0
Cake	0.0	100.0	0.0	100.0
Pellets	0.0	0.0	100.0	100.0
Hulls	51.8	46.4	1.8	100.0

* Includes truckers, ginners, and jobbers.

TABLE XXXI

METHOD OF SALE OF COTTONSEED FEED PRODUCTS BY TENNESSEE WHOLESALE FEED DEALERS, 1946-47

Cottonseed Feed Products	Method of Sale		
	Wholesale	Retail	Total
	Per Cent		
Meal	81.8	18.2	100.0
Cake	100.0	0.0	100.0
Pellets	0.0	100.0	100.0
Hulls	77.6	22.4	100.0

CHAPTER VI

MARKETING OF COTTONSEED FEED PRODUCTS BY TENNESSEE RETAIL FEED DEALERS

A retail feed dealer was considered to be one who sold more than 50 per cent of the cottonseed feed products handled retail. Approximately 77 per cent of the forty-three dealers surveyed sold only through retail channels.

Cottonseed Meal

Approximately one-third of the cottonseed meal sold by Tennessee retailers came from Tennessee oil mills, while slightly more than two-thirds of the supply came from oil mills in Alabama, Georgia, South Carolina, and Mississippi.

The packaging of this feed product in sacks, through which some of the cottonseed meal sifted, was considered a marketing problem by some of the dealers. Also, a few of the dealers expressed that some of the cottonseed meal purchased contained excess amounts of hulls and foreign material.

The size of the purchases of cottonseed meal by Tennessee retail feed dealers varied between two and one thousand tons, the average being approximately ninety-seven tons. All of the meal handled was sacked. Less than one-fifth of this supply was purchased through brokers, nearly 70 per cent direct from the oil mills, and slightly less than 11 per cent from wholesalers and truckers (Table XXXII). Approximately one-third

TABLE XXXII

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED MEAL BY TENNESSEE RETAIL FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	32.0
Other states	68.0
Total	100.0
Method of Purchase	
Through brokers	19.7
From oil mills	69.7
From others*	10.6
Total	100.0
Method of Sale	
Wholesale	21.6
Retail	78.4
Total	100.0

* Includes ginners, wholesalers, and truckers.

more cottonseed meal was purchased and marketed by retailers than by wholesalers.

Retail sales accounted for more than 78 per cent of the meal sold, while less than one-fourth of the supply was sold wholesale. Approximately 77 per cent of these dealers sold only through retail outlets.

Cottonseed Cake

No cottonseed cake was purchased or sold by retail feed dealers.

Cottonseed Pellets

Only one retailer reported the purchase and sale of cottonseed pellets. These were bought sacked from a Tennessee oil mill. All of the pellets were sold retail (Table XXXIII).

Cottonseed Hulls

Nearly 65 per cent of the cottonseed hulls purchased by retail feed dealers came from Tennessee oil mills and little more than 35 per cent from oil mills in Alabama and Georgia.

Nearly 87 per cent of the cottonseed hulls was purchased by retailers direct from the oil mills, slightly more than nine per cent through brokers, and almost four per cent from truckers and wholesalers (Table XXXIV). Practically all of these hulls were sold retail. Only two wholesalers sold any through the wholesale channel, and this was less than two per cent of the total amount sold.

TABLE XXXIII

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED PELLETS BY TENNESSEE RETAIL FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	100.0
Total	100.0
Method of Purchase	
From oil mills	100.0
Total	100.0
Method of Sale	
Retail	100.0
Total	100.0

TABLE XXXIV

METHOD OF PURCHASE, ORIGIN, AND METHOD OF SALE OF COTTONSEED HULLS BY TENNESSEE RETAIL FEED DEALERS, 1946-47

Function	Per Cent of Product
Origin of Product	
Tennessee	64.6
Other states	35.4
Total	100.0
Method of Purchase	
Through brokers	9.4
From oil mills	86.7
From others*	3.9
Total	100.0
Method of Sale	
Wholesale	1.6
Retail	98.4
Total	100.0

* Includes jobbers, ginners, wholesalers, and truckers.

A Comparison of the Sources, Methods of Purchase, and Methods of Sale of Cottonseed Feed Products

Sources of Supply

More than 37 per cent of the cottonseed meal purchased by retailers came from Alabama. Tennessee furnished 32 per cent of the total supply, Georgia approximately 26 per cent, South Carolina less than four per cent, and Mississippi less than one per cent (Table XXXV).

The only retailer selling cottonseed pellets purchased them from an oil mill in Tennessee.

Tennessee oil mill operators also supplied about two-thirds of the retailers with cottonseed hulls. Alabama oil mill operators furnished slightly more than 23 per cent and Georgia operators a little more than 12 per cent.

Methods of Purchase

Nearly 70 per cent of the cottonseed meal and 87 per cent of the cottonseed hulls purchased by retailers was direct from the managers of the oil mills, while all the cottonseed pellets were purchased direct from this source. Brokers sold the retailers the next largest amount of meal and hulls, which was nearly one-fifth and one-tenth, respectively, of the supply purchased. Wholesalers, truckers, ginners, jobbers, and feed mill operators were relatively unimportant middlemen responsible for the sale of these feed products to retailers (Table XXXVI).

Methods of Sale

Retail feed dealers sold a little more than three-fourths of all the cottonseed meal handled by them through retail outlets, compared to

TABLE XXXV

POINTS OF ORIGIN OF COTTONSEED FEED PRODUCTS SOLD BY TENNESSEE RETAIL FEED DEALERS, 1946-47

Cottonseed Feed Products	States					
	Ala.	Tenn.	Ga.	S.C.	Miss.	Total
	Per Cent					
Meal	37.5	32.0	26.0	3.9	0.6	100.0
Pellets	-	100.0	-	-	-	100.0
Hulls	23.2	64.6	12.2	-	-	100.0

TABLE XXXVI

METHOD OF PURCHASE OF COTTONSEED FEED PRODUCTS BY RETAIL FEED DEALERS IN TENNESSEE, 1946-47

Cottonseed Feed Products	Method of Purchase					
	From Oil Mill	From Feed Mill	From Wholesaler	Through Broker	From Others*	Total
			Per Cent			
Meal	69.7	1.2	6.6	19.7	2.8	100.0
Pellets	100.0	-	-	-	-	100.0
Hulls	86.7	-	1.2	9.4	2.7	100.0

* Includes truckers, ginners, and jobbers, and wholesalers.

a little more than one-fifth of the supply that was sold through the wholesale channel (Table XXXVII). All the cottonseed pellets and nearly all of the cottonseed hulls were sold retail. Only one dealer handled the pellets, and only two dealers sold any cottonseed hulls wholesale.

TABLE XXXVII

METHOD OF SALE OF COTTONSEED FEED PRODUCTS BY TENNESSEE RETAIL FEED DEALERS, 1946-47

Cottonseed Feed Products	Method of Sale		
	Retail	Wholesale	Total
		Per Cent	
Meal	78.4	21.6	100.0
Pellets	100.0	-	100.0
Hulls	98.4	1.6	100.0

CHAPTER VII

SUMMARY

This chapter is a summary of the marketing practices followed by oil mills, feed mills, wholesale and retail feed dealers in the marketing of cottonseed feed products. The period covered by the study was the year 1947. For oil mills, this period includes the 1946-47 crushing year. For this study, data were collected from twelve oil mills, sixty-three feed mills, sixteen wholesale and forty-three retail feed dealers.

Oil Mills

Approximately 58 per cent of all cottonseed feed products manufactured by Tennessee oil mills was marketed outside of Tennessee. More than 64 per cent of the cottonseed meal, 70 per cent of the cake, 75 per cent of the pellets, and 48 per cent of the hulls were shipped outside the state in 1947.

The most important method of selling cottonseed meal in 1947 by oil mills was through brokers, who handled about 47 per cent of Tennessee's production. The next most important distribution outlet for meal, in the order of their importance, were feed dealers, feed mills, ginners, and the local trade.

Brokers sold more than 80 per cent of the cottonseed cake manufactured in Tennessee during this period. The next most important outlet was the local trade.

Brokers and dealers were the most important middlemen distributing cottonseed pellets. Each handled about 40 per cent of Tennessee's production for this period. The remaining 20 per cent was sold to ginners and the local trade.

More than 35 per cent of the cottonseed hull production for this period was sold to the local trade. The next largest purchasers were ginners and feed mill operators.

The cottonseed crushing industry is highly competitive, and only the most efficient oil mills are able to survive. This competition is in the procurement of cottonseed and in marketing the cottonseed feed products. These factors have contributed to the decline in the number of oil mills in Tennessee from twenty-two in 1920 to thirteen in 1947.

Feed Mills

More than 54 per cent of the cottonseed feed products purchased by Tennessee feed mills was not manufactured in Tennessee. About 55 per cent of the cottonseed meal, 47 per cent of the cake, and 42 per cent of the hulls came from other states.

Brokers were the most important middlemen responsible for obtaining the cottonseed meal and cake for the feed mills. Nearly 75 per cent of the meal and more than 99 per cent of the cake was bought through them. All of the cottonseed hulls were purchased direct from the oil mills.

A little more than 85 per cent of the cottonseed meal, and all of the cottonseed cake purchased by feed mill operators, was used in the

manufacture of mixed feeds. Slightly less than 15 per cent of the meal obtained was sold either wholesale or retail. Approximately 76 per cent of the cottonseed hulls handled by these feed mill operators was sold on a retail basis. The remaining 24 per cent was sold wholesale.

Competition from soybean meal may become a problem to the cottonseed feed products industry if and when the supply of cottonseed meal is great enough to meet the demand for this product. The sixty-three mills surveyed indicated that more than 71 per cent of the mill operators who mixed poultry feed, and approximately 57 per cent of those who mixed hog feed, preferred soybean meal over cottonseed meal as a protein supplement. Nearly 35 per cent preferred cottonseed meal for mixing in the dairy feed. Slightly more than one-third of the feed mill operators indicated that the price of each product would determine which was preferred. The gossypol content of cottonseed meal was the most serious objection to the use of that feed product in mixing hog feed.

Wholesale Feed Dealers

Nearly three-fourths of the cottonseed meal purchased by wholesale feed dealers in Tennessee during the period covered by the study was supplied from other states. All of the cottonseed cake and cottonseed pellets purchased came from Tennessee. Less than 30 per cent of the hulls purchased came from this state.

More than 45 per cent of the cottonseed meal, and nearly 52 per cent of the cottonseed hulls, was purchased through brokers. All of the cottonseed cake and cottonseed pellets were purchased direct from the oil mills.

Wholesale feed dealers sold more than 81 per cent of their supply of cottonseed meal, 77 per cent of the cottonseed hulls, and all of the cottonseed cake through the wholesale marketing channel. Slightly less than 19 per cent of the cottonseed meal, approximately 23 per cent of the cottonseed hulls, and all of the cottonseed pellets were sold retail.

Retail Feed Dealers

Approximately 68 per cent of the cottonseed meal and 35 per cent of the cottonseed hulls purchased by retail feed dealers were supplied from states other than Tennessee. All of the cottonseed pellets purchased were manufactured in this state. No cottonseed cake was handled by retailers.

Oil mills were the most important source of cottonseed feed products for retail feed dealers. Nearly 70 per cent of the meal, all of the pellets, and approximately 87 per cent of the hulls were purchased from the oil mills.

More than 78 per cent of the cottonseed meal, all of the cottonseed pellets, and approximately 98 per cent of the cottonseed hulls were sold by retail feed dealers through the retail marketing channel. The rest of these cottonseed feed products were sold wholesale.

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APPENDIX A

Oil Mill Schedule

COTTONSEED FEED PRODUCTS MARKETING, 1946-47

Agricultural Economics Department
Tennessee Agricultural Experiment Station

Cottonseed Meal, Cake, Pellets, and Hulls

1. Total production of cottonseed meal, cake, and pellets, season of 1946-47 _____ tons; hulls _____ tons.

2. Type of storage house, capacity (each product) and the percentage stored loose or sacked:

Product	Type of Storage	Storage Capacity	Stored	
			Loose	Sacked
Meal			%	%
Cake			%	%
Pellets			%	%
Mixed feed			%	%
Hulls			%	%

3. Estimated storage period:

Period	Meal	Cake	Pellets	Mixed Feed	Hulls
Less than 1 week	%	%	%	%	%
1 week to 1 month	%	%	%	%	%
1 month to 3 months	%	%	%	%	%
3 months to 6 months	%	%	%	%	%
6 months to 1 year	%	%	%	%	%
Over 1 year	%	%	%	%	%
Total	100%	100%	100%	100%	100%

4. Estimated month-ton storage cost of meal $_____; cake $_____; pellets $_____; mixed feed $_____; hulls $_____.

5. Per cent sold in each form: meal _____%; cake _____%; pellets _____%; mixed feed _____%; other (specify) _____%.

6. Method of sale:

Method of Sale	Product				
	Meal	Cake	Pellets	Mixed feed	Hulls
Through broker	%	%	%	%	%
Direct to ginners	%	%	%	%	%
Direct to dealer	%	%	%	%	%
Feed mills	%	%	%	%	%
Locally	%	%	%	%	%
Total	100%	100%	100%	100%	100%

7. Per cent of production shipped out of Tennessee: meal _____%; cake _____%; pellets _____%; mixed feed _____%; other (specify) _____%; hulls _____%.

8. Method of shipment (exclude local sales):

Method	Product				
	Meal	Cake	Pellets	Mixed feed	Hulls
Rail	%	%	%	%	%
Water	%	%	%	%	%
Truck	%	%	%	%	%
Other	%	%	%	%	%
Total	100%	100%	100%	100%	100%

9. Why did you ship by the method you did? _____

_____

10. Estimated per cent of total production (exclude hulls) used in feed _____%; fertilizer _____%; food _____%; industry _____%; other (specify) _____

11. Per cent of hull production sold for livestock feed _____%; use by industry _____%; other (specify) _____

12. Do you participate in the cottonseed meal futures market? _____.
If so, under what conditions? _____

_____

For what purpose? _____

13. Relative price received, based on meal as 100%: cake _____%; pellets _____%. Are these prices f.o.b.? _____

14. Average price received for hulls $_____ per ton.

15. What are problems in marketing cottonseed meal, cake, pellets, and hulls? _____

_____

_____

_____

_____

Suggestions for improvement: _____

_____

_____

_____

_____

_____

Enumerator _____

Date _____

Feed Mill Schedule

COTTONSEED FEED PRODUCTS MARKETING, 1947

Agricultural Economics Department
Tennessee Agricultural Experiment Station

Date _____

1. Name of firm _____

   Address _____

2. How much cottonseed meal was purchased in 1947? _____ tons. What per cent was sacked? _____%. Per cent used in mixed feed _____%. Per cent sold wholesale _____%; retail _____%.

3. How much cottonseed cake was purchased in 1947? _____ tons. What per cent was sold wholesale? _____%; retail _____%.

4. How much cottonseed pellets was purchased in 1947? _____ tons. What per cent was sacked? _____%. Per cent sold wholesale _____%; retail _____%.

5. How much cottonseed hulls was purchased in 1947? _____ tons. What per cent was sacked? _____%. Per cent used in mixed feed _____%. Per cent sold wholesale _____%; retail _____%.

6. Do you prefer cottonseed feed products loose or sacked? _____

   Why? _____

   _____

   What facilities have you for handling loose? _____

   _____

7. What per cent of the cottonseed feed products was purchased:

   (a) through brokers _____%; (b) direct from crushing mill _____%;

   (c) from other feed mills _____%; (d) other (specify) _____%

8. What was average transportation charge per ton of cottonseed meal to your mill in 1947? $_____; broker's fee (if any) $_____ per ton; other costs $_____ per ton; average total cost per ton, delivered $_____.

9. Primary points at which cottonseed feed products were obtained in 1947 (per cent from each): _____

_____

10. What could crushing mills do to improve cottonseed feed products?

_____

11. What are important problems in marketing cottonseed feed products?

_____

12. Do you mix feed? _____. Kinds of feed _____

_____

13. Do you prefer cottonseed meal or soybean meal for use in dairy feeds? _____. Poultry feeds? _____. Hog feeds? _____.

14. Suggestions for improvement: _____

_____

_____

(Use other side for further comment.)

Wholesaler's Schedule

COTTONSEED FEED PRODUCTS MARKETING, 1947

Agricultural Economics Department
Tennessee Agricultural Experiment Station

Date _____

1. Name of firm _____

   Address _____

2. How much cottonseed meal was purchased in 1947? _____ tons.

   What per cent was: sacked _____%; used in mixed feed _____%; sold wholesale _____%; sold retail _____%.

3. How much cottonseed cake was purchased in 1947? _____ tons.

   What per cent was: sold wholesale _____%; sold retail _____%.

4. How much cottonseed pellets was purchased in 1947? _____ tons.

   What per cent was: sacked _____%; sold wholesale _____%; sold retail _____%.

5. How much cottonseed hulls was purchased in 1947? _____ tons.

   What per cent was: sacked _____%; used in mixed feed _____%; sold wholesale _____%; sold retail _____%.

6. Do you prefer cottonseed feed products loose or sacked? _____.

   Why? _____

   _____

7. What per cent of the cottonseed feed products was purchased: through brokers _____%; direct from crushing mills _____%; from feed mills _____%; from other wholesalers _____%; from others (specify) _____%.

8. What was broker's average fee for meal per ton? $_____. Cake $_____per ton. Pellets $_____ per ton. Hulls $_____ per ton.

9. Principal points at which cottonseed feed products were obtained in 1947 (per cent from each): _____

_____

10. Do you mix feed? _____. Kinds of feed _____

_____

11. Do you prefer cottonseed meal or soybean meal for use in dairy feeds? _____. Poultry feeds? _____. Hog feeds? _____.

12. What could crushing mills do to improve cottonseed feed products?

_____

13. What are important problems in buying cottonseed feed products?

_____

14. What are important problems in selling cottonseed feed products?

_____

15. What suggestions have you for improving the marketing of cottonseed feed products? _____

_____

_____

_____

(Use other side for further comment.)

Retailer's Schedule

COTTONSEED FEED PRODUCTS MARKETING, 1947

Agricultural Economics Department
Tennessee Agricultural Experiment Station

Date _____

1. Name of firm _____

   Address _____

2. How much cottonseed meal was purchased in 1947? _____ tons. What per cent was: sacked _____%; used in mixed feed _____%; sold retail _____%; sold wholesale _____%.

3. How much cottonseed cake was purchased in 1947? _____ tons. What per cent was: sold retail _____%; sold wholesale _____%.

4. How much cottonseed pellets was purchased in 1947? _____ tons. What per cent was: sacked _____%; sold retail _____%; sold wholesale _____%.

5. How much cottonseed hulls was purchased in 1947? _____tons. What per cent was: sacked _____%; used in mixed feed _____%; sold retail _____%; sold wholesale _____%.

6. Do you prefer cottonseed feed products loose or sacked? _____. Why? _____

   _____

7. What per cent of the cottonseed feed products was purchased: through brokers _____%; direct from crushing mills _____%; from feed mills _____%; from wholesalers _____%; from other retailers _____%; from others (specify) _____%

8. Principal points at which cottonseed products were obtained in 1947 (per cent from each): _____

_____

9. Do you mix feed? _____. Kinds of feed _____

_____

10. Do you prefer cottonseed meal or soybean meal for use in dairy feeds? _____. Poultry feeds? _____. Hog feeds? _____. Why? _____

_____

11. What could crushing mills do to improve cottonseed feed products?

_____

12. What are important problems in marketing cottonseed feed products?

_____

13. What suggestions have you for improving the marketing of cottonseed feed products? _____

_____

_____

_____

(Use other side for further comment.)

APPENDIX B

APPENDIX TABLE I

AVERAGE MONTHLY PRICE PER TON FOR COTTONSEED MEAL AT MEMPHIS AND SOYBEAN MEAL AT CHICAGO, 1932-1947

		C.S.M.	S.B.M.			C.S.M.	S.B.M.			C.S.M.	S.B.M.
1932	Jan	13.80	20.55	1935	Jan	34.65	40.70	1938	Jan	23.25	30.00
	Feb	12.78	18.75		Feb	33.25	38.45		Feb	22.31	29.62
	March	12.44	18.88		March	30.80	37.10		March	21.90	28.10
	April	12.85	19.90		April	30.45	33.80		April	21.40	26.00
	May	12.65	19.95		May	30.00	33.20		May	20.80	26.30
	June	11.50	20.20		June	26.94	31.70		June	21.20	25.30
	July	13.15	20.05		July	24.30	29.06		July	23.25	26.95
	Aug	17.35	22.60		Aug	21.50	24.00		Aug	22.05	26.15
	Sept	16.75	23.70		Sept	20.29	22.85		Sept	21.00	27.00
	Oct	14.40	22.75		Oct	23.15	25.62		Oct	20.90	24.60
	Nov	13.35	21.70		Nov	22.25	24.40		Nov	21.80	24.40
	Dec	11.80	21.70		Dec	22.19	25.50		Dec	22.80	26.20
1933	Jan	11.85	21.70	1936	Jan	21.19	25.15	1939	Jan	22.60	26.50
	Feb	12.00	21.70		Feb	20.63	23.90		Feb	21.50	24.70
	March	13.10	22.60		March	20.11	22.30		March	22.20	24.45
	April	15.20	23.70		April	21.38	23.28		April	23.20	24.70
	May	17.50	28.30		May	21.56	24.78		May	23.65	26.30
	June	18.60	28.85		June	22.48	26.10		June	23.05	25.95
	July	27.65	-		July	32.12	38.90		July	21.55	24.70
	Aug	22.90	-		Aug	33.94	44.28		Aug	21.15	25.70
	Sept	18.40	-		Sept	30.95	39.70		Sept	26.05	33.70
	Oct	16.70	31.70		Oct	29.91	36.90		Oct	25.25	28.30
	Nov	19.25	30.15		Nov	32.25	39.15		Nov	28.25	32.70
	Dec	19.25	30.50		Dec	34.20	43.00		Dec	29.50	34.95
1934	Jan	22.50	30.60	1937	Jan	34.66	44.10	1940	Jan	30.10	33.90
	Feb	24.00	31.50		Feb	34.29	41.50		Feb	29.80	29.95
	March	24.00	32.50		March	35.28	41.10		March	30.25	30.45
	April	22.00	33.25		April	40.13	47.58		April	30.80	29.65
	May	21.25	33.60		May	40.31	48.33		May	29.40	28.65
	June	23.25	34.50		June	34.53	39.20		June	24.90	24.40
	July	27.05	-		July	31.56	37.32		July	25.55	21.25
	Aug	34.80	-		Aug	25.90	34.90		Aug	-	24.60
	Sept	33.90	-		Sept	21.31	34.20		Sept	24.95	27.00
	Oct	-	38.50		Oct	21.94	28.82		Oct	25.05	25.90
	Nov	37.00	38.85		Nov	23.00	29.50		Nov	29.30	30.50
	Dec	37.75	41.20		Dec	22.06	28.78		Dec	28.95	29.60

APPENDIX TABLE I (Continued)

		C.S.M.	S.B.M.			C.S.M.	S.B.M.			C.S.M.	S.B.M.
1941	Jan	27.85	29.75	1944	Jan	48.50	51.90	1947	Jan	69.40	71.90
	Feb	24.45	26.60		Feb	48.50	51.90		Feb	62.25	65.40
	March	24.45	26.85		March	48.50	51.90		March	74.90	81.00
	April	25.20	27.50		April	48.50	51.90		April	68.50	72.15
	May	25.10	28.10		May	48.50	51.90		May	64.60	68.55
	June	26.50	29.70		June	48.50	51.90		June	71.30	76.30
	July	31.00	33.80		July	48.50	51.90		July	79.45	89.75
	Aug	34.45	36.20		Aug	48.50	51.90		Aug	83.25	91.90
	Sept	39.75	41.40		Sept	48.50	52.00		Sept	89.90	102.70
	Oct	36.00	37.95		Oct	48.50	52.00		Oct	86.90	91.05
	Nov	36.75	39.10		Nov	48.50	52.00		Nov	90.80	92.90
	Dec	38.35	42.50		Dec	48.50	52.00		Dec	97.15	101.50
1942	Jan	30.90	46.45	1945	Jan	48.50	52.00				
	Feb	37.90	46.45		Feb	48.50	52.00				
	March	37.00	44.85		March	48.50	52.00				
	April	35.25	41.00		April	48.50	52.00				
	May	34.30	38.30		May	48.50	52.00				
	June	34.30	37.95		June	48.50	52.00				
	July	35.40	41.80		July	48.50	52.00				
	Aug	35.20	42.60		Aug	48.75	52.00				
	Sept	35.60	43.50		Sept	48.75	52.00				
	Oct	36.25	42.70		Oct	48.75	52.00				
	Nov	38.60	46.60		Nov	48.75	52.00				
	Dec	38.65	39.00		Dec	48.75	52.00				
1943	Jan	38.60	39.35	1946	Jan	48.75	52.00				
	Feb	-	39.60		Feb	48.75	52.00				
	March	38.75	40.60		March	48.75	52.00				
	April	38.60	40.60		April	48.75	52.00				
	May	38.50	40.55		May	59.25	62.50				
	June	38.50	40.40		June	62.75	66.00				
	July	38.50	40.40		July	100.00	97.00				
	Aug	49.00	51.90		Aug	95.00	93.15				
	Sept	48.50	51.90		Sept	62.75	66.00				
	Oct	48.50	51.90		Oct	73.75	79.50				
	Nov	48.50	51.90		Nov	92.40	93.35				
	Dec	48.50	51.90		Dec	80.30	80.70				

Source: U.S.D.A., Crops and Markets, Washington, D. C., 1932-47; Bureau of Agricultural Economics, The Feed Situation, 1948.