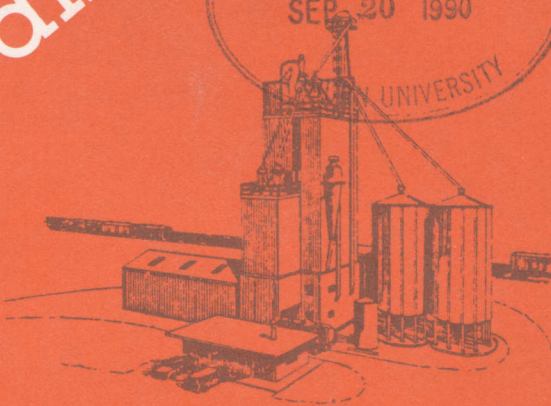
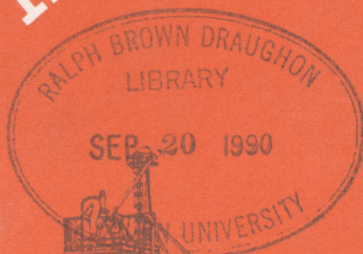




Grain Firms and Grain Movements



in Alabama in 1977



FOREWORD

This bulletin is a part of Alabama's contribution to a current Southern Regional project entitled "Alternative Structures for Increasing Efficiency in Inter- and Intra-Regional Grain Marketing Systems" which was initiated in 1975 and will end in 1980. It is also part of a larger national project in which Alabama is a participant. Other agencies cooperating in the overall project are the Alabama Grain Dealers Association, the Corps of Engineers, the Tennessee Valley Authority, and the experiment stations of the 48 contiguous United States.

While the data were collected originally to satisfy a regional research effort, it was felt that they would be useful analyzed separately for the State of Alabama for the use of Alabama grain dealers, grain users, and others in predicting changes which may occur in the grain industry of Alabama in order to facilitate planning.

Appreciation is expressed to the Alabama grain, feed, processing, and integrated poultry and livestock firms who supplied much of the data contained in this bulletin.

SUMMARY

The main objectives of this study were to determine quantities and establish flow patterns of grain produced and handled within Alabama and imported into and exported from Alabama in 1977. These flow patterns were then related to types of firms, modes of transportation, and time periods. This information was then compared with previous studies in 1970 and 1964.

For this study, grain marketing firms were classified as terminal elevators, export elevators, country elevators, feed manufacturers, soybean processors, flour mills, dry corn millers, and integrated poultry and livestock firms. There were 195 grain and feed handling and processing firms in Alabama in 1977, a net decrease of 52 firms since 1970. Feed manufacturers, however, accounted for only 100 of the total firms in 1977, a decrease of 82 from the 182 in 1970 and a decrease of 80 from the 180 in 1964. Country elevators showed the greatest increase from 10 in 1964 to 26 in 1970 to 51 in 1977. No change, or relatively minor changes, were noted in the number of other types of grain firms.

Grain marketing firms in Alabama had an estimated bulk grain storage capacity of 33,123,000 bushels in 1977 not counting integrated poultry and livestock. This was an increase from 19,273,000 bushels in 1970 and 16,637,000 bushels in 1965. Storage capacity of country elevators showed the greatest percent change, increasing from 2,768,000 bushels in 1970 to 7,869,000 in 1977.

More than 219 million bushels of grains were received by Alabama grain marketing firms in 1977. About 63 percent of this total was received from out-of-state sources, nearly 20 percent was received from other elevators within the State, and the remaining 17 percent received from farmers. The 1977 total was an increase of more than 37 percent since 1970. Corn was the most important grain received, accounting for more than 50 percent of the total in 1977.

Illinois continued to be Alabama's most important source of imported grain in 1977. Nearly 41 percent of the out-of-state grain, mostly corn, came from Illinois, while Indiana was second with nearly 22 percent. Another 23 percent came from 12 Southern States.

Rail transportation was the most important method of receiving grain by Alabama grain marketing firms in 1977, accounting for nearly 41 percent of grain received. Trucks accounted for

more than 34 percent and water accounted for the remaining 25 percent.

Total grain shipments from Alabama grain marketing firms in 1977 amounted to 102,567,000 bushels. A total of 12,731,000 bushels was shipped out-of-state in the U.S., overseas exports accounted for 45,426,000 bushels, and 44,410,000 bushels were shipped to local receivers and other firms within the State. In comparison, total grain shipments in 1970 were 70,729,000 bushels.

Net grain imports into Alabama were 79,596,000 bushels in 1977 compared with 70,703,000 in 1970. Corn remained the most important net grain import in 1977 accounting for 73,678,000 bushels of the 79,596,000 net import. Soybeans were the only grain with a net export for 1977.

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*Information contained herein is available to all
without regard to race, color, sex, or national origin.*

GRAIN FIRMS and GRAIN MOVEMENTS in ALABAMA in 1977

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INTRODUCTION

INFORMATION contained in this publication is the result of the most recent of a series of grain marketing projects initiated in the early 1950's. During this period, flow patterns and grain movements have been studied periodically in Alabama and other Southeastern States under regional projects. In 1977, for the first time, this research was combined into a national project which included three regional projects and several individual states. The Corps of Engineers provided funds for coverage of all the 48 contiguous United States not included in the three regional projects, and expects to utilize data from these studies to plan for projects such as the Tennessee-Tombigbee River Waterway which is now under construction.

The year 1977 chosen for the study was not normal for Alabama in characterizing grain movements, especially for corn. However, choice of this year was dictated by this study being part of a larger regional and national project. The main problem was with the corn crop. Acres of yellow corn harvested for grain in Alabama in 1977 was 375,000 compared with a 1976 acreage of 800,000 and a 1975 acreage of 660,000. Yield of corn was 29 bushels per acre in 1977 compared with 60 and 50 bushels per acre, respectively, in 1976 and 1975. This acreage and yield resulted in a production in Alabama in 1977 of only 10.9 million bushels compared with 48 and 33 million bushels in 1976 and 1975, respectively.

THE PROBLEM

Alabama continues to be a feed grain deficit state and is heavily dependent upon feed grain surplus states for needed grain, espe-

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cially corn. Any significant change in feed grain availability from other states, or in methods used to transport grains to the State, would have a serious impact upon Alabama's agricultural economy, since some of Alabama's leading agricultural enterprises are grain-consuming poultry and livestock.

Large grain firms in Alabama need to know present and future flow patterns and modes of transportation used in order to facilitate planning. For instance, it is anticipated, after completion of the Tennessee-Tombigbee River Waterway, that water transportation may play a greater role in imports of feed grains into West Alabama, as grain-using enterprises develop, and in shipments of grains in general to the export elevator at Mobile, especially soybeans which are surplus for Alabama.

If Alabama continues to increase its feed grain imports, as it has in the past, and increase its surplus of soybeans, as expected, studies such as this can be used to predict changes in facilities needed and to prescribe policy actions. Along with this study, information is needed concerning the projected grain production-utilization balance for future years in order to enable grain handling firms to predict future adjustments in the market structure of the grain industry in Alabama. This latter research was recently completed for Alabama by Bedri (1). In Bedri's study, production, and utilization of feed grains in Alabama were determined for 1977 and projected for 1985, 1990, and 2000.

OBJECTIVES

The general objectives of this study were to determine quantities and establish flow patterns of grains produced and handled in Alabama and imported into and exported from Alabama in 1977. Specific objectives were:

1. To determine present production-utilization balances for different grains in Alabama.
2. To identify marketing facilities and flows of grains.
3. To determine quantities of grains received by grain firms in Alabama by different modes of transportation and time periods.
4. To compare trends in different aspects of grain marketing in Alabama in 1977 utilizing similar 1964 and 1970 surveys.

METHOD OF STUDY

Analyses of the 1977 grain movements were based on data collected from a survey of 74 grain and feed handling and processing firms in Alabama. Data were collected on whole, unprocessed

grains only. An up-to-date list of grain handling firms and their capacities and production in Alabama was obtained by mailing letters to all firms whose name appeared in the June, 1977, Directory of Grain Handling and Processing Firms in Alabama and to all County Extension Chairpersons for an update of this directory (3). The survey was taken on the basis of a stratified random sample.

Country elevators were classified according to total grain received in 1977, based on a preliminary mail questionnaire designed for compiling an updated directory and telephone conversations with firm representatives not responding to the mail questionnaires. Firms were arrayed from high to low based on total grain received. A 100 percent sample of firms receiving over 50 percent of the grain was taken, as agreed to under the regional project rules. A 25 percent sample of the remaining firms was taken, table 1.

Feed manufacturers were arrayed by total feed produced. The eight largest firms which produced more than 90 percent of the feed in the State were sampled. A 10 percent sample of the remaining firms was taken.

Integrated poultry and livestock firms were combined and arrayed on the basis of tons of feed produced from largest to smallest. The three largest firms were enumerated as they accounted for over 50 percent of the total feed produced. The remaining firms were sampled at the rate of 50 percent.

TABLE 1. NUMBER OF FIRMS SAMPLED, BY TYPE OF FIRM AND VOLUME, ALABAMA, 1977^a

Type of firm	Number in Alabama	Number in sample
Country elevators		
100% sample (over 50% of volume)	11	11
25% sample	40	11
Feed manufacturers		
100% sample (over 90% of volume)	8	8
10% sample	92	9
Integrated poultry and livestock firms		
100% sample (over 50% of volume)	3	3
50% sample	22	13
Other firms (terminal elevators, river elevators, port elevator, and processors)	19	19
Total	195	74

^aNumbers in this table do not always agree with subsequent tables because classification of some firms was changed after enumeration.

In addition, all terminal elevators, processors (soybean, corn, and flour), river elevators, and the one port elevator were surveyed.

Data for the study were collected by use of questionnaires and personal interviews with officials of the firms, except in two cases where information was refused and was estimated by persons familiar with the operation and from past studies. Data were collected for unprocessed grains only for the calendar year 1977. Interviews were conducted with managers, bookkeepers, grain buyers, and other personnel familiar with the firm's grain flow. The grains studied were corn, soybeans, oats, wheat, grain sorghum, and rye. Information was obtained on shipments and receipts of grains; quantities handled; and areas of origin and destination, by months, and methods of transportation. Also, data were obtained on purchasing methods, transportation facilities, drying facilities, marketing services performed, and storage capacities. Data were expanded from the sampled segments of different firms to yield State totals for Alabama.

Alabama was divided into three regions for the purpose of contributing data to a regional and a national research project, two general regions and the port of Mobile, figure 1. These areas were chosen for these projects to reflect differences in marketing, utilization, and inter- and intrastate grain flows. As one was an export elevator, it was felt necessary to separate its activities from those representing grain production and utilization for the State.

CHARACTERISTICS OF GRAIN AND FEED HANDLING AND PROCESSING FIRMS IN ALABAMA

Number and Location

The greatest concentration of firms handling raw grain in Alabama was located in the northeast part of the State. Other concentrations were located in the Mobile area and in southeast Alabama, figure 1. Distribution of firms throughout the State varied according to type and size of firm. Seventy-two percent of the integrated poultry and livestock firms were located in north Alabama including the 11 largest firms, table 2.

Seven of the eight largest feed mills were located in north Alabama, while smaller feed mills were distributed throughout the State, table 3. The concentration of large feed firms in the northern part of the State is a result of the heavy concentration of poultry production in this area.

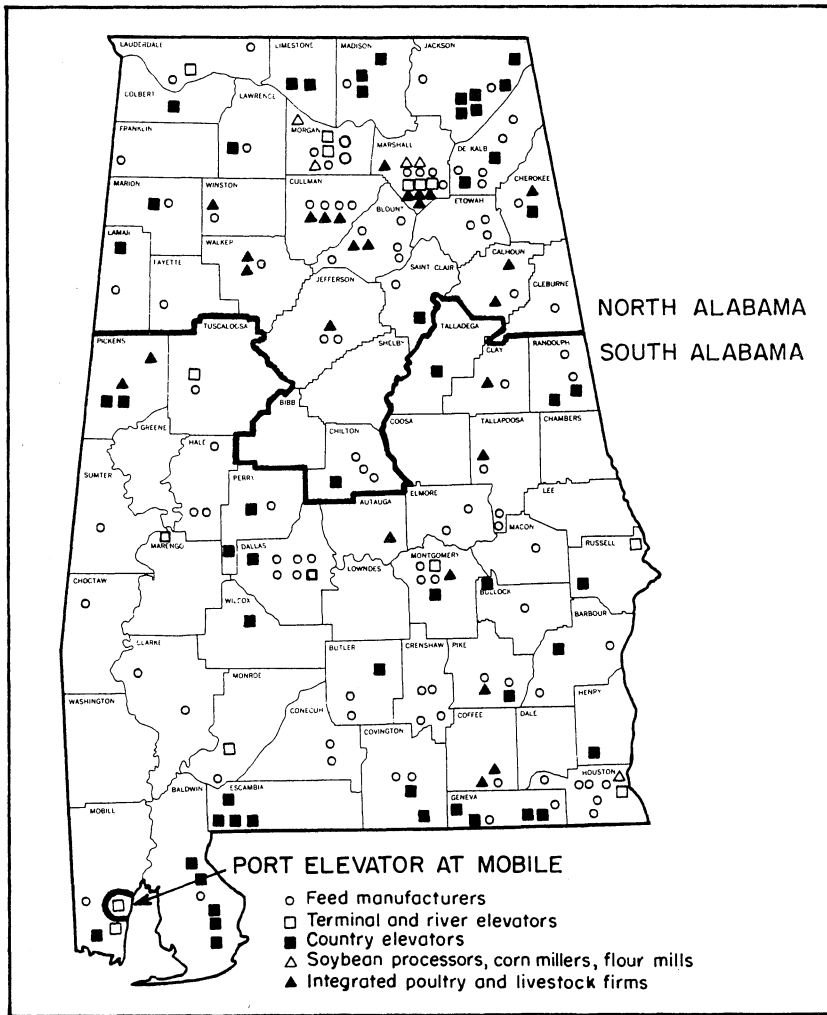


FIG. 1. Location of grain and feed handling and processing firms in Alabama in 1977.

Ten of the 11 largest country elevators were located in south Alabama, table 4. A contributing factor to this is a heavy concentration of soybean production in south Alabama.

Four of the six largest terminal and river elevators are located in north Alabama, table 5. A large poultry industry in this area, which requires large quantities of feed grains, results in the need for these large elevators for bringing in grains from the Corn Belt.

TABLE 2. INTEGRATED POULTRY AND LIVESTOCK FIRMS,
BY VOLUME AND AREA, ALABAMA, 1977

Annual volume feed produced	South Alabama	North Alabama	State
Over 100,000 tons	0	11	11
Under 100,000 tons	7	7	14
Total	7	18	25

TABLE 3. FEED MANUFACTURERS, BY
VOLUME AND AREA, ALABAMA, 1977

Annual volume feed produced	South Alabama	North Alabama	State
Over 30,000 tons	1	7	8
Under 30,000 tons	50	42	92
Total	51	49	100

Ten of the eleven largest country elevators were located in Area 07, south Alabama, table 4. A contributing factor to this is a heavy concentration of soybean production in south Alabama.

TABLE 4. COUNTRY ELEVATORS BY VOLUME OF
GRAIN AND AREA, ALABAMA, 1977

Annual volume	South Alabama	North Alabama	State
More than 800,000 bu.	10	1	11
800,000 - 250,000 bu.	14	11	25
Less than 250,000 bu.	5	10	15
Total	29	22	51

TABLE 5. TERMINAL AND RIVER ELEVATORS, BY ANNUAL VOLUME OF
GRAIN AND AREA, ALABAMA, 1977

Annual volume	South Alabama	North Alabama	State
More than 2,000,000 bu.	2	4	6
Less than 2,000,000 bu.	6	1	7
Total	8	5	13

However, some of the river elevators in this category exist primarily to collect soybeans for large grain companies. Terminal elevators and river elevators were combined in analysis for two reasons. First, there was a problem of disclosure if reported separately; and, secondly, they are similar in that most of the river elevators are part of larger organizations which are, in total, the equivalent in size and function of terminal elevators.

Alabama's two soybean processors are located in north Alabama, and the one port elevator is located in the southern part of the State. The larger of the two corn millers is located in north Alabama. North Alabama also contains the one flour mill.

Type of Firm and Function

Alabama's grain firms in 1977 were more diversified than those in the Midwest and in some other parts of the United States. They varied considerably according to size and function performed. Some firms performed several functions making classification difficult. When this was the case, firms were classified according to their most important function.

Grain marketing firms in Alabama were classified as country elevators, terminal elevators, feed mills, integrated poultry and livestock firms, soybean processors, flour mills, dry corn millers, and port elevators. (See appendix for details of classification.) Firms classified as feed mills also included custom grinders and feed mixers. Data from soybean processors, flour mills, dry corn millers, and feed mills were combined to prevent possible disclosure of confidential information. Also, the port elevators and terminal elevators were combined in some cases for this purpose.

The number of firms in each class in 1977, and comparisons with 1964 and 1970, are shown in table 6 (2). The largest increase from 1970 to 1977, by type of firm, was in country elevators. The number of country elevators doubled from 26 to 51. Increased demand for country elevators appeared to result from the continuing increase in soybean production. Feed mills decreased from 182 to 100 during this period. The reduction was mostly in small feed mills while the larger feed mills increased in number and in volume. There was an increase of two terminal elevators. Increased demand for imported corn in large quantities was a possible reason for this. The number of flour mills and soybean processors remained unchanged between 1970 and 1977.

Kinds of Grain Handled

Corn, soybeans, and wheat were the grains handled most by Alabama grain firms in 1977. Corn was the grain most handled by all firms combined. Rye was handled by only one firm and barley was not reported as handled by any Alabama grain firms in the sample. Table 7 gives a detailed analysis of the percentage of firms handling different grains.

Storage Capacity

Alabama grain marketing firms had a bulk storage capacity of 33,123,000 bushels in 1977, not counting integrated poultry and livestock firms, table 8. This compares with 16,637,000 bushels in 1965 and 19,273,000 bushels in 1970.

TABLE 6. GRAIN AND FEED HANDLING AND PROCESSING FIRMS IN ALABAMA, BY TYPE, WITH
CHANGE IN NUMBER AND PERCENT, 1964, 1970, AND 1977

Type firm	Firms in Alabama			Change from 1964 to 1970 ^a	Change from 1970 to 1977
	Total 1964 ^a	Total 1970 ^a	Total 1977		
	No.	No.	No.	Pct.	Pct.
Terminal and river elevators ^b	6	11	14	83.3	27.3
Country elevators	10	26	51	160.0	96.2
Feed manufacturers	180	182	100	1.1	-45.1
Processors					
Soybean	2	2	2	0.0	0.0
Dry corn miller	-	-	2	-	-
Flour mills	1	1	1	0.0	0.0
Subtotal	199	222	170	11.6	-23.4
Integrated Poultry and livestock firms	N.A. ^c	25	25	N.A. ^c	0.0
State total	N.A. ^c	247	195	N.A. ^c	-21.1

^aCavanaugh, Jon David, *An Analysis of the Feed Grain Market for Alabama in 1970*, Unpublished M.S. Thesis, Auburn University, Auburn University, Alabama, June, 1971.

^bIncludes the port elevator

^cNot applicable (N.A.) because not enumerated

TABLE 7. PERCENTAGE OF FIRMS HANDLING DIFFERENT KINDS OF GRAINS, ALABAMA, 1977

Kind of grain	Firms							
	Country elevators	Terminal and river elevators	Port elevator	Integrated poultry and livestock	Feed manufacturers ^a	Soybean processor	Flour mill	Dry corn miller
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Corn	77	100	100	100	100	0	0	100
Grain sorghum	14	0	100	8	10	0	0	0
Soybeans	91	92	100	8	6	100	0	0
Wheat	50	85	100	0	41	0	100	0
Oats	32	54	0	0	41	0	33	0
Rye	5	0	0	0	0	0	0	0

^aIncludes processors

TABLE 8. BULK GRAIN STORAGE CAPACITY, BY TYPE OF FIRM, ALABAMA, 1965, 1970, AND 1977

Type of Firm	Storage capacity (1,000 bushels)		
	Total 1965 ^a	Total 1970 ^b	Total 1977
	Bu.	Bu.	Bu.
Terminal and river elevators ^c	3,714 ^d	5,122	8,083
Country elevators	-	2,768	7,869
Feed manufacturers ^e	9,923	11,383	17,171
Total w/o integrated poultry and livestock	16,637	19,273	33,123
Integrated poultry and livestock	N.A. ^f	N.A. ^f	2,176
Total	-	-	35,299

^aHurst, James R. and Morris White, *Feed Grain Situation in Alabama, 1953-66 and Projections to 1975*, Bulletin No. 379 (Auburn, Alabama: Alabama Agricultural Experiment Station, June, 1968).

^bCavanaugh, Jon David, *An Analysis of the Feed Grain Market for Alabama in 1970*, Unpublished M.S. Thesis, Auburn University, Auburn University, Alabama, June, 1971.

^cIncludes the port elevator

^dIncludes country elevators in this year

^eIncludes processors

^fNot applicable (N.A.) because not enumerated

Storage capacity of country elevators increased 184 percent from 1970 to 1977. This was the result of a 96 percent increase in the number of country elevators and the expansion in capacity of others.

Total storage capacity of all firms, except integrated poultry and livestock, increased by 72 percent during this period. Feed manufacturers, if reported alone, would have shown a decrease; however, when reported in combination with soybean processors, flour mills, and dry corn millers to avoid disclosure, they show an increase of 51 percent.

A substantial increase in soybean production since 1970, plus an increased grain deficit requiring large volumes of grain to be imported into Alabama, were probably responsible for the increase in overall bulk storage capacity.

Drying Facilities

Few feed mills in the sample had the capability of drying grain in 1977. Only 4 of the 17 feed manufacturers surveyed possessed drying equipment, table 9. However, all of the terminal elevators surveyed possessed grain drying equipment, eight of which had two or more dryers. Twelve out of 22 country elevators surveyed had dryers, two possessed two dryers each. Only three of the inte-

TABLE 9. RATED CAPACITY OF GRAIN DRYING FACILITIES OF FIRMS INTERVIEWED, BY TYPE OF FIRM AND TYPE OF DRYER, ALABAMA, 1977

Type of firm	Type dryer						Total	
	Batch		Continuous flow		Bin			
	<i>No.</i> ^a	<i>Capacity</i> ^b	<i>No.</i> ^a	<i>Capacity</i> ^b	<i>No.</i> ^a	<i>Capacity</i> ^b	<i>No.</i> ^a	<i>Capacity</i> ^b
Feed manufacturers	0		4	1,500	0		4	1,500
Terminal elevators	3	1,750	10	26,100	0		13	27,600
Country elevators	2	900	11	13,000	1	1,000	14	14,900
Integrated poultry and livestock	2	1,200	3	3,500	0		5	4,700
Port elevator	1	5,000	0		0		1	5,000
Soybean processor	0		4	31,000	0		4	31,000
Dry corn miller	0		0		0		0	
Flour miller	0		0		0		0	
Total	8	8,850	22	75,100	1	1,000	41	84,700

^aNumber occurring in sample — not expanded to represent State totals^bBushels per hour at 5 points of moisture

grated poultry and livestock firms out of 16 possessed drying equipment. However, two of those possessed two dryers each.

A total drying capacity of 84,700 bushels per hour at five points of moisture was reported by the firms interviewed. No attempt was made to expand these data to represent State totals because of the small numbers by some categories.

Receiving and Shipping Capacity

Alabama grain marketing firms' capacity to ship and receive grain in a 24-hour period is discussed in this section. Results indicate that, of the firms interviewed and answering the questionnaire, terminal elevators were generally best equipped to receive and ship grain. Also, grain handling firms were generally able to receive more grain in a 24-hour period than they were able to ship in 24 hours by all modes of transportation. This was expected since Alabama is a grain deficit state and, generally, more concerned with receiving than shipping grain.

Receiving by truck and semi-trailers. One hundred percent of the firms responding were capable of receiving grains by truck and semi-trailer, table 10.

Receiving by rail. Ten of the 14 terminal elevators responding were capable of receiving by rail, table 11. Thirteen of 16 integrated poultry and livestock firms interviewed reported capacity to receive by rail. Results for country elevators and feed manufacturers were 10 out of 22 and 9 out of 17, respectively.

TABLE 10. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF RECEIVING BY TRUCK AND SEMI-TRAILERS IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Categories of maximum amounts possible in 24 hours	Terminal elevators ^a		Country elevators		Feed manufacturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Bushels								
Under 40,000	1	7.1	3	13.6	11	64.7	4	25.0
40,001 - 80,000	1	7.1	6	27.3	3	17.6	6	37.5
80,001 - 120,000	3	21.4	6	27.3	1	5.9	5	31.3
120,001 - 160,000	1	7.1	4	18.2	1	5.9	0	0
160,001 - 200,000	6	42.9	1	4.5	1	5.9	0	0
200,001 - 300,000	2	14.4	2	9.1	0	0	1	6.2
300,001 - 400,000	0	0	0	0	0	0	0	0
400,001 - 500,000	0	0	0	0	0	0	0	0
Total capable of receiving	14	100.0	22	100.0	17	100.0	16	100.0
Total not capable of receiving	0		0		0		0	

^aIncludes the port elevator and river elevators

^bIncludes processors

TABLE 11. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF RECEIVING BY COVERED HOPPER CARS IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Categories of maximum amounts possible in 24 hours	Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Bushels								
Under 40,000	2	20.0	2	20.0	4	44.5	4	30.8
40,001 - 80,000	1	10.0	5	50.0	3	33.3	4	30.8
80,001 - 120,000	4	40.0	0	0	1	11.1	4	30.8
120,001 - 160,000	1	10.0	2	20.0	0	0	0	0
160,001 - 200,000	0	0	1	10.0	0	0	0	0
200,001 - 300,000	0	0	0	0	1	11.1	1	7.6
300,001 - 400,000	1	10.0	0	0	0	0	0	0
400,001 - 500,000	1	10.0	0	0	0	0	0	0
Total capable of receiving	10	100.0	10	100.0	9	100.0	13	100.0
Total not capable of receiving	4		12		8		3	

^aIncludes the port elevator and river elevators^bIncludes processors

Receiving by barge. The percentage of firms capable of receiving by barge was not as high as for the other modes of transportation. None of the country elevators responding could receive by barge, table 12. Only five of 14 terminal elevators, two of 17 feed manufacturers, and three of 16 integrated poultry and livestock firms responding were capable of receiving by barge.

TABLE 12. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF RECEIVING BY BARGES IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Categories of maximum amounts possible in 24 hours	Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Bushels								
Under 40,000	0	0	0	0	0	0	0	0
40,001 - 80,000	1	20.0	0	0	0	0	0	0
80,001 - 120,000	1	20.0	0	0	0	0	1	33.3
120,001 - 160,000	1	20.0	0	0	0	0	0	0
160,001 - 200,000	2	40.0	0	0	1	50.0	1	33.3
200,001 - 300,000	0	0	0	0	1	50.0	1	33.4
300,001 - 400,000	0	0	0	0	0	0	0	0
400,001 - 500,000	0	0	0	0	0	0	0	0
Total capable of receiving	5	100.0	0	0	2	100.0	3	100.0
Total not capable of receiving	9		22		15		13	

^aIncludes the port elevator and river elevators^bIncludes processors

TABLE 13. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF SHIPPING BY TRUCK AND SEMI-TRAILERS IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Categories of maximum amounts possible in 24 hours	Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Bushels								
Under 40,000	1	7.7	3	15.8	3	50.0	2	66.7
40,001 - 80,000	5	38.5	6	31.6	1	16.7	1	33.3
80,001 - 120,000	4	30.7	4	21.0	2	33.3	0	0
120,001 - 160,000	1	7.7	2	10.5	0	0	0	0
160,001 - 200,000	1	7.7	2	10.5	0	0	0	0
200,001 - 300,000	1	7.7	1	5.3	0	0	0	0
300,001 - 400,000	0	0	1	5.3	0	0	0	0
400,001 - 500,000	0	0	0	0	0	0	0	0
Total capable of shipping	13	100.0	19	100.0	6	100.0	3	100.0
Total not capable of shipping	1		3		11		13	

^aIncludes the port elevator and river elevators

^bIncludes processors

Shipping by truck and semi-trailer. Thirteen of 14 terminal elevators and 19 of 22 country elevators responding were capable of shipping by truck and semi-trailer, table 13. Only six of 17 feed manufacturers and three of 16 integrated poultry and livestock firms reported capability of shipping by truck and semi-trailer.

Shipping by rail. The percentage of firms responding capable of shipping grain by rail was low, table 14. Only four of 14 terminal elevators, nine of 22 country elevators, one of 17 feed

TABLE 14. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF SHIPPING BY COVERED HOPPER CARS IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Categories of maximum amounts possible in 24 hours	Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Bushels								
Under 40,000	0	0	2	22.3	0	0	0	0
40,001 - 80,000	2	50.0	3	33.3	1	100.0	0	0
80,001 - 120,000	0	0	3	33.3	0	0	0	0
120,001 - 160,000	1	25.0	1	11.1	0	0	0	0
160,001 - 200,000	1	25.0	0	0	0	0	1	100.0
200,001 - 300,000	0	0	0	0	0	0	0	0
300,001 - 400,000	0	0	0	0	0	0	0	0
400,001 - 500,000	0	0	0	0	0	0	0	0
Total capable of shipping	4	100.0	9	100.0	1	100.0	1	100.0
Total not capable of shipping	10		13		16		15	

^aIncludes the port elevator and river elevators

^bIncludes processors

TABLE 15. MAXIMUM VOLUME OF GRAIN THAT FIRMS INTERVIEWED WERE CAPABLE OF SHIPPING BY BARGES IN 24 HOURS, BY TYPE OF FIRM, ALABAMA, 1977

Bushels	Categories of maximum amounts possible in 24 hours		Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Under 40,000	0	0	0	0	0	0	0	0	0	0
40,001 - 80,000	1	8.3	0	0	0	0	0	0	0	0
80,001 - 120,000	3	25.0	0	0	0	0	0	0	0	0
120,001 - 160,000	1	8.3	0	0	0	0	0	0	0	0
160,001 - 200,000	0	0	0	0	0	0	0	0	0	0
200,001 - 300,000	7	58.4	0	0	0	0	0	0	0	0
Total capable of shipping	12	100.0	0				0		0	
Total not capable of shipping	2		22				17		16	

^aIncludes the port elevator and river elevators

^bIncludes processors

manufacturers, and one of 16 integrated poultry and livestock firms reported the capability to ship by rail.

Shipping by barge. Twelve of the 14 terminal and river elevators responding reported the capability to ship by barge, table 15. No other type firm responding reported the capability of shipping by barge.

Modes of transportation summarized. Transportation capabilities of grain handling firms interviewed and responding in Alabama in 1977 are summarized in table 16. No attempt is made to

TABLE 16. NUMBER AND PERCENT OF FIRMS INTERVIEWED THAT WERE CAPABLE OF RECEIVING AND SHIPPING GRAIN BY VARIOUS TRANSPORTATION MODES, BY TYPE OF FIRM, ALABAMA, 1977

Transportation capabilities	Firms reporting							
	Terminal elevators ^a		Country elevators		Feed manu- facturers ^b		Integrated poultry and livestock	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Able to receive grain								
In boxcars only	1	7.1	0	0	3	16.7	1	6.2
In covered hopper cars	10	71.4	10	45.5	10	55.6	13	81.2
By rail in 5 carlots	9	64.3	10	45.5	7	38.9	8	50.0
By truck	14	100.0	22	100.0	18	100.0	16	100.0
By barge	5	35.7	0	0	2	11.1	3	18.8
Able to ship grain								
In boxcars only	0	0	0	0	0	0	0	0
In covered hopper cars	7	50.0	9	40.9	1	5.6	1	6.2
By rail in 5 carlots	9	64.3	14	63.6	4	22.2	2	12.5
By truck	13	92.9	15	68.2	6	33.3	3	18.8
By barge	13	92.9	0	0	0	0	0	0

^aIncludes port elevator and river elevators

^bIncludes processors

expand these data for the State. Terminal elevators were the best equipped overall for receiving and shipping grain, followed by country elevators. Feed manufacturers were well equipped for receiving grain; however, only one firm could ship by covered hopper car and only six firms could ship grain by truck.

Sampling and Inspection Procedure

In 1977, the mechanical diverter was used very little for sampling grain in Alabama. Only one each of the country elevators, feed manufacturers, and terminal elevators, plus two integrated poultry and livestock firms reported the use of a mechanical diverter. The probe was usually used for sampling grain.

Questions were asked to determine percentages of grain that was inspected at the origin, destination, and en route. Firms were generally unable to provide accurate information on en route inspections. Table 17 presents results of origin and destination inspections.

GRAIN MOVEMENTS

The overall objective of this study was to determine quantities and to establish flow patterns of grain produced in Alabama, received from outside Alabama, shipped to other states, and exported overseas from Alabama in 1977.

TABLE 17. PERCENT OF GRAIN RECEIPTS BY RAIL, TRUCK, AND BARGE INSPECTED AT ORIGIN AND DESTINATION FOR FIRMS ANSWERING QUESTION, ALABAMA, 1977^a

	<i>At origin</i>	<i>At destination</i>
Country elevators		
Rail	98	87
Truck	70	88
Barge	100	20
Terminal elevators^b		
Rail	95	75
Truck	62	100
Barge	100	67
Feed manufacturers^c		
Rail	100	100
Truck	72	90
Barge	98	100
Integrated poultry and livestock		
Rail	99	82
Truck	92	92
Barge	100	82

^aPercentages are average for firms that reported receipts by each mode of transportation

^bIncludes port elevator

^cIncludes processors

Grain Received

There were more than 219 million bushels of grain received, both intrastate and interstate, by Alabama grain and feed marketing firms in 1977, table 18. This was an increase of 37.7 percent since 1970 (2). Corn remained the most important grain received, accounting for 111,450,000 bushels, or more than 50 percent of total grain received. Figures 2 through 5 show flows of grains into Alabama from other states.

Soybeans were the second most important grain in Alabama in 1977 in terms of volume received. Receipts amounted to 88,898,000 bushels or 40.6 percent of grain received in 1977, an increase since 1970 of 152.7 percent when only 35,173,000 bushels were received (2). Only small amounts of wheat, grain sorghum, oats, and rye were received by Alabama firms in 1977.

Over 57 percent of all grains imported into Alabama in 1977 were received by firms in north Alabama, table 19. This was expected since the soybean processors, larger feed manufacturers, and the larger integrated poultry firms were located in north Alabama. The above percentage compares with the 67.8 percent received by firms in north Alabama in 1970 (2). South Alabama has increased its share partially as a result of more rapid increase in soybean production and exports from the Port of Mobile.

Rye was the only grain received in greater quantity in south Alabama than in north Alabama but this was only a small amount. All other grains were received in greater quantities in north Alabama.

Corn receipts, both intrastate and interstate, increased between 1970 and 1977, table 20 (2). There was an 18.7 percent increase in intrastate and a 14.8 percent increase in interstate receipts over 1970.

Grain sorghum showed only a slight increase in intrastate receipts; however, an 86.2 percent decrease was shown in interstate receipts (2). This decrease was partially attributable to more farmers converting to the production of soybeans at the expense of production of grain sorghum.

Soybean receipts increased more than any other grain from 1970 to 1977 showing an increase of 363 percent intrastate and 274 percent interstate, (2). Wheat increased 66 percent in interstate receipts and oats decreased 52 percent in this time period (2).

TABLE 18. GRAIN RECEIVED, BY KIND OF
GRAIN AND ORIGIN, ALABAMA, 1977

Area or origin:	Kind of grain						Total	Percent
	Corn	Grain sorghum	Soybeans	Wheat	Oats	Rye		
Intrastate (1,000 bu.)								
Farmer	7,375	35	28,526	1,908	561	0	38,405	
Elevator	8,726	32	31,548	1,850	735	0	42,891	
Within state total	16,101	67	60,074	3,758	1,296	0	81,296	
Interstate (1,000 bu.)								
Total Southern States ^a	11,560	64	18,738	650	151	10	31,173	22.66
Illinois	47,579	180	5,945	1,642	507	0	55,853	40.77
Indiana	29,000	-	1,341	515	3	-	29,859	21.78
Missouri	2,078	32	2,145	1,339	-	-	5,594	4.16
Iowa	1,547	-	329	-	200	-	2,076	1.61
Minnesota	1,512	-	-	2,268	1,404	-	5,184	3.86
Ohio	2,073	-	326	-	-	-	2,399	1.84
Total Corn Belt	83,789	212	10,086	5,764	2,114	-	101,965	74.02
Total Great Plains States ^b	-	32	-	4,511	72	-	4,615	3.35
Total interstate	95,349	308	28,824	10,925	2,337	10	137,753	100.00

^aSouthern States include: La., Miss., Fla., Ga., Tenn., Ky., and S.C.

^bGreat Plains States include: Okla., Nebr., and Kan.

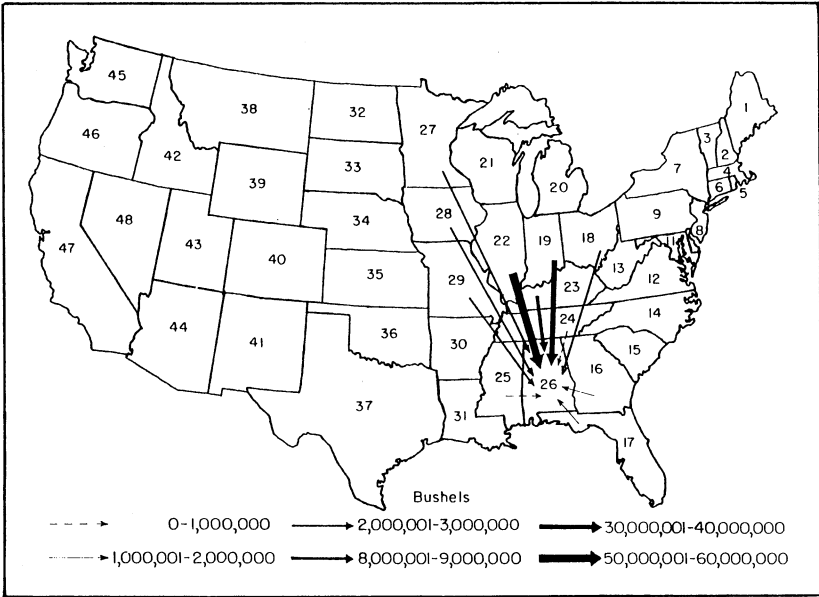


FIG. 2. Corn received from outside of Alabama, 1977.

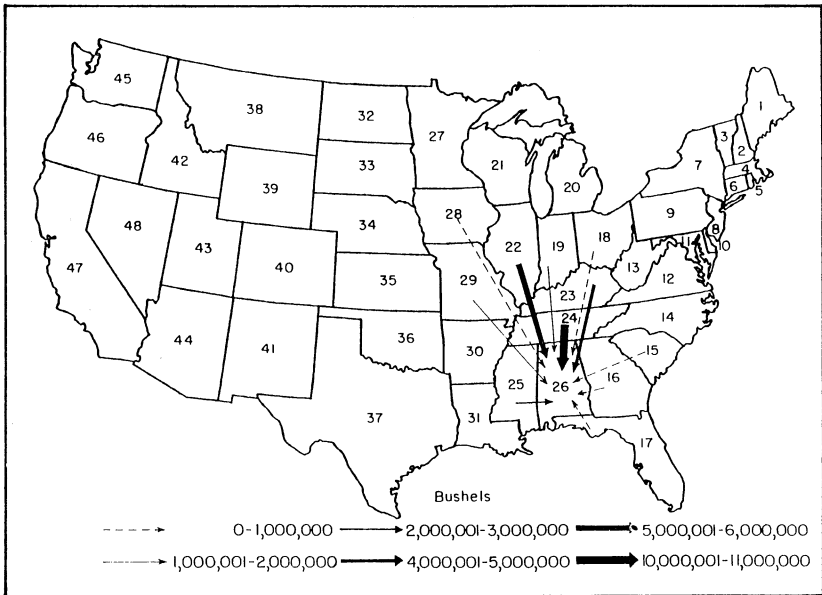


FIG. 3. Soybeans received from outside of Alabama, 1977.

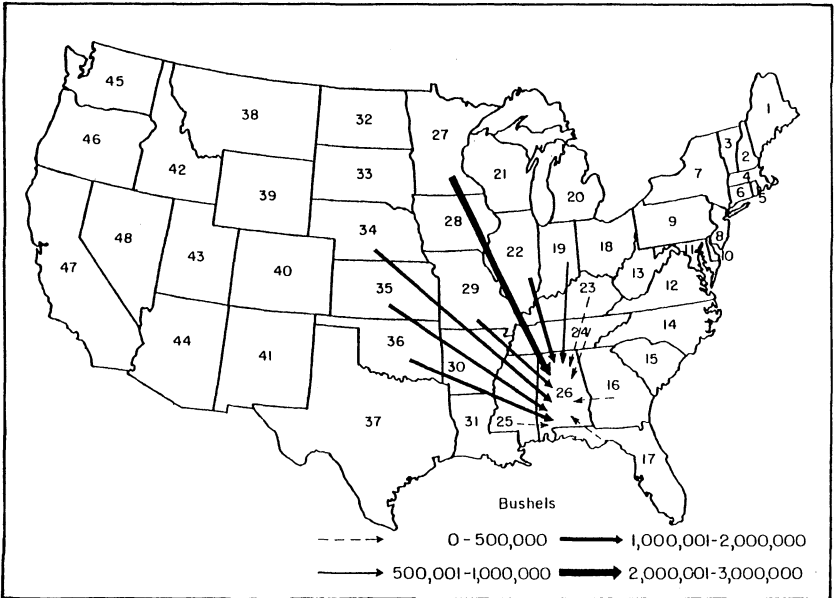


FIG. 4. Wheat received from outside of Alabama, 1977.

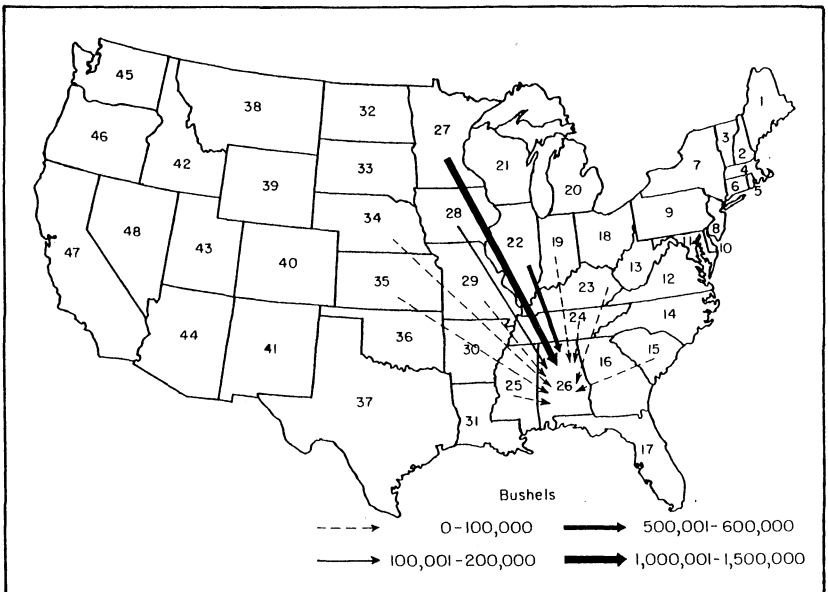


FIG. 5. Combined totals of oats, rye, and grain sorghum received from outside of Alabama, 1977.

TABLE 19. GRAIN RECEIVED, BY KIND OF GRAIN AND AREA OF STATE, ALABAMA, 1977

Kind of grain	Area of receipts			State	Percent
	Port elevator area 41	South Alabama area 07	North Alabama area 08		
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
Corn.....	19,471	21,429	70,550	111,450	50.89
Soybeans.....	21,509	21,564	45,825	88,890	40.57
Wheat.....	5,038	3,215	6,430	14,683	6.70
Oats.....	0	742	2,891	3,633	1.66
Grain sorghum.....	0	35	340	375	.17
Rye.....	0	10	0	10	.01
Total.....	46,018	46,995	126,036	219,049	100.00
Percentage by different areas.....	21.0	21.5	57.5	100.00	

Grain Received by Area of Origin

Nearly 63 percent of all grain received originated from out-of-state sources in 1977, table 18. Grain received from within Alabama amounted to 81,296,000 bushels of which 38,405,000 bushels were received from farmers. This grain received from farmers was 17.5 percent of the total received, an increase of 3.4 percent over 1970, (2).

Corn. More than 85.5 percent of the corn received or 95,349,000 bushels, was received from sources outside Alabama, while only 6.6 percent was received from Alabama farmers in 1977, tables 18 and 20. The rest was received from other firms within Alabama. Nearly 50 percent of the corn received from out-of-state sources was received from Illinois while approximately 30 percent was received from Indiana. This compared to slightly over

TABLE 20. COMPARISON BETWEEN INTRASTATE AND INTERSTATE GRAIN RECEIPTS, ALABAMA, 1970 AND 1977^a

Kind of grain	1970 ^b		1977		Percent change	
	Intra-state	Inter-state	Intra-state	Inter-state	Intra-state	Inter-state
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>	<i>Pct.</i>
Corn.....	13,577	83,108	16,101	95,349	18.7	14.8
Grain sorghum.....	60	2,224	67	308	11.7	-86.2
Soybeans.....	12,981	7,694	60,074	28,824	362.8	274.3
Wheat.....	3,487	7,174	3,758	10,925	7.8	66.5
Oats.....	1,194	5,059	1,296	2,337	8.5	-52.3
Rye.....	0	0	0	10	0	0
Barley.....	50	0	0	0	0	0
Total.....	31,349	105,259	81,296	137,753	159.3	30.9

^aIncludes the Public Grain Elevator at Mobile.

^bCavanaugh, Jon David, *An Analysis of the Feed Grain Market for Alabama in 1970*, Unpublished M.S. Thesis, Auburn University, Auburn University, Alabama, June, 1971.

^cPercent change meaningless here.

54 percent received from Illinois and 17.5 percent received from Indiana in 1970, (2). Adjoining southern states plus Kentucky shipped Alabama slightly over 10 percent of the imported corn.

Grain sorghum. Slightly more than 82 percent of the grain sorghum came from out-of-state sources in 1977, table 18. Illinois was the primary source of interstate grain sorghum received. In comparing out-of-state shipments in 1977 with 1970 shipments, there has been an 86.2 percent reduction in the quantity of grain sorghum received, table 20.

Soybeans. More than 28 million bushels of soybeans were received from farmers in 1977, table 18. This compares with 5,554,000 bushels in 1964, and 14,498,000 bushels in 1970 (2). Tennessee was the main source of soybeans from out-of-state in 1977, accounting for 10,091,000 bushels, while Illinois was second with 5,945,000 bushels. These two states accounted for 56 percent of soybeans received interstate.

Wheat. Only 1,908,000 bushels of wheat were received from Alabama farmers in 1977, table 18. In addition, interstate shipments amounted to 10,925,000 bushels with Minnesota, the leading source, accounting for 2,268,000 bushels.

Oats. Oats represented less than two percent of all grains received by grain marketing firms in Alabama in 1977, table 19. Minnesota was the leading source of oats received interstate, accounting for 1,404,000 bushels or 60 percent of the total in 1977, table 18.

Rye. There were no reports of local quantities of rye received from farmers in 1977 by Alabama grain firms in the sample, table 18. Only one firm reported receipts of rye from out-of-state sources.

Grain Received by Type of Firm

Feed manufacturers received 64,175,000 bushels of grain, or 29.3 percent of the total volume in Alabama in 1977, table 21. The port elevator at Mobile accounted for approximately 21 percent, integrated poultry and livestock firms had over 20 percent, terminal elevators had nearly 18 percent, and country elevators had about 11 percent of the 219,049,000 bushel total. The quantity compares with the 159,057,000 bushels received in 1970, an increase of 32.7 percent (2).

Port elevator. Soybeans were the most important grain received by the port elevator in 1977, table 21. The 21,509,000 bushels of soybeans accounted for over 46 percent of total grains

TABLE 21. GRAIN RECEIVED, BY KIND OF GRAIN
AND TYPE OF FIRM, ALABAMA, 1977

Kind of grain	Type of firm				
	Port elevator	Terminal elevators	Country elevators	Feed manu- facturers ^a	Integrated poultry and livestock
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>
Corn	19,471	17,309	4,645	24,569	45,456
Soybeans	21,509	11,382	18,475	37,532	0
Wheat	5,038	7,719	922	1,004	0
Oats	0	2,234	669	730	0
Grain sorghum	0	0	25	340	10
Rye	0	0	10	0	0
Total	46,018	38,644	24,746	64,175	45,466
Percent	21.0	17.7	11.3	29.3	20.7

^aIncludes processors

received. Corn was second in importance. The 19,471,00 bushels of corn comprised 42 percent of the grains received while the 5,038,000 bushels of wheat accounted for the remaining 11 percent.

Terminal elevators. Corn and soybeans were the most important grains received by terminal elevators in 1977. Corn accounted for 17,309,000 bushels, or about 44.8 percent of the 38,644,000 bushels of grains received by terminal elevators, and soybeans represented 11,382,000 bushels for 29 percent of the total, table 21. Terminal elevators also received 7,719,000 bushels of wheat and 2,234,000 bushels of oats.

Country elevators. More than 74 percent of the total volume of grains received by country elevators was soybeans. Corn accounted for 4,645,000 bushels of the total, or 19 percent, table 21. Country elevators also handled nearly a million bushels of wheat, 669,000 bushels of oats, and small amounts of grain sorghum and rye.

Feed manufacturers. Feed manufacturers, combined with processors in Alabama, received 37,532,000 bushels of soybeans in 1977, table 21. This represented 58.4 percent of the 64,175,000 bushel total. The 24,569,000 bushels of corn received by feed manufacturers were 38 percent of the total. Smaller amounts of wheat, oats, and grain sorghum moved through feed manufacturers.

Integrated poultry and livestock firms. Corn accounted for nearly 100 percent of the total 45,456,000 bushels of grains received by integrated poultry and livestock firms, table 21. Only 10,000 bushels of grain sorghum were received, which was the only other grain reported by firms in the sample.

Grain Received by Kind of Grain and by Month

Grain quantities received were higher in October, November, and December while receipts in other months were fairly constant, table 22. The increased quantities in these months were partially attributed to corn and soybean harvest in Alabama and elsewhere.

Lack of storage in Alabama prevents peak buying of out-of-state grain during harvest. Corn especially is imported fairly regularly throughout the year as it is used mostly by the poultry industry and integrated poultry firms which have less storage in proportion to use than country and terminal elevators. Soybeans and wheat tend to vary somewhat more in quantities received

TABLE 22. GRAIN RECEIVED, BY KIND OF GRAIN
AND MONTH OF RECEIPT, ALABAMA, 1977

Month	Corn	Soybeans	Wheat	Oats	Grain sorghum	Rye	Total	Per- cent
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
January	10,460	7,359	901	217	28	0	18,965	8.7
February	10,754	5,223	895	212	28	0	17,112	7.8
March	9,143	3,758	819	113	28	0	13,861	6.3
April	9,317	4,054	1,299	290	28	0	14,988	6.8
May	10,102	2,496	2,107	660	28	0	15,393	7.0
June	7,236	1,797	2,152	319	29	0	11,533	5.3
July	9,337	2,692	1,801	293	33	0	14,156	6.5
August	11,060	2,214	1,034	378	38	0	14,724	6.7
September	12,467	2,448	1,612	394	29	10	16,960	7.7
October	7,530	19,055	410	245	48	0	27,288	12.5
November	7,213	22,790	868	356	29	0	31,256	14.3
December	6,831	15,012	785	156	29	0	22,813	10.4
Total	111,450	88,898	14,683	3,633	375	10	219,049	100.0

TABLE 23. GRAIN RECEIVED, BY KIND OF GRAIN AND MODE OF TRANSPORTATION, ALABAMA, 1977^a

Kind of grain	Mode of transportation		
	Rail	Truck	Water
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>
Corn.....	57,937	21,653	31,860
Soybeans.....	27,624	48,966	12,308
Wheat.....	2,543	3,534	8,606
Oats.....	547	1,006	2,080
Grain sorghum.....	211	164	0
Rye.....	10	0	0
Total.....	88,872	75,323	54,854
Percent.....	40.6	34.4	25.0

^aIncludes the port elevator

throughout the year than other grains. More than 63 percent of soybeans received were received during harvest season by country and terminal elevators, which had proportionally more storage capacity than feed firms. Nearly 38 percent of the wheat was received during the May, June, July harvest season.

Grain Received by Mode of Transportation

Rail transportation was the most important mode of transporting grain by Alabama feed and grain handling firms in 1977, table 23. Rail accounted for more than 40 percent, truck 34.4 percent, and water 25 percent of total grain shipments received.

Rail was most important in receipts of corn followed by water and truck. Trucks were the most important mode for receiving soybeans followed by rail and water, respectively. Water was the most important mode for receiving wheat and oats followed by truck and rail, respectively.

Grain Received by Truck by Distance

From farmers. More than half of all grain received from farmers by truck was transported less than 25 miles, table 24. This was expected since the cost of transportation is expensive, and farmers do not have extra time to spend delivering grain. Approxi-

TABLE 24. GRAIN RECEIVED FROM FARMERS BY TRUCK, BY KIND OF GRAIN, AND BY DISTANCE, ALABAMA, 1977

Kind of grain	Distance in miles			
	0-25	26-50	51-100	Over 100
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Corn.....	52.8	35.9	10.2	1.1
Soybeans.....	65.1	30.4	4.3	0.2
Wheat.....	60.6	31.1	6.9	1.4
Oats.....	72.3	20.2	7.5	0
Grain sorghum.....	63.9	36.1	0	0
Rye.....	0	0	0	0

mately one-third of the grains was received from the 26-50 mile category, while decreasing amounts were received from the 50-100 miles and over 100 miles classifications. As would be expected, the percentage of grain received decreased rapidly as the distance from the elevators increased.

From other elevators. There was no definite relationship between distance and grain received by truck from other elevators as there was from farmers, table 25. This was because of a high concentration of large grain firms on the Tennessee River and the poultry industry located mainly in north Alabama.

Over 51 percent of the corn was transported more than 100 miles, table 24. This was mostly due to shipments received by the port elevator from the Corn Belt. Slightly over 55 percent of the soybeans and 44 percent of the wheat were transported 26-50 miles. More than 66 percent of the oats was transported 50-100 miles. More than 20 percent of the oats was transported over 100 miles.

Shipments

During 1977, Alabama grain marketing firms shipped 102,567,-000 bushels of grains, tables 26 and 27. Most of the shipments, 45,426,000 bushels or 44.3 percent, were exported overseas while 12,731,000 bushels or 12.4 percent, were shipped out-of-state. The remaining 44,410,000 bushels or 43.3 percent, were shipped to local receivers and other grain firms in Alabama. In contrast, there were only 19,025,000 bushels exported overseas in 1970 (2). The 45,426,000 bushels exported in 1977 represented more than a 138 percent increase between 1970 and 1977. In 1970, 21,713,000 bushels of grain were shipped interstate compared with 12,731,000 bushels in 1977, a 41 percent reduction. Intrastate shipments in 1970 were only 29,991,000 bushels compared with 44,410,000 bushels in 1977, an increase of over 48 percent.

TABLE 25. GRAIN RECEIVED FROM OTHER ELEVATORS BY TRUCK, BY KIND OF GRAIN AND BY DISTANCE, ALABAMA, 1977^a

Kind of grain	Distance in miles			
	0-25	26-50	51-100	Over 100
Corn.....	<i>Pct.</i> 11.7	<i>Pct.</i> 7.1	<i>Pct.</i> 29.7	<i>Pct.</i> 51.5
Soybeans.....	19.3	55.3	21.7	3.7
Wheat	7.9	44.0	11.6	36.5
Oats	8.7	4.4	66.1	20.8
Grain sorghum.....	0	0	0	0
Rye.....	0	0	0	0

^aIncludes port elevator

TABLE 26. GRAIN SHIPMENTS, BY KIND OF GRAIN AND DESTINATION, ALABAMA, 1977

Kind of grain	Destination					Total	Percent
	South Alabama area 07 ^a	North Alabama area 08 ^a	Interstate	Export	Total		
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>	
Corn	6,974	12,412	1,844	19,827	41,057	40.0	
Soybeans	14,884	6,735	8,783	20,557	50,959	49.7	
Wheat	1,664	403	688	5,042	7,797	7.6	
Oats	473	830	1,416	0	2,719	2.7	
Grain sorghum	25	0	0	0	25	•	
Rye	10	0	0	0	10	•	
Total	24,030	20,380	12,731	45,426	102,567	100.0	
Percent	23.4	19.9	12.4	44.3	100		

^aIncludes farmer and grain firm shipments

•Less than .1 percent

Soybeans were the most important grain shipped in Alabama accounting for 50,959,000 bushels or 49.7 percent of the total shipments in 1977, of which 20,557,000 bushels or 20.0 percent were for export. Corn accounted for 41,057,000 bushels or 40 percent of the total shipments, while wheat, oats, grain sorghum, and rye accounted for the remaining small percentage.

More than 29 percent of the shipments in 1977 originated in south Alabama while over 26 percent originated in north Alabama, table 27. The port elevator at Mobile shipped the remaining 44 percent. Data revealed that a larger percent of corn was shipped from north Alabama, and a larger percent of soybeans was shipped from south Alabama. This was expected since there is a high concentration of soybean production in south Alabama and a high concentration of terminal elevators in north Alabama that import corn and distribute it within the State.

TABLE 27. GRAIN SHIPMENTS, BY KIND OF GRAIN AND AREA OF ORIGIN, ALABAMA, 1977

Kind of grain	Area of origin of shipment				Percent
	Port elevator area 2641	South Alabama area 07	North Alabama area 08	State	
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
Corn	19,827	7,696	13,534	41,057	40.0
Soybeans	20,557	19,991	10,411	50,959	49.7
Wheat	5,042	1,796	959	7,797	7.6
Oats	0	664	2,055	2,719	2.7
Grain sorghum	0	25	0	25	•
Rye	0	10	0	10	•
Total	45,426	30,182	26,959	102,567	100.0
Percent	44.3	29.4	26.3	100	

•Less than .1 percent

Shipments by Area of Destination

An estimated 58,157,000 bushels of grains were shipped to points outside Alabama in 1977, table 28. Approximately 12,731,000 bushels were shipped to other Southeastern States and 45,426,000 bushels were exported overseas.

Corn. More than 21,500,000 bushels or approximately 37.3 percent of out-of-state shipments in 1977 were corn, table 28. Alabama grain marketing firms shipped 1,844,000 bushels of corn to other Southeastern States while the remaining 19,827,000 bushels were exported overseas. Georgia was the main recipient, other than export overseas, receiving nearly 56 percent of interstate corn shipments from Alabama. Florida, Mississippi, and Tennessee also received some corn from Alabama.

Soybeans. Soybeans accounted for 29,340,000 bushels, or over 50 percent, of out-of-state grain shipments in 1977, table 28. More than 20 million bushels were exported while 8,783,000 bushels went to other Southeastern States. Tennessee was the leading recipient of soybeans with 4,064,000 bushels. Soybeans were also shipped to Georgia, Mississippi, and Louisiana.

Wheat. Over 88 percent of the out-of-state wheat shipment was exported, table 28. Only 678,000 bushels went to other Southeastern States. North Carolina was the leading recipient of interstate shipments, followed by Georgia, Tennessee, and Mississippi.

Oats. Oats were not exported, but were shipped to more states than any other grain even though quantities were small, table 28. Georgia was the leading importer with 719,000 bushels, nearly 51 percent of the total. Florida received 374,000 bushels or 26 percent, while Mississippi, North Carolina, Tennessee, South Carolina, and Kentucky received small amounts.

Grain sorghum. No firm in the sample reported shipping grain sorghum interstate in 1977, table 28.

Rye. Florida was the lone recipient of a single out-of-state shipment of rye in the sample, table 28.

Shipments by Type of Firm

Port elevator. The Alabama State Docks export elevator was the most important shipper of grains in Alabama in 1977, table 29. More than 44 percent of the grain shipments was by this facility and virtually all of it was for export. Soybeans accounted for over 45 percent of the grain handled by the port elevator. Corn shipments accounted for nearly 44 percent, and the remaining 11 percent was wheat shipments.

TABLE 28. GRAIN SHIPMENTS TO POINTS OUT OF STATE, BY KIND
OF GRAIN AND AREA OF DESTINATION, ALABAMA, 1977

Area number and location of destination	Corn	Soybeans	Wheat	Oats	Grain sorghum	Rye	Total	Percent
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
14-North Carolina	0	0	394	97	0	0	491	0.9
15-South Carolina	0	0	0	29	0	0	29	•
16-Georgia	1,032	1,998	152	719	0	0	3,901	6.7
17-Florida	591	0	0	374	0	10	965	1.7
23-Kentucky	0	0	0	9	0	0	9	•
24-Tennessee	92	4,064	70	65	0	0	4,291	7.4
25-Mississippi	129	2,378	62	123	0	0	2,692	4.6
31-Louisiana	0	343	0	0	0	0	343	.6
Subtotal	1,844	8,783	678	1,416	0	10	12,731	21.9
9000-Export	19,827	20,557	5,042	0	0	0	45,426	78.1
Total	21,671	29,340	5,720	1,416	0	10	58,157	100.0

*Less than .1 percent

Terminal elevators. Terminal elevators, except the port elevator, were second in importance with 30,354,000 bushels shipped, or 29.6 percent of the total in 1977, table 29. Corn was the most important grain handled by these firms accounting for 15,039,000 bushels, or nearly 50 percent of their total shipments. Soybeans accounted for 11,437,000 bushels, or approximately 38 percent. Smaller amounts of wheat and oats were handled by terminal elevators.

Country elevators. Country elevators shipped 21,096,000 bushels of grains, or 20.6 percent of the total in 1977, table 29. Soybeans were the most important grain handled by country elevators, accounting for 15,457,000 bushels, or 73 percent of their total shipments. Corn accounted for 4,008,000 bushels, or nearly 19 percent of the total. Smaller shipments of wheat, oats, grain sorghum, and rye were also handled.

Feed manufacturers. Feed manufacturers shipped 5,574,000 bushels of grains, which was only 5.4 percent of the total, table 29. This was mostly from firms of mixed types which were classed as feed manufacturers. Corn and soybeans were the only grains shipped with soybeans being the most important. It should be pointed out that one multipurpose firm shipped all the soybeans. Soybeans accounted for approximately 63 percent and corn accounted for the remaining 37 percent of the grain shipments by feed manufacturers.

Integrated poultry and livestock. Shipments of grains by integrated poultry and livestock firms were small, table 29. This was anticipated since grain is purchased for use by the facility.

Shipments by Kind of Grain and by Month

October was the leading month for grain shipments with 15,867,000 bushels, or 15.5 percent of total shipments in 1977. November was second with 15,161,000 bushels, or 14.8 percent, table 30. Other months in order of importance were January with 12,145,000 bushels, February with 9,931,000 bushels, and December with 9,436,000 bushels. Shipments in other months were relatively evenly distributed except June which was the low month with 3,783,000 bushels.

Large shipments of soybeans in October and November, the harvest season, resulted in these months being the leading shipment months. Shipments of wheat were slightly higher during the June and July harvest season.

TABLE 29. GRAIN SHIPMENTS, BY KIND OF GRAIN
AND TYPE OF FIRM, ALABAMA, 1970

Kind of grain	Type of firm				
	Port elevator	Terminal elevators	Country elevators	Feed manu- facturers	Integrated poultry and livestock
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>
Corn	19,827	15,039	4,008	2,074	109
Soybeans	20,557	11,437	15,457	3,500	8
Wheat	5,042	1,792	963	0	0
Oats	0	2,086	633	0	0
Grain sorghum	0	0	25	0	0
Rye	0	0	10	0	0
Total	45,426	30,354	21,096	5,574	117
Percent	44.3	29.6	20.6	5.4	.1

TABLE 30. GRAIN SHIPMENTS, BY KIND OF GRAIN AND MONTH OF SHIPMENT, ALABAMA, 1977

Month	Corn	Soybeans	Wheat	Oats	Grain sorghum	Rye	Total	Percent
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
January.....	5,647	5,931	392	175	0	0	12,145	11.8
February.....	5,543	4,013	228	147	0	0	9,931	9.7
March.....	3,196	2,554	229	165	0	0	6,144	6.0
April.....	3,797	2,591	502	283	0	0	7,173	7.0
May.....	4,645	638	792	355	0	0	6,430	6.3
June.....	1,500	239	1,800	244	0	0	3,783	3.7
July.....	3,244	679	1,800	265	5	0	5,993	5.8
August.....	5,030	17	259	268	10	0	5,584	5.4
September.....	2,884	742	1,077	207	0	10	4,920	4.8
October.....	2,045	13,269	327	216	10	0	15,867	15.5
November.....	1,692	12,923	350	166	0	0	15,161	14.8
December.....	1,834	7,363	11	228	0	0	9,436	9.2
Total.....	41,057	50,959	7,797	2,719	25	10	102,567	100.0

Shipments by Mode of Transportation

The most important mode of transportation in shipments of grains in Alabama, excluding export, was truck, table 31. The second most important mode of transportation was water, while rail was third.

Barge transportation in 1977, including export, accounted for 58 percent of the shipments while truck represented 31.9 percent, and rail accounted for 10.1 percent. These percentages compare with 1970 as follows: barge, 41.7; truck, 30.1; and rail, 28.2 (2). In 1970, there was a more even distribution of the shipments by mode of transportation than in 1977. The shift from rail to barge transportation is partially accounted for by the 26,401,000 bushel increase in exports (2).

The data reveal that barge transportation was the most important mode in terms of shipments of the three leading grains; corn, soybeans, and wheat. Truck remained second in importance while rail was least important. In transporting the lesser important grains (oats, grain sorghum, and rye), water transportation was not used. Transportation was by rail and truck, table 31.

Shipments by Truck by Distance

To farmers. More than half of all grain shipments to farmers by truck traveled less than 25 miles, table 32. The remainder fell in the 26-50 mile category except for corn where slightly more than 1 percent traveled 50 to 100 miles. No shipments were reported in the over 100 mile-distance category. As with receipts, in each case the percentage of grain shipments decreased rapidly as the distance increased.

To other elevators. There was no definite relationship between distance and shipments of grain by truck to other ele-

TABLE 31. GRAIN SHIPMENTS, BY KIND OF GRAIN AND MODE OF TRANSPORTATION, ALABAMA, 1977

Kind of grain	Rail	Truck	Water		
			Domestic	Export	Total water
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>
Corn	1,042	17,709	2,479	19,827	22,306
Soybeans	7,012	12,870	10,520	20,557	31,077
Wheat	700	1,010	1,045	5,042	6,087
Oats	1,566	1,153	0	0	0
Grain sorghum	10	15	0	0	0
Rye	0	10	0	0	0
Total	10,330	32,767	14,044	45,426	59,470
Percent	10.1	31.9	13.7	44.3	58.0

TABLE 32. GRAIN SHIPMENTS TO FARMERS BY TRUCK, BY KIND OF GRAIN, AND BY DISTANCE, ALABAMA, 1977

Kind of grain	Distance in miles			
	0-25	26-50	51-100	Over 100
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Corn	67.0	31.8	1.2	0
Soybeans	0	0	0	0
Wheat	60.9	39.1	0	0
Oats	50.9	49.1	0	0
Grain sorghum	0	0	0	0
Rye	0	0	0	0

vators, table 33. Corn was the only grain that followed the pattern of decreasing shipments as the distance increased from the elevator. The highest percentage of soybean shipments traveled 50-100 miles. The over 100-mile category of shipments contained the highest percentages of wheat, oats, and grain sorghum.

Net Grain Imports

"Net grain imports" refers to the amount of grain imported into Alabama which remained within the State and was available for utilization by Alabama firms or Alabama farmers. Net grain received refers to the total amount of grain received into Alabama from out-of-state sources and net shipments is the total grain shipped out of state. By subtracting net shipments from net receipts, net imports are determined, table 34.

Net imports were 79,596,000 bushels in 1977, compared with 70,703,000 bushels in 1970 (2). Corn accounted for almost 93 percent of the 1977 figure which was very close to the 88.6 percent reported in 1970. Wheat accounted for 6.5 percent of the 1977 net imports while in 1970, 4.4 percent of net imports was accounted for by wheat.

Net imports of oats, grain sorghum, and rye were very low. Soybeans were the only grain with a negative net import in the sample in 1977.

TABLE 33. GRAIN SHIPMENTS TO ELEVATORS BY TRUCK, BY KIND OF GRAIN, AND BY DISTANCE, ALABAMA, 1977

Kind of grain	Distance in miles			
	0-25	26-50	51-100	Over 100
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
Corn	45.4	27.5	18.4	8.7
Soybeans	28.6	25.7	38.1	7.6
Wheat	4.3	35.1	5.2	55.4
Oats	29.6	9.2	2.7	58.5
Grain sorghum	0	0	0	100.0
Rye	0	0	0	0

TABLE 34. NET GRAIN IMPORTS, BY KIND OF GRAIN, ALABAMA, 1977

Kind of grain	Item			
	Net grain received	Net shipments	Net imports	Percent
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>Pct.</i>
Corn	95,349	21,671	73,678	92.6
Soybeans	28,824	29,340	-516	-0.7
Wheat	10,925	5,730	5,195	6.5
Oats	2,337	1,416	921	1.2
Grain sorghum	308	0	308	0.4
Rye	10	0	10	0
Total	137,753	58,157	79,596	100.0

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APPENDIX — GLOSSARY OF TERMS

1. **Country elevator** — This is a firm whose primary activity is the collection and merchandising of raw grain from farmers. Specifically, firms classed as a country elevator receive more than 50 percent of the raw grain directly from farmers and more than 50 percent of the raw grain received was shipped out of the facility as raw grain. The definition is not affected by the distribution of the grain or by whether some manufacturing of feed or ingredients takes place at the firm.

2. **Terminal elevator** — A firm whose primary activity is the collection and merchandising of raw grain from other firms rather than farmers. It is classed as a terminal elevator if it receives more than 50 percent of its grain from firms other than farmers. Although it is typical that terminal elevators sell to firms other than farmers, some firms may be classed as terminal elevators that receive more than 50 percent of their grain from other firms and sell directly to farmers. However, more than 50 percent of the raw grain received must be shipped out of the facility as raw grain to be classified as a terminal elevator.

3. **Feed manufacturer or feed mill** — A firm whose primary activity is any kind of feed manufacturing, including such activities as production of complete feeds, production of feed ingredients and premixes, feed grinding (including custom grinding), and feed mixing. More than 50 percent of its total revenue must come from the sale of feed or feed ingredients.

4. **Integrated poultry** — A firm, which could otherwise be classified as a feed manufacturer or feed mill, whose operation involves raising of broilers, production of eggs, or raising of other poultry as part of a total operation, and more than 50 percent of its dollar revenue comes from the sale of poultry or poultry products. In order to qualify under this category for this study, such a firm must receive at least some raw grain as part of the total operation.

5. **Integrated livestock** — Same as integrated poultry except that it involves all other livestock except poultry.

6. **Soybean processor** — A firm whose primary activity is extracting oil from soybeans, with soybean meal a product of the operation. It receives more than 50 percent of its revenue from processed products of soybeans.

7. **Flour mill** — A firm whose primary activity is the milling of wheat flour(s) that result from complete milling of at least 50 percent of the wheat flour (s) produced.

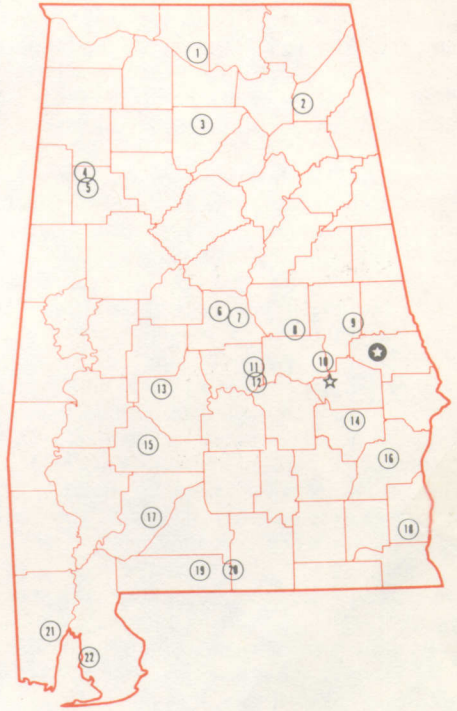
8. **Dry corn miller** — A firm whose primary activity is the milling of corn meal, corn flour, pearl hominy, hominy grits, brewer's grits, or corn germ. More than 50 percent of its revenue must come from the sale of corn-milled products.

9. **Port elevator** — A firm whose primary activity is the collection of raw grain for export and the loading of ocean-going vessels.

¹"Port Elevator" in this study refers to the Public Grain Elevator of the Alabama State Docks System, Mobile, Alabama.

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Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. The Turnipseed-Ikenberry Place, Union Springs.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Solon Dixon Forestry Education Center, Covington and Escambia counties.
21. Ornamental Horticulture Field Station, Spring Hill.
22. Gulf Coast Substation, Fairhope.