

KANSAS GRAIN FLOWS AND TRANSPORTATION MODES
DURING 1977

by

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I. INTRODUCTION

This report describes Kansas wheat, corn, sorghum, and soybean market flow patterns in 1977. Grain movement by modal split, seasonal receipt and shipment patterns along with other characteristics of the participants are also presented. The report also discusses reasons for changes in the movement of grain with relation to industry structure.

Adequate information concerning the distribution of grain is needed by many participants, both public and private, in making business decisions concerning the production, storage and shipment of grain.

Given the prominent role which transportation plays in the grain marketing process, an interaction occurs between size and pattern of market movement of grain and transportation conditions, including public policy for transportation. Rate increases by for-hire carriers and structural and institutional changes in carrier industries are partially the result of, and also may result in, new and altered grain movement patterns between producers and consumers.

Transportation in the United States is experiencing a period of change. Rising fuel costs during the past few years and in the future will continue to affect transportation costs. Rail-line abandonment causes concern in rural communities. Questions of business environment in transportation suggest review of regulatory conditions among

carriers. Policy review is not new for the transportation sector of our economy, but existing questions have brought about strong pressure for modification of policies concerning the existing structure of the industry.

Historically, agriculture has had special attention in development of transportation policy because of the importance of an uninterrupted flow of food.¹ The actual volume of agricultural goods moved has been notable. In 1975, 459 million metric tons of farm products moved off the farm, of which about 252 million were dry bulk commodities.² In 1977, grains shipped by rail totaled 1,250,000 carloads, or approximately 108 million metric tons, and grains shipped by barge were 40 million metric tons.³

II. ECONOMIC IMPORTANCE OF WHEAT, CORN, SORGHUM AND SOYBEANS

United States

In 1974, 361 million acres of land were used for cropland in the United States, which was 16 percent of the nation's total acreage.⁴ Wheat, corn, sorghum and soybean production accounted for almost 186 million acres of 60.2 percent of the total cropland (Table 1). The farm value of these grains totaled \$29 billion, or 53.5 percent of the \$54 billion total farm value of major crops.

TABLE 1
CROPS HARVESTED AND FARM VALUE OF PRODUCTION
IN THE UNITED STATES FOR 1974

Crop	Acres Harvested	%	Farm Value	
			(Million Dollars)	%
Wheat	62,957,215	20.4	6,890	12.7
Corn	61,653,842	20.0	12,942	23.9
Sorghum	12,929,130	4.2	1,540	2.8
Soybeans	<u>48,118,849</u>	<u>15.6</u>	<u>7,656</u>	<u>14.1</u>
Total	185,659,036	60.2	29,027	53.5
Other Grains	24,173,641	7.8	2,924	5.4
Other Crops	<u>98,974,047</u>	<u>32.0</u>	<u>22,158</u>	<u>41.1</u>
Total Cropland	308,806,724	100.0	54,109	100.0

Source: USDA, Bureau of Census, 1974 Census of Agriculture, (Washington, D.C.), Vol. I, part 51, pp. 105.

In 1974, cash receipts from sales of corn, wheat, sorghum and soybeans in the United States totaled \$25 billion, which was 49 percent of total crops sold, or 27.1 percent of total farm marketings (Table 2). Cash receipts from the marketing of these four grains in 1977 amounted to \$24 billion; 48.6 percent of total crops sold or 24.5 percent of total cash receipts from farm sales.

TABLE 2
CASH RECEIPTS FROM FARM MARKETINGS IN THE UNITED STATES
(Million Dollars)

Commodity	1974		1977	
	Cash Receipts	%	Cash Receipts	%
Corn	8,843	9.6	7,892	8.2
Wheat	6,895	7.6	4,475	4.8
Sorghum	1,295	1.4	987	1.0
Soybeans	<u>7,401</u>	<u>8.5</u>	<u>10,203</u>	<u>10.6</u>
Total	25,024	27.1	23,557	29.6
Other Grains*	<u>386</u>	<u>.4</u>	<u>894</u>	<u>.9</u>
Total Grains	25,410	27.5	24,451	25.5
All Other Crops	<u>25,680</u>	<u>27.8</u>	<u>24,067</u>	<u>25.0</u>
Total Crops	51,090	55.3	48,518	50.5
Livestock	<u>41,359</u>	<u>44.7</u>	<u>47,565</u>	<u>49.5</u>
Total Farm Marketing	92,449	100.0	96,083	100.0

Source: USDA, Crop Reporting Board, Field Crops, Production, Disposition, Value, 1975-1976-1977; 1977-1978, CrPr1 (78), CrPr1 (79), (Washington, D.C.). USDC, Bureau of Census, Statistical Abstract of the United States: 1977, 98th Edition, (Washington, D.C.), pp. 686-689.

*Oats, Barley, Rye

Kansas

In 1977, Kansas harvested 20.7 million crop acres which was 5.9 percent of the nation's 351 million acres.⁵ Agricultural crops were harvested from almost 40 percent of the total land area in Kansas in the same year.⁶

Kansas produced more wheat and sorghum than any other state during 1977 and also ranked numbers ten and fifteen, respectively, in corn and soybean production.⁷ About 87 percent of the total harvested acreage in the state consisted of these four grains (Table 3). The farm value of these four major field crops was 80.1 percent of the farm value of all crop production which also points out the relatively high value per acre of other minor crops.

TABLE 3
HARVESTED ACREAGE IN KANSAS AND FARM VALUE IN 1977

Commodity	Harvested Acreage	%	Farm Value (\$1,000)	%
Wheat	12,100,000	53.6	772,464	37.0
Corn	1,680,000	7.4	320,947	15.4
Sorghum	4,780,000	21.2	422,820	20.3
Soybeans	<u>990,000</u>	<u>4.4</u>	<u>155,183</u>	<u>7.4</u>
Total	19,550,000	86.6	1,671,414	80.1
Other Cropland	<u>3,027,600</u>	<u>13.4</u>	<u>416,350</u>	<u>19.9</u>
Total Cropland	22,577,600	100.0	2,087,764	100.0

Source: Kansas State Board of Agriculture, 62nd Annual Report and Farm Facts, (Topeka), p. 108.

Cash receipts of grain as a percentage of the sale of all farm products for the state can again be used to emphasize the value of grains to be transported. Wheat, corn, sorghum and soybeans accounted for 84.6 percent of the cash receipts from the sale of all crops and 35.7 percent of total farm marketing receipts (Table 4).

TABLE 4
CASH RECEIPTS FROM SALE OF FARM MARKETINGS
IN KANSAS FOR 1977

Commodity	Cash Receipts	
	(\$1,000)	%
Wheat	736,158	19.1
Corn	221,453	5.8
Sorghum	266,377	6.9
Soybeans	<u>151,305</u>	<u>3.9</u>
Total	1,375,293	35.7
Other Crops	<u>249,557</u>	<u>6.5</u>
Total Crops	1,624,850	42.2
Livestock	<u>2,224,033</u>	<u>57.8</u>
Total	3,848,883	100.0

Source: Kansas State Board of Agriculture, 62nd Annual Report and Farm Facts, (Topeka), pp. 111, 223.

In addition, Kansas led all states in 1977 in value of foreign sales of wheat and flour, accounting for \$474.1 million or 15.8 percent of the U.S. total.⁸

The volume and value of the four major grains are important to the Kansas economy as well as to the economy and foreign trade position of

the entire nation. Many consumers of agricultural products are distant from Kansas' major production areas, therefore, the need to interface grain transportation demands with an adequate transportation system. Knowledge of grain flow patterns will help achieve a compatible interfacing.

III. METHODOLOGY

The primary source of data on Kansas grain movements during the 1977 calendar year was a Kansas State University survey of grain marketing firms in the state. Mail questionnaires were sent to all country elevators in Kansas. Elevator representatives in each of the terminal cities were personally interviewed and sample data were collected from freight bills or daily journals. Personal interviews with representatives of all consenting flour mills, soybean and corn processors were used to complete questionnaires. Major feed mills were also surveyed by personal interviews to complete questionnaires.

The primary objective of the survey was to provide information for the grain and transportation industries and public agencies on grain movements and movement changes over time. Specifically, objectives included:

- (1) To identify origin and destination points for movements of grain along with quantities flowing between these points;
- (2) To establish movement volume by type of carrier;
- (3) To identify seasonal patterns of grain movement;
- (4) To obtain information on firm characteristics, marketing patterns, and transportation related characteristics.

A diagram representing the flow of grains between participants is illustrated in Figure 1.

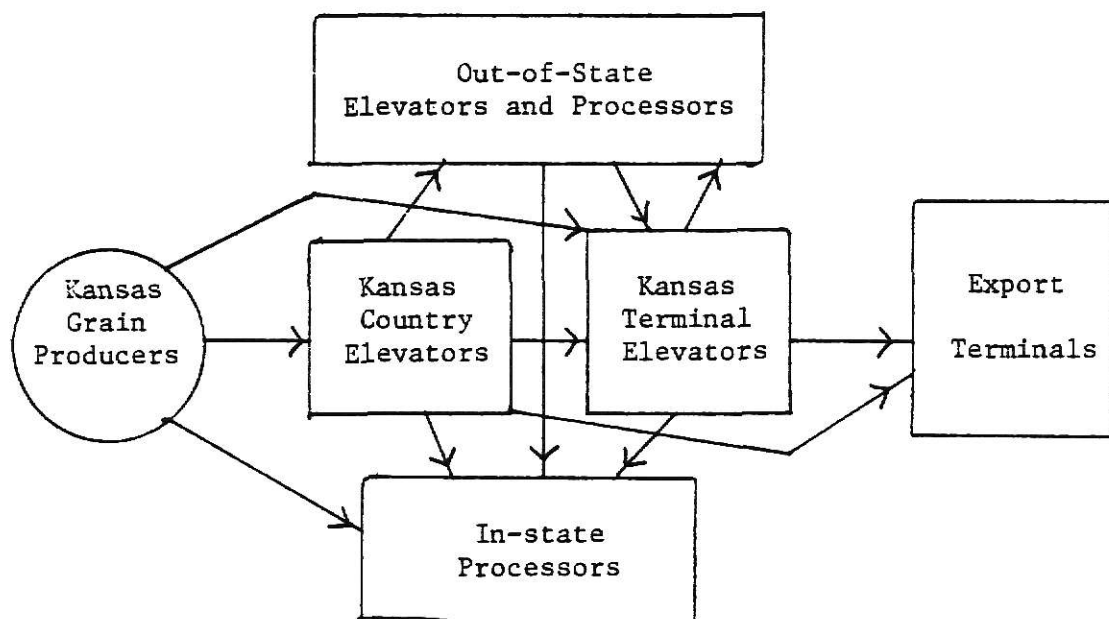


Figure 1. Schematic Diagram of Major Grain Flows in Kansas.

The state of Kansas is composed of nine crop reporting districts from which most agricultural data are reported (Figure 2). Survey responses were designated by their location in a specific crop reporting district. The survey data for each type of firm within each district were expanded to provide an estimate of the total grain flow pattern for that district.

Calculation of the expansion factors was slightly altered by type of firm. The country elevator expansion factor was calculated by dividing the number of facilities in the universe by the sample size (number of respondents) for each crop reporting district. The terminal elevator expansion factor was calculated by dividing the total storage capacity of all facilities handling specific grains by the total storage capacity of respondents handling those specific grains. Processor facilities survey responses used an expansion

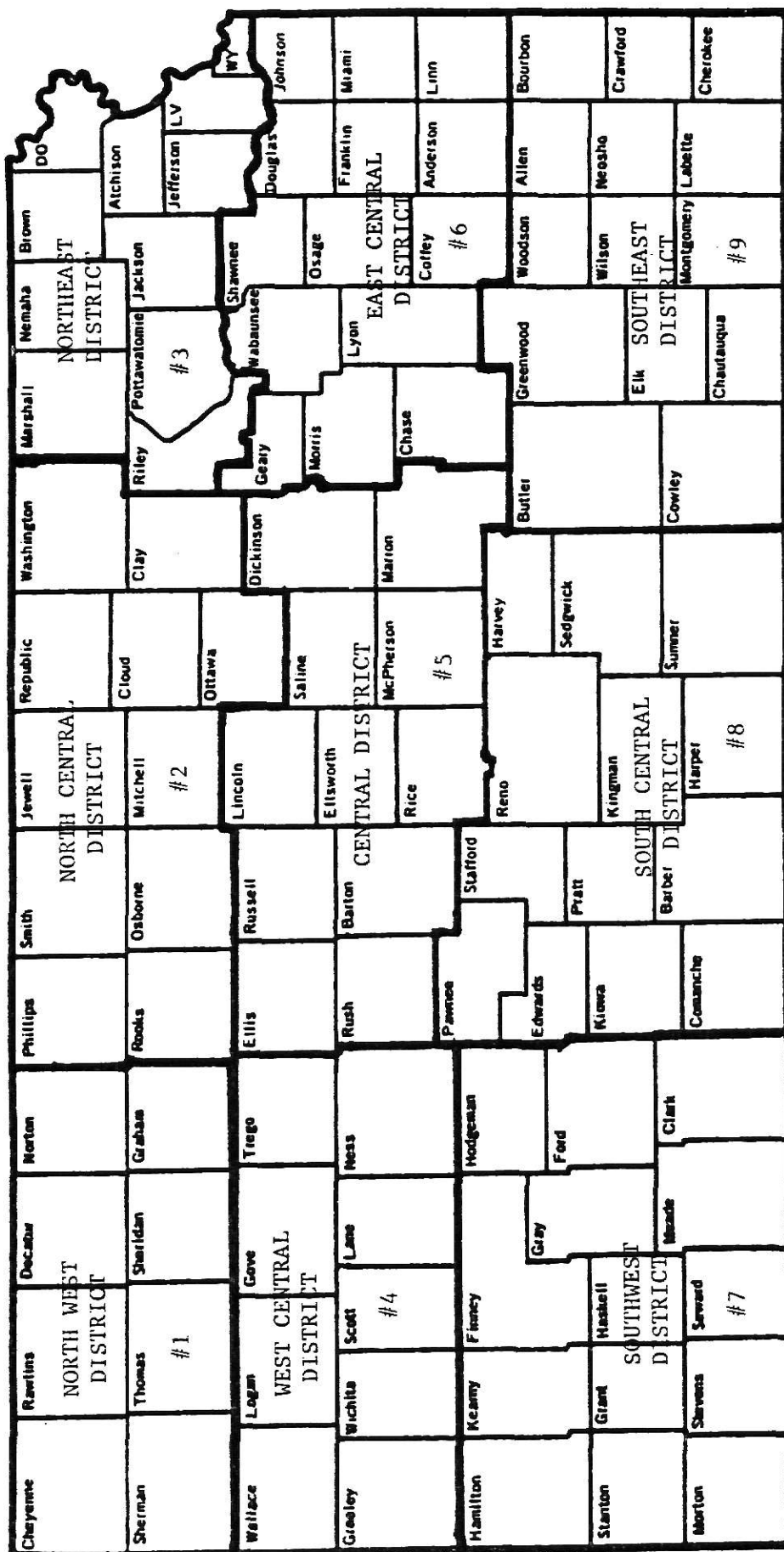


Figure 2. Kansas Crop Reporting Districts.

factor calculated by dividing the total daily manufacturing capacity, measured in hundredweight per day (cwt/day), in that city-area by the total manufacturing capacity of the respondents.

The expanded numbers were then totaled to describe the total movement for each type of firm in each crop reporting district. Sampling results for each type of firm and district appear in Tables 5-8.

TABLE 5
SAMPLING PLAN FOR COUNTRY ELEVATORS

Crop Reporting Districts	Storage Capacity 1000 Bushels	Storage Capacity Surveyed 1000 Bushels	Number in Universe	Sampling Rate by Number of Firms	Sampling Size	Expansion Factor
Northwest	42,841	20,259	71	.42	30	2.37
West Central	50,734	19,598	126	.35	44	2.87
Southwest	100,838	30,067	123	.29	33	3.73
North Central	55,050	20,594	112	.34	38	2.95
Central	66,502	23,540	124	.45	55	2.27
South Central	88,724	58,883	177	.51	90	1.97
North East	29,369	11,822	58	.38	22	2.62
East Central	20,665	6,212	98	.27	26	3.76
South East	26,279	6,163	96	.29	28	3.42
TOTAL	481,002	197,138	985	.37	366	2.69

TABLE 6
SAMPLING PLAN FOR TERMINAL ELEVATORS

Terminal Location	Total Storage Capacity (1000 Bushels)	Storage Capacity Surveyed	Number in Universe	Sample Size (Number)	Sampling Rate by Capacity and Grain Handled			Expansion Factors		
					Wheat	Milo	Corn	Wheat	Milo	Corn
Salina	47,076	42,000	5	2	.89	.89	.95	1.0	1.12	1.15
Kansas City-Atchison	71,746	59,224	13	7	.84	.86	.86	.96	1.19	1.16
Hutchinson	44,357	42,109	8	5	.95	.98	1.0	1.0	1.15	1.02
Wichita	56,208	48,923	6	4	.95	.98	1.0	1.0	1.05	1.02
Topeka	48,223	45,164	6	4	.94	.94	1.0	1.0	1.07	1.00
TOTAL	287,610	237,420	38	22						

TABLE 7
SAMPLING PLAN FOR FLOUR MILLS AND SOYBEAN PROCESSORS

Location by Crop Reporting District	Storage Capacity (1000 Bushels)	Storage Capacity Surveyed	Processing Capacity (CWT Daily)	Processing Capacity Surveyed	Number in Universe	Sampling Rate	Sampling Size	Expansion Factor
<u>Flour Mills</u>								
Western Kansas	-	-	-	-	0	-	0	-
North Central/ Central	4,800	2,800	10,500	5,500	2	.5	1	2.0
Northeast	3,150	3,150	24,100	24,100	3	1.0	3	1.0
South Central	23,128	23,128	47,100	47,100	6	1.0	6	1.0
East Central/ Southeast	5,686	4,250	40,000	32,500	5	.8	4	1.34
Total	36,764	33,328	121,700	109,200	16		14	
<u>Soybean Processors</u>								
Western Kansas	-	-	-	-	0	-	0	-
North Central/ Central	-	-	-	-	0	-	0	-
Northeast	-	-	-	-	0	-	0	-
South Central	2,000	2,000	-	-	1	1.0	1	1.0
East Central/ Southeast	5,914	5,914	-	-	3	1.0	3	1.0
Total	7,914	7,914			4		4	

TABLE 8
SAMPLING PLAN FOR FEED MANUFACTURERS AND CORN PROCESSORS

Location by Crop Reporting District	Bushel Capacity (1000 Bushels)	Capacity Surveyed	Capacity (CWT Daily)	Capacity Surveyed (CWT Daily)	Number in Universe	Sampling Rate	Sampling Size	Expansion Factor
<u>Major Feed Manufacturers</u>								
Western Kansas	-	-	-	-	0	-	0	-
North Central/ Central	1,718	1,718	-	-	3	1.0	3	1.0
Northeast	-	-	-	-	0	-	0	-
South Central	20.9	20.9	3,000	3,000	1	1.0	1	1.0
East Central/ Southeast	7.9	7.9	3,000	3,000	1	1.0	1	1.0
<u>Corn Processors</u>								
Western Kansas	1,000	1,000	3,000	3,000	1	1.0	1	1.0
North Central/ Central	-	-	-	-	0	-	0	-
Northeast	21,638	21,638	24,800	24,800	3	1.0	3	1.0
South Central	-	-	-	-	0	-	0	-
East Central/ Southeast	-	-	-	-	0	-	0	-

IV. COUNTRY ELEVATORS

The primary outlet for off-farm grain sales has been and continues to be the local or country elevator. Typically, several services are provided by country elevators to customers in their local market area. Storing, grading, blending, cleaning, and conditioning along with purchasing of grain are offered in addition to merchandising such inputs as fuel, fertilizer, feed, hardware and certain consumer products.

This section is primarily concerned with the disposition of grain received by local elevators in each of nine crop reporting districts in Kansas by mode and specific destination areas both in-state and out-of-state.

Characteristics of Firms

An important variable in decisions affecting grain shipping is the amount of storage space available on-farm with regard to storage capability of local elevators. Inadequate on-farm storage may lead to greater than normal quantities of grain being stored at local elevators. Table 9 represents grain storage capacity and grain production by district in 1977. Although the total on-farm and country elevator storage capacity of over 933 million bushels was sufficient to store all wheat, milo, corn, and soybeans produced in Kansas during 1977, the decision to hold carry-over stocks of farmer-owned or even local elevator-owned grain during the year, or longer, may increase storage needs.

TABLE 9
ON-FARM AND COUNTRY ELEVATOR STORAGE CAPACITY
AND PRODUCTION, 1977

(1000 Bushels)

District	On-Farm	Country Elevator	Total	Total Grain Production*
1 NW	60,600	42,841	103,441	71,928
2 NC	68,700	55,050	123,750	90,968
3 NE	37,600	29,369	66,969	66,439
4 WC	47,400	50,734	98,134	64,962
5 C	52,900	66,502	119,402	77,321
6 EC	32,600	20,665	53,265	62,112
7 SW	62,900	100,838	163,738	162,262
8 SC	52,600	88,724	141,324	118,627
9 SE	<u>37,300</u>	<u>26,279</u>	<u>63,579</u>	<u>62,962</u>
TOTAL	452,600	481,002	933,602	777,581

Source: Kansas State University Study, 1977
Kansas Farm Facts, 1977-78

* Wheat, Milo, Corn and Soybeans

Total Country elevator storage capacity in 1977 was 481 million bushels (Table 10). The percent of firms in each district accounts for approximately the same percent of storage capacity represented by each district. Although the Southwest district had 21 percent of total country elevator storage space, it had only 12.5 percent of the elevators. Most local elevators in Kansas had a storage capacity of less than 700,000 bushels, with the largest storage capacity class, 0-300,000 bushels, accounting for over 36 percent with 357 elevators.

Turnover ratio is a term used to describe the amount of grain received annually by a single firm or group of firms divided by the grain storage capacity. Table 11 describes turnover ratios combining receipts of wheat, milo, corn, and soybeans. A few districts, the Southeast, East Central, and Northeast, had relatively high ratios meaning that on the average, country elevators in these districts handled and disposed of quite a bit more grain in 1977 than they could store.

TABLE 11

COUNTRY ELEVATOR TURNOVER RATIOS: $\frac{\text{GRAIN RECEIVED}}{\text{STORAGE CAPACITY}}$

District	Turnover Ratio
Northwest	1.48
North Central	1.35
Northeast	1.56
West Central	1.13
Central	1.10
East Central	1.68
Southwest	1.25
South Central	1.09
<u>Southeast</u>	<u>1.79</u>
Statewide	1.29

TABLE 10
COUNTRY ELEVATOR STORAGE CAPACITY, 1977

District	Number of Firms	Percentage	Number of Firms in Each Storage Capacity Class (1000 Bushels)				Total Storage Capacity (1000 Bushels)	Percentage
			0-300	301-700	701-1300	1300		
Northwest	71	7.2	21	28	12	10	42,841	8.9
North Central	112	11.4	29	54	20	9	55,050	11.4
Northeast	58	5.9	23	20	15	0	29,369	6.1
West Central	126	12.8	17	69	17	23	50,734	10.5
Central	124	12.7	52	34	17	21	66,502	13.8
East Central	98	9.9	70	14	14	0	20,665	4.3
Southwest	123	12.5	32	28	35	28	100,838	21.0
South Central	177	17.9	53	62	44	18	88,724	18.5
Southeast	96	9.7	60	36	0	0	26,279	5.5
TOTAL	985	100.0	357	345	174	109	481,002	100.0
Percentage			36.2	35.0	17.7	11.1	100.0	

Source: Kansas State University Study, 1977

Wheat

The receipts and disposition of wheat by country elevators in 1977 appear in Table 12. Over 321 million bushels of wheat were received from producers, and all by truck; an amount equal to 93.2 percent of total 1977 wheat production in the state.^{1/} Receipts as a percent of production in each district have few deviations from 100.0 percent of area production received by local elevators. Reasons for slight differences in wheat receipts and also milo, corn, or soybeans may include:

- (a) Production in one district being delivered to a country elevator in another district,
- (b) An increase or decrease of on-farm stocks,
- (c) Out-of-state origin grain received by a Kansas elevator, or
- (d) Farm delivery to a terminal or processor.

Disposition of wheat received by local elevators includes quantities sold locally, processed for feed by the facility, or added to inventory. Amounts sold locally may be for seed use, feed use, or possibly local flour processors. Country elevators increasingly process and mix grain for local customer feed needs, although only 2.22 percent of wheat receipts were processed on a statewide basis by local elevators. Quantities added to inventory during 1977 totaled over 31 million bushels, or 9.73 percent of statewide local elevator receipts. Amounts varied by district from an increase of 13.89 percent

^{1/} In addition to receipts from farmers, country elevators received 2.0 million bushels of wheat from other grain handlers.

TABLE 12
1977 COUNTRY ELEVATOR SURVEY DATA SUMMARIES, WHEAT
(1000 Bushels)

District	1977 Production	Elevator Receipts	**	Elevator Shipments	*	Sold Locally	*	Processed For Feed	*	Added to Inventory	*
Northwest	40,587	37,851	93.3%	32,296	85.32%	206	0.54%	561	1.48%	4,788	12.65%
West Central	42,520	43,233	101.7%	36,506	84.44%	186	0.43%	816	1.89%	5,725	13.24%
Southwest	11,242	10,135	90.2%	9,571	94.40%	44	0.43%	152	1.50%	368	3.63%
North Central	39,324	31,358	79.7%	27,414	87.42%	799	2.54%	50	0.16%	3,095	9.87%
Central	46,743	42,982	92.0%	33,373	77.64%	1,454	3.38%	2,183	5.08%	5,972	13.89%
South Central	10,524	9,676	91.9%	9,229	95.38%	143	1.47%	312	3.22%	-8	-0.08%
Northeast	56,280	57,856	102.8%	48,117	83.17%	3,568	6.16%	212	0.37%	5,959	10.30%
East Central	77,471	69,502	89.7%	62,854	90.43%	515	0.74%	1,756	2.53%	4,377	6.30%
Southeast	20,159	18,672	92.6%	16,090	86.17%	507	2.71%	1,106	5.90%	969	5.19%
Total	344,850	321,265	93.2%	275,450	85.74%	7,422	2.31%	7,148	2.22%	31,245	9.73%

** Percentage of Production

* Percentage of Elevator Receipts

in the Central district to decreasing stocks by 0.08 percent of receipts in the South Central district.

Wheat Shipments

Shipping patterns of Kansas country elevators have fluctuated substantially during the past few years. Table 13 represents wheat shipments during 1971, the 1972-73 marketing year, and 1977. Quantities being shipped increased from 1971 to 1972 and then decreased in 1977, as did total wheat production in these same years. Use of rail transportation declined from 92.4 percent in 1972-73, to 83.8 percent of country elevator wheat shipments in 1977.

In-state destinations accounted for 83.3 percent of all country elevator wheat shipments in 1971, falling to 60.0 percent in 1972-73, a year of large, new export sales. In 1977, in-state destinations strengthened to total almost 199 million bushels or 72.2 percent. These changes were the result of a slight decrease in use of terminals for export shipping in 1977. Country elevators began to ship directly to the coast or sub-terminals instead of moving the wheat to terminal cities initially.

The increase of in-state destinations in 1977 was a result of a combination of circumstances including a decrease in export demand, a slight increase in milling use in Kansas, and a shortage of rail services.

Because of growth in export demand, Gulf of Mexico export destinations increased in 1972, as expected, and accounted for 23.4 percent of country elevator shipments, or 80.7 million bushels.

TABLE 13
COUNTRY ELEVATOR WHEAT SHIPMENTS FOR THE YEARS
1971, 1972-73 and 1977

	In-State		Gulf		Other		Unknown		Total	
	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent
<u>1971</u>										
Rail	194,550	73.1	14,403	5.4	25,630	9.6	131	.04	234,714	88.1
Truck	27,076	10.2	940	.4	2,820	1.1	532	.2	31,368	11.9
Total	221,626	83.3	15,343	5.8	28,450	10.7	663	.2	266,082	100.0
<u>1972-73</u>										
Rail	185,074	53.7	79,596	23.1	51,588	15.0	2,115	.6	318,373	92.4
Truck	21,645	6.3	1,099	.3	3,396	1.0	-	-	26,140	7.6
Total	206,719	60.0	80,695	23.4	54,984	16.0	2,115	.6	344,513	100.0
<u>1977</u>										
Rail	171,385	62.2	37,117	13.5	21,339	7.8	952	.3	230,793	83.8
Truck	27,512	10.0	3,318	1.2	10,992	4.0	-	-	44,655	16.2
Total	198,897	72.2	40,435	14.7	32,331	11.8	952	.3	275,448	100.0

Source: Kansas State University Studies, 1972, 1974, 1977.

Although 1977 Gulf destinations totaled almost three times those of 1971, they were only about half of the 1972-73 volume.

The increased use of trucks, either in percent or actual volume, for transporting wheat to Gulf destinations for the three time periods points out a possible effect of railcar shortages or line abandonment affecting some country elevator facilities.

A complete destination breakdown from all crop-reporting districts in Kansas for 1977 appears in Appendix Table 1 indicating specific areas receiving country elevator wheat.

Hutchinson received over 54.5 million bushels of total country elevator wheat shipments of which rail composed 18.0 percent. Wichita received over 42 million bushels amounting to 15.3 percent of total country elevator shipments and again, mostly by rail. The largest out-of-state destination were the combined Gulf locations for export purposes which received 40.4 million bushels, or 14.7 percent, most of which moved by rail.

Export destined wheat may also be indicated by other intermediate destinations along the export corridor. Including Tulsa, Enid, and Catoosa in Oklahoma, in addition to Houston, Amarillo, Fort Worth and other Texas destinations, 69.9 million bushels were shipped to export and potential export shipping points, which was 25.3 percent of all country elevator shipments.

Country elevator seasonal wheat shipment patterns depend on several variables, not necessarily price only. These variables are:

- (1) Price of wheat quoted;
- (2) Storage space available at local elevator;

- (3) Storage space available at terminals or other secondary receivers;
- (4) Ownership rights affecting decisions;
- (5) Availability of transportation; along with
- (6) Quantities demanded for domestic and export use.

Ownership rights would seem to be one of the most influential variables since even if prices are high, a farmer might still want to keep his grain stored at the local elevator as part of his marketing plan or in anticipation of even higher prices. Elevator-owned grain would be sold and shipped to other facilities such as terminals in order to make space for local harvest storing needs, whether price is at a peak or not, providing terminals have space available. All of these variables are affected by an adequate transportation system and the availability of services. We have seen frequent periods of railcar shortages. Trucks are used increasingly for standard short distance shipping and to compensate for deficient railcar supply on longer movements.

Seasonal Wheat Shipments

An earlier study described the seasonal distribution of wheat shipments for the marketing year 1972-73. The harvest months of June through September accounted for most of the shipments while the remainder was divided almost equally among the other months (Table 14). Change in prices received by farmers was not found to be, by itself, a good indicator of seasonal movement.⁹ A seasonal distribution pattern was not made for 1977.

TABLE 14
SEASONAL DISTRIBUTION OF WHEAT SHIPMENTS FROM KANSAS LOCAL ELEVATORS
July 1, 1972 through June 30, 1973

Origins	(Percentages)											
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
Northwest	15.44	12.29	12.65	6.26	5.69	4.72	5.83	6.48	8.32	7.52	6.96	7.84
North Central	17.19	17.65	9.01	5.77	7.40	6.71	6.57	5.79	4.97	5.38	6.60	6.96
Northeast	21.00	21.60	16.17	4.84	1.02	3.75	6.62	3.36	3.37	5.75	2.67	9.83
West Central	12.50	13.56	16.49	5.44	4.61	3.41	6.50	5.73	8.82	7.14	7.59	8.24
Central	14.60	16.31	9.46	6.82	4.33	3.07	7.53	6.37	7.10	8.49	6.02	9.90
East Central	17.91	12.05	6.88	0.31	3.33	0.87	13.70	11.43	6.75	4.80	7.60	14.37
Southwest	16.22	17.45	15.10	5.67	3.39	5.32	4.85	4.45	7.01	4.73	8.05	7.73
South Central	10.61	13.97	10.01	5.94	4.12	6.60	9.75	5.76	4.61	6.14	3.60	18.89
Southeast	8.22	14.99	9.03	7.28	3.94	0.83	5.41	3.04	1.36	1.51	1.79	42.62
In-State	15.98	16.30	12.61	7.11	4.99	2.80	6.32	4.78	4.83	5.49	5.27	13.51
Out-of-State	12.24	13.82	12.10	3.77	4.35	7.09	7.56	6.86	8.24	7.66	7.54	8.76
Total	14.47	15.30	12.40	5.76	4.73	4.53	6.82	5.62	6.21	6.37	6.19	11.60

Source: Department of Agricultural Economics, Kansas Agricultural Experiment Station,
Wheat Shipments from Kansas 1972-73, Contribution no. 575, (Manhattan).

Corn

Country elevators received over 97 million bushels of corn during 1977, which was 60.3 percent of Kansas production (Table 15).^{2/} Country elevators in each district except the Central district received substantially less corn than was produced in 1977. The use of corn for feed by producers explains the smaller quantities entering market channels.

Corn sold locally (25 percent of receipts) included amounts to local farmers for feed use and may also include sales to truckers for which destinations were unknown. Many elevators custom process feed for their local customers as evidenced by over 8 million bushels processed locally. In addition, several districts reported additions to inventory, although the East Central and Southeast districts decreased their stocks by 26.0 and 39.2 percent, respectively.

Country elevators shipped over 25 million bushels more in calendar year 1977 than during the 1971-72 crop year (Table 16). Surveys in both years gathered flow data; however, the information for 1977 was less aggregated and hence, more useful. Truck use was shown to have increased from 70.5 to 78.5 percent of total volume shipped from the earlier survey to 1977.

Appendix Table 2 describes all shipments of corn from country elevators during 1977 by origin and destination areas. Kansas City, Atchison, and Topeka received over 11 million bushels of in-state

^{2/} In addition to receipts from farmers, country elevators received 9.6 million bushels of corn from other grain handlers.

TABLE 15
1977 COUNTRY ELEVATOR SURVEY DATA SUMMARIES, CORN

(1000 Bushels)										
District	1977 Production	Elevator Receipts	**	Elevator Shipments	*	Sold Locally	*	Processed For Feed	*	Added to Inventory
Northwest	23,813	20,089	84.4%	16,888	84.06%	1,025	5.10%	705	3.50%	1,471
North Central	8,555	4,647	54.3%	2,154	46.36%	1,579	33.98%	687	14.78%	227
Northeast	14,463	10,100	69.8%	6,993	69.25%	1,622	16.05%	1,298	12.85%	187
West Central	18,289	11,770	64.4%	7,511	63.82%	3,596	30.55%	26	0.22%	637
Central	3,058	4,589	153.3%	799	17.43%	1,373	29.90%	1,800	39.22%	617
East Central	11,775	2,972	25.2%	2,248	75.64%	583	19.62%	914	30.75%	-773
Southwest	64,324	32,332	50.3%	16,646	51.48%	13,116	40.57%	1,844	5.70%	726
South Central	12,407	8,672	69.9%	5,011	57.78%	637	7.34%	279	3.22%	2,745
Southeast	4,597	2,058	44.8%	1,413	68.66%	815	39.60%	637	30.95%	-807
Total	161,280	97,229	60.3%	59,663	61.36%	24,346	25.04%	8,190	8.42%	5,030

** Percentage of Production

* Percentage of Elevator Receipts

TABLE 16
COUNTRY ELEVATOR CORN SHIPMENTS FOR THE YEARS
1971-72 and 1977

	In-State		Gulf		Other		Out-of-State		Total		Feedlots		Unknown		Total	
	1000	Percent	1000	Percent	1000	Percent	1000	Percent	1000	Percent	1000	Percent	1000	Percent	1000	Percent
1971-72																
Rail	6,173	18.8	-	-	-	-	-	-	3,003	8.8	-	-	662	1.9	10,038	29.5
Truck	5,940	17.5	-	-	-	-	-	-	13,562	39.9	-	-	4,436	13.1	23,938	70.5
Total	12,113	36.3	-	-	-	-	-	-	16,565	48.7	-	-	5,098	15.0	33,976	100.0
1977																
Rail	8,064	13.5	366	.6	944	1.6	1,310	2.2	3,451	5.8	-	-	-	-	12,825	21.5
Truck	13,580	22.8	-	-	5,902	9.8	5,902	9.8	27,085	45.4	271	.5	271	.5	46,838	78.5
Total	21,644	36.3	366	.6	6,846	11.4	7,212	12.0	30,536	51.2	271	.5	271	.5	59,663	100.0

Source: Kansas State University Studies, 1971-72, Research Paper 24.
Kansas State University Study, 1977.

movement. The volume moved to these areas had potential for being processed or for further movement to feed deficit areas or export shipping. Other in-state areas accounted for over 6 million bushels. Processing and feed use are possible explanations for these quantities.

Out-of-state shipments totaled over 7.4 million bushels or 12.5 percent of total shipments. Only 366 thousand bushels, 0.6 percent, moved to Gulf ports, while 6.8 percent, or 4 million bushels had destinations in Fort Worth and other parts of Texas. Livestock feed manufacturing was the most likely use in those areas. Note that corn was also shipped to other states such as Colorado, Oklahoma and even Indiana. Again, feed manufacturing was the most likely use.

Corn shipments directly to feedlots accounted for 51.2 percent of all corn shipments, with 3.4 million bushels transported by rail and over 27 million bushels moved by trucks. Most of this corn was shipped from the Southwest district which has a feedlot industry and also adjoins areas in other states containing feedlots.

Almost 79 percent of corn shipments from country elevators moved by truck. The three districts in the western one-third of the state originated 56.4 percent of total shipments.

Milo

Country elevator receipts and disposition of milo during 1977 appear in Table 17. Receipts totaled almost 172.1 million bushels

TABLE 17
1977 COUNTRY ELEVATOR SURVEY DATA SUMMARIES, MILO
(1000 Bushels)

District	1977 Production	Elevator Receipts	**	Elevator Shipments	*	Sold Locally	*	Processed For Feed	*	Added to Inventory	*
Northwest	7,218	5,315	73.6%	2,562	48.20%	949	17.86%	859	16.16%	945	17.78%
North Central	39,128	26,459	67.6%	14,589	55.14%	2,382	9.00%	7,107	26.86%	3,381	12.78%
Northeast	34,248	24,881	72.6%	16,613	66.77%	3,394	13.64%	4,571	18.37%	303	1.22%
West Central	7,236	4,944	68.3%	2,791	56.45%	1,072	21.68%	398	8.05%	683	13.81%
Central	27,011	25,256	93.5%	11,878	47.03%	5,015	19.86%	4,763	18.86%	3,600	14.25%
East Central	31,124	15,482	49.7%	9,704	62.68%	1,373	8.87%	3,886	25.10%	519	3.35%
Southwest	40,733	35,409	86.9%	16,821	47.50%	14,389	40.64%	1,545	4.36%	2,654	7.50%
South Central	27,292	16,896	61.9%	7,534	44.59%	3,826	22.64%	1,817	10.75%	3,719	22.01%
Southeast	29,009	17,504	60.3%	8,949	51.13%	2,239	12.79%	4,611	26.34%	1,705	9.74%
Total	243,000	172,146	70.8%	91,441	53.12%	34,639	20.12%	29,557	17.17%	17,509	10.17%

** Percentage of Production

* Percentage of Elevator Receipts

or 71.0 percent of total Kansas production.^{3/} Only 53 percent of reported receipts from farmers was shipped out of the community where produced. The rest was either sold for local use, processed for feed, or added to inventory for later sale or processing. Processing custom mix feed is a service more local elevators are providing for their customers.

Table 18 depicts milo shipments by country elevators during 1971-72 and 1977 (no study was produced for milo in 1972). Milo shipments in 1977 were 21.3 percent higher than 1971-72 and totaled 91.4 million bushels. Rail use increased from 52.1 percent of all shipments in 1971-72 to account for 64.0 percent of 1977 country elevator shipments.

Although actual volume of in-state shipments increased between 1971-72 and 1977, in-state shipments as a percent of all shipments decreased from 62.3 percent to 56.8 percent. One possible explanation could be increased shipments to feedlots and Gulf ports.

Gulf destinations increased substantially in 1977 compared with 1971-72, from 1.6 million bushels or 2.1 percent of country elevator shipments, to 8.4 million bushels or 9.2 percent of total shipments.

Country elevator milo shipments during 1977 are fully represented in Appendix Table 3 by specific origin and destination areas. The Topeka and Kansas City areas received the largest amounts of in-state shipments with 14.5 and 14.4 percent, respectively. Milo receipts in these areas may be for storage, further shipment, or for processing

^{3/} In addition to receipts from farmers, country elevators received 1.1 million bushels of milo from other grain handlers.

TABLE 18
COUNTRY ELEVATOR MILO SHIPMENTS FOR THE YEARS
1971-72 and 1977

	<u>In-State</u>		<u>Gulf</u>		<u>Out-of-State</u>		<u>Feedlots</u>		<u>Unknown</u>		<u>Total</u>	
	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent	1000 Bushels	Percent
<u>1971-72</u>												
Rail	32,263	42.8	1,525	2.0	4,796	6.4	-	-	665	.9	39,238	52.1
Truck	14,687	19.5	32	.1	12,235	16.2	-	-	9,174	12.1	36,128	47.9
Total	46,950	62.3	1,557	2.1	17,031	22.6	-	-	9,839	13.0	75,366	100.0
<u>1977</u>												
Rail	38,026	41.6	8,090	8.8	12,063	13.2	204	.2	114	.2	58,497	64.0
Truck	13,925	15.2	323	.4	4,274	4.7	14,357	15.7	27	-	32,906	36.0
Total	51,951	56.8	8,413	9.2	16,337	17.9	14,561	15.9	141	.2	91,403	100.0

Source: Kansas State University Studies, 1971-72, Research Paper 24.
Kansas State University Study, 1977.

use. Salina with 10.2 percent and Hutchinson with 9.9 percent follow. In-state destinations accounted for almost 52 million bushels, which was just under 57 percent. As stated earlier, 9.2 percent went to Gulf points; the largest out-of-state shipment area.

Feedlot destinations for milo accounted for 14,561 thousand bushels, or 15.9 percent of all country elevator shipments and essentially all by truck. It should be pointed out that both in-state and out-of-state feedlot locations were included in feedlot destinations. Several other states such as Arizona, California, and Colorado also receive milo from Kansas origins for feedlot use.

Soybeans

About 20 million bushels of soybeans were received by Kansas country elevators during 1977, just over 70 percent of total Kansas production (Table 19). As a percent of production in each area, elevator receipts ranged from 13 percent to 114.2 percent, although the average was 70.8 percent. This range is affected by the nearness of processing facilities. If local elevators do not process the beans, then processing plants in close proximity may take delivery direct from farm producers.

Almost 90 percent of local elevator receipts were shipped while only minimal amounts were sold locally. Over 2 million bushels were added to existing stocks.

Compared with other crops, soybean shipping patterns by local elevators have not changed noticeably in the past few years, although with production increases, the volume shipped increased from 8.8

TABLE 19
1977 COUNTRY ELEVATOR SURVEY DATA SUMMARIES, SOYBEANS
(1000 Bushels)

District	1977 Production	Elevator Receipts	**	Elevator Shipments	*	Sold Locally	*	Processed For Feed	*	Added to Inventory	*
Northwest	40	5	13.0%	5	100.0%	0	0.00%	0	0.00%	0	0.00%
North Central	766	502	65.5%	416	82.87%	0	0.00%	0	0.00%	86	17.13%
Northeast	6,486	2,331	35.9%	2,232	95.75%	2	0.09%	0	0.00%	97	4.16%
West Central	113	129	114.2%	86	66.67%	0	0.00%	0	0.00%	43	33.30%
Central	509	341	67.0%	319	93.55%	0	0.00%	0	0.00%	22	6.45%
East Central	8,689	6,670	76.8%	5,756	86.30%	0	0.00%	0	0.00%	914	13.70%
Southwest	462	337	72.9%	319	94.67%	0	0.00%	0	0.00%	18	5.33%
South Central	1,457	463	31.8%	409	88.34%	0	0.00%	0	0.00%	54	11.66%
Southeast	9,197	8,860	96.3%	7,953	89.76%	130	1.47%	0	0.00%	777	8.77%
Total	27,720	19,638	70.8%	17,495	89.09%	132	0.67%	0	0.00%	2,011	10.24%

** Percentage of Production

* Percentage of Elevator Receipts

million bushels in 1971-72 to over 17 million bushels in 1977 (Table 20). In-state destinations continued to receive most of country elevator shipments of soybeans. In 1971-72, 87.9 percent of those shipments went to in-state points and in 1977, 90.5 percent.

One major difference is the substantial increase in truck shipments. During the 1971-72 marketing year, railroads carried 72.5 percent of local elevator soybean shipments and trucks moved 27.5 percent. In 1977, the dominance of rail disappeared as they carried 42.1 percent and trucks moved 57.9 percent of all local elevator soybean shipments.

Soybean shipments by country elevators to all destination areas are represented in Appendix Table 4. Wichita received 29.7 percent of the 17.5 million bushels shipped by local elevators. Railroads carried slightly more than half of all Wichita receipts.

More than half of all shipments went to locations within Kansas other than the major terminal cities. Included were processing plants and subterminal locations enroute to other areas containing processing plants.

Out-of-state movements amounted to only 9.5 percent of all shipments, or slightly over 1.6 million bushels. The volume shipped to Missouri accounted for 7.5 percent of total shipments, although .98 million bushels were shipped direct to Gulf locations by rail from local elevators in the Northeast district of Kansas.

The large volume of soybeans moving to in-state destinations, especially by truck, reflects the significance of soybean processing within the state. This will be described more fully in Chapter VI.

TABLE 20
COUNTRY ELEVATOR SOYBEAN SHIPMENTS FOR THE YEARS
1971-72 and 1977

	In-State			Gulf			Other			Total		
	1000 Bushels	Percent	1000 Bushels	1000 Bushels	Percent	1000 Bushels	Out-of-State 1000 Bushels	Percent	1000 Bushels	Out-of-State 1000 Bushels	Percent	1000 Bushels
<u>1971-72</u>												
Rail	5,435	61.9	-	-	-	-	932	10.6	932	10.6	-	6,367
Truck	2,284	26.0	-	-	-	-	118	1.3	118	1.3	16	2,418
Total	7,719	87.9	-	-	-	-	1,050	11.9	1,050	11.9	16	8,785
<u>1977</u>												
Rail	6,966	39.8	98	.6	-	307	1.7	405	2.3	-	-	7,371
Truck	8,861	50.7	-	-	-	1,011	5.8	1,011	5.8	246	1.4	10,118
Total	15,827	90.5	98	.6	-	1,318	7.5	1,416	8.1	246	1.4	17,489

Source: Kansas State University Studies, 1971-72 and 1977.

V. TERMINAL ELEVATORS

Terminal elevators provide grain receiving, storing, and assembly services and are major collection points in the grain marketing system. A firm is classified as a terminal if more than 50 percent of its grain receipts are from other elevators and if more than 50 percent of the grain received is shipped out as raw grain.

Characteristics of Firms

There are five city-areas in Kansas where major terminal elevator facilities are located: Wichita, Hutchinson, Salina, Topeka, and the Kansas City-Atchison area. Table 21 describes the number of terminal elevators and storage capacity in each of these locations.

Storage capacity of the 38 terminal elevators in Kansas exceeded 267 million bushels in 1977. Terminals in the Kansas City-Atchison area accounted for 26.8 percent of terminal storage capacity in Kansas with 71.7 million bushels. Wichita terminals had a capacity of 56.2 million bushels amounting to 21.0 percent of all terminal storage in the state. Over 48 million bushels of terminal grain storage were located in Topeka while terminal facilities in Salina amounted to 17.6 percent of Kansas terminal storage capacity or 47.1 million bushels. Terminal elevator storage capacity in Hutchinson consisted of 44.4 million bushels; 16.6 percent of state terminal capacity.

TABLE 21
1977 TERMINAL ELEVATOR STORAGE CAPACITY

Terminal City	Number of Firms	Number of Firms in Each Storage Capacity Class				Total Storage Capacity (1,000,000 bushels)	Percentage
		a	b	c	d		
Wichita	6	1	1	1	3	56.2	21.0
Hutchinson	8	3	1	3	1	44.4	16.6
Salina	5	1	2	1	1	47.1	17.6
Topeka	6	-	3	1	2	48.2	18.0
Kansas City-Atchison	13	2	5	3	3	71.7	26.8
Total	38	7	12	9	10	267.6	
Percentage	100.0	18.4	31.6	23.7	26.3		100.0

a: 0 - 1,000,000 bushels
b: 1,000,001 - 3,000,000 bushels
c: 3,000,001 - 10,000,000 bushels
d: over 10,000,000 bushels

Elevators with a storage capacity of less than 1,000,000 bushels represented 18.4 percent of all terminal facilities in Kansas. Elevators with a capacity of 1,000,001 to 3,000,000 bushels had the largest total capacity at 31.6 percent. Facilities with a capacity of storing between 3,000,001 and 10,000,000 bushels represented 23.7 percent and firms with over 10,000,000 bushels storage capacity comprised 26.3 percent of all terminals in the state.

Somewhat of an indicator of terminal elevator efficiency is the ratio of bushels of grain received relative to the storage capacity of the facility. Table 22 shows that overall, Kansas terminal elevators had a 1.13 turnover ratio during 1977. Larger facilities tend to have a smaller turnover ratio and Northeast Kansas terminals (Kansas City-Atchison and Topeka) had slightly higher turnover ratios than Central Kansas terminals.

Both of these findings are reasonable. Since terminal storage facilities exceed country elevator capacities, terminals may find it feasible to offer excess storage capabilities especially when farmer or elevator-owned grain is being stored. Because many consumers are located east of the grain producing Plains area, major collection points further east, of necessity, have higher turnover ratios in order to accommodate receiving and shipping grains from collection points and production areas to the west. However, the data referred to 1977 behavior only and may not reflect past or future turnover patterns.

TABLE 22

TERMINAL ELEVATOR TURNOVER RATIOS: $\frac{\text{GRAIN RECEIVED}}{\text{STORAGE CAPACITY}}$

Bushels Storage Capacity	Wichita	Hutchinson	Salina	Topeka	K.C.-Atchison	Capacity Class Average
Under 1,000,000	1.35	a	a	b	a	1.35
1,000,001 - 3,000,000	a	.70	a	1.58	1.60	1.35
3,000,001 - 10,000,000	a	1.49	1.19	1.20	2.37	1.59
Over 10,000,000	.72	1.04	.90	1.11	1.31	1.01
Area Average	.73	1.18	.97	1.15	1.15	1.13

a: No respondents in this class

b: No firms in this class

Terminal Elevator Receipts

Over 204 million bushels of wheat were received by Kansas terminal elevators in 1977; an amount equal to 59.2 percent of total wheat production in the state (Table 23). In-state origins of wheat receipts by terminals accounted for almost 91 percent of all wheat receipts so that 185.5 million bushels of Kansas produced wheat moved through terminal elevators located in Kansas.

An amount equal to 20.8 percent of Kansas sorghum production (50.4 million bushels) moved through Kansas terminal elevators in 1977. Kansas origins shipped 33.5 million bushels or 66.4 percent of all sorghum received by terminal facilities.

Corn received by terminals in the state totaled 31.7 million bushels, with 11.9 million from Kansas origins.

Over 40 percent of the 4.2 million bushels of soybeans (1.69 million bushels) received by Kansas terminals originated in the state. Note that total soybean receipts by terminals amounted to only 15.2 percent of 1977 Kansas production.

Smaller percentages of Kansas production of sorghum, corn, and soybeans entering terminal elevators largely for interstate shipment are reasonable given the quantities of grain and soybeans demanded for livestock feeding and soybean processing industries in the state. These needs are frequently more easily serviced by local delivery. Annual production of each feed grain and of soybeans in Kansas is less than the annual production of wheat. It is important also to note that Kansas produces more surplus wheat than is needed domestically within the state.

TABLE 23

1977 KANSAS TERMINAL ELEVATOR RECEIPTS
(1000 Bushels)

	Total Receipts				In-State Origins				Total
	Wheat	Milo	Corn	Soybeans	Wheat	Milo	Corn	Soybeans	
Wichita	41,386	3,692	308	1,148	38,821	2,560	-	631	42,012
Hutchinson	38,322	4,970	2,474	85	37,701	4,523	2,474	85	44,783
Salina	36,736	11,179	627	23	35,992	8,907	231	23	45,153
Topeka	29,317	15,023	5,435	215	27,295	10,449	3,011	215	40,970
Kansas City- Atchison	58,344	15,571	22,874	2,734	45,647	7,037	6,196	738	59,618
TOTALS	204,105	50,435	31,718	4,205	185,456	33,476	11,912	1,692	232,536
Percent of Kansas Production									Percent of Total Receipts
	59.2	20.8	19.7	15.2	90.9	66.4	37.8	40.2	80.1

Mode

Railroads were the most widely used mode for receiving and shipping grain by Kansas terminal elevators in 1977. Table 24 describes the rail and truck receipts and shipment percentages for terminal elevators in Kansas. Between 88.2 and 98.8 percent of wheat received in terminal cities was by rail except the Kansas City-Atchison area received 68.7 percent by rail. On the average, 86.3 percent of wheat received was by rail, 96.3 percent of milo, 64.7 percent of corn, and 65.4 percent of soybeans by all terminals in the state.

Compared to each other, terminal cities varied only slightly in the importance of the rail or truck mode for receipts. Wichita received 93.8 percent of its grain by rail, Hutchinson received 86.8 percent by rail, Salina received 95.6 percent by rail, Topeka received 84.2 percent, and the Kansas City-Atchison area terminals received 66.6 percent by rail. Rail use for receiving grain was quite large while truck use increased slightly in areas where farm and country elevator delivery from short distances is feasible.

Railroads were used almost exclusively by terminal elevators for shipping all grains. The use of rail for shipments was between 98.4 and 99.9 percent for all terminal cities except Kansas City-Atchison. Barge-loading facilities located there, on the Missouri River, accounted for 14.8 percent of all grain shipments compared to 83.4 percent by rail. Almost 25 percent of wheat and over 15 percent of soybeans shipped from the Kansas City-Atchison area was by barge. The overall average for all terminal elevators in the state shows 92.8 percent of

all grains were shipped by rail, 1.6 percent by truck, and 5.6 percent by barge.

This is slightly different than the findings in two previous studies.^{10,11} In the 1971-72 period, 90.5 percent of all grain shipped was by rail, and 9.5 percent was by barge. Rail shipments in 1972-73 moved 94.2 percent of all grains and barges carried 5.8 percent of all grains. The slight increase in the use of trucks to move grain in 1977 could have been the result of intermittent railcar shortages experienced throughout the year.

Terminal City Receipts

Identifying specific areas of origins for grain being received at the five terminal elevator city-areas in Kansas is useful in describing grain flow patterns. Appendix Tables 5 through 9 represent origins and mode of transport of grain received at Kansas inland terminal locations.

Wichita

Wichita terminals received 51.7 percent of their wheat receipts from the South Central crop reporting district in which Wichita is located and 14.2 percent from the Central district lying north of Wichita (Appendix Table 5). The 6.2 percent of wheat received at Wichita from out-of-state origins included 1.9 percent from Oklahoma and 1.7 percent from Colorado.

The East Central and Southeast districts each originated 21.1 percent of Wichita terminal milo receipts. Out-of-state origins of milo received at Wichita in 1977 were reported for 30.7 percent of

receipts, all of which came from Nebraska. Corn receipts at Wichita terminals were totally from out-of-state. Nebraska originated 87.7 percent and Iowa 12.3 percent. Terminal elevators in Wichita received 55 percent of soybean receipts from in-state origins and 45 percent from out-of-state. Ninety-three percent of receipts originating out-of-state were from Missouri. Seventy-one percent of in-state receipts originated in the Southeast Kansas crop reporting district.

The overall pattern is that wheat was received mostly from the crop reporting district in which Wichita is located; milo receipts came from Nebraska with slightly less but equal amounts originating within the same district and an adjacent district; corn was shipped from Nebraska; and soybeans originated in Missouri and in the crop reporting district located just east of Wichita.

Hutchinson

Wheat receipts at Hutchinson terminals were mainly represented by 36.6 percent and 31.0 percent from the Southwest and South Central crop reporting districts, respectively (Appendix Table 6). Very little wheat received (1.7 percent) originated out-of-state.

The Southwest crop reporting district originated 25.0 percent of milo receipts at Hutchinson and the South Central district originated 26.3 percent. Additionally, 17.3 percent originated in the Central district and of the 9.0 percent received from out-of-state, 6.2 percent came from Nebraska. Corn receipts almost exclusively originated from the Southwest and West Central districts (99.6 percent), as did all of the minor volume of soybean receipts (100 percent).

Topeka

Over half of the wheat received at Topeka terminals originated in the northern one-third of the state (Appendix Table 7). The North Central district shipped 23.4 percent, the Northwest shipped 20.4 percent, and the Northeast district originated 13.3 percent of Topeka wheat receipts. Of the 6.9 percent originating out-of-state, most came from Colorado, Nebraska, and South Dakota.

Milo receipts largely originated in-state from the Northeast and East Central districts with 31.3 percent and 22.9 percent, respectively, although 28.8 percent originated in Nebraska. Corn receipts from Nebraska at terminal elevators in Topeka accounted for 35.9 percent while the East Central district, where Topeka is located, originated 26.9 percent and the Northeast district accounted for 22.7 percent. Almost 56 percent of soybeans received came from the East Central district with 19.7 percent and 16.9 percent from Southeast and Northeast districts, respectively.

Salina

Salina terminal wheat receipts originated mainly in the North Central crop reporting district with 32.6 percent, the Central district with 24.9 percent, and the West Central district with 22.3 percent (Appendix Table 8). Only 2.0 percent was shipped in from out-of-state.

The North Central, Central, and Northwest crop reporting districts accounted for over 57 percent of the milo receipts in Salina with the North Central district originating 29.8 percent; the Central district

15.6 percent and the Northwest 11.9 percent. Nebraska accounted for 18.3 percent of the 20.7 percent from out-of-state origins. Out-of-state receipts of corn at Salina (63.2 percent) were all from Nebraska. The Northeast district, with 15.4 percent, was the largest origin district for corn in Kansas, and the North Central district next, accounting for 11.1 percent. Almost 70 percent of the soybeans received at Salina came from the North Central district and the remainder from the Central district.

Kansas City/Atchison

The Kansas City/Atchison area terminals received wheat from a broader origin area than other terminal locations (Appendix Table 9). The North Central district originated 21.6 percent of wheat receipts while the Central and East Central districts each accounted for 10.5 percent. The Northeast, Southeast, and Northwest districts originated a large part of the remainder of in-state grain receipts with 9.9, 8.9, and 8.7 percent, respectively. Of the 21.8 percent originating out-of-state, 11.4 percent was shipped from Missouri and 8 percent from Nebraska.

Almost 55 percent of the milo receipts in the Kansas City/Atchison area originated out-of-state with 36.0 percent from Nebraska and 18.3 percent from Missouri. The North Central and East Central districts in Kansas accounted for 19.0 and 11.6 percent of total receipts, respectively. Out-of-state origins accounted for 72.9 percent of the corn received at Kansas City/Atchison area terminals. Nebraska originated 42.7 percent while Missouri and Iowa originated 21.0 and

9.2 percent, respectively. The Northeast district accounted for most in-state receipts of corn with 17.9 percent. The majority of soybean receipts originated out-of-state. Missouri accounted for 60.2 percent while Nebraska originated 12.8 percent. The Northeast district in Kansas accounted for 20.0 percent.

Summary

Grain and soybean receipts at Kansas terminals in 1977 suggest expected overall patterns, however, these data permit more precise estimates of origin of grain and soybeans moving to inland terminals in Kansas. Receipts generally reflect eastward and southward movement with the exception of grain from Southeastern Kansas moving north to Kansas City/Atchison and soybeans moving west from Western Missouri and Southeastern Kansas to Wichita. Nebraska points originate significant amounts of feed grains for shipment to Kansas terminals at Wichita, Salina, Topeka and Kansas City/Atchison as well as wheat to Kansas City/Atchison.

Terminal City Shipments

Shipments of wheat from all five terminal elevator city-areas in 1977 totaled slightly under 167 million bushels. Out-of-state destinations from terminals were 96.5 percent of all wheat shipped and accounted for 57.0 percent of all grain shipments by terminal elevators (Table 25). Approximately 91 percent of all milo shipped went to out-of-state destinations. Terminals would not ordinarily service in-state feedlots or feed mills, since local delivery would

TABLE 25
1977 KANSAS TERMINAL ELEVATOR GRAIN SHIPMENTS
(1000 Bushels)

	Total Shipments				Out-of-State Shipments				Total	Percentage
	Wheat	Milo	Corn	Soybeans	Wheat	Milo	Corn	Soybeans		
Wichita	36,650.0	1,447.1	309.0	3,535.5	27,760.6	1,290.9	309.0	-	29,360.5	69.9
Hutchinson	37,859.4	6,210.6	229.0	-	32,376.2	6,200.8	229.0	-	38,806.0	87.6
Salina	29,463.4	6,984.4	1,075.7	1.7	22,847.2	6,937.8	953.2	-	30,738.2	81.9
Topeka	30,597.8	12,832.3	4,121.1	2,468.8	22,823.5	11,805.7	3,194.6	66.3	37,895.0	75.8
Kansas City- Atchison	62,419.7	22,229.2	21,702.3	2,387.8	55,380.0	19,056.3	18,869.7	1,360.5	94,666.5	87.1
TOTALS	166,990.3	49,753.5	27,437.1	8,393.8	161,187.5	45,291.5	23,555.4	1,426.8	231,461.2	81.9
Out-of-State Shipments as percent of all shipments of each grain:										
					96.5	91.0	85.9	17.0	81.9	
Out-of-State Shipments as percent of all out-of-state grain shipments:										
					69.6	19.6	10.2	.6	100.0	
Out-of-State Shipments as percent of all grain shipments:										
					57.0	16.0	8.3	.5	81.9	

usually be adequate. This can also account for the nearly 86.0 percent of all corn shipped to out-of-state destinations.

The substantial demand for soybeans for processing in Kansas can be seen by the small percentage of shipments going to other states. Out-of-state shipments from terminal elevators totaled 1.4 million bushels or 17 percent of total shipments in 1977.

By looking first at the shipping patterns of each grain from each terminal location and then at the overall terminal pattern, the individual pattern of each area can be observed (Appendix Tables 10 through 14).

Wichita

Of the 75.8 percent of all out-of-state wheat shipments from Wichita terminals, Texas was the destination for 61.4 percent (Appendix Table 10). Approximately 5.6 percent was shipped to Oklahoma with the river port at Catoosa the usual destination. Of the in-state flows, 11.6 percent stayed within the South Central crop reporting district where several flour milling facilities are located. Rail shipments were used for essentially all shipments of wheat, at 99.8 percent.

Milo was shipped from Wichita terminal elevators entirely by rail. In-state destinations received 13.8 percent and out-of-state destinations 86.2 percent of shipments with 63 percent of out-of-state movement going to Texas, mostly to feedlots. California's feedgrain needs were partly met by 16.6 percent of Wichita terminal shipments of milo. Of the 13.8 percent being shipped in-state, 9.6 percent stayed in the South Central district.

Reported corn shipments from Wichita in 1977 were entirely by rail to out-of-state destinations with 75.7 percent moving to Texas and the remainder to California. Soybean shipments were also 100.0 percent by rail. All shipments moved to destinations within the South Central district.

Hutchinson

Hutchinson terminals shipped 85.5 percent of their wheat out of Kansas with 69.0 percent moving to Texas, 4.7 percent to Missouri and 3.3 percent to Louisiana (Appendix Table 11). Of the 14.5 percent being moved within the state, 9.2 percent remained in the South Central district either for milling, storage, or movement to other elevators in the district including Wichita.

Except for nominal in-state shipments (0.2 percent), milo shipments during 1977 went to Texas, Arizona, and California. Texas received 50.5 percent of all milo shipments from Hutchinson with 21.5 percent and 27.8 percent going to Arizona and California, respectively. Feedlot use or feed manufacturing was the most likely use, although export use was possible.

Salina

Wheat shipments from Salina terminals to out-of-state locations amounted to 77.5 percent of total shipments in 1977 (Appendix Table 12). Again, Texas was the largest volume destination with 54.9 percent of all shipments. Significant amounts of Salina's shipments also moved east. About 9.1 percent was shipped to Northeast Kansas (including Topeka) and 10.6 percent to Northwest Missouri. Virginia was the

destination of 5.0 percent of Salina wheat where there were two possible uses; milling or export.

Feed or export were the most likely purposes for the 74.4 percent and 24.1 percent of milo shipped to Texas and California, respectively. Corn was also shipped largely to other states. Texas received 38.1 percent and California received 33.5 percent, although the Kansas City/Atchison area received 10.4 percent. The 10.2 percent shipped to Oregon was reportedly for export purposes.

Topeka

Topeka terminals shipped less wheat to Texas than other terminal locations. Over 13 million bushels, or 43.4 percent, moved to that state (Appendix Table 13). Missouri received the next largest portion of out-of-state shipments amounting to 11.4 percent. The East Central district retained 9.6 percent of terminal elevator shipments for processing or storage. The Northeast district (Kansas City/Atchison area) received 13.9 percent of Topeka wheat shipments. Tennessee, where major milling facilities are located, was the destination for over 7.0 percent. Virginia received 4.2 percent of Topeka's wheat shipments.

Out-of-state destinations accounted for 92.0 percent of all milo shipments from Topeka terminals with the majority of all shipments (71.3 percent) again going to Texas. In addition, 7.3 percent was shipped to Arkansas, 5.6 percent to California and 4.6 percent to Arizona.

Texas received 36.1 percent of corn moving from Topeka to all destinations with 18.1 percent and 11.1 percent going to Arkansas

and Missouri, respectively. Over 16 percent moved to destinations in the East Central district.

Almost all of the soybeans shipped from Topeka (94.7 percent) remained in the district for processing with the remainder about equally divided between Southeast Kansas and Texas destinations.

Kansas City/Atchison

Terminal elevators in the Kansas City/Atchison area shipped 88.5 percent of their wheat out of state (Appendix Table 14). Although only 37.3 percent moved to Texas, or 22.9 million bushels, this is still a slightly greater volume than Wichita terminals and slightly less than Hutchinson terminal shipments to Texas. Over 11.9 percent moved both to Indiana and Missouri destinations along with 6.6 percent and 6.5 percent shipped to Tennessee and Louisiana, respectively. Virginia received 5.1 percent and North Carolina received 4.2 percent for possible uses in milling or exporting. Southeast and Northeast districts received 4.7 percent and 4.5 percent, respectively, for milling use in all probability. Barge shipments amounted to over 15 million bushels, or 24.5 percent of all wheat shipments from the area terminals.

Milo shipped out-of-state from the Kansas City/Atchison area totaled over 19 million bushels, or 85.7 percent of all milo shipments with about 51.5 percent of all shipments being shipped to Texas, 15.6 percent to Arkansas, and 10.2 percent to Missouri. All in-state movements of milo went to destinations within the Northeast crop reporting district. About .5 million bushels of milo were shipped by water carrier from Kansas City/Atchison terminals.

The largest portion of corn moving out of the Kansas City/Atchison area went to Arkansas (39.4 percent). Sixty-one thousand bushels were reported shipped by barge. Texas was the next largest destination of corn shipments from this origin with 19.1 percent. Amounts equal to 8.3 percent and 7.1 percent were shipped to Louisiana and Oklahoma, respectively, and all of the in-state shipments remained in the Northeast district. In-state shipments were 13.1 percent of all shipments.

The Southeast district in Kansas received most of the soybean shipments from terminal elevators in the Kansas City/Atchison area with 31.7 percent. Missouri received 23.5 percent while Louisiana received 23.0 percent, or 548.8 thousand bushels, with over 366 thousand bushels being moved by water.

Total Kansas Terminal Elevator Shipments

Wheat

Statewide, terminal elevator wheat shipments are shown in Table 26. Almost 197 million bushels of wheat were shipped by terminals in 1977 with over 161 million bushels, or 81.8 percent moving to out-of-state destinations. The most reported in-state destinations were the Northeast and South Central districts with 5.4 and 5.1 percent of total shipments, respectively. Movements within each district were included in these figures.

Texas received most of the out-of-state wheat shipments, accounting for 51.3 percent of terminal wheat shipments. The greater portion of this amount was for export. It is likely that movements to Texas inland destinations were for storage enroute to Texas Gulf ports

TABLE 26
1977 KANSAS TERMINAL ELEVATOR WHEAT SHIPMENTS
(1000 Bushels)

Destination Origin	Crop Reporting District						Total	
	North Central	Northeast	Central	East Central	Southwest	South Central	Southeast	In-State Percent
<u>By Rail</u>								
Wichita	825.7	673.6	1,686.7	-	-	4,245.2	1,458.2	8,889.4 4.5
Hutchinson	-	695.4	555.3	-	-	3,061.5	701.7	5,013.9 2.6
Salina	-	2,344.6	2,444.3	310.7	-	1,214.8	71.1	6,385.5 3.2
Topeka	-	3,706.0	-	2,933.1	-	275.0	288.2	7,202.3 3.7
K.C.-Atchison	-	2,583.2	288.1	-	-	822.5	2,874.5	6,568.3 3.3
Total	825.7	10,002.8	4,974.8	3,243.8	-	9,619.0	5,393.7	34,059.4 17.3
<u>By Truck</u>								
Wichita	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	32.7	407.4	29.2	469.3 .2
Salina	-	10.2	220.5	-	-	-	-	230.7 .1
Topeka	-	554.4	17.6	-	-	-	-	572.0 .3
K.C.-Atchison	-	-	-	320.0	-	-	-	320.0 .2
Total	-	564.6	238.1	320.0	32.7	407.4	29.2	1,592.0 .9
<u>By Barge</u>								
K.C.-Atchison	-	151.4	-	-	-	-	-	151.4 .1
TOTAL	825.7	10,718.8	5,212.5	3,563.8	32.7	10,026.4	5,422.9	35,802.8 18.2
PERCENT	.4	5.4	2.7	1.8	*	5.1	2.8	18.2

* Insignificant

TABLE 26 (Continued)

Destination		North									
Origin		Virginia	Carolina	Georgia	Ohio	Indiana	Illinois	Tennessee	Alabama	Minnesota	Missouri
<u>By Rail</u>											
Wichita	102.0	311.3	-	-	-	416.9	-	-	173.0	-	1,272.0
Hutchinson	-	594.7	-	-	-	66.7	576.2	-	95.3	55.3	1,779.1
Salina	1,271.1	179.3	-	-	-	57.5	346.6	349.5	-	-	3,129.0
Topeka	1,287.6	111.0	-	22.7	111.0	831.0	831.0	2,163.7	109.3	0	3,477.6
K.C.-Atchison	3,143.9	2,585.7	1,429.8	-	-	365.2	241.1	695.3	-	-	6,282.4
Total	5,804.6	3,782.0	1,429.8	22.7	1,017.3	1,994.9	1,994.9	3,208.5	377.6	55.3	15,940.1
<u>By Truck</u>											
Wichita	-	-	-	-	-	-	-	-	-	57.9	-
Hutchinson	-	-	-	-	-	-	-	-	-	-	-
Salina	213.3	-	-	-	-	-	-	-	-	-	-
Topeka	-	-	-	-	-	-	-	-	-	-	-
K.C.-Atchison	-	-	-	-	-	1,467.0	-	46.1	-	-	50.3
Total	213.3	-	-	-	-	1,467.0	-	46.1	-	57.9	50.3
<u>By Barge</u>											
K.C.-Atchison	-	-	-	-	-	5,269.1	-	3,309.9	-	-	614.4
TOTAL	6,017.9	3,782.0	1,429.8	22.7	7,753.4	1,994.9	1,994.9	6,564.5	377.6	113.2	16,604.8
PERCENT	3.1	1.9	.7	*	3.9	1.0	1.0	3.3	.2	.1	8.4

* Insignificant

TABLE 26 (Continued)

Destination		Arkansas	Louisiana	Oklahoma	Texas	Colorado	Arizona	California	Total	
Origin									Out-of-State	Percent
By Rail										
Wichita	-	882.7	2,061.7	22,483.1	-	-	-	-	27,702.7	14.1
Hutchinson	-	1,231.3	394.0	26,079.9	-	379.2	722.8	-	31,974.5	16.2
Salina	-	532.4	452.0	16,142.9	-	-	88.1	-	22,548.4	11.4
Topeka	6.5	353.5	938.2	13,300.4	-	-	111.0	-	22,823.5	11.6
K.C.-Atchison	277.0	46.1	828.5	22,914.6	92.9	-	-	-	38,902.5	19.8
Total	283.5	3,046.0	4,674.4	100,920.9	92.9	379.2	921.9	-	143,951.6	73.1
									178,011.0	90.4
By Truck										
Wichita	-	-	-	-	-	-	-	-	57.9	*
Hutchinson	-	7.4	337.1	29.7	-	-	-	-	401.7	.2
Salina	-	-	45.4	40.1	-	27.5	-	-	298.8	.2
Topeka	-	-	-	-	-	-	-	-	-	-
K.C.-Atchison	-	-	-	-	-	-	-	-	1,563.4	.8
Total	-	7.4	382.5	69.8	-	27.5	-	-	2,321.8	1.2
									3,913.8	2.0
By Barge										
K.C.-Atchison	1,791.3	3,929.4	-	-	-	-	-	-	14,914.1	7.5
TOTAL	2,074.8	6,982.8	5,056.9	100,990.7	92.9	406.7	921.9	-	161,187.5	81.8
PERCENT	1.1	3.5	2.6	51.3	*	.2	.5	-	81.8	100.0

* Insignificant

eventually. Missouri, including Kansas City, Missouri, received 8.4 percent of total wheat shipments from Kansas terminal elevators. Indiana, Louisiana, and Tennessee received 3.9, 3.5, and 3.3 percent respectively, with over half of their receipts by barge. Other destinations accountable for considerable amounts of out-of-state wheat shipments included Virginia with 3.1 percent, and Oklahoma receiving 2.6 percent. The river port of Catoosa in Oklahoma received a major portion of Oklahoma destined wheat.

Railroads were the most widely used mode for shipping grain by terminal elevators in Kansas during 1977. Over 90.0 percent of terminal wheat shipments moved by rail. Water movement accounted for 7.6 percent and 2.0 percent was by motor carrier.

Milo

Milo shipments by terminal elevators were dominated by out-of-state destinations in 1977 (Table 27). Of the 91 percent that moved out of Kansas, Texas was the destination of 60 percent while Arkansas received 8.9 percent. California received 9.7 percent and Arizona received 4.1 percent, mostly in feedlot areas. Of the 9.0 percent moving within the state, the Northeast crop reporting district received 6.4 percent. Railroads moved virtually all milo from terminals.

Corn

Almost 86 percent of all terminal elevator corn shipments had out-of-state destinations with Arkansas receiving 33.8 percent and Texas receiving 23.0 percent (Table 28). Consumption by poultry or cattle is assumed to be the primary use in those areas. Most of the

TABLE 27
1977 KANSAS TERMINAL ELEVATOR WHEAT SHIPMENTS
(1000 Bushels)

Origin	Destination	Crop Reporting District						Total In-State	Percent	Ohio	Illinois	Kentucky	Iowa
		North Central	Northeast	Central	East Central	South Central	South						
By Rail													
Wichita	-	-	62.9	-	-	143.2	206.1	.5	-	-	-	-	-
Hutchinson	-	-	-	-	-	9.8	9.8	*	-	-	-	-	-
Salina	-	-	-	-	-	-	-	-	-	-	-	-	-
Topeka	-	-	427.0	507.8	-	91.8	1,026.6	2.6	124.7	-	-	85.9	29.6
K.C.-Atchison	-	-	3,172.9	-	-	-	3,172.9	8.1	-	75.5	-	-	-
Total	-	-	3,172.9	489.9	507.8	244.8	4,415.4	8.9	124.7	75.5	-	85.9	29.6
Percent	-	-	6.4	1.0	1.0	.5	8.9		.2	.1	-	.2	*
By Truck													
Wichita	-	-	-	-	-	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-	-	-	-	-	-	-
Salina	46.6	-	-	-	-	-	46.6	.1	-	-	-	-	-
Topeka	-	-	-	-	-	-	-	-	-	-	-	-	-
K.C.-Atchison	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	46.6	-	-	-	-	-	46.6	-	-	-	-	-	-
Percent	-	-	-	-	-	-	.1	-	-	-	-	-	-
By Barge													
K.C.-Atchison	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	46.6	3,172.9	489.9	507.8	244.8	-	4,462.0	9.0	124.7	75.5	-	85.9	29.6
PERCENT	.1	6.4	1.0	1.0	.5	-	9.0		.2	.1	-	.2	*

* Insignificant

TABLE 27 (Continued)

Destination Origin	Total						Total	Percent
	Missouri	Arkansas	Louisiana	Oklahoma	Texas	Arizona	California	Out-of-State
By Rail								
Wichita	-	-	-	-	942.3	100.6	248.0	1,290.9
Hutchinson	-	-	-	-	3,140.9	1,336.0	1,723.9	6,200.8
Salina	58.9	-	-	-	5,194.9	-	1,684.0	6,937.8
Topeka	-	943.9	114.2	45.6	8,967.7	593.8	717.9	11,623.3
K.C.-Atchison	2,266.9	3,472.8	572.7	284.8	11,446.0	-	477.7	18,596.4
Total	2,325.8	4,416.7	686.9	330.4	29,691.8	2,030.4	4,851.5	44,649.2
Percent	4.7	8.9	1.4	.7	59.7	4.1	9.7	90.1
By Truck								
Wichita	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-	-
Salina	-	-	-	-	-	-	-	-
Topeka	-	-	-	-	182.4	-	-	182.4
K.C.-Atchison	-	-	-	-	-	-	-	-
Total	-	-	-	-	182.4	-	-	182.4
Percent	-	-	-	-	.4	-	-	.4
By Barge								
K.C.-Atchison	-	-	459.9	-	-	-	-	459.9
TOTAL	2,325.8	4,416.7	1,146.8	330.4	29,874.2	2,030.4	4,851.5	45,291.5
PERCENT	4.7	8.9	2.3	.7	60.1	4.1	9.7	91.0

TABLE 28

1977 KANSAS TERMINAL ELEVATOR CORN SHIPMENTS

Destination Origin		Crop Reporting District					Total		Percent	Tennessee	Mississippi	Alabama	Missouri
		North Central	Northeast	Central	Central	East	In-State	Out-State					
By Rail													
Wichita	-	-	-	-	-	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-	-	-	-	-	-	-
Salina	-	111.7	-	-	-	-	111.7	-	.4	-	-	-	-
Topeka	71.4	111.2	-	657.0	-	63.3	902.9	-	3.3	67.9	-	-	485.0
K.C.-Atchison	-	2,832.6	-	-	-	-	2,832.6	-	10.3	1,017.3	-	108.6	1,048.0
Total	71.4	3,055.5	-	657.0	-	63.3	3,847.2	-	14.0	1,085.2	67.9	108.6	1,533.0
Percent	.3	11.1	-	2.4	-	.2		-		4.0	.3	.4	5.6
By Truck													
Wichita	-	-	-	-	-	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-	-	-	-	-	-	-
Salina	-	-	10.8	-	-	-	10.8	-	*	-	-	-	-
Topeka	-	5.2	4.7	13.8	-	-	23.7	-	.1	-	-	-	-
K.C.-Atchison	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	5.2	15.5	13.8	-	-	34.5	-	.1	-	-	-	-
Percent	-	*	.1	*	-	-		-		-	-	-	-
By Barge													
K.C.-Atchison	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	71.4	3,060.7	15.5	670.8	-	63.3	3,881.7	14.1	1,085.2	67.9	108.6	1,533.0	
PERCENT	.3	11.1	.1	2.4	-	.2			4.0	.3	.4	5.6	

TABLE 28 (Continued)

Origin	Destination										Total	
	Arkansas	Louisiana	Nebraska	Oklahoma	Texas	Arizona	Oregon	California	Export Mexico	Out-of-State		Percent
By Rail												
Wichita	-	-	-	-	234.0	-	-	75.0	-	309.0	1.1	309.0
Hutchinson	-	-	-	-	21.7	171.4	-	35.9	-	229.0	.8	229.0
Salina	-	-	-	-	409.8	73.3	110.0	360.1	-	953.2	3.4	1,064.9
Topeka	746.5	200.0	71.3	-	1,488.0	-	-	67.0	-	3,194.5	11.6	4,097.4
K.C.-Atchison	8,481.5	1,805.6	-	1,543.1	4,147.2	368.3	-	17.8	216.6	18,808.0	68.5	21,640.6
Total	9,227.0	2,005.6	71.3	1,543.1	6,300.7	613.0	110.0	610.7	216.6	23,493.7	85.7	27,340.9
Percent	33.6	7.3	.3	5.6	23.0	2.2	.4	2.2	.8	85.7		99.7
By Truck												
Wichita	-	-	-	-	-	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-	-	-	-	-	-
Salina	-	-	-	-	-	-	-	-	-	-	-	10.8
Topeka	-	-	-	-	-	-	-	-	-	-	-	-
K.C.-Atchison	61.7	-	-	-	-	-	-	-	-	61.7	.2	61.7
Total	61.7	-	-	-	-	-	-	-	-	61.7	.2	61.7
Percent	.2									.2		.3
By Barge												
K.C.-Atchison	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	9,288.7	2,005.6	71.3	1,543.1	6,300.7	613.0	110.0	610.7	216.6	23,555.4	85.9	27,437.1
PERCENT	33.8	7.3	.3	5.6	23.0	2.2	.4	2.2	.8	85.9		100.0

in-state shipments were to the Northeast district. Again, the dominant shipping mode was rail, with 99.7 percent.

Soybeans

Terminal elevator shipping of soybeans was almost entirely to in-state locations, accounting for 83.0 percent of all soybean shipments (Table 29). The East Central, South Central, and Southeast crop reporting districts, where soybean processing plants are located, dominated receipts with 29.0, 43.5, and 9.8 percent, respectively, and all by rail. Of the amounts shipped out of Kansas, 6.6 percent went to Louisiana, including 4.4 percent by barge, and all of the 6.7 percent to Missouri being shipped from Kansas City/Atchison area terminals by rail.

Out-of-State Shipments

Since Kansas grain production is of such large volume, out-of-state movement is of great importance. Table 30 indicates the relative portions of in-state and out-of-state shipments by Kansas terminal elevators by crop.

Overall, 81.9 percent of all terminal elevator grain and soybean shipments combined were to out-of-state destinations. Soybean shipments considered separately were an exception. As a percentage of all out-of-state grain shipments, out-of-state wheat movement represented 69.6 percent and as a percentage of all grains shipped, out-of-state destinations of wheat totaled 57 percent.

TABLE 29
1977 KANSAS TERMINAL ELEVATOR SOYBEAN SHIPMENTS
(1000 Bushels)

Destination		Crop Reporting District				Total	
Origin		Northeast	Central	East Central	South Central	Southwest	Percent
<u>By Rail</u>							
Wichita	-	-	-	-	3,535.5	3,535.5	42.1
Hutchinson	-	-	-	-	-	-	-
Salina	-	1.7	-	-	-	1.7	*
Topeka	1.8	-	2,432.4	-	63.3	2,497.5	28.6
K.C.-Atchison	60.0	-	94.8	-	756.7	1,027.3	12.3
Total	61.8	1.7	2,527.2	-	820.0	7,062.0	83.2
Percent	.7	*	29.8	43.0	9.6		
<u>By Truck</u>							
Wichita	-	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-	-
Salina	-	-	-	-	-	-	-
Topeka	-	-	-	-	-	-	-
K.C.-Atchison	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-
<u>By Barge</u>	-	-	-	-	-	-	-
TOTAL	61.8	1.7	2,527.2	3,651.3	820.0	7,062.0	83.2
PERCENT	.7	*	29.8	43.0	9.0	83.2	

* Insignificant

TABLE 29 (Continued)

Destination		Total				
Origin		Tennessee	Missouri	Arkansas	Louisiana	Oregon
By Rail						
Wichita	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-
Salina	-	-	-	-	-	-
Topeka	66.3	-	-	-	66.3	-
K.C.-Atchison	-	561.7	60.0	182.1	993.8	11.7
Total	66.3	561.7	60.0	182.1	1,060.1	12.5
Percent	.8	6.8	.7	2.1	12.5	95.7
By Truck						
Wichita	-	-	-	-	-	-
Hutchinson	-	-	-	-	-	-
Salina	-	-	-	-	-	-
Topeka	-	-	-	-	-	-
K.C.-Atchison	-	-	-	-	-	-
Total	-	-	-	-	-	-
By Barge						
K.C.-Atchison	-	-	-	366.7	-	4.3
Percent	-	-	-	4.3	-	4.3
TOTAL	66.3	561.7	60.0	548.8	1,426.8	16.8
PERCENT	.8	6.6	.7	6.4	16.8	100.0

TABLE 30

1977 KANSAS TERMINAL ELEVATOR TOTAL GRAIN SHIPMENTS:
OUT-OF-STATE BY PERCENTAGE

	Wheat	Milo	Corn	Soybeans	All Grains
Out-of-State Shipments as a Percent of All Shipments of Each Grain:	96.5	91.3	85.9	17.0	81.9
Out-of-State Shipments as a Percent of Total Out-of-State Shipments of All Grains:	69.6	19.6	10.2	.6	100.0
Out-of-State Shipments as a Percent of All Grain Shipments:	57.0	16.0	8.3	.5	81.9

In-state shipments of all grains by Kansas terminal elevators were small compared with out-of-state shipments. In contrast, in-state shipments dominated for soybeans. Railroads were used for more than 90 percent of terminal grain shipments with barge use accounting for most of the remainder.

Wheat Shipment Comparison

Summaries of Kansas wheat movement studies for preceding marketing years are shown in Table 31 along with the results for 1977 for comparison. In 1972-73 large demand for export wheat resulted in 87.6 percent of terminal elevator out-of-state shipments compared with 75.2 percent in 1971-72. Out-of-state wheat shipments by terminal elevators declined to 81.9 percent of total shipments in 1977. Furthermore, flour production in Kansas declined after 1971 until 1976 and 1977,

TABLE 31
WHEAT FLOW COMPARISON,
KANSAS TERMINAL ELEVATOR WHEAT SHIPMENTS FOR THE YEARS
1971-72, 1972-73, and 1977

	(1000 Bushels)			(Percentage)		
	1971-72	1972-73	1977	1971-72	1972-73	1977
<u>Rail:</u>						
In-State	48,735	27,320	34,060	24.8	12.4	17.3
Out-of-State	<u>129,061</u>	<u>179,513</u>	<u>143,952</u>	<u>65.7</u>	<u>81.6</u>	<u>73.1</u>
Total	177,796	206,833	178,012	90.5	94.0	90.4
<u>Truck:</u>						
In-State	-	-	1,592	-	-	.8
Out-of-State	-	-	<u>2,322</u>	-	-	<u>1.2</u>
Total	-	-	3,914	-	-	2.0
<u>Barge:</u>						
Total	18,630	13,242	15,066	9.5	6.0	7.7
<u>TOTAL:</u>						
In-State	48,735	27,320	35,652	24.8	12.4	18.1
Out-of-State	<u>147,691</u>	<u>192,755</u>	<u>161,340</u>	<u>75.2</u>	<u>87.6</u>	<u>81.9</u>
TOTAL	196,426	220,075	196,992	100.0	100.0	100.0

resulting in fluctuations of in-state terminal shipments of wheat from 12.4 percent of total shipments in 1972-73 to 18.1 percent in 1977.¹²

Rail continued to be the dominant transportation mode used by terminal elevators for wheat movement. In 1971-72, 90.5 percent of all wheat shipments moved by rail and this increased to 94.0 percent in 1972-73 with the larger demand for export wheat along with increased opportunities for use of multi-car movements.

Barge use by Kansas terminals for wheat shipments totaled 18.6 million bushels in 1971-72, or 9.5 percent of all shipments. Water shipments amounted to 7.7 percent in 1977 compared with 6.0 percent in 1972-73. Volume moved by barge amounted to 15.1 million bushels in 1977 from the lower volume of 13.2 million bushels in 1972-73.

Seasonal Distribution of Grain Movement

The use of grain transportation services is highly correlated with area harvest periods along with storage availability and the ability of the transportation industry to physically move goods. Seasonal patterns of total receipts and shipments of all grains combined by Kansas terminal elevators depict the total volume of grain moved by all transportation modes (Table 32 and Figures 3 through 7).

TABLE 32
SUMMARY OF SEASONAL DISTRIBUTION OF TOTAL GRAIN RECEIPTS AND SHIPMENTS
BY KANSAS TERMINAL ELEVATORS, 1977

	Receipts					Shipments				
	Wichita	Hutchinson	Salina	Topeka	Kansas City/ Atchison	Wichita	Hutchinson	Salina	Topeka	Kansas City/ Atchison
January	1.4	3.8	2.3	3.1	5.2	11.4	10.3	11.6	12.1	10.7
February	1.5	4.4	1.3	2.8	3.9	8.9	7.7	8.7	10.3	8.2
March	3.0	2.6	10.0	5.9	3.3	10.2	10.4	13.3	9.3	9.9
April	6.4	2.2	7.3	6.8	3.4	14.2	13.6	8.3	12.6	13.6
May	10.4	2.5	12.1	7.5	5.2	7.7	7.2	4.4	8.3	8.0
June	21.1	18.6	13.1	11.4	10.8	3.1	3.0	8.3	5.5	3.9
July	15.8	16.0	18.5	15.8	16.3	7.8	8.1	7.5	6.4	7.0
August	9.7	15.2	4.6	11.0	9.9	5.9	4.0	8.3	3.5	3.8
September	9.2	11.5	4.4	13.4	9.0	6.4	6.3	7.6	6.3	7.1
October	7.3	11.5	9.1	13.2	14.4	6.8	7.6	3.6	9.8	7.8
November	10.1	7.9	13.1	6.1	10.9	6.2	8.0	7.1	5.8	7.3
December	3.8	3.8	4.2	3.0	7.7	11.4	13.8	11.3	10.1	12.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Wichita

As expected, total receipts by terminals in Wichita increased from a January low to a peak of 21.1 percent in the wheat harvest month of June (Figure 3). After June, receipts declined for the remaining months of the year except for a slight increase in November. The largest percentage of total grain shipments by Wichita terminals appeared during the first six months of the year before dropping to a low of 3.1 percent during the June wheat harvest.

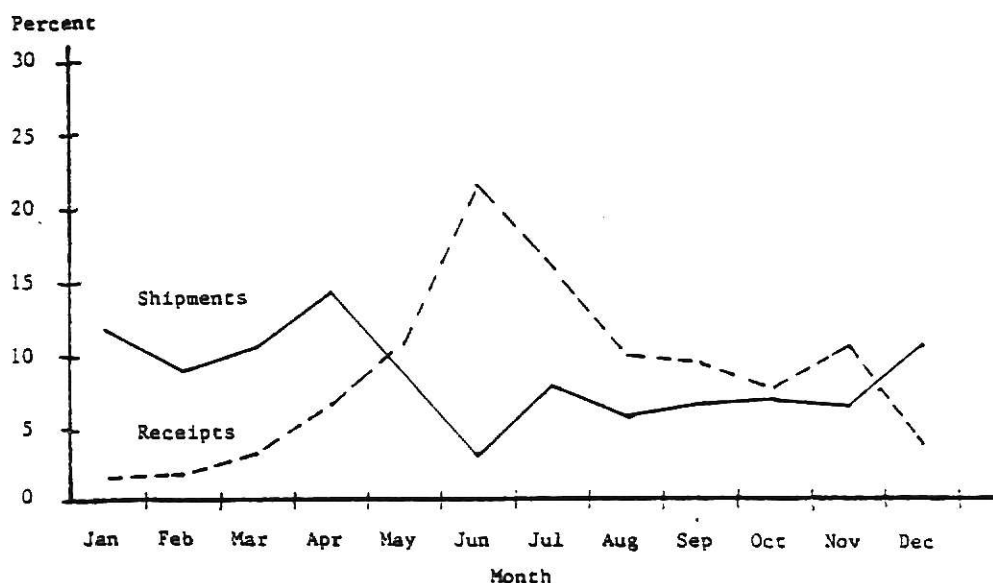


Figure 3. Seasonal Distribution of Total Receipts and Shipments of Wheat, Milo, Corn, and Soybeans by Wichita Terminal Elevators, 1977. (Percentages)

Hutchinson

Hutchinson terminal grain receipts were essentially flat until June when they peaked with 18.6 percent of total receipts before declining to a low by the end of the year (Figure 4). Shipments reached 13.6 percent in April and then fell to a low during June wheat harvest. Except for a sudden jump during July, shipments increased gradually until they reached a high of 13.8 percent during December.

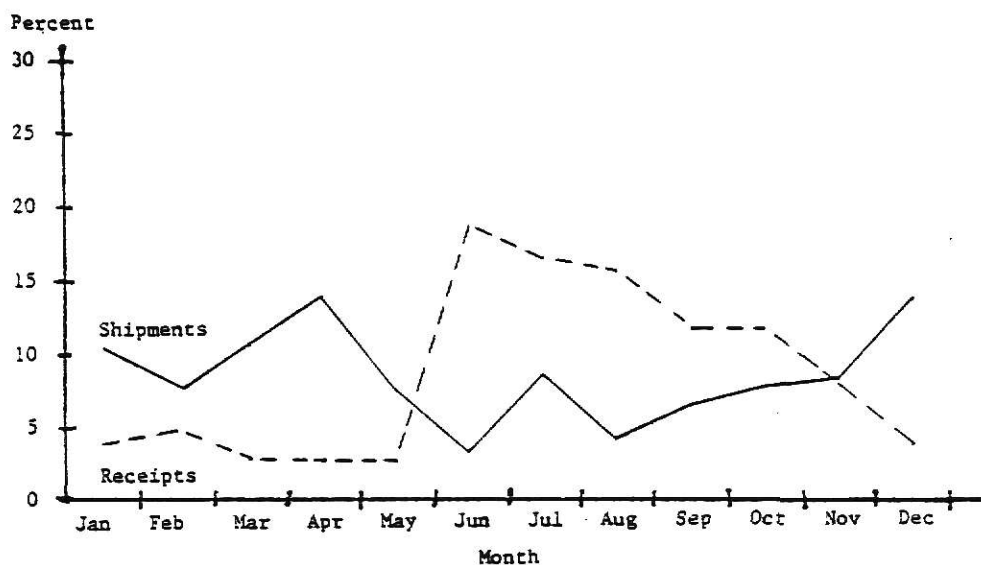


Figure 4. Seasonal Distribution of Total Receipts and Shipments of Wheat, Milo, Corn, and Soybeans by Hutchinson Terminal Elevators, 1977. (Percentages)

Salina

Salina terminal receipts increased after February before reaching a peak of 18.5 percent during July (Figure 5). Grain receipts fell during August-September and increased during October-November before falling in December. The highest percentage of Salina grain shipments occurred in March (13.3 percent) before falling in May to 4.4 percent of total shipments. June through September shipments ranged from 7.5 to 8.3 percent. The month of October accounted for 3.6 percent before shipments increased in November and December.

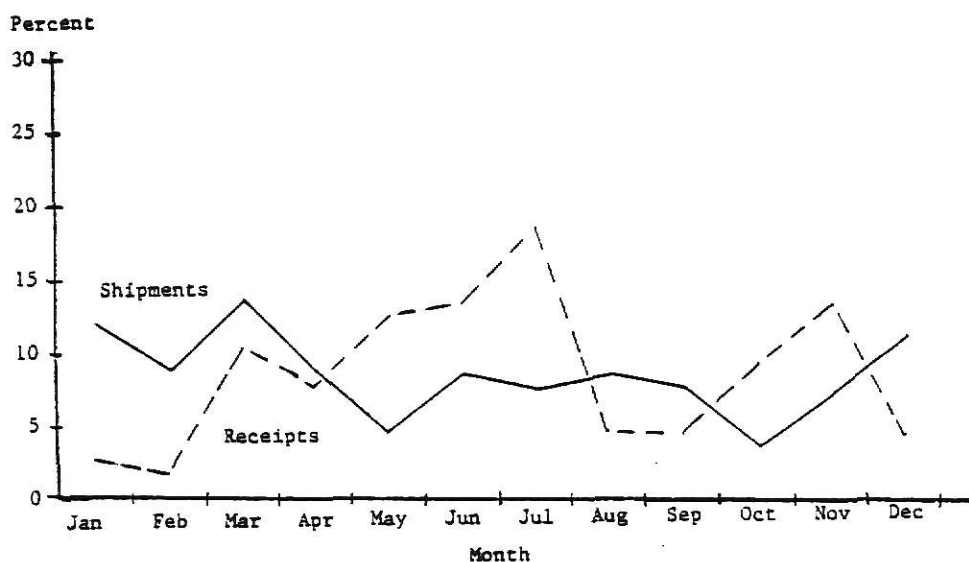


Figure 5. Seasonal Distribution of Total Receipts and Shipments of Wheat, Milo, Corn, and Soybeans by Salina Terminal Elevators, 1977. (Percentages)

Topeka

The volume of receipts by Topeka terminals increased steadily over the first seven months of the year to a peak of 15.8 percent in July (Figure 6). August receipts were 11.0 percent while receipts in September-October were slightly over 13 percent before falling steadily through December to 3.0 percent. Shipments fell from 12.1 percent in January to 9.3 percent during March before peaking in April (12.6 percent). From May through August shipments declined but moved up steadily for the remainder of the year, except for the slight decrease in November.

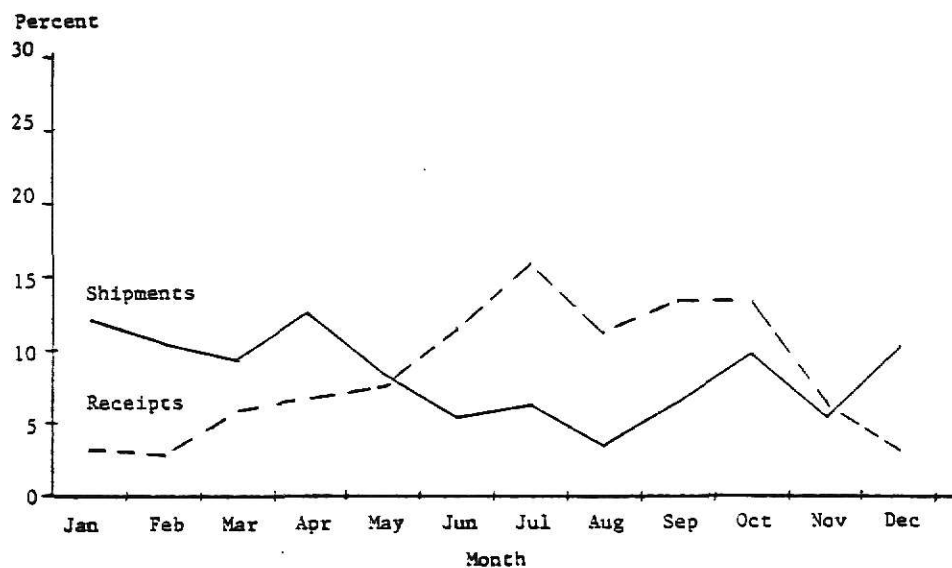


Figure 6. Seasonal Distribution of Total Receipts and Shipments of Wheat, Milo, Corn, and Soybeans by Topeka Terminal Elevators, 1977. (Percentages)

Kansas City/Atchison

Total grain receipts reported by Kansas City/Atchison terminal elevators fell gradually from 5.2 percent in January to even lower rates through April (Figure 7). Receipts began to climb during May and peaked in July. During August-September receipts fell before rising in October to 14.4 percent. The last two months of the year receipts began to decrease again. Shipments ranged between 8.2 percent and a high of 13.6 percent from January through April before falling through June. Except for a slight decrease during August, shipments of grain gradually rose through the last six months of the year to 12.7 percent of total shipments during December.

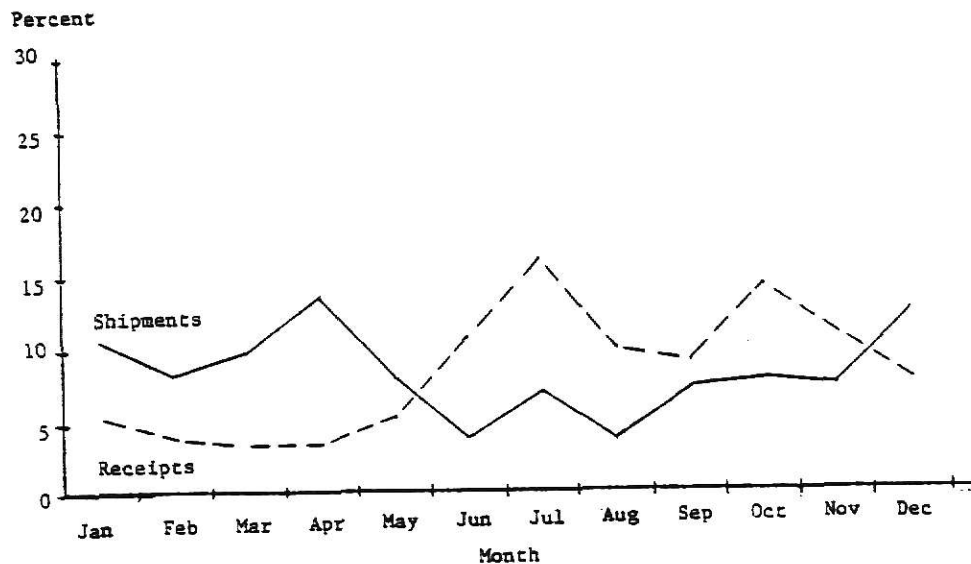


Figure 7. Seasonal Distribution of Total Receipts and Shipments of Wheat, Milo, Corn, and Soybeans by Kansas City/Atchison Terminal Elevators, 1977. (Percentages)

In summary, receipts and shipments of grain by Kansas terminal elevators are influenced by several factors:

- (a) Volume of each major crop produced in the normal supply area;
- (b) Harvest period of specific crops;
- (c) Capacity of storage facilities;
- (d) Availability of transportation services; and
- (e) Demand for grain at export points.

The seasonal distribution of grain movement by terminals depicted in this section illustrates the proportions transported relative to harvest months. Wheat harvest months of June-August heavily affected receipts by terminal elevators in all regions while corn, milo, and soybean harvesting during the fall months influenced receipts in areas where they were produced. Shipments by terminals were generally higher during the first five months of the year, before wheat harvest, and generally decreased during the last seven months, although slight increases in year-end shipments were probably the result of year-end marketing plan sales.

VI. PROCESSORS

One of the physical functions of grain marketing is to provide form utility in order to give consumers the type of products they desire. Grain processing in the state of Kansas takes several forms including flour milling, corn milling, soybean processing, and feed manufacturing, along with alcohol and solvent manufacturing.

Wheat processors include flour mills and one bulgur mill. Corn processors include corn mills and major feed mills. Milo processors include one sorghum mill and also major feed mills. Processors of soybeans produce soybean oil and soybean meal for feed.

The crop reporting districts used earlier in this study were combined in some instances to prevent disclosure problems. Processors located in the three Western districts were combined, as were processors in North Central and Central districts along with processing facilities located in East Central and Southeastern districts (Figure 8).

Wheat Processors

Wheat flour milling is an important agribusiness industry in Kansas, with the state ranking second in flour milled nationally during 1977 with 35,769,000 hundredweight. Of the 617 million bushels of wheat ground by U.S. flour mills during the 1977-78

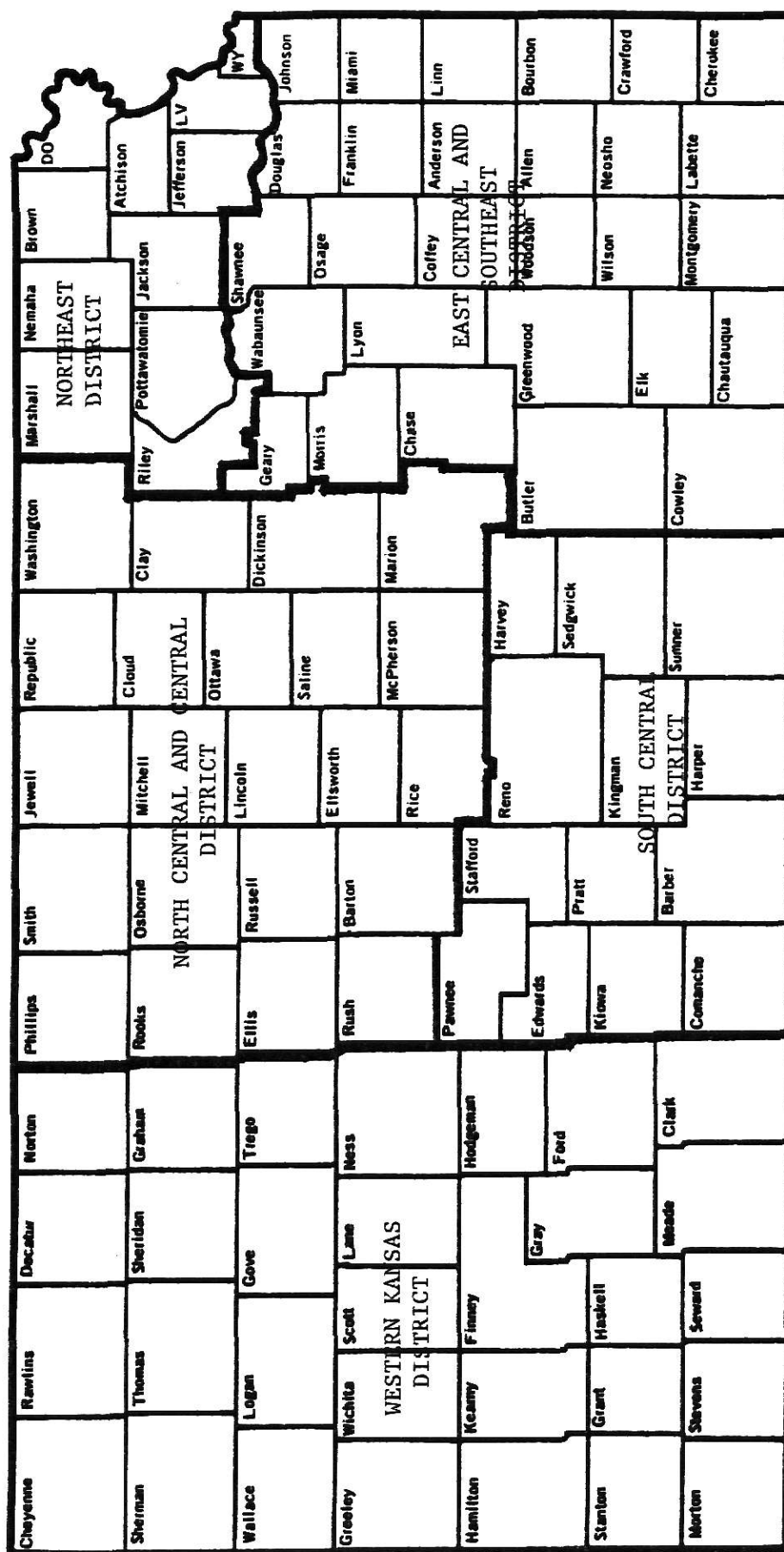


Figure 8. Kansas Grain Processor Districts.

marketing year, over 78.5 million bushels (12.7 percent of the total) were used by Kansas flour mills, providing flour valued at \$223.4 million and mill feed valued at \$48.7 million.^{13,14}

In Kansas, there were 18 active wheat flour mills in 1977, with a total daily operating capacity of 122,550 hundredweights (Table 33). South Central Kansas was the location of eight mills and accounted for 36.9 percent of total Kansas flour milling capacity with 45,250 hundredweight daily. East Central and Southeast districts together had five milling facilities with a total capacity of 40,000 hundredweight per day, or 32.6 percent. Three mills were located in the Northeast district with 19.7 percent of Kansas milling capacity or 24,100 hundredweight per day, followed by North Central and Central districts with three mills and a combined total of 13,200 hundredweight per day or 10.8 percent of total state capacity. No flour mills were located in the three Western districts.

Over 86 million bushels of wheat were received by Kansas flour mills in 1977 (Table 34). In-state origins of wheat exceeded 87.0 percent, or 75.4 million bushels. The largest portion of in-state receipts came from the South Central district with 31.5 percent, followed by 23.8 percent from North Central and Central districts combined and 16.3 percent from Western Kansas. The major portion of the 12.6 percent of out-of-state origins of wheat delivered to Kansas mills came from Nebraska, Missouri, and Minnesota with 6.2 percent, 3.2 percent, and 3.0 percent, respectively.

A comparison between percentage of grain receipts by the milling areas and percentage daily operating capacity by milling areas

TABLE 33
KANSAS WHEAT FLOUR MILLS, 1977

Location	Number of Active Mills	Percent of Mills	Number of Firms in Each Operating Capacity Class (CMT/day)				Total Daily Operating Capacity	Percentage
			Under 1,000	1,000- 4,999	5,000- 9,999	10,000 and over		
Western Kansas	-	-	-	-	-	-	-	-
North Central and Central	3	11.1	-	1	2	-	13,200	10.8
Northeast	3	16.7	-	1	1	1	24,100	19.7
South Central	8	44.4	1	3	2	2	45,250	36.9
East Central and Southeast	5	27.8	-	-	4	1	40,000	32.6
Total	18	100.0	1	5	8	4	122,550	100.0

Source: 1978 Kansas State University Study.
Milling and Baking News, Milling Directory/Buyers Guide 1978, Paper 33.

TABLE 34
TOTAL KANSAS WHEAT MILL RECEIPTS BY ORIGIN, 1977

Origin	(1000 Bushels)		(Percentage)	
	Rail	Truck	Rail	Truck
<u>In-State:</u>				
Western Kansas	12,102	1,973	14.0	2.3
North Central and Central	18,414	2,191	21.3	2.5
Northeast	2,790	-	3.2	-
South Central	18,592	8,553	21.5	10.0
East Central and Southeast	10,237	570	11.9	.7
Total	62,135	13,287	72.0	15.4
<u>Out-of-State:</u>				
Nebraska	5,384	-	6.2	-
Minnesota	2,586	-	3.0	-
Colorado	79	2	.1	* .1
Iowa	74	-	.1	-
South Dakota	24	-	*	-
Missouri	2,520	212	2.9	.3
Total	10,667	214	12.3	.3
TOTAL	72,802	13,501	84.3	15.7
		86,303		100.0

* Insignificant

illustrates a measure of efficiency (Table 35). Flour mills in South Central Kansas were shown to operate their facilities at a higher level of utilization by receiving 48.8 percent of all wheat while containing only 36.9 percent of the flour milling capacity in the state. Mills located in the East Central and Southeast districts combined operated at a slightly lower level while mills in the North Central and Central districts together and Northeast Kansas also operated at a lower level of plant capacity by this measurement.

TABLE 35
KANSAS FLOUR MILLS CAPACITY AND RECEIPTS
BY AREA AND PERCENTAGE, 1977

Location	Percent of Daily Operating Capacity	Percent of Total Wheat Receipts
Western Kansas	-	-
North Central and Central	10.8	5.4
Northeast	19.7	14.2
South Central	36.9	48.8
East Central and Southeast	<u>32.6</u>	<u>31.6</u>
TOTAL	100.0	100.0

Wheat Receipts

Table 36 gives percentage breakdown by mode of wheat receipts by flour mills in Kansas for 1977. All mill areas received the majority of their wheat by rail; between 76.4 and 89.7 percent. On the average,

TABLE 36
1977 KANSAS FLOUR MILL RECEIPTS

Mill Location	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	-	-	-	-	-	-
North Central and Central	3,557	1,097	4,654	4.1	1.3	5.4
Northeast	10,923	1,253	12,176	12.7	1.5	14.2
South Central	35,512	6,686	42,198	41.1	7.7	48.8
East Central and Southeast	<u>22,810</u>	<u>4,465</u>	<u>27,275</u>	<u>26.4</u>	<u>5.2</u>	<u>31.6</u>
TOTAL	72,802	13,501	86,303	84.3	15.7	100.0

84.3 percent of all receipts were by rail. Referring to Table 34 again, rail receipts from in-state origins alone accounted for 72.0 percent of all wheat receipts at Kansas mills.

Each area where flour mills were located had its own receipts pattern. Appendix Tables 15 through 18 represent the origins and modes of transport by which wheat was delivered to the mills.

All three mills in North Central and Central Kansas received all of their wheat from in-state origins (Appendix Table 15). The two major origin areas were the South Central district with 40.2 percent of all wheat receipts and Western Kansas with 36.1 percent. Its own area originated only 17.1 percent, with most of that by rail. Note that 21.2 percent of all receipts were from South Central Kansas by truck, the only area where truck receipts accounted for more than rail.

Wheat receipts by the three flour mills in Northeast Kansas were almost 65 percent from in-state and over 35 percent from out-of-state (Appendix Table 16). Almost 90 percent of the 12.2 million bushels moved by rail along with 6.8 million bushels from in-state by rail. The North Central/Central area originated the largest volume of wheat for mills in Northeast Kansas in 1977, accounting for 48.7 percent and Missouri with 22.4 percent, mostly by rail. Truck receipts accounted for only 10.3 percent of all receipts.

South Central Kansas with eight milling facilities received the largest annual volume of wheat in 1977 with 42.2 million bushels (Appendix Table 17). Almost 89 percent of the wheat had in-state origins including 73.1 percent received by rail. More of the wheat

milled in this district came from origins within the district than from outside. The South Central district originated 45.7 percent; North Central and Central, 27.4 percent; and the Northeast district, 13.6 percent. Minnesota was the largest originator of out-of-state wheat for milling with 6.1 percent followed by Nebraska with 4.9 percent.

Over 93 percent of the 27.3 million bushels of wheat received by the five flour mills in East Central and Southeast districts originated from in-state locations (Appendix Table 18). Origins within the two districts accounted for 37.7 percent while the South Central district accounted for 22.0 percent of which 8.2 percent moved by truck and 13.8 by rail. Almost 20 percent originated from the three Western districts while the North Central and Central districts accounted for 8.5 percent. Virtually all of the out-of-state receipts came from Nebraska. Rail provided the movement for 83.6 percent of all wheat received and trucks the remaining 16.4 percent.

Seasonal receipt patterns for wheat processors are shown in Table 37 and Figure 9 for each area where processors are located along with the statewide average.

North Central and Central districts received the largest monthly receipts of wheat in October, April and June, with 15.1, 13.1, and 10.0 percent, respectively. Low receipt months were February and August, receiving 4.7 and 5.2 percent each. Northeast district wheat processors reported high receipt months of March, October and November with 12.0, 11.1, and 10.4 percent, respectively, while July and August were low receipt months with 3.0 and 3.4 percent, respectively. Wheat processors in South Central Kansas reported very low percentages of

TABLE 37
KANSAS WHEAT PROCESSOR SEASONAL RECEIPTS PATTERN BY PERCENTAGE, 1977

Mill Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North Central and Central	7.1	4.7	7.2	13.1	8.5	10.0	9.8	5.2	8.0	15.1	5.5	5.8
Northeast	7.7	9.1	12.0	9.9	9.0	7.5	3.0	3.4	9.1	11.1	10.4	7.8
South Central	2.8	3.8	3.6	2.4	9.0	23.2	12.3	19.4	7.0	6.3	5.6	4.6
East Central and Southeast	8.3	10.4	9.5	10.0	7.9	5.6	8.2	7.6	8.7	6.7	10.4	6.7
STATE AVERAGE	5.7	6.9	7.2	6.7	8.6	14.0	9.3	12.0	8.0	7.7	8.0	5.9

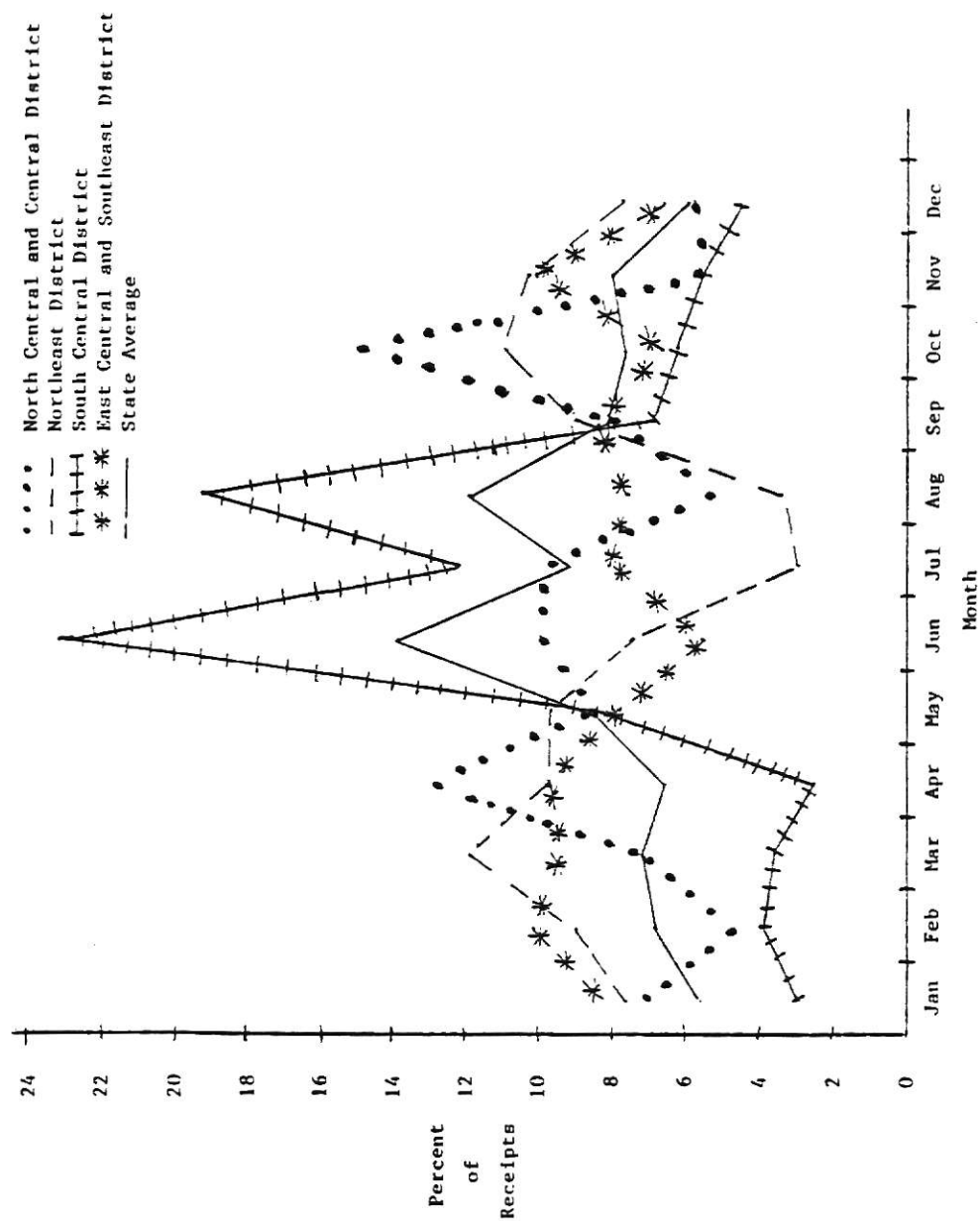


Figure 9. Wheat Processor Seasonal Receipts Pattern by Percentage, 1977.

annual receipts in the early months of the year with the lowest 2.4 percent of annual receipts in April. June, July, and August were high receipt months having 23.2, 12.3, and 19.0 percent, respectively, before ending the year with a 4.6 percent of total receipts in December. Relatively stable wheat receipts throughout the year were reported by the East Central and Southeast districts. High receipt months were February, April, and November with 10.4, 10.0, and 10.4 percent of total receipts, respectively, while low receipt months were June with 5.6 percent and October with 6.7 percent.

Statewide wheat processor receipts averages show that from a low of 5.7 percent in January, receipts increased to a June high of 14.0 percent, a slight decrease in July before increasing to 12.0 percent in August and finally decreasing the rest of the year to 5.9 percent in December.

With minor exceptions possibly due to management decisions, districts with a larger amount of mill storage capacity and operating capacity also exhibited a larger range of monthly receipts. The South Central district, for example, which had 52.1 percent of flour processors storage capacity and 36.9 percent of total daily operating capacity, exhibited a 20.4 percent range between its low and high month of receipts, April and June, with 2.4 and 23.2 percent, respectively.

Corn and Milo Processors

Corn and milo processing in Kansas consists of transforming these grains into food such as sorghum flour, corn sweeteners and bulgur, livestock and poultry feed, along with distilled alcohol and industrial

solvents. Disclosure problems prevent identifying in detail certain aspects, such as specific areas with specific processing activities.

The USDA estimates almost 4.4 billion bushels of feed grains were fed to livestock and poultry in the United States during 1977.¹⁵ Corn and milo used for feed amounted to 4.1 billion bushels or 91.8 percent.¹⁶ Using a feeding rate of 1.63503 tons and the number of grain consuming livestock in Kansas estimated to be 3,235,000, a total of 188.9 million bushels of grain were used for feed in Kansas during 1977.^{17,18}

Table 38 represents the number and certain characteristics of the corn and milo processing plants in Kansas. There were eleven processors in Kansas using milo or corn, or both grains in the production of food, feed, or industrial products.^{4/} A breakdown shows that two firms processed corn only, three firms processed milo only, and six firms used both grains for inputs. The majority of plants had a daily operating capacity in the 1001-5000 hundredweight class with total operating capacity in the state of 45,539 hundredweight. Storage capacity of the processing firms totaled 19.3 million bushels with the Northeast district being dominant as it also is in operating capacity.

^{4/} Five of the facilities manufactured feed only. Registered feed manufacturers numbered 755 but the relative small capacity of most of them along with the difficulty of identifying active facilities resulted in surveying only five, which were listed in the 1977 Kansas Grain and Feed Dealers Association Official Directory.^{19,20}

TABLE 38
NUMBER AND CHARACTERISTICS OF CORN AND MILO PROCESSING PLANTS IN KANSAS, 1977

Location	Number of Processors Receiving Grain			Daily Operating Capacity					Storage Capacity (1000 Bushels)		
	Milo Processors			Number of Firms in Each Class					Total		
	Corn Only	Milo and Only Corn	In Area (Number)	Percent	<1000	1001-5000	5001-10000	>10000	Capacity	Percent	Capacity Utilization Percent
Western Kansas	0	1	0	1	9.1	-	1	-	3,000	6.6	1,000 5.2 1,000 5.2
North Central and Central	0	1	3	4	36.4	-	4	-	11,700	25.7	1,611 8.4 1,604 8.3
Northeast	2	0	1	3	27.3	-	1	1	24,800	54.4	16,626 86.2 16,626 86.4
South Central	0	0	1	1	9.1	0	1	-	3,000	6.6	21 .1 1.3 *
East Central and Southeast	0	1	1	2	18.2	1	1	-	3,039	6.7	27.7 .1 21.8 .1
TOTAL	2	3	6	11	100.0	1	8	1	45,539	100.0	19,285.7 100.0 19,253.1 100.0

Corn Processor Receipts

Over 7 million bushels of corn were received by respondent processors of corn in Kansas during 1977 (Table 39). Over 90 percent of the corn originated from in-state. The Northeast district accounted for 87.0 percent with 2.4 percent from the North Central and Central districts. Most of the out-of-state receipts came from Missouri and Nebraska with 6.8 and 2.2 percent, respectively. The majority of corn receipts moved by rail; 90.1 percent.

Processors in the Northeast district received 95.3 percent of all respondent corn processor receipts or 6.8 million bushels, and mostly by rail (Table 40).

The three reporting corn processors in North Central and Central Kansas received 203 thousand bushels of corn (Appendix Table 19). In-state origins accounted for 86.7 percent, with virtually all coming from within the same districts. Almost 7 percent originated from Nebraska. Trucks provided 100 percent of all corn receipts by processors in this area.

Over 6.8 million bushels of corn were received by the three corn processors in Northeast Kansas and all in-state origins came from its own district (Appendix Table 20). Missouri provided 6.9 percent of the 8.8 percent of corn originating out-of-state with the rest from Nebraska. Almost 95 percent of all corn moved by rail, with 88.1 percent coming from the Northeast district.

The South Central district provided 36 thousand bushels of corn received by the only reporting processor in the area and all of it moved by truck (Appendix Table 21).

TABLE 39

TOTAL CORN PROCESSOR RECEIPTS IN KANSAS, 1977

Origin	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	-	-	-	-	-	-
North Central and Central	-	169	169	-	2.4	2.4
Northeast	6,001	215	6,216	84.0	3.0	87.0
South Central	-	36	36	-	.5	.5
East Central and Southeast	-	59	59	-	.8	.8
Subtotal	6,001	479	6,480	84.0	6.7	90.7
Missouri	425	58	483	5.9	.9	6.8
Nebraska	13	142	155	.2	2.0	2.2
Iowa	-	22	22	-	.3	.3
North Dakota	-	3	3	-	*	*
South Dakota	-	3	3	-	*	*
Subtotal	438	228	666	6.1	3.2	9.3
TOTAL	6,439	707	7,146	90.1	9.9	100.0

TABLE 40
TOTAL CORN PROCESSOR RECEIPTS IN KANSAS BY MODE

Processor Location	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	-	-	-	-	-	-
North Central and Central	-	203	203	-	2.8	2.8
Northeast	6,439	369	6,808	90.1	5.2	95.3
South Central	-	36	36	-	.5	.5
East Central and Southeast	-	99	99	-	1.4	1.4
TOTAL	6,439	707	7,146	90.1	9.9	100.0

Just under 100 thousand bushels of corn were received by the only respondent corn processor in East Central and Southeast Kansas by trucks (Appendix Table 22). Almost 60 percent originated within its own area while Iowa and Nebraska accounted for 15.2 percent each. Missouri shipped 10.0 percent.

Corn processors reported receiving almost 95 percent of their truck receipts from elevators (Table 41). Only in the North Central and Central districts did corn processors receive a substantial volume from farmers; 12.9 percent. Receipts from elevators were mostly from within 25 miles on a statewide basis, although all areas except the Northeast received the majority of their trucked grain from elevators at a distance greater than 100 miles. No receipts from farmers more than 100 miles away were reported.

Seasonal receipt patterns for corn processing areas during 1977 appear in Table 42 and Figure 10. The average percentage monthly receipts portrays a fairly accurate pattern based on the total volume of corn received by processors during a given month. The demand for corn used in processing depends upon its final use as well as its price. Corn prices are usually lower just before harvest although available storage space, operating capacity and the demand for processed corn products are factors considered when analyzing a receipts pattern.

TABLE 41
CORN PROCESSOR TRUCK RECEIPTS DISTANCE CATEGORY BY PERCENT

[illegible]

TABLE 42
KANSAS CORN PROCESSOR SEASONAL RECEIPTS PATTERN BY PERCENTAGE, 1977

Processor Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North Central and Central	8.1	8.1	8.8	8.8	8.8	8.8	8.1	8.1	8.1	8.1	8.1	8.1
Northeast	10.2	8.4	7.3	7.1	9.0	10.1	7.1	5.8	8.6	8.1	8.6	9.7
South Central	12.0	10.0	10.0	4.0	4.0	4.0	4.0	9.0	10.0	9.0	12.0	12.0
East Central and Southeast	8.4	8.3	8.4	8.3	8.3	8.4	8.3	8.3	8.3	8.3	8.4	8.3
STATE AVERAGE	10.1	8.4	7.4	7.1	9.0	10.0	7.2	5.9	8.6	8.1	8.6	9.6

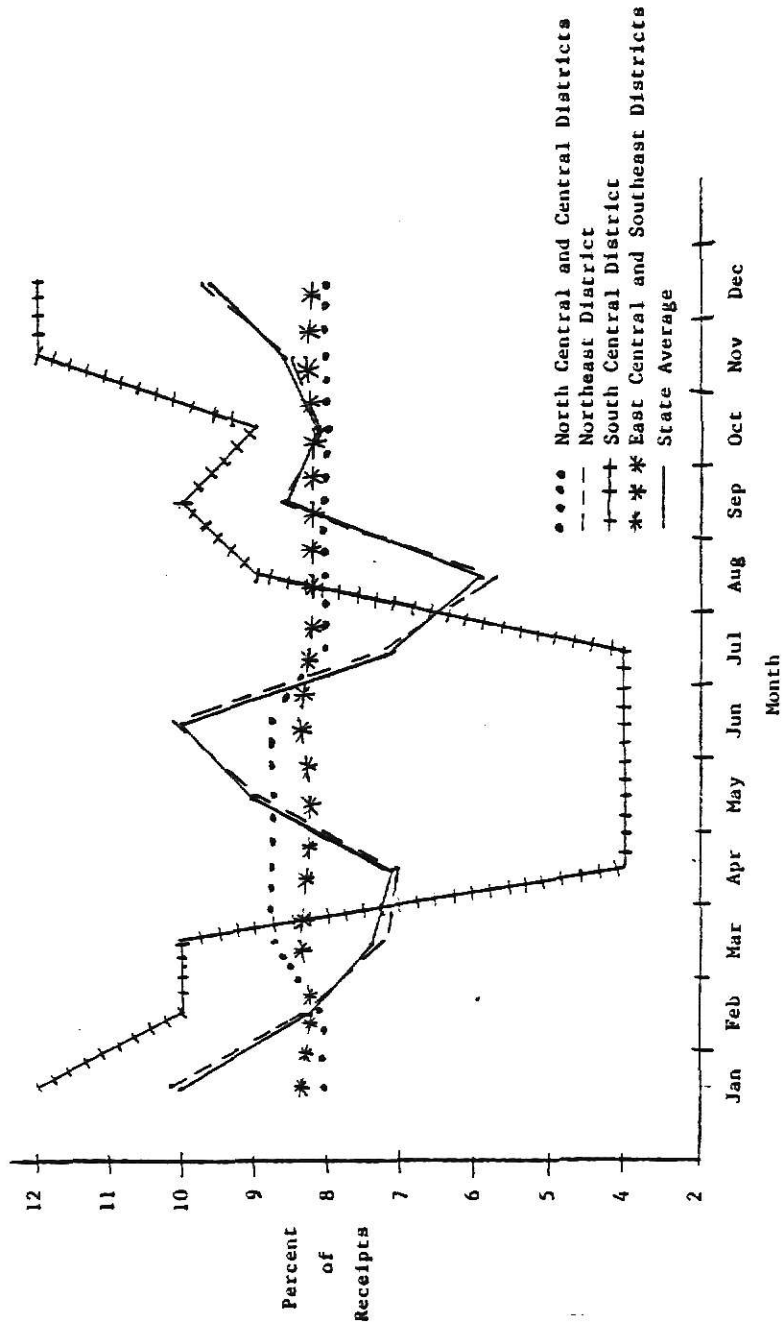


Figure 10. Corn Processor Seasonal Receipts Pattern by Percentage, 1977.

Milo Processor Receipts

Milo processors received over 3 million bushels of milo in 1977 and 80.2 percent originated in-state (Table 43). Western Kansas was the largest origin area, accounting for 31.5 percent while North Central and Central Kansas districts followed with 23.0 percent and the South Central district with 16.4 percent. Most of the 19.8 percent originating out-of-state was shipped from Nebraska which totaled 15.7 percent. Overall, rail and truck use for shipping milo to the processors was divided with rail accounting for 47.6 percent and trucks moving 52.4 percent. Truck use was mostly in-state, 47.0 percent, where Western Kansas districts along with North Central and Central districts combined originated 31.5 percent and 23.0 percent, respectively.

Western Kansas processors received 47.7 percent of all milo for processing while 31.1 percent went to North Central and Central districts and Northeast Kansas received 13.8 percent (Table 44). The majority of truck movement was received by Western Kansas districts with 28.6 percent, followed by North Central and Central districts with 18.9 percent. Slightly over 19 percent moved to Western districts by rail and 12.2 percent was received in North Central and Central Kansas by rail. Of the 12.8 percent received by Northeast districts, rail moved 10.7 percent.

Only one respondent processor was located in Western districts and of the 1.5 million bushels the facility received, 66.0 percent originated within its own area while the South Central district

TABLE 43

TOTAL MILO PROCESSOR RECEIPTS IN KANSAS, 1977

Origin	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	396	594	990	12.6	18.9	31.5
North Central and Central	205	519	724	6.5	16.5	23.0
Northeast	134	8	142	4.3	.2	4.5
South Central	204	313	517	6.5	9.9	16.4
East Central and Southeast	<u>105</u>	<u>46</u>	<u>151</u>	<u>3.3</u>	<u>1.5</u>	<u>4.8</u>
Subtotal	1,044	1,480	2,524	33.3	47.0	80.2
Nebraska	382	114	496	12.1	3.6	15.7
Missouri	<u>71</u>	<u>57</u>	<u>128</u>	<u>2.3</u>	<u>1.8</u>	<u>4.1</u>
Subtotal	453	171	624	14.4	5.4	19.8
TOTAL	1,497	1,651	3,148	47.6	52.4	100.0

TABLE 44
MILO PROCESSOR RECEIPTS BY MODE, 1977

Processor Location	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	600	900	1,500	19.1	28.6	47.7
North Central and Central	385	595	980	12.2	18.9	31.1
Northeast	337	99	436	10.7	3.1	13.8
South Central	-	11	11	-	.4	.4
East Central and Southeast	175	46	221	5.6	1.4	7.0
TOTAL	1,497	1,651	3,148	47.6	52.4	100.0

provided 34.0 percent (Appendix Table 23). Trucks were reported to have moved 60 percent while rail receipts totaled 40.0 percent.

Four processors in North Central and Central Kansas received milo and 55.1 percent of the total 55.9 percent from in-state origins came from within its own area, including 52.5 percent by truck movement (Appendix Table 24). All out-of-state origins, 44.1 percent, came from Nebraska, which shipped 36.7 percent by rail.

The Northeast district consisted of one respondent milo processor. In-state origins were 56.0 percent of the 436 thousand bushels received by that facility in 1977. North Central and Central districts provided 41.3 percent of receipts and Northeast Kansas provided 14.7 percent of receipts (Appendix Table 25). All in-state origins were received by rail. Missouri and Nebraska were the out-of-state origins of milo receipts and provided 29.3 and 14.7 percent, respectively. Rail receipts from out-of-state origins totaled 21.3 percent while trucks accounted for 22.7 percent.

All milo receipts of the only respondent processor in the South Central district moved by truck (Appendix Table 26). The South Central district originated 63.6 percent and North Central and Central districts combined to originate 36.4 percent.

Over 68 percent of milo receipts of both respondent processors in East Central and Southeast Kansas originated from within their own area. Rail provided 47.5 percent of those receipts. Northeast Kansas provided the other 32 percent shipped entirely by rail (Appendix Table 27).

Farmers originated 67.4 percent of all truck receipts by milo processors (Table 45). North Central and Central Kansas producers provided almost 33 percent while just under 40 percent of farmer truck shipments were within 25 miles. Overall, elevators located more than 100 miles from processors originated 21.6 percent of the milo, but East Central and Southeast district processors received 44.9 percent of their receipts from elevators within 25 miles.

Seasonal receipt patterns of each milo processing area are shown in Table 46 and Figure 11. Their patterns were not identical, however, most of the processing areas displayed an increasing trend in receipts before the last of the year, which coincides with the usual decrease in the price of milo during the last part of the marketing year before harvest.

Feed Use

Although very few feed manufacturers were contacted, overall a considerable portion of milo and corn for feed use has been accounted for by the survey. Total milo and corn receipts by feed processors were 1,097 thousand bushels, but in Chapter IV country elevators reported certain uses for these grains which increases milo and corn disappearance for feed use (Table 47). Amounts of corn and milo processed for feed locally totaled 37.8 million bushels. Shipments to feedlots amounted to over 45 million bushels. If corn and milo sold locally and to other in-state locations is considered to be for feed use, then country elevator feed use and shipments to feedlots along with milo and corn received by processors for feed manufacturing

TABLE 45
MILO PROCESSOR TRUCK RECEIPTS DISTANCE CATEGORY BY PERCENT

Processor Location	Receipts from Farmers (Miles)				Sub- Total	Receipts from Elevators (Miles)				Sub- Total	TOTAL
	0-25	26-50	51-100	>100		0-25	26-50	51-100	>100		
Western Kansas*	-	-	-	-	-	-	-	-	-	-	-
North Central and Central	2.4	2.4	2.4	-	7.2	-	11.8	15.1	65.9	92.8	100.0
Northeast	60.0	30.0	10.0	-	100.0	-	-	-	-	-	100.0
South Central	-	-	-	-	-	-	-	-	100.0	100.0	100.0
East Central and Southeast	5.0	-	-	-	5.0	44.9	10.1	30.1	10.1	95.0	100.0
Overall	39.9	20.3	7.2	-	67.4	1.4	4.0	5.6	21.6	32.6	100.0

* No response concerning categories of receipts.

TABLE 46
KANSAS MILO PROCESSOR SEASONAL RECEIPTS PATTERN BY PERCENTAGE, 1977

Processor Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Western Kansas	2.8	2.8	2.7	2.8	2.8	2.8	2.7	2.8	2.8	25.0	25.0	25.0
North Central and Central	4.2	6.4	10.1	12.5	9.8	6.3	11.0	5.4	4.7	14.7	9.8	5.1
Northeast	2.8	2.8	2.7	2.8	2.8	2.8	2.7	2.8	25.0	25.0	25.0	2.8
South Central	12.7	10.0	9.9	3.7	3.7	3.7	3.7	9.1	9.9	9.1	11.8	12.7
East Central and Southeast	6.6	9.4	9.2	16.9	3.3	2.3	12.4	10.0	11.1	3.1	4.9	10.8
STATE AVERAGE	3.3	4.0	4.9	5.9	4.5	3.5	5.3	3.8	10.7	21.0	19.9	13.2

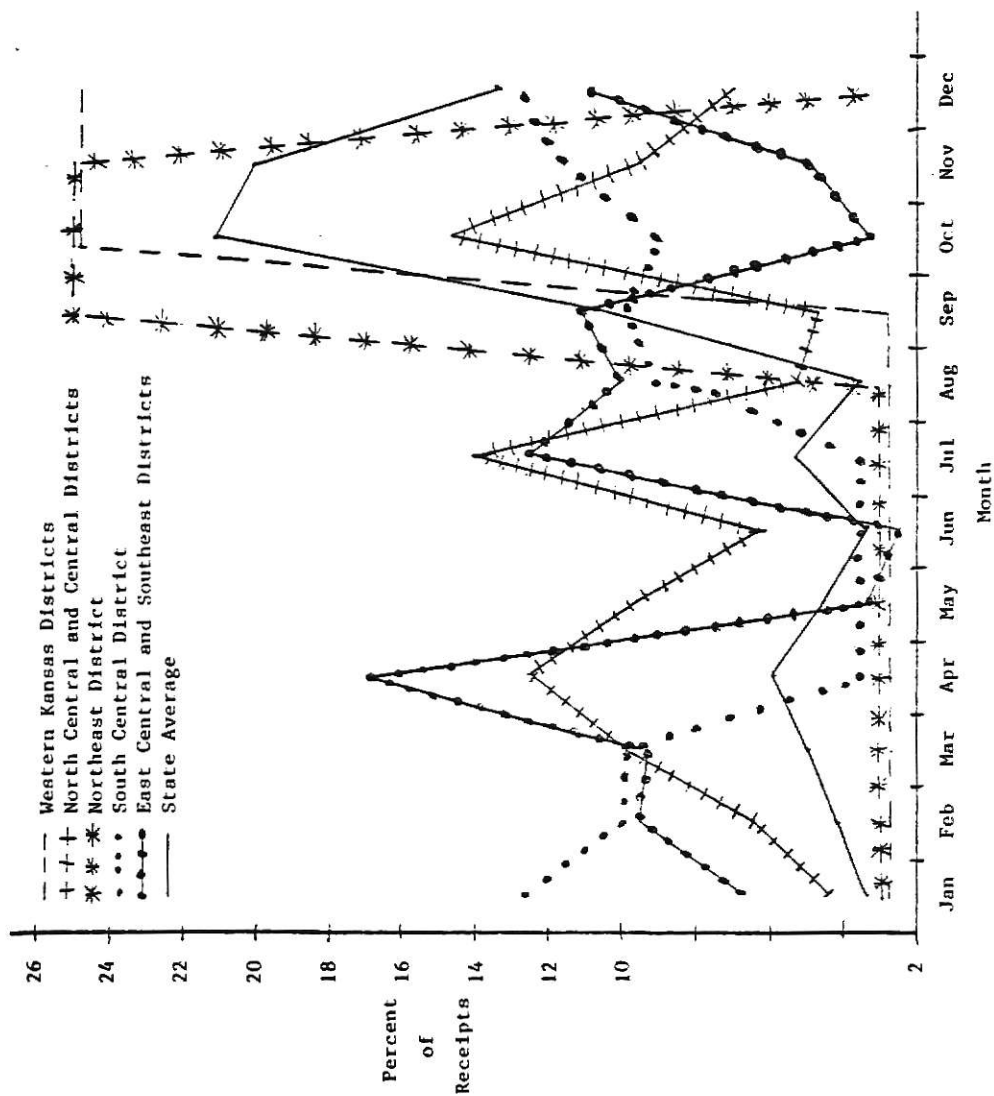


Figure 11. M10 Processor Seasonal Receipts Pattern by Percentage, 1977.

TABLE 47
CORN AND MILO FEED USE IN KANSAS, 1977
(Million Bushels)

	Corn	Milo	Total
Received by Processors	7.2	3.2	10.4
Minus Food and Industrial Processing	<u>6.8</u>	<u>2.5</u>	<u>9.3</u>
Feed Processing Receipts	.4	.7	1.1
<u>Country Elevator Use:</u>			
Processed for Feed	8.2	29.6	37.8
Sold Locally	24.3	34.6	58.9
Shipped to Feedlots	30.5	14.6	45.1
Shipped to Other In-State Locations	<u>6.1</u>	<u>2.8</u>	<u>8.9</u>
Total	69.1	81.6	150.7
TOTAL FEED USE	69.5	82.3	151.8

totals 151.8 million bushels. While this is less than the 188.9 million bushels used for feed in 1977 as estimated by the USDA, the difference (27.1 million bushels) may be due to the use of grains other than corn and milo for feed, producers growing and processing feed grains for themselves, along with feedlot receipts from states bordering Kansas and from Kansas local farmers.

Soybean Processors

Table 48 contains several comparisons between Kansas and United States soybean production and processing. While Kansas accounted for only 1.6 percent of the nation's soybean production in 1977, the state produced 3.0 percent of all soybean meal and 3.2 percent of all soybean oil during the year. The combined value of the meal and oil amounted to \$201.1 million or 3.4 percent of all meal and oil produced nationally. One mill was very small, shown by the fact that although 4 percent of the nation's mills were located in Kansas, the capacity of Kansas mills represented only 2.9 percent of all U.S. mill capacity.

The four mills in the state reported a total daily operating capacity of 4,540 tons in 1977 (Table 49). The South Central district was the location of one mill and accounted for 33.0 percent of total processing capacity with 1,500 tons daily. The East Central and Southeast districts together had three processing facilities with a total capacity of 3,040 tons per day or 67.0 percent of Kansas soybean processing capacity.

TABLE 48
COMPARISON OF UNITED STATES AND KANSAS SOYBEAN
PRODUCTION AND PROCESSING, 1977

	Kansas	United States
<u>Soybean Production:</u> 1000 Bushels	27,720	1,761,800
Percent	1.6	100.0
<u>Number of Mills:</u>	4	99
Percent	4.0	100.0
<u>Capacity:</u> Tons per Day	4,540	156,250
Percent	2.9	100.0
<u>Capacity:</u> Millions Bushels per Year	35.3	1,250
Percent	2.9	100.0
<u>Soybean Meal Production:</u> 1000 Tons	656.2	21,782
Percent	3.0	100.0
<u>Soybean Oil Production:</u> 1,000,000 Pounds	315.1	9,983.0
Percent	3.2	100.0
<u>Combined Value of Meal and Oil:</u> \$1,000,000	201.1	5,948.8
Percent	3.4	100.0

Source: USDA, ESCS, Fats and Oils Situation, Washington, D.C., FOS-291, p. 10, FOS-293, pp. 7-10. Kansas State Board of Agriculture, 61st Annual Report and Farm Facts, (Topeka), p. 114.

TABLE 49
CHARACTERISTICS OF KANSAS SOYBEAN PROCESSORS, 1977

Processor Location	Number of Mills	Percent of Mills	Number of Firms in Each Daily Operating Capacity Class		Total Operating Capacity		Grain Storage Facilities	
			0-500	1000-1500	Tons Per Day	Percent	1000 Bushels	Percent
South Central	1	25	-	1	1,500	33.0	2,000	33.8
East Central and Southeast	3	75	1	2	3,040	67.0	5,914	66.2
TOTAL	4	100.0	1	3	4,540	100.0	7,914	100.0

Soybean Receipts

Over 36 million bushels of soybeans were received by Kansas processors during 1977 (Table 50). In-state origins of soybeans approached 70 percent, or 25.3 million bushels. The largest portion of in-state receipts originated from the East Central and Southeast districts with 39.2 percent, followed by 19.2 percent and 8.9 percent from the Northeast and the three Western districts, respectively. The largest portion of the 30.4 percent of out-of-state soybeans came from Missouri with 26.2 percent of all receipts. Nebraska and Oklahoma accounted for the remainder with 3.1 percent and 1.1 percent, respectively.

It should be noted that receipts by processors exceeded total soybean production in Kansas by 8.7 million bushels, and that out-of-state origins of soybeans by processors totaled 11.1 million bushels, which reflects local use and additions to inventory along with country and terminal elevator out-of-state shipments.

Table 50 also contains the percentage mode breakdown of soybean receipts by processors in Kansas for 1977. All processing areas received more by rail than by truck. On the average, 65.1 percent of all receipts were by rail. In-state receipts by rail accounted for 48.2 percent of all receipts.

The one plant in South Central Kansas received almost 90 percent of its soybeans from in-state origins (Appendix Table 28). All of the out-of-state soybeans came from Missouri. In-state origin areas included East Central and Southeast districts combined with 34.4 percent, the Northeast district with 30.3 percent and Western Kansas

TABLE 50

TOTAL RECEIPTS BY KANSAS SOYBEAN PROCESSORS BY ORIGIN, 1977

Origin	(1000 Bushels)			(Percentage)		
	Rail	Truck	Total	Rail	Truck	Total
Western Kansas	2,600	650	3,250	7.1	1.8	8.9
North Central and Central	389	194	583	1.1	.5	1.6
Northeast	5,294	1,947	7,241	14.6	5.3	19.9
South Central	-	-	-	-	-	-
East Central and Southeast	9,250	5,014	14,264	25.4	13.8	39.2
Subtotal	17,533	7,805	25,338	48.2	21.4	69.6
Missouri	5,153	4,382	9,535	14.1	12.1	26.2
Nebraska	920	230	1,150	2.5	.6	3.1
Oklahoma	93	307	400	.3	.8	1.1
Subtotal	6,166	4,919	11,085	16.9	13.5	30.4
TOTAL	23,699	12,724	36,423	65.1	34.9	100.0

with 25.2 percent. Over 80 percent of soybeans received moved by rail with 72.7 percent from in-state origins by rail. Over 17 percent was received by truck from in-state locations.

Three processing plants were located in the East Central and Southeast districts and 58.4 percent of their soybean receipts originated from in-state (Appendix Table 29). Most of this came from within their own districts (41.8 percent). Over 14 percent originated from the Northeast and the rest from North Central and Central Kansas. Most of the out-of-state receipts were from Missouri, with 35.0 percent, while Nebraska and Oklahoma originaged 4.9 and 1.7 percent, respectively. Rail receipts accounted for 56.5 percent. The East Central and Southeast districts together moved 23.8 percent by rail to processors and Missouri was next with 17.5 percent by rail. Truck movement to soybean plants totaled 43.5 percent with the largest amounts moving from East Central and Southeast Kansas with 18.0 percent.

All but one firm responded to questions pertaining to truck receipts from farmers or elevators within distance categories (Table 51). Essentially all of the soybean truck receipts by the processors in South Central Kansas came from other elevators (98.0 percent). Almost 60 percent originated from within the 50-100 mile category and 29.4 percent from within the 26-50 mile category. The larger firm in the combined East Central and Southeast districts which responded to these questions received 95.7 percent of its soybeans from other elevators with 78.3 percent within 100 miles and 17.4 percent from beyond 100 miles. Over half of the farmer-originated

TABLE 51
SOYBEAN PROCESSOR TRUCK RECEIPTS DISTANCE CATEGORY BY PERCENT

[illegible]

* No response concerning categories of receipts.

soybean receipts came from within 25 miles. The smaller facility in the combined districts received 99.0 percent from farmers consisting of 89.0 percent from within 25 miles and 10.0 percent within 26-50 miles.

Seasonal receipt patterns for soybean processing areas in Kansas are shown in Table 52 and Figure 12 along with the statewide average. The South Central district was the location of only one processor and it received over half of its soybeans during the last three months of the year. October, November, and December accounted for 23.1, 23.1, and 11.5 percent, respectively. March and August, with 7.7 percent each, were the other peak receipt months. The three processing plants located in East Central and Southeast districts also received the largest proportions of their soybeans during the last three months of the year, receiving 10.8, 14.9, and 14.1 percent in each of those months. Those mills also received 12.1 percent in February and 7.1 percent in June, while the lowest months of receipts included April and August with 5.4 and 1.9 percent, respectively.

Table 52 and Figure 13 also show the average price of soybeans received by farmers in Kansas during 1977. Percentage receipts of soybeans followed soybean prices in a fairly inverse pattern in 1977.

TABLE 52
SOYBEAN PROCESSOR SEASONAL RECEIPTS DISTRIBUTION
BY PERCENT AND MONTHLY AVERAGE PRICE

Processor Location	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
South Central	3.8	3.9	7.7	3.8	3.8	3.9	3.8	7.7	3.9	23.1	23.1	11.5
East Central and Southeast	7.9	12.1	6.3	5.4	6.3	7.1	5.6	1.9	7.6	10.8	14.9	14.1
State Average	6.4	8.9	6.8	4.8	5.4	5.9	4.9	4.1	6.2	15.5	18.0	13.1
Average Price Per Bushel Received by Farmers in Kansas in 1977	6.73	7.07	8.04	9.26	9.07	7.88	5.97	4.96	4.84	4.75	5.34	5.35

Source: 1977 Kansas State University Study.
Kansas State Board of Agriculture, 61st Annual Report and Farm Facts, (Topeka), p. 230.

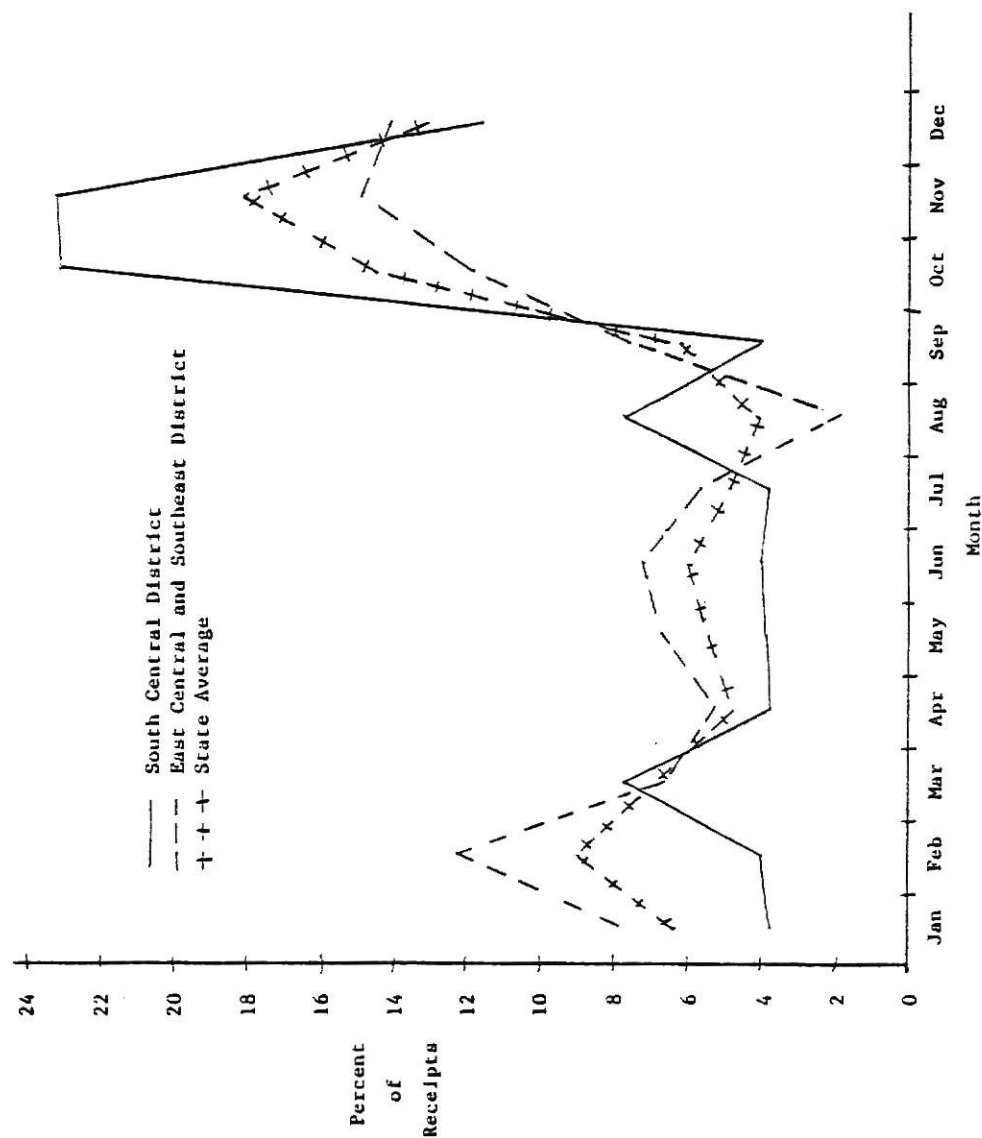
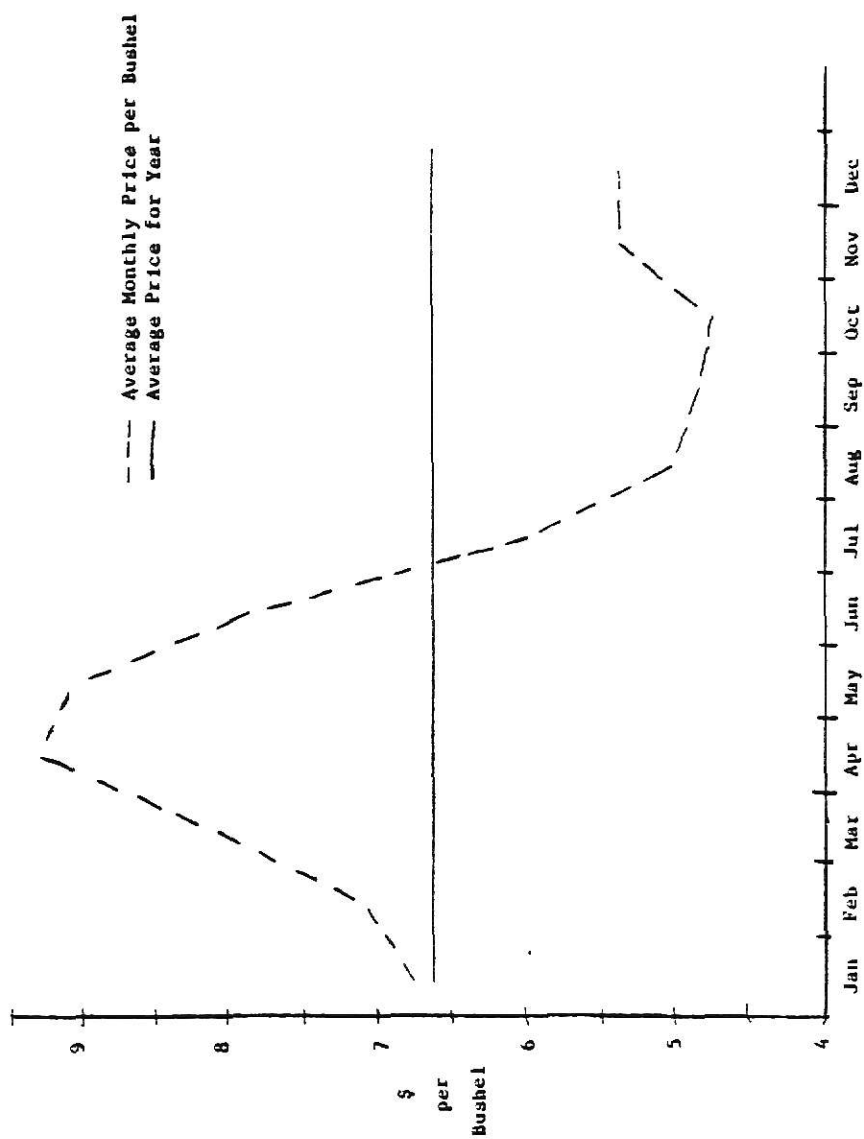


Figure 12. Soybean Processor Seasonal Receipts Pattern by Percentage, 1977.



Source: 1977 Kansas Farm Facts, p. 230.

Figure 13. Average Monthly Price of Soybeans (\$/bushel)
Received by Farmers in Kansas, 1977.

VII. OVERVIEW AND CERTAIN AREAS OF IMPACT

Total Grain Movement

Efficient movement of any raw product is essential to having a well organized market. Demand cannot be satisfied unless all parties coordinate physical movement of goods. An attempt to describe the interrelated movement of wheat, corn, milo, and soybeans between initial production and subsequent movement to handlers and processors is useful in describing real, and potential utilization of grain. Various sources have been utilized to enable one to gain an overview of the flow of raw grain within Kansas.

The movement of wheat is illustrated by the schematic in Figure 14. Over 148 million bushels were shipped directly to Gulf destinations for export sales either by country elevators or terminals. Also note that excluding Gulf coast destinations, out-of-state shipments to elevators and processors include shipments to east and west coast locations.

Total milo movement is summarized in Figure 15 and corn movement appears in Figure 16. Both diagrams reveal the relatively large movement to other than Gulf destinations for feed utilization.

Figure 17 portrays Kansas soybean flows. Processors within the state are shown to depend more on receipts from in-state country

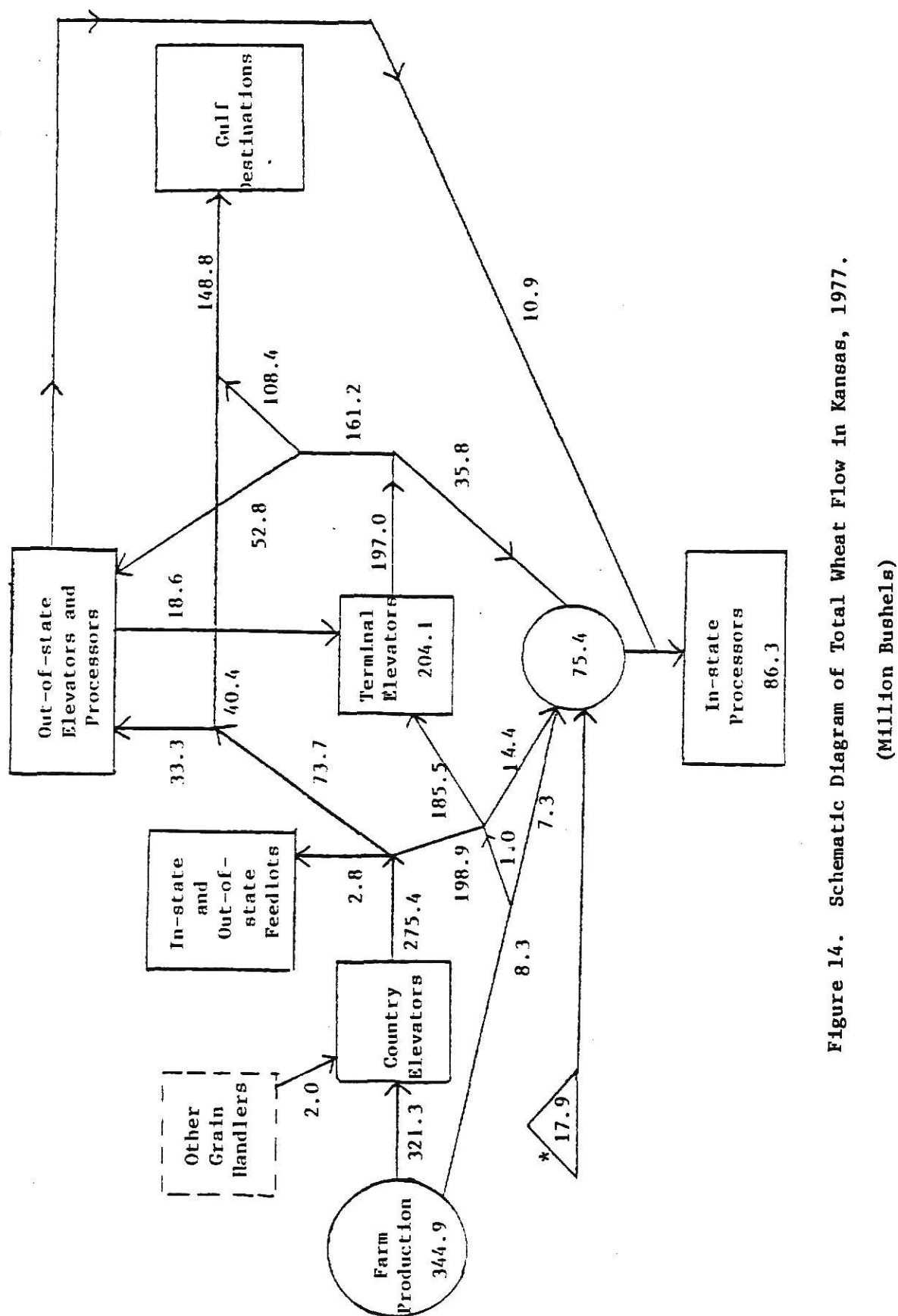


Figure 14. Schematic Diagram of Total Wheat Flow in Kansas, 1977.

(Million Bushels)

* Discrepancy amounting to 17.9 million bushels due to inconsistencies in the reporting system.

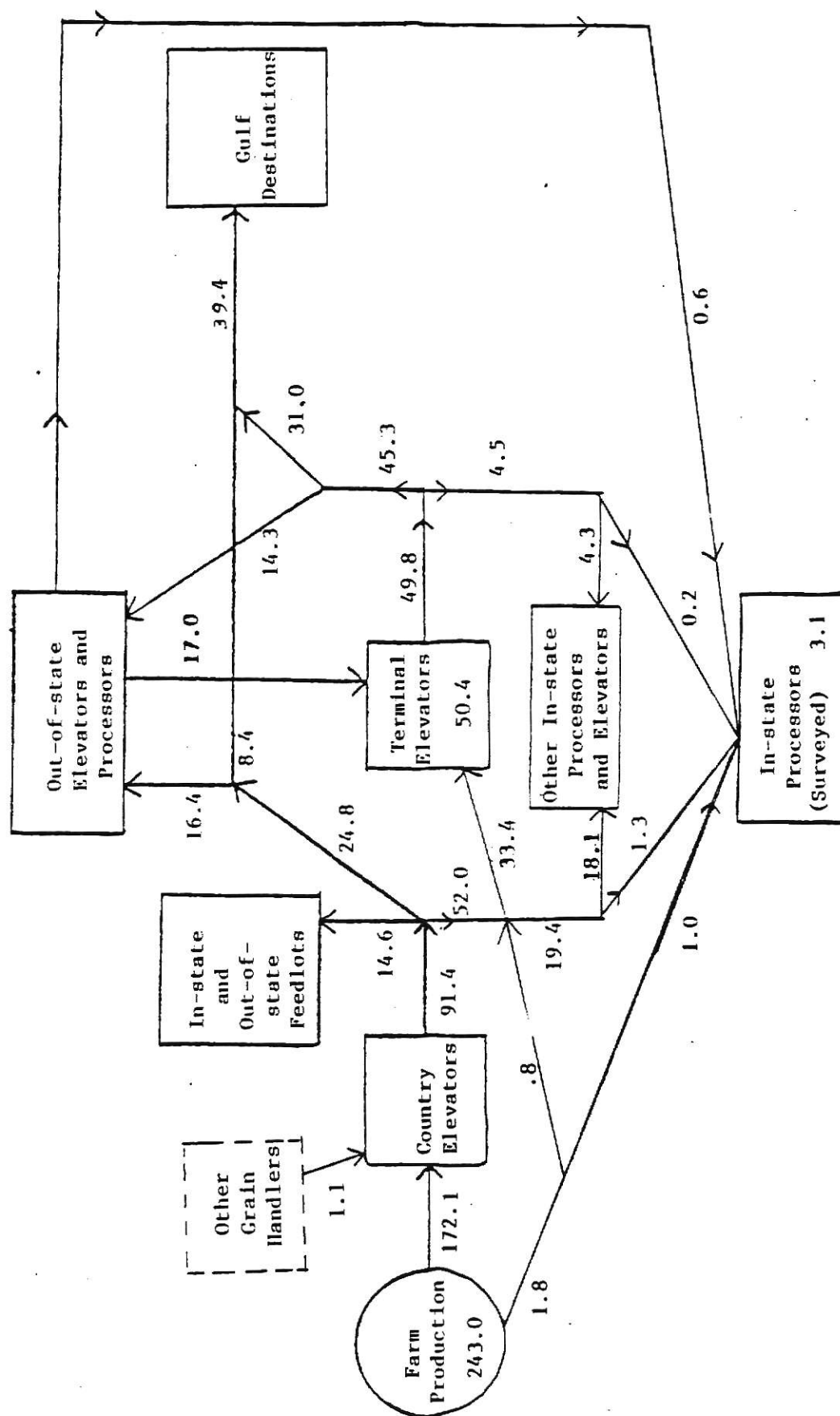


Figure 15. Schematic Diagram of Total Milo Flow in Kansas, 1977.

(Million Bushels)

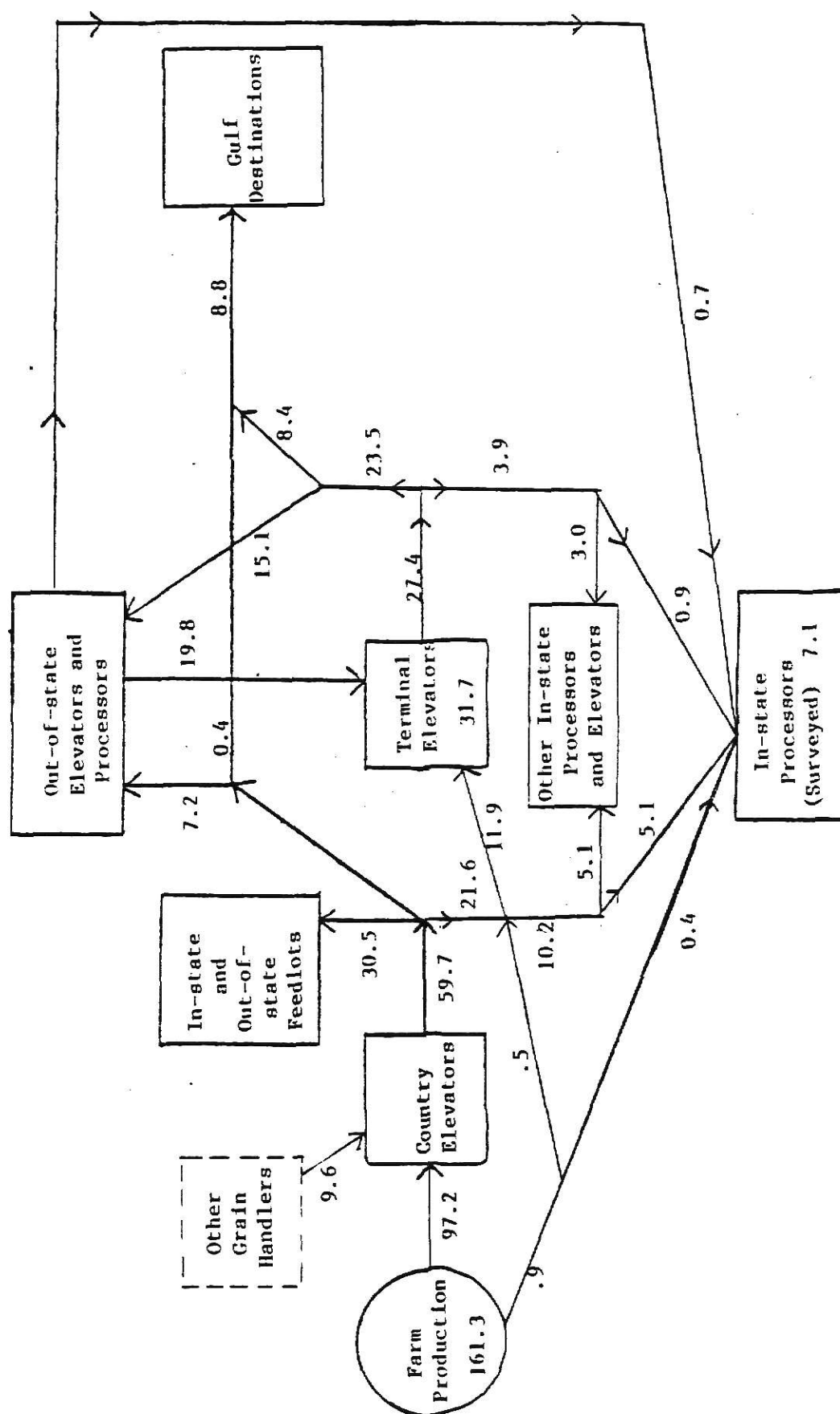


Figure 16. Schematic Diagram of Total Corn Flow in Kansas, 1977.

(Million Bushels)

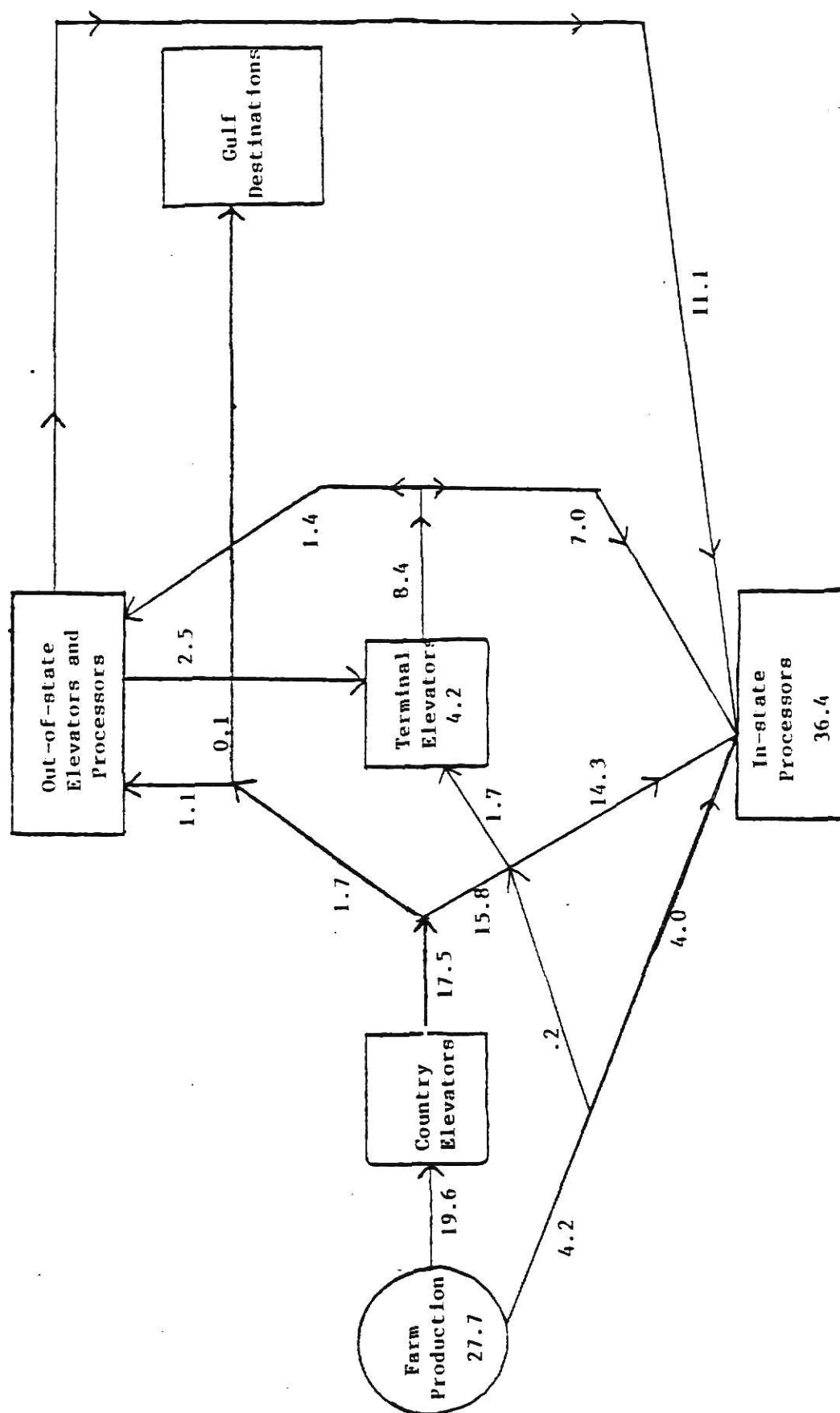


Figure 17. Schematic Diagram of Total Soybean Flow in Kansas, 1977.

(Million Bushels)

elevators, producers, and out-of-state sources than from Kansas terminal elevators.

Processor In-State Receipts

In-state grain processing firms account for a substantial amount of grain disposition. Not including local use for feed and shipments to feedlots, processing firms received over 132 million bushels of wheat, milo, corn, and soybeans (Table 53). Of greater significance was the amount received from in-state origins; almost 110 million bushels, or 82.5 percent of total receipts.

Maintaining substantial processing of grain in Kansas necessitates efficient means for the movement of grain, whether on highways or railways. Note that 83 percent of all rail receipts by processors were from in-state points. Recent concern over rail abandonment, bankruptcy, railcar shortages, etc. are examples of the issues affecting efficient movement by rail and the quantity of grain processed in Kansas reflects the importance of efficient in-state movement.

Multi-car and Single-car Movement

Railroads continue to dominate grain receipts and shipments by terminal elevators and shipments from country elevators. Country elevators shipped over 300 million bushels of grain by rail, or 68.2 percent of all shipments. Terminals received 238 million bushels of grain by rail, or 84.9 percent, and shipped 93.1 percent of their total grain shipments by rail, or 263 million bushels (Table 54).

TABLE 53
SUMMARY OF PROCESSOR IN-STATE RECEIPTS*
(Million Bushels)

	Total Receipts	Total In-State Origins	In-State Origins As Percent of Total Receipts	In-State Rail Receipts	In-State Rail Origins As Percent of Total Rail Receipts
Wheat	86.3	75.4	87.4	62.1	85.3
Milo	3.1	2.5	80.2	1.0	69.9
Corn	7.1	6.5	90.7	6.0	93.2
Soybeans	<u>36.4</u>	<u>25.3</u>	<u>69.6</u>	<u>17.5</u>	<u>73.8</u>
TOTAL	132.9	109.7	82.5	86.6	83.0

* Not including in-state feedlot receipts.

In addition, processors received over 104 million bushels of grain by rail; an amount equal to 78.5 percent of all receipts.

TABLE 54
RAIL USE FOR GRAIN MOVEMENT BY ELEVATORS

	Million Bushels	Percent of Total Shipments or Receipts
Country Elevator Rail Shipments	302.8	68.2
Terminal Elevator Rail Receipts	238.2	84.9
Terminal Elevator Rail Shipments	263.0	93.1
Processor Rail Receipts	104.4	78.5

A better indicator of rail use can be shown by tabulating total rail shipments by Kansas grain handlers (without double-counting) plus rail receipts from out-of-state origins (Table 55). Approximately 627 million bushels of grain, including over 434 million bushels of wheat, were transported on railways in Kansas during 1977. Using an average railcar volume, this would amount to the use of 199,545 railcars.

Although multi-car movement is gaining importance, Gulf ports are about the only destination. Table 55 also describes rail shipments to the Gulf along with all single-car grain movements by country elevators, terminal elevators and processors of four grains. Potential for unit-car movement from Kansas to the Gulf in 1977 is estimated to have been 193.4 million bushels of grain, with wheat accounting for 145.1 million bushels, but single-car movement by itself is estimated to

TABLE 55

TOTAL GRAIN MOVEMENT BY RAIL BY KANSAS GRAIN HANDLERS
(Million Bushels)

	Wheat	Milo	Corn	Soybeans	Total
Country Elevator Gulf Shipments	40.8	8.2	.4	.1	49.5
Terminal Elevator Gulf Shipments	<u>104.3</u>	<u>31.0</u>	<u>8.4</u>	<u>.2</u>	<u>143.9</u>
Total Gulf Movement	145.1	39.2	8.8	.3	193.4
Number of Cars*	47,059	11,866	2,664	97	61,686
Other Country Elevator Shipments	190.0	50.3	12.4	.6	253.3
Other Terminal Shipments	73.7	18.7	18.9	7.8	119.1
Terminal Receipts, Out-of-State	15.0	13.3	13.5	1.6	43.4
Processor Receipts, Out-of-State	<u>10.7</u>	<u>.5</u>	<u>.4</u>	<u>6.2</u>	<u>17.8</u>
Total Single-car Movement	289.4	82.8	45.2	16.2	433.6
Number of Cars*	<u>93,859</u>	<u>25,064</u>	<u>13,682</u>	<u>5,254</u>	<u>137,859</u>
Total Bushels Transported	434.5	122.0	54.0	16.5	627.0
Total Number of Cars*	140,918	36,930	16,346	5,351	199,545

* Average carload: 185,000 lbs.

have been over 433 million bushels, equal to 137,859 carloads of grain, although a small quantity may have been multi-car shipments.

Branch line abandonment would decrease the number of single-car loadings because of the closing of numerous country elevator rail facilities and motor carriers would be expected to move the volume displaced. Furthermore, transporting additional grain during periods of rail-car shortages is dependent on motor carriers. The important point is that a substantial volume of inland grain movement (433.6 million bushels) is not suited to unit-train movement.

VIII. SUMMARY

The economic importance of agricultural crops such as wheat, sorghum, corn, and soybeans is significant to the nation and especially to the state of Kansas. Cash receipts from the sale of these crops accounted for almost 85 percent of all crop sales within the state during 1977. Thus, the demands placed on transporting these products are crucial to the agricultural industry in the state specifically, and the national economy in general.

Survey work accomplished through this study reported origins, destinations, volumes, and the modal split of flows of grain through Kansas elevators and processors during 1977, along with several characteristics related to these handlers of grain.

Over 321 million bushels of wheat were received by country elevators during 1977, with shipments amounting to 275 million bushels. In-state destinations totaled 72 percent of shipments and Gulf coast points totaled over 14 percent. Furthermore, 84 percent of all shipments moved by rail. Country elevators received 173 million bushels of milo and shipped over 90 million bushels of which 64 percent moved by rail. Corn receipts totaled 97 million bushels and shipments almost 60 million bushels. Almost 79 percent was transported by trucks. Kansas country elevators took in almost 20 million bushels of soybeans during the year and shipped almost

18 million bushels. In-state destinations received 91 percent of country elevator shipments. Trucks provided transportation for 58 percent of all shipments.

Over 204 million bushels of wheat were received by Kansas terminal elevators in 1977 with in-state origins amounting to 91 percent. Shipments totaled 196 million bushels with Texas receiving over 51 percent of all shipments. Railroads moved 90 percent, barges almost 8 percent, and trucks 2 percent. Over 86 percent of wheat receipts were by rail.

Forty million bushels of sorghum were received by terminals with Kansas origins amounting to over 66 percent. Shipments totaled slightly under 50 million bushels with out-of-state destinations receiving 91 percent. Texas received 60 percent. Terminal elevators received over 31 million bushels of corn; 65 percent by rail. Out-of-state shipments of corn amounted to 86 percent of all shipments with essentially all moving by rail.

Soybean receipts by terminal elevators totaled over 4 million bushels with over 65 percent by rail. In-state origins accounted for over 40 percent. Shipments were almost entirely to in-state locations or 83 percent of all soybean shipments.

Grain processors in Kansas received almost 133 million bushels of grain during 1977, including 86 million bushels of wheat. In-state origins totaled 82 percent and railroads carried almost 19 percent.

Although multi-car use is gaining in importance, almost 70 percent of all grain transported by rail in Kansas is suited only to single car movement. Prospects of rail-line abandonment and rail-car shortages necessitate emphasizing the importance of single-car movement and also

the rising dependence of grain shippers on trucks to carry additional grain.

Information in this report can be directly useful in the establishment of both public and private policy concerning the transportation of grain. Public bodies concerned with market performance and private parties interested in marketing opportunities may use the grain flow data for analysis of certain policy implications.

The information found in this study can also be a basis for further research not only into the transportation methods used, but for comparing results of subsequent changes in grain movement within Kansas. The detailed segregation of areas, modes, and seasonal distribution of movements among handlers serves to give a better insight into these market flows. By using the format of describing the total flows, either by schematics or tables, a more precise picture of the total grain industry in Kansas is developed.

APPENDIX

APPENDIX TABLE 1. 1977 COUNTRY ELEVATOR WHEAT SHIPMENTS (1,000 Bushels)

Origin	Destination							Other		Total
	Atchison	Hutchinson	Kansas City	Salina	Topeka	Wichita	In-State	In-State	Percent	
Crop Reporting District										
<u>Rail</u>										
NW	1127	0	1689	4717	6632	4764	812	19741	7.2	
NC	1177	0	12018	6977	7591	0	874	28637	10.4	
NE	57	0	3673	0	3042	0	620	7392	2.7	
WC	0	7271	275	4030	0	3735	760	16071	5.8	
C	0	8735	2973	6850	2197	2646	0	23401	8.5	
EC	455	0	2182	0	2190	0	0	4827	1.7	
SW	0	22787	0	77	0	1139	0	24003	8.7	
SC	403	11484	669	207	0	22368	1148	36279	13.2	
SE	195	0	6895	0	1476	2468	0	11034	4.0	
Subtotal	3414	50277	30374	22858	23128	37120	4214	171385	62.2	
<u>Truck</u>										
NW	346	0	301	693	688	672	291	2991	1.1	
NC	0	0	845	1020	828	0	496	3189	1.1	
NE	39	0	315	0	447	0	256	1057	.4	
WC	0	1745	0	386	0	0	101	2232	.8	
C	0	553	263	348	208	398	341	2111	.8	
EC	79	0	2498	0	1268	0	0	3845	1.4	
SW	0	524	14	1337	0	118	1489	3482	1.3	
SC	0	1454	298	0	0	3719	1306	6777	2.4	
SE	96	0	171	0	0	38	1523	1828	.7	
Subtotal	560	4276	4705	3784	3439	4945	5803	27512	10.0	
Total	3974	54553	35079	26642	26567	42065	10017	198897	72.2	
(Percent)	1.4	19.8	12.7	9.7	9.7	15.3	3.6	72.2		

APPENDIX TABLE 1. (Continued)

Origin	Crop Reporting District	Destination							N.W. Coast
		Denver	Catoosa	Tulsa	Enid	Houston	New Mexico	Gulf	
<u>Rail</u>	NW	0	0	0	0	1806	0	2289	653
	NC	0	0	0	0	0	0	4079	0
	NE	0	0	0	98	0	0	108	0
	WC	170	0	0	0	0	0	7050	0
	C	0	0	0	221	0	0	5695	0
	EC	0	0	0	0	0	0	414	0
	SW	0	0	0	111	0	0	14751	0
	SC	0	0	0	4957	1191	0	2197	0
	SE	0	0	0	496	698	0	534	0
	Subtotal	170	0	0	5883	3695	0	37117	653
<u>Truck</u>	NW	0	237	0	1258	566	21	386	0
	NC	0	0	0	0	0	0	0	0
	NE	0	0	0	0	0	0	0	0
	WC	0	0	0	0	7	0	0	0
	C	0	0	0	0	0	0	535	0
	EC	0	0	30	0	0	0	113	0
	SW	0	0	0	976	252	0	269	0
	SC	0	243	130	3334	1838	0	998	0
	SE	0	0	0	0	257	0	1017	0
	Subtotal	0	480	160	5567	2920	21	3318	0
	Total	170	480	160	11450	6615	21	40435	653
	(Percent)	.1	.2	.1	4.2	2.4	*	14.7	.2

APPENDIX TABLE 1. (Continued)

Origin	Nebraska	Missouri	Iowa	Destination					Unknown
				Fort Worth	Amarillo	Other Texas	Indiana		
Crop Reporting District									
<u>Rail</u>	NW	729	237	0	0	0	0	362	
	NC	0	0	0	0	0	0	590	
	NE	0	0	559	0	0	0	0	
	WC	0	0	0	0	235	0	0	
	C	0	0	0	0	1104	306	0	
	EC	0	0	0	0	0	0	0	
	SW	0	0	359	0	2352	0	0	
	SC	0	0	1560	1358	1329	0	0	
	SE	0	0	226	0	0	0	0	
Subtotal		729	237	2704	1358	5020	306	952	
<u>Truck</u>	NW	0	0	0	0	0	0	0	
	NC	0	0	0	0	0	0	0	
	NE	0	0	0	0	0	0	0	
	WC	0	0	0	0	539	97	0	
	C	0	0	0	0	0	0	0	
	EC	0	0	0	0	0	0	0	
	SW	0	0	739	0	0	0	0	
	SC	0	0	138	0	311	0	0	
	SE	0	0	0	0	0	0	0	
Subtotal		0	0	877	0	850	97	0	
Total		729	237	3581	1358	5870	403	952	
(Percent)		.3	.2	1.3	.5	2.1	.1	.3	

APPENDIX TABLE 1. (Continued)

Origin	Total		Feedlots		Total	Percent
	Out-of-State	Percent				
Crop Reporting District						
<u>Rail</u> NW	6313	2.3	0	0	26054	9.5
NC	4679	1.7	0	0	33316	12.1
NE	1102	.4	0	0	8494	3.1
WC	7455	2.7	0	0	23426	8.5
C	7326	2.6	0	0	30727	11.2
EC	414	.2	0	0	5241	1.9
SW	17573	6.4	0	0	41576	15.0
SC	12592	4.6	0	0	48871	17.7
SE	1954	.7	0	0	12988	4.7
Subtotal	59408	21.6	0	0	230793	83.8
Truck						
NW	2468	.9	783	.3	6242	2.3
NC	0	0	0	0	3189	1.1
NE	20	*	0	0	1077	.4
WC	643	.2	1013	.3	3888	1.4
C	535	.2	0	0	2646	1.0
EC	143	.1	0	0	3988	1.4
SW	2236	.8	823	.3	6541	2.4
SC	6992	2.5	214	.1	13983	5.1
SE	1274	.5	0	0	3102	1.1
Subtotal	14310	5.2	2833	1.0	44655	16.2
Total	73718	26.8	2833	1.0	275448	100.0
(Percent)	26.8		1.0			

*Insignificant

APPENDIX TABLE 2. 1977 COUNTRY ELEVATOR CORN SHIPMENTS (1,000 Bushels)

Origin	Destination							Total	
	Atchison	Hutchinson	Kansas City	Salina	Topeka	Wichita	In-State	In-State	Percent
Crop Reporting District									
<u>Rail</u> NW	268	0	457	50	0	0	2	777	1.3
NC	0	0	153	40	0	0	0	193	.3
NE	754	0	982	209	735	0	0	2680	4.5
WC	0	338	148	75	0	175	0	736	1.2
C	0	0	95	0	0	0	0	95	.2
EC	0	0	369	125	0	0	0	494	.8
SW	0	1266	310	0	300	0	0	1876	3.1
SC	0	0	0	0	0	387	0	387	.6
SE	0	0	120	0	575	131	0	826	1.4
Subtotal	1022	1604	2634	499	1610	693	2	8064	13.5
<u>Truck</u> NW	57	0	241	0	33	0	1919	2250	3.8
NC	83	0	21	32	37	0	936	1109	1.9
NE	1929	0	721	0	1008	0	8	3666	6.1
WC	0	108	0	243	0	60	540	951	1.6
C	0	522	81	0	0	0	0	603	1.0
EC	464	0	257	0	594	0	120	1435	2.4
SW	0	333	0	76	0	0	0	409	.7
SC	0	216	37	10	0	0	2573	2836	4.8
SE	0	21	186	0	66	0	48	321	.5
Subtotal	2533	1200	1544	361	1738	60	6144	13580	22.8
Total	3555	2804	4178	860	3348	753	6146	21644	36.3
(Percent)	6.0	4.7	7.0	1.4	5.6	1.3	10.3	36.3	

APPENDIX TABLE 2. (Continued)

Origin	Destination					
	Colorado	Oklahoma	Missouri	California	Indiana	Fort Worth Texas Other Texas Gulf
Crop Reporting District						
<u>Rail</u>						
NW	234	0	0	0	0	0 0 0
NC	0	0	0	0	0	0 0 0
EC	0	0	22	0	0	0 0 197
WC	0	0	0	0	0	0 0 0
C	0	0	0	0	0	0 0 0
EC	0	0	0	0	0	0 0 0
SW	0	0	0	0	0	0 0 169
SC	0	0	0	628	0	0 60 0
SE	0	0	0	0	0	0 0 0
Subtotal	234	0	22	628	0	0 60 366
<u>Truck</u>						
NW	852	0	0	0	0	2612 71 0
NC	0	165	0	0	0	0 687 0
NE	0	0	34	0	0	0 0 0
WC	56	0	0	0	159	0 0 0
C	0	81	0	0	0	0 20 0
EC	0	75	0	0	0	0 0 0
SW	0	0	0	0	0	0 535 0
SC	0	490	0	0	0	0 0 0
SE	0	31	0	0	0	0 34 0
Subtotal	908	842	34	0	159	2612 1347 0
Total	1142	842	56	628	159	2612 1407 366
(Percent)	1.9	1.4	.1	1.1	.3	4.4 2.4 .6

APPENDIX TABLE 2. (Continued)

Destination		Total	Out-of-State	Percent	Feedlots	Percent	Total	Percent
Origin	Unknown							
Crop Reporting District								
<u>Rail</u>	NW	0	234		3057		4068	6.8
	NC	0	0		0		193	.3
	NE	0	219		394		3293	5.5
	WC	0	0		0		736	1.2
	C	0	0		0		95	.2
	EC	0	169		0		663	1.1
	SW	0	688		0		2564	4.3
	SC	0	0		0		387	.7
	SE	0	0		0		826	1.4
	Subtotal	0	1310	2.2	3451	5.8	12825	21.5
<u>Truck</u>	NW	189	3724	6.2	6846	11.5	12820	21.5
	NC	0	852	1.4	0	0	1961	3.3
	NE	0	34	.1	0	0	3700	6.2
	WC	0	215	.3	5609	9.4	6775	11.3
	C	0	101	.2	0	0	704	1.2
	EC	0	75	.1	75	.1	1585	2.6
	SW	0	535	.9	13138	22.0	14082	23.6
	SC	0	490	.8	1298	2.2	4624	7.8
	SE	82	147	.3	119	.2	587	1.0
	Subtotal	271	6173	10.3	27085	45.4	46838	78.5
	Total	271	7483	12.5	30536	51.2	59663	100.0
	(Percent)	.5	12.5		51.2		100.0	

APPENDIX TABLE 3. 1977 COUNTRY ELEVATOR MILO SHIPMENTS (1,000 Bushels)

Origin	Destination							Total	
	Atchison	Hutchinson	Kansas City	Salina	Topeka	Wichita	Other In-State	In-State	Percent
Crop Reporting District									
<u>Rail</u> NW	0	0	124	80	71	36	0	311	.3
NC	292	0	4564	2133	1092	0	0	8081	8.8
NE	107	0	3066	1688	3060	0	0	7921	8.7
WC	0	153	15	975	0	54	0	1197	1.3
C	0	4012	419	441	110	267	0	5244	5.8
EC	515	0	1513	0	3628	0	0	5656	6.2
SW	0	1867	0	243	0	0	0	2110	2.3
SC	0	1090	0	83	0	197	460	1830	2.0
SE	0	0	2567	624	1818	572	0	5671	6.2
Subtotal	914	7122	12358	6267	9779	1126	460	38026	41.6
<u>Truck</u> NW	0	0	33	0	0	26	163	222	.2
NC	0	0	139	1228	0	0	1373	2740	3.0
NE	77	0	0	107	2321	0	687	3192	3.4
WC	0	215	22	31	0	0	294	562	.6
C	0	803	147	1693	0	12	49	2704	3.0
EC	245	0	399	12	1186	0	345	2187	2.4
SW	128	924	0	0	0	0	0	1052	1.2
SC	0	10	0	0	0	0	112	122	.1
SE	0	0	51	0	17	754	322	1144	1.3
Subtotal	450	1952	791	3071	3524	792	3345	13925	15.2
Total	1364	9074	13149	9338	13303	1918	3805	51951	56.8
(Percent)	1.5	9.9	14.4	10.2	14.5	2.1	4.2	56.8	

APPENDIX TABLE 3. (Continued)

Origin	Destination										Fort Worth
	Colorado	Enid	Tulsa	Other Okla.	Houston	Gulf Coast	West Calif.	Missouri	Arizona		
Crop Reporting District											
<u>Rail</u>											
NW	95	0	0	0	0	0	0	95	0	173	0
NC	0	0	0	0	0	2775	0	0	0	0	0
NE	0	1181	0	0	0	2095	0	0	158	0	2038
WC	0	0	0	0	0	30	75	0	0	0	0
C	0	0	0	0	0	2148	797	0	0	0	0
EC	673	0	0	0	0	474	0	0	0	0	263
SW	0	0	0	0	0	0	0	3685	0	0	0
SC	0	1216	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	147	568	0	0	0	0	814
Subtotal	768	2397	0	0	147	8090	872	3780	158	173	3115
<u>Truck</u>											
NW	525	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	323	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	28	0	0
WC	97	0	0	0	0	0	0	0	0	0	0
C	0	554	0	0	0	0	147	0	0	0	0
EC	0	0	451	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	457	0	0	0	0	0	0	0
SE	0	0	0	394	0	0	0	0	0	0	0
Subtotal	622	554	451	851	0	323	147	0	28	0	0
Total	1390	2951	451	851	147	8413	1019	3780	186	173	3115
(Percent)	1.5	3.3	.5	.4	.2	9.2	1.1	4.1	.2	.2	3.4

APPENDIX TABLE 3. (Continued)

Origin	Destination				Total	Feedlots	Percent	Total	Percent
	Dallas	Amarillo	Other Texas	Unknown	Out-of-State				
Crop Reporting District									
<u>Rail</u> NW	36	0	0	0	399	26	.5	736	.8
NC	0	0	0	0	2775	0	3.1	10856	11.9
NE	0	0	0	0	5472	0	6.0	13393	14.7
WC	0	0	245	0	350	54	.4	1601	1.8
C	0	0	0	0	2945	0	3.2	8194	9.0
EC	0	0	0	0	1410	0	1.5	7066	7.7
SW	0	0	31	114	3830	124	4.2	6064	6.6
SC	9	94	189	0	1499	0	1.6	3329	3.6
SE	0	0	58	0	1587	0	1.7	7258	7.9
Subtotal	36	94	523	114	20267	204	22.2	58497	64.0
<u>Truck</u> NW	36	0	0	0	561	1043	1.1	1826	2.0
NC	632	0	0	38	993	0	0	3733	4.0
NE	0	0	0	0	28	0	0	3220	3.5
WC	0	0	65	0	162	466	.5	1190	1.3
C	0	0	216	27	944	36	*	3684	4.0
EC	0	0	0	0	451	0	0	2638	2.9
SW	0	0	400	0	400	9305	10.2	10757	11.8
SC	0	0	272	0	729	3354	3.7	4205	4.6
SE	0	0	0	0	394	153	.2	1691	1.9
Subtotal	668	0	953	65	4662	14357	15.7	32944	36.0
Total	704	94	1476	179	24929	14561	27.3	91441	100.0
(Percent)	.8	.1	1.6	.2	27.3	15.9		100.0	

*Insignificant

APPENDIX TABLE 4. 1977 COUNTRY ELEVATOR SOYBEAN SHIPMENTS (1,000 Bushels)

Origin	Crop Reporting District	Destination							Total
		Atchison	Hutchinson	Kansas City	Salina	Topeka	Wichita	Emporia	
								Other In-State	In-State Percent
Rail	NW	0	0	0	0	0	0	0	0
	NC	0	0	106	6	0	44	0	156
	NE	0	0	154	0	0	0	0	154
	WC	0	0	0	0	0	86	0	86
	C	0	0	0	0	0	0	0	0
	EC	0	0	651	0	0	414	0	2769
	SW	0	0	0	0	0	0	0	0
	SC	0	0	0	0	0	51	0	51
	SE	0	0	31	0	0	2455	0	3756
	Subtotal	0	0	942	6	0	3050	0	6972
Truck	NW	0	0	0	0	0	5	0	5
	NC	0	0	9	32	0	148	0	189
	NE	0	0	0	0	0	0	459	536
	WC	0	0	0	0	0	0	0	0
	C	0	29	0	0	0	197	93	319
	EC	0	0	45	0	0	139	0	2938
	SW	0	0	0	0	0	271	0	319
	SC	0	0	0	0	0	358	0	358
	SE	0	0	103	0	0	1034	0	4197
	Subtotal	0	29	157	32	0	2152	552	8861
Total		0	29	1099	32	0	5202	552	15833
(Percent)		0	.2	6.3	.2	0	29.7	3.1	90.5

APPENDIX TABLE 4. (Continued)

Origin	Destination					Total	
	Enid	Missouri	Houston	Gulf	Unknown	Out-of-State	Percent
Crop Reporting District							
<u>Rail</u> NW	0	0	0	0	0	0	0
NC	0	53	0	0	0	53	1.2
NE	0	205	0	98	0	303	2.6
WC	0	0	0	0	0	0	.5
C	0	0	0	0	0	0	0
EC	0	49	0	0	0	49	16.1
SW	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	.3
SE	0	0	0	0	0	0	21.4
Subtotal	0	307	0	98	0	405	2.3
<u>Truck</u> NW	0	0	0	0	0	0	*
NC	0	18	0	0	0	18	.1
NE	0	993	0	0	246	1239	7.1
WC	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0
EC	0	0	0	0	0	0	1.8
SW	0	0	0	0	0	0	16.8
SC	0	0	0	0	0	0	1.8
SE	0	0	0	0	0	0	2.1
Subtotal	0	1011	0	0	246	1257	7.2
Total	0	1318	0	98	246	1662	9.5
(Percent)	0	7.5	0	.6	1.4	9.5	100.0
							144

APPENDIX TABLE 5. RECEIPTS BY WICHITA TERMINALS BY ORIGIN AND MODE.

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD	2764.7	-	2764.7	7.0	-	6.7
NW	141.7	-	141.7	.4	-	.3
NC	1468.4	5.4	1473.8	3.7	.2	3.6
NE	5696.9	187.9	5884.8	14.5	8.7	14.2
WC	1323.3	36.4	1359.7	3.4	1.7	3.3
C	3780.8	-	3780.8	9.6	-	9.1
EC	19553.8	1827.3	21381.1	49.8	84.6	51.7
SW	2033.5	.7	2034.2	5.2	*	4.9
SC						
SE						
Total In-State Receipts	36763.1	2057.7	38820.8	93.7	95.2	93.8
Minnesota	291.5	-	291.5	.7	-	.7
Missouri	342.5	-	342.5	.9	-	.8
Nebraska	383.8	-	383.8	1.0	-	.9
Oklahoma	826.2	-	826.2	2.1	-	1.9
Colorado	618.7	102.7	721.4	1.6	4.8	1.7
Total Out-of-State Receipts	2462.7	102.7	2565.4	6.3	4.8	6.2
Total Receipts	39225.8	2160.4	41386.2	100.0	100.0	100.0
(Percent Mode)	94.8	5.2	100.0			

*Insignificant

APPENDIX TABLE 5. (Continued)

Origin	1,000 Bushels		Percent of Total Receipts			
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD	90.0	-	90.0	2.9	-	2.4
NW	117.7	64.4	182.1	3.8	10.9	4.9
NC	64.9	-	64.9	2.1	-	1.8
NE	145.8	-	145.8	6.3	-	5.3
WC	124.7	-	124.7	4.0	-	3.4
C	9.0	-	9.0	.4	-	.2
EC	335.6	-	335.6	10.8	-	9.1
SW	416.4	362.3	778.7	13.4	61.1	21.1
SC	647.2	81.7	778.9	22.5	13.7	21.1
SE						
Total In-State Receipts	2051.3	508.4	2559.7	66.2	85.7	69.3
Nebraska	1047.1	84.7	1131.8	33.8	14.3	30.7
Total Out-of-State Receipts	1047.1	84.7	1131.8	33.8	14.3	30.7
Total Receipts	3098.4	593.1	3691.5	100.0	100.0	100.0
(Percent Mode)	83.9	16.1	100.0			

APPENDIX TABLE 5. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- CORN -----						
Total In-State Receipts	-	-	-	-	-	-
Iowa	38.0	-	38.0	12.5	-	12.3
Nebraska	<u>267.3</u>	<u>2.7</u>	<u>270.0</u>	<u>87.5</u>	<u>100.0</u>	<u>87.7</u>
Total Out-of-State Receipts	305.3	2.7	308.0	100.0	100.0	100.0
(Percent Mode)	99.1	.9	100.0			
----- SOYBEANS -----						
CRD						
NE	102.7	18.8	121.5	10.0	15.8	10.6
SC	-	61.3	61.3	-	51.5	5.3
SE	<u>426.8</u>	<u>21.5</u>	<u>448.3</u>	<u>41.5</u>	<u>18.1</u>	<u>39.1</u>
Total In-State Receipts	529.5	101.6	631.1	51.5	85.3	55.0
Missouri	481.6	-	481.6	46.8	-	41.9
Oklahoma	<u>17.9</u>	<u>17.5</u>	<u>35.4</u>	<u>1.7</u>	<u>14.7</u>	<u>3.1</u>
Total Out-of-State Receipts	499.5	17.5	517.0	48.5	14.7	45.0
Total Receipts	1029.0	119.1	1148.1	100.0	100.0	100.0
(Percent Mode)	89.6	10.4	100.0			

APPENDIX TABLE 6. RECEIPTS BY HUTCHINSON TERMINALS BY ORIGIN AND MODE.

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD	66.6	-	66.6	.2	-	.2
NE	3978.5	335.5	4314.0	11.8	7.4	11.2
WC	5476.5	1503.9	6980.4	16.2	33.3	18.2
C	159.7	23.9	183.6	.5	.5	.5
EC	12995.4	1027.2	14022.6	38.4	22.7	36.6
SW	10299.3	1590.0	11889.3	30.5	35.2	31.0
SC	244.6	-	244.6	.7	-	.6
SE	33220.6	4480.5	37701.1	98.3	99.3	98.4
Total In-State Receipts						
Nebraska	66.1	-	66.1	.2	-	.2
Oklahoma	273.4	30.4	303.8	.8	.7	.8
Colorado	251.0	-	251.0	.7	-	.7
Total Out-of-State Receipts	590.5	30.4	620.9	1.7	.7	1.7
Total Receipts	33811.1	4510.9	38322.0	100.0	100.0	100.0
(Percent Mode)	88.2	11.8	100.0			

APPENDIX TABLE 6. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD						
NW	79.9	-	79.9	2.1	-	1.6
NC	389.6	-	389.6	10.5	-	7.8
NE	260.3	-	260.3	7.0	-	5.2
WC	198.7	-	198.7	5.3	-	4.0
C	702.2	159.1	861.3	18.9	12.7	17.3
EC	5.9	1.5	7.4	.2	.1	.2
SW	1025.4	216.2	1241.6	27.6	17.3	25.0
SC	460.2	846.9	1307.1	12.4	67.6	26.3
SE	176.8	-	176.8	4.8	-	3.6
Total In-State Receipts	3299.0	1223.7	4522.7	88.8	97.7	91.0
Nebraska	306.3	-	306.3	8.2	-	6.2
Oklahoma	113.0	28.2	141.2	3.0	2.3	2.8
Total Out-of-State Receipts	419.3	28.2	447.5	11.2	2.3	9.0
Total Receipts	3718.3	1251.9	4970.2	100.0	100.0	100.0
(Percent Mode)	74.8	25.2	100.0			

APPENDIX TABLE 6. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- CORN -----						
CRD						
WC	212.7	7.9	220.6	9.6	3.2	8.9
SW	2013.9	231.6	2245.5	90.4	93.5	90.7
SC	<u>-</u>	<u>8.3</u>	<u>8.3</u>	<u>-</u>	<u>3.3</u>	<u>.3</u>
Total In-State Receipts	2226.6	247.8	2474.4	100.0	100.0	100.0
Total Out-of-State Receipts	-	-	-	-	-	-
Total Receipts	2226.6	247.8	2474.4	100.0	100.0	100.0
(Percent Mode)	90.0	10.0	100.0			
----- SOYBEANS -----						
CRD						
SW	<u>64.0</u>	<u>21.3</u>	<u>85.3</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Total Receipts	64.0	21.3	85.3	100.0	100.0	100.0
(Percent Mode)	75.0	25.0	100.0			

APPENDIX TABLE 7. RECEIPTS BY TOPEKA TERMINALS BY ORIGIN AND MODE.

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD						
NW	5868.5	117.6	5986.1	22.0	4.4	20.4
NC	6757.6	107.6	6865.2	25.4	4.0	23.4
NE	2936.9	967.4	3904.3	11.0	36.2	13.3
WC	1861.8	-	1861.8	7.1	-	6.4
C	3086.7	92.3	3179.0	11.4	3.5	10.8
EC	1188.4	1338.6	2527.0	4.5	50.1	8.6
SW	1132.5	-	1132.5	4.3	-	3.9
SC	273.8	-	273.8	1.0	-	.9
SE	1549.4	16.0	1565.4	5.8	.6	5.4
Total In-State Receipts	24655.6	2634.5	27295.1	92.5	98.9	93.1
Iowa	-	29.7	29.7	-	1.1	.1
S. Dakota	225.5	-	225.5	.8	-	.8
Nebraska	818.8	-	818.8	3.1	-	2.8
Colorado	947.9	-	947.9	3.6	-	3.2
Total Out-of-State Receipts	1992.2	29.7	2021.9	7.5	1.1	6.9
Total Receipts	26647.8	2669.2	29317.0	100.0	100.0	100.0
(Percent Mode)	90.9	9.1	100.0			

APPENDIX TABLE 7. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD	18.0	-	18.0	.2	-	.1
NW	1192.1	49.3	1241.4	10.3	1.4	8.3
NC	2925.1	1771.6	4696.7	25.3	51.2	31.3
NE	329.8	-	329.8	2.9	-	2.2
WC	122.3	-	122.3	1.0	-	.8
C	1444.5	1501.0	3445.5	16.8	43.4	22.9
EC	107.4	-	107.4	.9	-	.7
SC	475.3	12.7	488.0	4.1	.4	3.3
SE						
Total In-State Receipts	7114.5	3334.6	10449.1	61.5	96.4	69.6
Missouri	240.1	-	240.1	2.1	-	1.6
Nebraska	4210.0	123.5	4333.5	36.4	3.6	28.8
Total Out-of-State Receipts	4450.1	123.5	4573.6	38.5	3.6	30.4
Total Receipts	11564.6	3458.1	15022.7	100.0	100.0	100.0
(Percent Mode)	77.0	23.0	100.0			

APPENDIX TABLE 7. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
CORN						
CRD						
NC	124.7	29.0	153.7	3.3	1.7	2.8
NE	430.3	802.4	1232.7	11.3	49.5	22.7
C	-	32.3	32.3	-	2.0	.6
EC	738.5	723.1	1461.6	19.3	44.6	26.9
SC	130.6	-	130.6	3.4	-	2.4
Total In-State Receipts	1424.1	1586.8	3010.0	37.3	97.8	55.4
Iowa	389.6	-	389.6	10.2	-	7.2
Missouri	41.4	-	41.4	1.1	-	.8
S. Dakota	40.4	-	40.4	1.1	-	.8
Nebraska	1917.9	34.9	1952.8	50.3	2.2	35.9
Total Out-of-State Receipts	2389.3	34.9	2424.2	62.7	2.2	44.6
Total Receipts	3813.4	1621.7	5435.1	100.0	100.0	100.0
(Percent Mode)	70.2	29.8	100.0			
SOYBEANS						
CRD						
NE	-	36.3	36.3	-	24.1	16.9
C	16.5	-	16.5	25.5	-	7.7
EC	32.5	87.3	119.8	50.2	58.1	55.7
SE	15.7	26.7	42.4	24.3	17.8	19.7
Total Receipts	64.7	150.3	215.0	100.0	100.0	100.0
(Percent Mode)	30.1	69.9	100.0			

APPENDIX TABLE 8. RECEIPTS BY SALINA TERMINALS BY ORIGIN AND MODE.

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD	4204.2	-	4204.2	11.6	-	11.4
NW	11863.8	124.8	11988.6	32.7	27.4	32.6
NC	203.7	-	203.7	.6	-	.6
NE	8196.5	-	8196.5	22.6	-	22.3
WC	8808.5	330.5	9139.0	24.3	72.6	24.9
C	296.1	-	296.1	.8	-	.8
EC	1121.2	-	1121.2	3.1	-	3.1
SW	729.5	-	729.5	2.0	-	2.0
SC	113.6	-	113.6	.3	-	.3
SE						
Total In-State Receipts	35537.1	455.3	35992.4	98.0	100.0	98.0
Missouri	96.3	-	96.3	.2	-	.3
Nebraska	223.1	-	223.1	.6	-	.6
Colorado	423.8	-	423.8	1.2	-	1.1
Total Out-of-State Receipts	743.2	-	743.2	2.0	-	2.0
Total Receipts	36280.3	455.3	36735.6	100.0	100.0	100.0
(Percent Mode)	98.8	1.2	100.0			

APPENDIX TABLE 8. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD						
NW	1287.2	40.3	1327.5	13.4	2.5	11.9
NC	2588.3	742.4	3330.7	27.0	46.4	29.8
NE	1144.4	18.3	1167.7	12.0	1.2	10.4
WC	450.5	-	450.5	4.7	-	4.0
C	1267.5	471.4	1738.9	13.2	29.5	15.6
EC	587.9	22.9	610.8	6.1	1.4	5.5
SW	57.4	-	57.4	.6	-	.5
SC	90.2	-	90.2	1.0	-	.8
SE	133.3	-	133.3	1.4	-	1.2
Total In-State Receipts	7611.7	1295.3	8907.0	79.4	80.9	74.7
Missouri	77.4	-	77.4	.8	-	.7
Nebraska	1740.6	303.8	2044.4	18.2	19.0	18.3
Oklahoma	76.0	-	76.0	.8	-	.7
Colorado	74.1	-	74.1	.8	-	.6
Total Out-of-State Receipts	1968.1	303.8	2271.9	20.6	19.0	20.7
Total Receipts	9579.8	1599.1	11178.9	100.0	100.0	100.0
(Percent Mode)	85.7	14.3	100.0			

APPENDIX TABLE 8. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- CORN -----						
CRD						
NC	27.4	42.3	69.7	4.8	76.8	11.1
NE	96.4	-	96.4	16.9	-	15.4
WC	51.6	-	51.6	9.0	-	8.2
C	-	12.8	12.8	-	23.2	2.1
Total In-State Receipts	175.4	55.1	230.5	30.7	100.0	36.8
Nebraska	396.4	-	396.4	69.3	-	63.2
Total Out-of-State Receipts	396.4	-	396.4	69.3	-	69.3
Total Receipts	571.8	55.1	626.9	100.0	100.0	100.0
(Percent Mode)	91.2	8.8	100.0			
----- SOYBEANS -----						
CRD						
NC	-	16.0	16.0	-	69.9	69.9
C	-	6.9	6.9	-	30.1	30.1
Total Receipts	-	22.9	22.9	-	100.0	100.0
(Percent Mode)	-	100.0	-			

APPENDIX TABLE 9. RECEIPTS BY KANSAS CITY AND ATCHISON AREA TERMINALS BY ORIGIN AND MODE.

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD						
NW	3591.3	1506.1	5097.4	8.0	8.3	8.7
NC	9321.0	3284.1	12605.1	23.2	18.0	21.6
NE	4056.1	1740.7	5796.8	10.1	9.5	9.9
WC	1923.8	1072.2	2996.0	4.8	5.9	5.1
C	3443.5	2655.5	6099.0	8.6	14.5	10.5
EC	3434.8	2670.0	6104.8	8.6	14.6	10.5
SW	983.9	538.2	1522.1	2.5	2.9	2.6
SC	76.7	146.2	222.9	.2	.8	.4
SE	4058.3	1144.6	5202.9	10.1	6.3	8.9
Total In-State Receipts	30889.4	14757.6	45647.0	77.1	80.8	78.2
Iowa	4.2	30.5	34.7	*	.2	.1
Missouri	5147.8	1498.6	6646.4	12.8	8.2	11.4
Nebraska	3770.8	906.9	4677.7	9.4	5.0	8.0
Oklahoma	85.6	117.6	203.2	.2	.6	.4
Colorado	-	941.3	941.3	-	5.2	1.6
Other	193.6	-	193.6	.5	-	.3
Total Out-of-State Receipts	9202.0	3494.9	12696.9	22.9	19.2	21.8
Total Receipts	40091.4	18252.5	58343.9	100.0	100.0	100.0
(Percent Mode)	68.7	31.3	100.0			

*Insignificant

APPENDIX TABLE 9. (Continued)

Origin	1,000 Bushels		Percent of Total Receipts			
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD						
NW	98.6	29.2	127.8	.9	.6	.8
NC	2927.5	29.4	2956.9	26.7	.6	19.0
NE	660.3	476.9	1137.2	6.0	10.4	7.3
C	68.9	-	68.9	.6	-	.4
EC	855.4	944.5	1799.9	7.8	20.5	11.6
SC	98.4	-	98.4	.9	-	.6
SE	797.8	50.0	847.8	7.3	1.1	5.5
Total In-State Receipts	5506.9	1530.0	7036.9	50.2	33.2	45.2
Missouri	1642.0	1205.3	2847.3	15.0	26.1	18.3
Nebraska	3758.3	1853.7	5612.0	34.3	40.2	36.0
Oklahoma	43.2	-	43.2	.4	-	.3
Colorado	9.4	21.9	31.3	.1	.5	.2
Total Out-of-State Receipts	5452.9	3080.9	8533.8	49.8	66.8	54.8
Total Receipts	10959.8	4610.9	15570.7	100.0	100.0	100.0
(Percent Mode)	70.4	29.6	100.0			

APPENDIX TABLE 9. (Continued)

Origin	1,000 Bushels			Percent of Total Receipts		
	Rail	Truck	Total	Rail	Truck	Total
CORN						
CRD						
NC	734.9	-	734.9	5.4	-	3.2
NE	1725.2	2358.0	4083.2	12.7	25.4	17.9
EC	377.1	694.8	1071.9	2.8	7.5	4.7
SE	306.3	-	306.3	2.3	-	1.3
Total In-State Receipts	3143.5	3052.8	6196.3	23.2	32.9	27.1
Iowa	2031.5	89.6	2121.1	14.9	1.0	9.2
Missouri	2587.2	2206.9	4794.1	19.0	23.8	21.0
Nebraska	5829.0	3933.1	9762.1	42.9	42.3	42.7
Total Out-of-State Receipts	10447.7	6229.6	16677.3	76.8	67.1	72.9
Total Receipts	13591.2	9282.4	22873.6	100.0	100.0	100.0
(Percent Mode)	59.4	40.6	100.0			
SOYBEANS						
CRD						
NE	346.2	200.2	546.4	21.7	17.5	20.0
EC	112.7	76.4	189.1	7.1	6.7	6.9
SE	2.2	-	2.2	.1	-	.1
Total In-State Receipts	461.1	276.6	737.7	28.9	24.2	27.0
Missouri	987.8	659.0	1646.8	62.1	57.7	60.2
Nebraska	142.7	206.8	349.5	9.0	18.1	12.8
Total Out-of-State Receipts	1130.5	865.8	1996.3	71.1	75.8	73.0
Total Receipts	1591.6	1142.4	2734.0	100.0	100.0	100.0
(Percent Mode)	58.2	41.8	100.0			

APPENDIX TABLE 10. SHIPMENTS BY WICHITA TERMINALS BY ORIGIN AND MODE.

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD						
NC	825.7	-	825.7	2.3	-	2.2
NE	673.6	-	673.6	1.8	-	1.8
C	1686.7	-	1686.7	4.6	-	4.6
SC	4245.2	-	4245.2	11.6	-	11.6
SE	1458.3	-	1458.3	4.0	-	4.0
Total In-State Shipments	8889.5	-	8889.5	24.3	-	24.2
Virginia	102.0	-	102.0	.3	-	.3
N. Carolina	311.3	-	311.3	.9	-	.8
Indiana	416.9	-	416.9	1.1	-	1.1
Alabama	173.0	-	173.0	.5	-	.5
Minnesota	-	57.9	57.9	-	100.0	.2
Missouri	1272.0	-	1272.0	3.4	-	3.5
Louisiana	882.7	-	882.7	2.4	-	2.4
Oklahoma	2061.7	-	2061.7	5.6	-	5.6
Texas	22483.1	-	22483.1	61.5	-	61.4
Total Out-of-State Shipments	27672.7	57.9	27730.6	75.7	100.0	75.8
Total Shipments	36562.2	57.9	36620.1	100.0	100.0	100.0
(Percent Mode)	99.8	.2	100.0			

APPENDIX TABLE 10. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
MILO						
CRD						
C	62.9	-	62.9	4.2	-	4.2
SC	143.3	-	143.3	9.6	-	9.6
Total In-State Shipments	206.2	-	206.2	13.8	-	13.8
Texas	942.3	-	942.3	62.9	-	62.9
Arizona	100.6	-	100.6	6.7	-	6.7
Calif.	248.0	-	248.0	16.6	-	16.6
Total Out-of-State Shipments	1290.9	-	1290.9	86.2	-	86.2
Total Shipments	1497.1	-	1497.1	100.0	-	100.0
(Percent Mode)	100.0		100.0			
CORN						
Texas	234.0	-	234.0	75.7	-	75.7
Calif.	75.0	-	75.0	24.3	-	24.3
Total Shipments	309.0	-	309.0	100.0		100.0
(Percent Mode)	100.0		100.0			
SOYBEANS						
CRD						
SC	3535.5	-	3535.5	100.0	100.0	100.0
Total Receipts	3535.5	-	3535.5	100.0	100.0	100.0
(Percent Mode)	100.0		100.0			

APPENDIX TABLE 11. SHIPMENTS BY HUTCHINSON TERMINALS BY ORIGIN AND MODE.

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD						
NE	695.4	-	695.4	1.9	-	1.8
C	555.3	-	555.3	1.5	-	1.5
SW	-	32.7	32.7	-	3.8	.1
SC	3061.5	407.4	3468.9	8.3	46.8	9.2
SE	701.7	29.2	730.9	1.9	3.3	1.9
Total In-State Shipments	5013.9	469.3	5483.2	13.6	53.9	14.5
N. Carolina	594.7	-	594.7	1.6	-	1.5
Indiana	66.7	-	66.7	.2	-	.2
Illinois	576.2	-	576.2	1.6	-	1.5
Alabama	95.3	-	95.3	.3	-	.3
Minnesota	55.3	-	55.3	.1	-	.1
Missouri	1779.1	-	1779.1	4.8	-	4.7
Louisiana	1231.3	7.4	1238.7	3.3	.8	3.3
Oklahoma	394.0	337.1	731.1	1.0	38.7	1.9
Texas	26079.9	29.7	26109.6	70.5	3.4	69.0
Arizona	379.2	27.5	406.7	1.0	3.2	1.1
Calif.	722.8	-	722.8	2.0	-	1.9
Total Out-of-State Shipments	31974.5	401.7	32376.2	86.4	46.1	85.5
Total Shipments	36988.4	871.0	37859.4	100.0	100.0	100.0
(Percent Mode)	97.7	2.3	100.0			

APPENDIX TABLE 11. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- MILO -----						
CRD						
SC	9.8	-	9.8	.2	-	.2
Total In-State Shipments	9.8	-	9.8	.2	-	.2
Texas	3140.9	-	3140.9	50.5	-	50.5
Arizona	1336.0	-	1336.0	21.5	-	21.5
Calif.	1723.9	-	1723.9	27.8	-	27.8
Total Out-of-State Shipments	6200.8	-	6200.8	99.8	-	99.8
Total Shipments	6210.6	-	6210.6	100.0	-	100.0
(Percent Mode)	100.0		100.0			
----- CORN -----						
Texas	21.7	-	21.7	9.5	-	9.5
Arizona	171.4	-	171.4	74.8	-	74.8
Calif.	35.9	-	35.9	15.7	-	15.7
Total Shipments	229.0	-	229.0	100.0	-	100.0
(Percent Mode)	100.0		100.0			

APPENDIX TABLE 12. SHIPMENTS BY SALINA TERMINALS BY ORIGIN AND MODE.

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
<hr/>						
WHEAT						
<hr/>						
CRD						
NE	2344.6	10.2	2354.8	8.1	1.9	8.0
C	2444.3	220.5	2664.8	8.4	41.6	9.1
EC	310.7	-	310.7	1.1	-	1.1
SC	1214.8	-	1214.8	4.2	-	4.1
SE	71.1	-	71.1	.3	-	.2
<hr/>						
Total In-State Shipments	6385.5	230.7	6616.2	12.1	43.5	22.5
<hr/>						
Virginia	1271.1	213.3	1484.4	4.4	40.3	5.0
N. Carolina	179.3	-	179.3	.6	-	.6
Indiana	57.5	-	57.5	.2	-	.2
Illinois	346.6	-	346.6	1.2	-	1.2
Tennessee	349.5	-	349.5	1.2	-	1.2
Missouri	3129.0	-	3129.0	10.8	-	10.6
Louisiana	532.4	-	532.4	1.8	-	1.8
Oklahoma	452.0	45.4	497.4	1.6	8.6	1.7
Texas	16142.9	40.1	16183.0	55.8	7.6	54.9
Calif.	88.1	-	88.1	.3	-	.3
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Total Out-of-State Shipments	22548.4	298.8	22847.2	77.9	56.5	77.5
Total Shipments	28933.9	529.5	29463.4	100.0	100.0	100.0
(Percent Mode)	98.2	1.8	100.0			

APPENDIX TABLE 12. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- CORN -----						
CRD	111.7	-	111.7	10.5	-	10.4
NE	-	10.8	10.8	-	100.0	1.0
C						
Total In-State Shipments	111.7	10.8	122.5	10.5	100.0	11.4
Texas	409.8	-	409.8	38.5	-	38.1
Arizona	73.3	-	73.3	6.9	-	6.8
Oregon	110.0	-	110.0	10.3	-	10.2
Calif.	360.1	-	360.1	33.8	-	33.5
Total Out-of-State Shipments	953.2	-	953.2	89.5	-	88.6
Total Shipments	1064.9	10.8	1075.7	100.0	100.0	100.0
(Percent Mode)	99.0	1.0	100.0			
----- SOYBEANS -----						
CRD	1.7	-	1.7	100.0	-	100.0
C						
Total Shipments	1.7	-	1.7	100.0	-	100.0
(Percent Mode)	100.0		100.0			

APPENDIX TABLE 13. SHIPMENTS BY TOPEKA TERMINALS BY ORIGIN AND MODE.

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- WHEAT -----						
CRD						
NE	3706.0	554.4	4260.4	12.3	96.9	13.9
C	-	17.6	17.6	-	3.1	.1
EC	2933.1	-	2933.1	9.8	-	9.6
SC	275.0	-	275.0	.9	-	.9
SE	288.2	-	288.2	1.0	-	.9
Total In-State Shipments	7202.3	572.0	7774.3	24.0	100.0	25.4
Virginia	1287.6	-	1287.6	4.3	-	4.2
N. Carolina	111.0	-	111.0	.4	-	.3
Ohio	27.7	-	27.7	.1	-	.1
Indiana	111.0	-	111.0	.4	-	.4
Illinois	831.0	-	831.0	2.7	-	2.7
Tennessee	2163.7	-	2163.7	7.2	-	7.1
Alabama	109.3	-	109.3	.3	-	.3
Missouri	3477.6	-	3477.6	11.6	-	11.4
Arkansas	6.5	-	6.5	*	-	*
Louisiana	353.5	-	353.5	1.2	-	1.2
Oklahoma	938.2	-	938.2	3.1	-	3.1
Texas	13300.4	-	13300.4	44.3	-	43.4
Calif.	111.0	-	111.0	.4	-	.4
Total Out-of-State Shipments	22828.5	-	22828.5	76.0	-	74.6
Total Shipments	30030.8	572.0	30602.8	100.0	100.0	100.0
(Percent Mode)	98.1	1.9	100.0			

*Insignificant

APPENDIX TABLE 13. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Total	Rail	Truck	Total
----- CORN -----						
CRD						
NC	71.4	-	71.4	1.7	-	1.7
NE	111.2	5.2	116.4	2.7	22.0	2.8
C	-	4.7	4.7	-	19.8	.1
EC	657.0	13.8	670.8	16.0	58.2	16.3
SE	63.3	-	63.3	1.6	-	1.5
Total In-State Shipments	902.9	23.7	926.6	22.0	100.0	22.4
Tennessee	67.9	-	67.9	1.7	-	1.7
Mississippi	67.9	-	67.9	1.7	-	1.7
Missouri	485.0	-	485.0	11.8	-	11.8
Arkansas	746.5	-	746.5	18.2	-	18.1
Louisiana	200.0	-	200.0	4.9	-	4.9
Nebraska	71.3	-	71.3	1.7	-	1.7
Texas	1488.0	-	1488.0	36.3	-	36.1
California	67.9	-	67.9	1.7	-	1.6
Total Out-of-State Shipments	3194.5	-	3194.5	78.0	-	77.4
Total Shipments	4097.4	23.7	4121.1	100.0	100.0	100.0
(Percent Mode)	99.4	.6	100.0			

APPENDIX TABLE 14. SHIPMENTS BY KANSAS CITY AND ATCHISON AREA TERMINALS BY ORIGIN AND MODE.

Destination	1,000 Bushels			Percent of Total Shipments				
	Rail	Truck	Water	Total	Rail	Truck	Water	Total
----- WHEAT -----								
CRD								
NE	2583.2	-	151.4	2734.6	5.8	-	1.0	4.5
C	288.1	-	-	288.1	.7	-	-	.5
EC	-	320.0	-	320.0	-	17.0	-	.5
SC	822.5	-	-	822.5	1.8	-	-	1.3
SE	2874.5	-	-	2874.5	6.5	-	-	4.7
Total In-State Shipments	6568.3	320.0	151.4	7039.7	14.8	17.0	1.0	11.5
Virginia	3143.9	-	-	3143.9	7.1	-	-	5.1
N. Carolina	2585.7	-	-	2585.7	5.8	-	-	4.2
Georgia	429.8	-	-	429.8	1.0	77.9	-	.7
Indiana	365.2	1467.0	5269.1	7101.3	.8	-	35.0	11.6
Illinois	241.1	-	-	241.1	.5	-	-	.4
Tennessee	695.3	46.1	3309.9	4051.3	1.6	2.4	22.0	6.6
Missouri	6282.4	50.3	614.4	6947.1	14.1	2.7	4.0	11.3
Arkansas	277.0	-	1791.3	2068.3	.6	-	11.9	3.3
Louisiana	46.1	-	3929.4	3975.5	.1	-	26.1	6.5
Oklahoma	828.5	-	-	828.5	1.9	-	-	1.3
Texas	22914.6	-	-	22914.6	51.5	-	-	37.3
Colorado	92.9	-	-	92.9	.2	-	-	.2
Total Out-of-State Shipments	37902.5	1563.4	14914.1	54380.0	85.2	83.0	99.0	88.5
Total Shipments	44470.8	1883.4	15065.5	61419.7	100.0	100.0	100.0	100.0
(Percent Mode)	72.4	3.1	24.5	100.0				

APPENDIX TABLE 14. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments		
	Rail	Truck	Water	Rail	Truck	Water
----- MILO -----						
CRD						
NE	3172.9	-	-	3172.9	14.6	-
						14.3
Total In-State Shipments	3172.9	-	-	3172.9	14.6	-
						14.3
Illinois	75.5	-	-	75.5	.3	-
Missouri	2266.9	-	-	2266.9	10.4	-
Arkansas	3472.8	-	-	3472.8	16.0	-
Louisiana	572.7	-	459.9	1032.6	2.6	100.0
Oklahoma	284.8	-	-	284.8	1.3	-
Texas	11446.0	-	-	11446.0	52.6	-
California	477.7	-	-	477.7	2.2	-
						2.2
Total Out-of-State Shipments	18546.4	-	459.9	19056.3	85.4	100.0
						85.7
Total Shipments	21769.3	-	459.9	22229.2	100.0	100.0
(Percent Mode)	97.9	-	2.1	100.0	-	-

APPENDIX TABLE 14. (Continued)

Destination	1,000 Bushels			Percent of Total Shipments				
	Rail	Truck	Water	Total	Rail	Truck	Water	Total
----- SOYBEANS -----								
GRD								
NE	60.0	-	-	60.0	3.0	-	-	2.5
EC	94.8	-	-	94.8	4.7	-	-	4.0
SC	115.8	-	-	115.8	4.7	-	-	4.8
SE	756.7	-	-	756.7	37.4	-	-	31.7
Total In-State Shipments	1027.3	-	-	1027.3	50.8	-	-	43.0
Missouri	561.7	-	-	561.7	27.8	-	-	23.5
Arkansas	60.0	-	-	60.0	3.0	-	-	2.5
Louisiana	182.1	-	366.7	548.8	9.0	-	100.0	23.0
Oregon	190.0	-	-	190.0	9.4	-	-	8.0
Total Out-of-State Shipments	993.8	-	366.7	1360.5	49.2	-	100.0	57.0
Total Shipments	2021.1	-	366.7	2387.8	100.0	-	100.0	100.0
(Percent Mode)	84.6		15.4	100.0				

APPENDIX TABLE 15. NORTH CENTRAL/CENTRAL KANSAS
FLOUR MILLS RECEIPTS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	1595	84	1679	34.3	1.8	36.1
North Central/Central	771	28	799	16.5	.6	17.1
Northeast	307	-	307	6.6	-	6.6
South Central	884	985	1869	19.0	21.2	40.2
East Central/Southeast	-	-	-	-	-	-
Total	3557	1097	4654	76.4	23.6	100.0
<u>Out-of-State</u>						
Nebraska	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-
Colorado	-	-	-	-	-	-
Iowa	-	-	-	-	-	-
S. Dakota	-	-	-	-	-	-
Missouri	-	-	-	-	-	-
Total	-	-	-	-	-	-
Total	3557	1097	4654	76.4	23.6	100.0

APPENDIX TABLE 16. NORTHEAST KANSAS
FLOUR MILLS RECEIPTS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	1126	153	1279	9.2	1.3	10.5
North Central/Central	5044	888	5932	41.4	7.3	48.7
Northeast	637	-	637	5.2	-	5.2
South Central	-	-	-	-	-	-
East Central/Southeast	-	-	-	-	-	-
Total	6807	1041	7848	55.9	8.6	64.5
<u>Out-of-State</u>						
Nebraska	1572	-	1572	12.9	-	12.9
Minnesota	-	-	-	-	-	-
Colorado	-	-	-	-	-	-
Iowa	-	-	-	-	-	-
S. Dakota	24	-	24	.2	-	.2
Missouri	2520	212	2732	20.7	1.7	22.4
Total	4116	212	4328	33.8	1.7	35.5
Total	10923	1253	12176	89.7	10.3	100.0

APPENDIX TABLE 17. SOUTH CENTRAL KANSAS
FLOUR MILLS RECEIPTS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	5721	-	5721	13.6	-	13.6
North Central/Central	10289	1275	11564	24.4	3.0	27.4
Northeast	419	-	419	1.0	-	1.0
South Central	13954	5335	19289	33.1	12.6	45.7
East Central/Southeast	432	74	506	1.0	.2	1.2
Total	30815	6684	37499	73.1	15.8	88.9
<u>Out-of-State</u>						
Nebraska	2077	-	2077	4.9	-	4.9
Minnesota	2586	-	2586	6.1	-	6.1
Colorado	34	2	36	.1	*	.1
Iowa	-	-	-	-	-	-
S. Dakota	-	-	-	-	-	-
Missouri	-	-	-	-	-	-
Total	4697	2	4699	11.1	*	11.1
Total	35512	6686	42198	84.2	15.8	100.0

*Insignificant

APPENDIX TABLE 18. EAST CENTRAL/SOUTHEAST KANSAS
FLOUR MILLS RECEIPTS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	3660	1736	5396	13.4	6.4	19.8
North Central/Central	2310	-	2310	8.5	-	8.5
Northeast	1427	-	1427	5.2	-	5.2
South Central	3754	2233	5987	13.8	8.2	22.0
East Central/Southeast	<u>9805</u>	<u>496</u>	<u>10301</u>	<u>35.9</u>	<u>1.8</u>	<u>37.7</u>
Total	20956	4465	25421	76.8	16.4	93.2
<u>Out-of-State</u>						
Nebraska	1735	-	1735	6.4	-	6.4
Minnesota	-	-	-	-	-	-
Colorado	45	-	45	.1	-	.1
Iowa	74	-	74	.3	-	.3
S. Dakota	-	-	-	-	-	-
Missouri	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total	1854	-	1854	6.8	-	6.8
Total	22810	4465	27275	83.6	16.4	100.0

APPENDIX TABLE 19. RECEIPTS BY NORTH CENTRAL/CENTRAL
KANSAS CORN PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	169	169	-	83.3	83.3
Northeast	-	7	7	-	3.4	3.4
South Central	-	-	-	-	-	-
East Central/Southeast	-	-	-	-	-	-
Total	-	176	176	-	86.7	86.7
<u>Out-of-State</u>						
Iowa	-	7	7	-	3.4	3.4
N. Dakota	-	3	3	-	1.5	1.5
Nebraska	-	14	14	-	6.9	6.9
S. Dakota	-	3	3	-	1.5	1.5
Total	-	27	27	-	13.3	13.3
Total	-	203	203	-	100.0	100.0

APPENDIX TABLE 20. RECEIPTS BY NORTHEAST
KANSAS CORN PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	-	-	-	-	-
Northeast	6001	208	6209	88.1	3.1	91.2
South Central	-	-	-	-	-	-
East Central/Southeast	-	-	-	-	-	-
Total	6001	208	6209	88.1	3.1	91.2
<u>Out-of-State</u>						
Missouri	425	48	473	6.2	.7	6.9
Nebraska	<u>13</u>	<u>113</u>	<u>126</u>	<u>.2</u>	<u>1.7</u>	<u>1.9</u>
Total	438	161	599	6.4	2.4	8.8
Total	6439	369	6808	94.6	5.4	100.0

APPENDIX TABLE 21. RECEIPTS BY SOUTH CENTRAL
KANSAS CORN PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	-	-	-	-	-
Northeast	-	-	-	-	-	-
South Central	-	36	36	-	100.0	100.0
East Central/Southeast	-	-	-	-	-	-
Total	-	36	36	-	100.0	100.0

APPENDIX TABLE 22. RECEIPTS BY EAST CENTRAL/SOUTHEAST
KANSAS CORN PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	-	-	-	-	-
Northeast	-	-	-	-	-	-
South Central	-	-	-	-	-	-
East Central/Southeast	-	59	59	-	59.6	59.6
Total	-	59	59	0	59.6	59.6
<u>Out-of-State</u>						
Iowa	-	15	15	-	15.2	15.2
Missouri	-	10	10	-	10.0	10.0
Nebraska	-	15	15	-	15.2	15.2
Total	-	40	40	-	40.4	40.4
Total	-	99	99	-	100.0	100.0

APPENDIX TABLE 23. RECEIPTS BY WESTERN
KANSAS MILO PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	396	594	990	26.4	39.6	66.0
North Central/Central	-	-	-	-	-	-
Northeast	-	-	-	-	-	-
South Central	204	306	510	13.6	20.4	34.0
East Central/Southeast	-	-	-	-	-	-
Total	600	900	1500	40.0	60.0	100.0

APPENDIX TABLE 24. RECEIPTS BY NORTH CENTRAL/CENTRAL
KANSAS MILO PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	25	515	540	2.6	52.5	55.1
Northeast	-	8	8	-	.8	.8
South Central	-	-	-	-	-	-
East Central/Southeast	-	-	-	-	-	-
Total	25	523	548	2.6	53.3	55.9
<u>Out-of-State</u>						
Nebraska	<u>360</u>	<u>72</u>	<u>432</u>	<u>36.7</u>	<u>7.4</u>	<u>44.1</u>
Total	385	595	980	39.3	60.7	100.0

APPENDIX TABLE 25. RECEIPTS BY NORTHEAST
KANSAS MILO PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	180	-	180	41.3	-	41.3
Northeast	64	-	64	14.7	-	14.7
South Central	-	-	-	-	-	-
East Central/Southeast	-	-	-	-	-	-
Total	244	-	244	56.0	-	56.0
<u>Out-of-State</u>						
Nebraska	22	42	64	5.0	9.7	14.7
Missouri	<u>71</u>	<u>57</u>	<u>128</u>	<u>16.3</u>	<u>13.0</u>	<u>29.3</u>
Total	93	99	192	21.3	22.7	44.0
Total	337	99	436	77.3	22.7	100.0

APPENDIX TABLE 26. RECEIPTS BY SOUTH CENTRAL
KANSAS MILO PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	4	4	-	36.4	36.4
Northeast	-	-	-	-	-	-
South Central	-	7	7	-	63.6	63.6
East Central/Southeast	-	-	-	-	-	-
Total	-	11	11	-	100.0	100.0

APPENDIX TABLE 27. RECEIPTS BY EAST CENTRAL/SOUTHEAST
KANSAS MILO PROCESSORS, 1977

Origin	1,000 Bushels			Percentage		
	Rail	Truck	Total	Rail	Truck	Total
<u>In-State</u>						
Western Kansas	-	-	-	-	-	-
North Central/Central	-	-	-	-	-	-
Northeast	70	-	70	31.7	-	31.7
South Central	-	-	-	-	-	-
East Central/Southeast	<u>105</u>	<u>46</u>	<u>151</u>	<u>47.5</u>	<u>20.8</u>	<u>68.3</u>
Total	175	46	221	79.2	20.8	100.0

APPENDIX TABLE 28. RECEIPTS BY SOUTH CENTRAL
KANSAS SOYBEAN PROCESSORS, 1977

Origin	Percentage		
	Rail	Truck	Total
<u>In-State</u>			
Western Kansas	20.2	5.0	25.2
North Central/Central	-	-	-
Northeast	24.2	6.1	30.3
South Central	-	-	-
East Central/Southeast	<u>28.3</u>	<u>6.1</u>	<u>34.4</u>
Total	72.7	17.2	89.9
<u>Out-of-State</u>			
Missouri	8.1	2.0	10.1
Nebraska	-	-	-
Oklahoma	<u>-</u>	<u>-</u>	<u>-</u>
Total	8.1	2.0	10.1
Total	80.8	19.2	100.0

APPENDIX TABLE 29. RECEIPTS BY EAST CENTRAL/SOUTHEAST
KANSAS SOYBEAN PROCESSORS, 1977

Origin	Percentage		
	Rail	Truck	Total
<u>In-State</u>			
Western Kansas	-	-	-
North Central/Central	1.7	.7	2.4
Northeast	9.2	5.0	14.2
South Central	-	-	-
East Central/Southeast	<u>23.8</u>	<u>18.0</u>	<u>41.8</u>
Total	34.7	23.7	58.4
<u>Out-of-State</u>			
Missouri	17.5	17.5	35.0
Nebraska	3.9	1.0	4.9
Oklahoma	<u>.4</u>	<u>1.3</u>	<u>1.7</u>
Total	21.8	19.8	41.6
Total	56.5	43.5	100.0

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KANSAS GRAIN FLOWS AND TRANSPORTATION MODES
DURING 1977

by

JOHN H. DAVIS
B.S., Kansas State University, 1977

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the
requirements for the degree

MASTER OF SCIENCE

Department of Agricultural Economics

KANSAS STATE UNIVERSITY

Manhattan, Kansas

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The purpose of this study was to gather and report on information concerning the market flows of wheat, milo, corn, and soybeans in Kansas during the calendar year 1977. Given the prominent role which transportation plays in the grain marketing process, an interaction occurs between size and pattern of market movement of grain and transportation conditions, including public policy for transportation.

The primary source of data on grain movements in Kansas was a Kansas State University survey of grain handling firms in the state. Mail questionnaires were sent to all country elevators in Kansas, terminal elevator representatives were interviewed and sample data were collected from firm records. Various processing firms were interviewed to complete questionnaires. Survey responses were designated by their location in specific districts and the data were expanded to provide estimates of the total grain flow pattern for that district.

Specifically, the objectives of the survey included:

- (1) To identify origin and destination points for movements of grain along with quantities flowing between these points;
- (2) To establish movement volume by type of carrier;
- (3) To identify seasonal patterns of grain movement; and
- (4) To obtain information on firm characteristics, marketing patterns, and transportation related characteristics.

Country elevators were the primary outlet for off-farm grain sales. The disposition of grain received by local elevators in each crop reporting district in Kansas is discussed along with the modal

split and specific destination areas, both in-state and out-of-state. Country elevator shipments during earlier periods are compared with those for 1977 and firm characteristics, such as storage capacity, are reported.

Terminal elevators provide grain receiving, storing, and assembly services and are major collection points in the grain marketing system. There are five city-areas in Kansas where major terminal elevator facilities are located: Wichita, Hutchinson, Salina, Topeka, and the Kansas City-Atchison area. Terminal receipts and shipments are reported by mode and specific origin and destination for each terminal location and for the state. Grain movement for previous marketing years is compared to 1977 and the significance of out-of-state shipments is discussed. The seasonal distribution of grain movement by each terminal elevator location is depicted also.

Grain processing in the state of Kansas takes several forms including flour milling, corn milling, soybean processing, and feed manufacturing, along with alcohol and solvent manufacturing. Origin areas and modes of grain receipts by processors are reported for each type of processor in specific districts. Seasonal receipt patterns are reported in addition to the data concerning firm characteristics and grain processing as significant forms of agribusiness in the state.

Total industry grain movement is illustrated to provide an overview of the flow of raw grain within Kansas. The substantial amount of grain disposition provided by in-state processing necessitates efficient means for the movement of grain and although multi-car grain movement is significant, the volume of Kansas single-car grain movement was estimated to be more than twice as large.

This report provides information which can be used for both public and private policy formulation and can be a basis for future reference concerning grain flows and transportation modes within Kansas.