THE ORGANIZATION OF COUNTRY ELEVATORS IN KANSAS

by

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CHAPTER I

INTRODUCTION AND OBJECTIVES

A highly developed marketing system is required in a complex industrial economy to distribute farm products to the place, at the time, and in the form desired by consumers. Kansas country elevators are an important segment of this dynamic agricultural marketing system. Marketing, as used in agriculture, includes all operations involved in moving products from the first producer to the final consumer.[1]

The country elevators of Kansas are business organizations operated to perform functions of assembling farm production, storing until time of demand and merchandising to demand locations. The elevators also merchandise farm production items and provide production services. Trade reports and analysis indicate elevators' role and performance in fulfilling these functions is changing.

Following World War II, increasing grain stocks required rapid expansion of grain storage facilities. Off-farm grain

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[1]Lee Kolmer and George W. Ladd, eds., How Agriculture Operates - In Production - In Marketing, CAEA Report 6 (Ames, Iowa: Iowa State University, 1961), p. 21.

storage in Kansas peaked in 1964 at 851,220,000 bushels. Storage has since declined to 760 million bushels on January 1, 1968.

Changing transportation rates and services, increasing local competition, declining government storage revenue, increasing capital needs, and more rapid harvests with shorter delivery patterns have created a need for the elevator industry to have an accurate description of present organization if meaningful changes are to be made.

Producers of farm products, processors and millers have interests which are best protected by a market structure that makes efficient use of resources and accurately transmits product value to each segment in the market system. This study will provide guidelines for additional research and provide a base from which the industry can launch future adjustments.

The foregoing brief description of the changing role of elevators in marketing arises from the effects of both endogenous and exogenous variables. The following statement indicates the area of research need:

> The country elevator industry has experienced dynamic changes in recent years. Evidence indicates both short and long run adjustments in market organization will continue. The industry can best fulfill its role by having an information base such as this study available as an aid to making effective and efficient decisions.

The following objectives focus on the above problem statement and form the basis for the study:

1. Organizational description of country elevators and changes in organization that have occurred in the period 1954 through 1968 as indicated by interview data.

2. Analysis of certain aspects of performance of country elevators.

3. Projection of future requirements for country elevator services with implications for change in elevator organization.

Primary data for the analysis is from a ten percent random sample of the elevator plant population. Personal interview surveys were taken in 1955, 1961 and 1968.

Specific areas considered within the organizational analysis include the number of plants, storage capacity, exit patterns and types of business organization. Performance will be analyzed by using data obtained from the utilization of storage capacity, rate of turnover, diversification, gross sales and net income. Equipment added since 1961 will indicate technological progress.

The study will also measure the magnitude of sideline activities initiated by the firms as revenue from storage declined. Grain volume shipped by rail and truck to twenty-five destinations will indicate changing inter and intrastate transportation patterns as they pertain to grain merchandising.

Regression analysis will be used to view the effects of selected business measures on net income after taxes. Variables considered will be gross sales, grain sales, other sales and storage capacity.

Projections to 1980 concerning production and grain sold out of first hands will be made to determine the off-farm storage needed to fulfill future grain storage and merchandising functions.

Present and future plant locations under existing and assumed radii describe the geographical assembly function. Projections using assumed radii illustrate possible numbers of plants needed, considering various elevator size and receiving capacities.

CHAPTER II

GRAIN MARKETING AND COUNTRY ELEVATOR ORGANIZATION

Marketing means different things to different people. To the housewife going to the store to buy the week's food supply, marketing means shopping for food. To the farmer selling hogs, cattle or grain, marketing means the sale of his product off the farm. Each of the above activities represents different phases of marketing.

As the term is used in agriculture, marketing includes all operations involved in moving products from the first producer to the final consumer.[1] In a complex industrial economy, a highly developed marketing system is required to distribute farm products to the place, at the time, and in the form desired by consumers.

Grain marketing may be defined as the execution of business activities that cause grain products to reach the consumer at the time, place, and in the form he desires at a price he is willing to pay.[2]

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[1] Lee Kolmer and George W. Ladd, eds., How Agriculture Operates - In Production - In Marketing, CAEA Report 6 (Ames, Iowa: Iowa State University, 1961), p. 21.

[2] Richard L. Kohls, Marketing of Agricultural Products, 3rd ed. (New York: MacMillan Co., 1967), p. 7.

The patterns of production and the distribution of population make for a highly complex marketing process. Consumers are concentrated in relatively small areas away from the major livestock and grain production areas. This creates a need for an effective transportation, processing and communication system to distribute food and fiber to consumers.[1]

The usual starting point for grain that enters commercial channels is sale by the producer to a local country elevator. This may be at harvest time or later in the year, after a period of storage. Local elevators hold some of the grain purchased in an effort to utilize storage space and to earn a profit from price changes or grain merchandising operations. Much of the grain is moved on to sub-terminal or terminal elevators and to processors and exporters.

"Trade or grain marketing channels may be defined as the flow of grain or grain products through various agencies or institutions as it passes from the farm to a final destination. Each facility constructed to handle grain, either for merchandising or processing, represents ex post facto decisions."[2]

The grain market channels from the producer to the consumer have been continually changing over time. Increased

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[1] Ibid.

[2] North Central Regional Research. "Marketing Grain," Proceedings of the NCM-30 Grain Marketing Symposium, Pubn. 176 (Lafayette, Ind.: Agri. Exp. Station, Jan., 1968), p. 16.

grain supplies and changing demand for grain and grain products have contributed to altering the marketing system. Recent changes in grain marketing have been influenced by several specific factors: larger farm production units; technological advances in harvesting grains; changes in marketing channels; improved transportation methods and changed transportation rates; government programs; and different grain consumption patterns.

Before turning to a discussion of country elevator organization and some aspects of performance, several grain marketing terms need to be defined and the functions involved in country elevator marketing will be discussed.

> Local off-farm sales include all whole grain sold from farms.
>
> Country elevators are grain establishments that receive 50 percent or more of their whole grain from farmers.
>
> Sub-terminal elevators are establishments which receive over half of their supply of grain from other elevators. They are located outside the major concentration points of terminal elevators.
>
> Terminal elevators are establishments which receive over half of their supply of grain from other elevators. Terminal elevators are located in major terminal markets such as Kansas City, Chicago and Minneapolis. These elevators have facilities for establishing official grades and weights. They typically receive a majority of their grain by rail.[1]

Some of the functions involved in country elevator operations include:

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[1]The above definitions are basically from: Ibid., 17.

1. Assembly and buying. Various types of output from many small individual producing units are assembled into large enough lots to be economical for transportation and trading. This assembly operation takes place almost entirely in the producing area. It is necessary because grain comes from many relatively small farm units but is processed and handled through few relatively large processing firms.

The country elevator represents the most widespread type of business engaged in grain marketing beyond the farm level.[1]

In Kansas, grain assembly is the dominant function of country elevators.

2. Storage. Agricultural production is seasonal; however, for most products, the consumption rate is relatively uniform for every month of the year. This means that storage is needed to distribute the supply of agricultural products throughout the year to match month-to-month consumer demand. The storage system includes storage of relatively unperishable grains on the farm and in commercial elevators.

In addition to seasonal storage, elevator storage can be classified as that needed for carryover stocks and for working storage. Carryover storage is self-explanatory. Working storage is that capacity needed for necessary resale inventory. It needs

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[1] Ibid., Chapter 5, p. 123.

to be large enough to provide accumulation of homogeneous grades, waiting for transportation to terminals and operation of feed processing and distribution.

The greatest requirement for assembly naturally occurs during harvest periods. The percentage of each kind of grain sold off-farm is increasing.[1] Improved roads and producer transport modes along with larger harvest equipment have greatly accelerated the assembly process which has in turn accelerated decisions concerning storage.

3. Grading. Grain grading is necessary to obtain uniform quality for sale to terminals, processors or for feed. The producer has an improved basis for determining what kind of product the market desires from the grading function performed by country elevators.

4. Transportation. Because of the dispersion of producing and consuming units in the United States, transportation is a vital link in moving agricultural output from the farm to the consumer. Although not a direct function of country elevators, transportation is included here because of the implications for future country elevator organization. Transportation costs for agricultural products accounted for $4 billion or 11 percent of the total cost of agricultural marketings in 1959. Changing transportation costs for regulated carriers has affected the

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[1] Ibid., p. 125.

location of processing firms as the relative price relationships between raw and processed grain has changed, which in turn will have marketing implications for Kansas country elevators. Producers may be willing to transport their products greater distances than the traditional network of elevators designed for horse and wagon receipts.

As transportation rates change, elevators may not be able to adjust to new profit pictures due to the "single purpose" structures involved in the elevator business.

5. Risk management. From the time an agricultural product such as grain is harvested or sold, there is risk of loss until the product is in the hands of the consumer. Whenever there is risk of financial loss, a cost is incurred. This marketing cost may be assumed by the persons involved or by purchase of insurance or hedging operations. Buying or selling grain for delivery at a certain time in the future reduces both the risk of financial loss and the possibilities of financial gain by transferring the risk from the owner of the grain to professional speculators.

As grain moves through the marketing system, it is necessary to bring buyers and sellers together. If grades are performing the function mentioned under No. 3 above, price will be the signal which controls the function.

Elevator operators must buy their grain from producers in such a manner that when they sell it, they have an adequate margin to cover their costs and have some net return. Margins taken by elevators vary widely.[1] For grain, along with a number of other commodities, the tradition has prevailed of an open competitive market at one or more points in the marketing channel. At such markets, the basic forces of supply and demand meet and price is determined. The pricing process is usually assumed to work quite automatically and impartially.

Price generated at open markets not only performs the traditional function of guiding resources and distributing income but it also provides bench marks for establishing prices at other points in the marketing channel.[2] Farris states that grain markets are generally considered to represent the best examples of pricing processes under conditions approaching perfect competition. Because the conditions of perfect competition do not hold in reality, the relative efficiency of the process of price discovery becomes highly important. This process, state Thomson and Foote,

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[1]Richard L. Kohls, Marketing of Agricultural Products, 3rd ed. (New York: MacMillan Co., 1967), p. 416.

[2]Paul L. Farris, "Market Structure of the Agricultural Industries," Case Studies by John R. Moore and Richard G. Walsh (The Iowa State Press, 1966).

has two distinct phases:[1] (1) Evaluating the conditions of supply and demand and determining the general level of prices for the commodity which will result from these conditions and around which prices for particular lots of the commodities in different locations, of different qualities and in different transactions will fluctuate and (2) Determining the value of a specific lot of the commodity being exchanged relative to the general market level. An estimated 83 percent of wheat and feed grain sold off farms went to country elevators in 1959.[2] The remainder went directly to terminal elevators, CCC owned storage, processors, and other agencies and secondary elevators.

Research conducted at the Purdue University Agricultural Experiment Station in the late 1950's illustrates country elevator performance concerning grain pricing.[3] The study showed considerable uniformity of "quoted prices" for grains within particular geographic areas. The daily prices which country elevators quoted were based predominantly on daily bid prices which were received from terminal buyers and processors. The quoted prices,

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[1]F. L. Thomson and R. J. Foote, Agricultural Prices (New York: McGraw-Hill Book Co., 1952), p. 120.

[2]Walter G. Heid, Jr., Changing Grain Market Channels, ERS (USDA, Nov., 1961), p. 5.

[3]Paul L. Farris, "Market Structure of the Agricultural Industries," Case Studies by John R. Moore and Richard G. Walsh (The Iowa State Press, 1966), p. 256.

however, are usually not the prices that farmers receive, although they are the prices which get publicized and to which competitors presumably react.[1] Farris indicates the important point was that generalizations could not be made on the basis of quoted prices alone. It was necessary to determine actual paying prices for specific lots of grain and to analyze the processes and adjustments which are made to arrive at actual prices. He points out that comparison of quoted prices is only the starting point in determining actual prices. Soybean, wheat and corn variation among elevator quoted prices were relatively small compared to price variations arising from sampling, grading and discounting practices. There were frequent day to day variations of several cents per bushel in elevator quoted paying prices. However, no elevator consistently quoted a high or low price on each day throughout the harvest season. The pricing variation among elevators in a county and average paying prices, discounting practices, selling prices and margins did not appear to be associated with any particular type of business organizations studied (independent, line or cooperative).

The country elevator has the problem of building and maintaining sufficient volume of business. The price paid for grain therefore reflects not only supply and demand factors for

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[1] Ibid., p. 257.

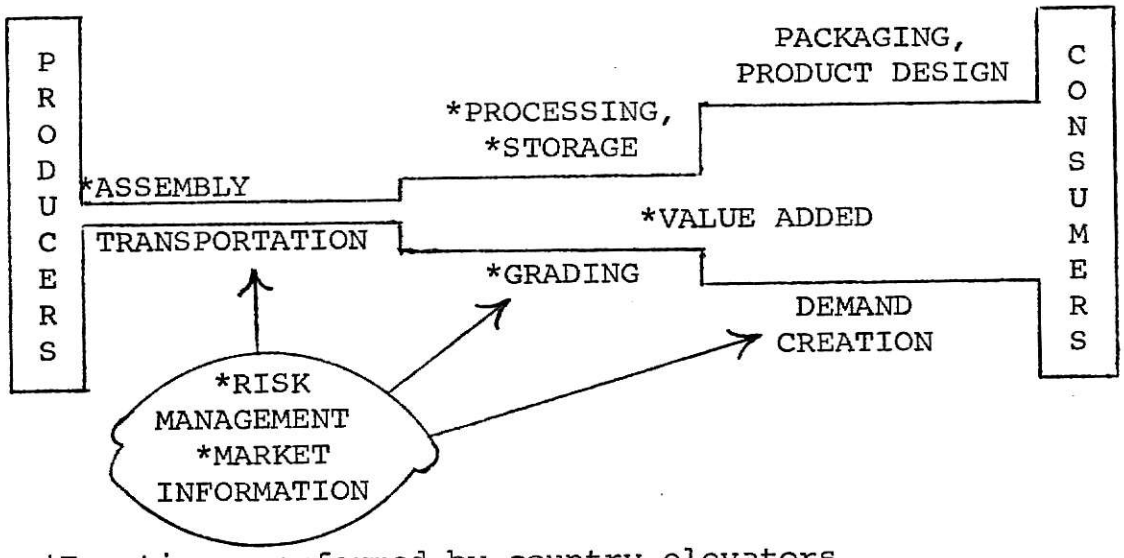
grain but also efforts to attract sideline business. In such a situation, the price actually paid for grain is not for grain only. In addition to considering quoted prices, consideration should be given to: (1) the weight per bushel used in the elevator calculations, (2) sampling procedure, (3) inconsistencies in testing, (4) the type of price discount schedule used and (5) the accuracy of applying the discount schedule to determine the quality of the grain.

Farris points out that the average daily paying price for one elevator during the season was 8.6 cents per bushel higher than the average paying price for another elevator using the above factors but the quoted price was only 3.1 cents per bushel different. Soybean variation could amount to as much as 18 cents per bushel. Wheat discount differences in the northern area of the study were more than 10 cents per bushel and in one instance, 17.5 cents. In the southern area of the Indiana study, Farris says that the greatest difference for an individual sample was 46 cents per bushel. Variations of 10 cents or more were frequent.

Country Elevator Business Organization

Country elevators fall into three general classes according to their ownership and organization.

The independent elevators are under the operational control of their individual owners.



*Functions performed by country elevators.

Fig. 1.--Marketing functions performed in moving farm products into consumption.

Cooperative or farmer-owned elevators are owned and operated cooperatively by the farmers of the area. They may be either organized singly or in state or regional groups.

The third type is the line elevator. This is a group of elevators owned and operated from a central headquarters as a chain. Such chains may be owned either by grain companies or millers and processors who use them to secure supplies directly for their manufacturing operations.

The ownership of elevators will vary from area to area. In some areas, cooperative elevators predominate. In other areas, the line elevator is predominant.[1]

As with other products, the marketing channel used by the grain trade is decentralizing. Much of this change has occurred as some country elevators have grown large enough to assume the functions of the terminal elevators and terminal market agencies. "About 80 percent of the off-farm sales of grain moved via country elevators through 14 major grain terminals in 1939.[2] By 1960, these receipts had fallen to 43 percent of a much increased volume. Because of the production area location, farmers are

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[1]Richard L. Kohls, Marketing of Agricultural Products, 3rd ed. (New York: MacMillan Co., 1967), p. 408.

[2]Kohls is referring to the 14 terminals which the grain trade has traditionally considered primary terminals. They no longer rank as the top 14 in terms of storage volume. Some trade reports will refer to the "primary 12."

increasingly by-passing the country elevator and going directly to the sub-terminals."[1] Kohls points out that storage may be done more efficiently at some levels in the marketing channel than in others. Very little grain is stored by country elevators for their own account.[2]

Storage

From 1939 to the early 1960's, the average country elevator increased its volume of business over four times due to increased off-farm grain sales.[3]

The number of country elevators in the United States decreased from 9,000 in 1939 to 7,656 in 1963. The number actually declined to 7,000 in 1958 but increased in the following five year period. In Kansas, the country elevator population was 1,438 in 1955; 1,335 in 1961 and 1,113 on January 1, 1969.[4]

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[1]Richard L. Kohls, Marketing of Agricultural Products, 3rd ed. (New York: MacMillan Co., 1967), p. 408.

[2]Ibid.

[3]Carl J. Vosloh, Jr., "Changes in the U.S. Grain Marketing and Flour Milling Industries," summary of remarks at the 16th Annual Winter Wheat Conference (Washington, D.C., April 25, 1968).

[4]Data of years 1955 and 1961 were from NCM X Study and 1969 numbers were primarily from The USDA County Food Facility Listing, supplemented by county agent surveys, lists of licensed elevators and the directory of the Kansas Grain and Feed Dealers Association.

Off-farm commercial grain storage in the U.S. was 5,446 million on January 1, 1968.[1] Texas and Kansas continue to rank first and second among the states in storage capacity. The two states combined account for about 30 percent of the nation's capacity. Nationally, the storage capacity peaked at 5,946 bushels on January 1, 1967 and has been declining since. Most of this decline occurred in Kansas, Texas, Oklahoma, Nebraska and the North Atlantic regions while increased storage occurred in other parts of the nation.

Organization to Performance

The term organization has been used in this study by design. Industry organization and selected measures of performance are examined rather than all of the usual factors included in structure, conduct and performance.

Studying all business units would be studying the whole economy. Studying one by one, we lose sight of the forest for the trees. Sellers participating in a given product are called the industry. Organization is important because organization of the industry (i.e., location, number and type of business) all affect performance; however, performance also affects organization.

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[1] U.S. Dept. of Agriculture, Stocks of Grain in All Positions, Statistical Reporting Service (Selected issues, 1961-1968).

Nationally, in the last three decades, the number of terminal elevators, the number of grain consuming animals, and the production of wheat, feed grain and soybeans have all increased. During the same period, the human population also increased. In the meantime, the number of country elevators decreased.[1] The 1960's were characterized by 12 country elevators per terminal elevator.

Exit and entry patterns may, over time, be the determinants of grain marketing channels. According to Heid, the channels may change because of whole grain supply, transportation changes, or demand changes.[2] Heid further points out the importance of inter-industry changes. Exit and entry may be by qualification or absolute. Absolute exits include fire, dismantling or take over by non-grain interests. Entry in the absolute is by construction.

Exit by qualification includes mergers, consolidations or acquisitions. Entry by qualification may be by dissolution, divorcement or divestment. Plants do not change by qualification, only the number of firms. As the number of firms change, control over the volume of grain in the marketing channels may change due to the number of competitors and the degree of competition.

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[1] North Central Regional Research. "Marketing Grain," Proceedings of the NCM-30 Grain Marketing Symposium, Pubn. 176 (LaFayette, Ind.: Agri. Exp. Station, Jan., 1968), p. 35.

[2] Ibid., p. 43.

"Nationally, exits exceeding entries, is composed of independent firms. If said firms are leaving because of inefficiency, market industry performance will be improved."[1]

Workable competition as conceived by Clark describes the attributes of performance selected for this study.[2] Heid points out two conditions which must be met before the marketing system can operate efficiently.[3]

1. The structure must be synchronized with the volume of off-farm grain sales.

2. The methods of grain handling and processing must be performed as economically as possible, yet producing a quality product at a reasonable profit.

The first condition may be measured by utilization of capacity, turnover, average inventory or optimum location. The two conditions listed along with return on investment, which is inherent in the profit structure, point to Clark's workable competition. Capacity to meet the assembly function results in unused capacity at other than harvest periods.

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[1] Ibid., p. 44.

[2] J. M. Clark, "Toward a Concept of Workable Competition," American Economic Review, (June, 1940), p. 241-256.

[3] North Central Regional Research. "Marketing Grain," Proceedings of the NCM-30 Grain Marketing Symposium, Pubn. 176 (LaFayette, Ind.: Agri. Exp. Station, Jan., 1968), p. 60.

Sidelines

Country elevators engage in many activities other than the assemblage and storage of grain. These activities include processing and distribution of grain or other farm products; custom services such as cleaning seed, drying grain, shelling corn, grinding and mixing feed; and retailing farm supplies.[1] The activities may be complementary to the elevators' grain business but may be competitive for certain factors needed by both the sideline and the grain business.

Concentration

Spatial differentiation may allow buying monopolies to develop. If economies of scale are greater than any excess capacity and monopoly profit associated with this type competition, the industry may be performing more efficiently with fewer numbers.[2]

Summary

The organization of this study is purposely away from traditional structure--conduct--performance studies. Selected

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[1] Ibid., p. 125.

[2] Edward Hastings Chamberlin, The Theory of Monopolistic Competition, A Re-orientation of the Theory of Value, (8th ed.; Cambridge, Mass.: Harvard University Press, 1965), Chapt. V.

aspects of performance flowing from descriptions of organization are used to describe stated functions and activities of the country elevators of Kansas. Country elevators have a large role to play in grain marketing as depicted in Fig. 1. This chapter has established the environment for empirical survey data which follows.

CHAPTER III

DATA SOURCE FOR EMPIRICAL STUDY

Interview surveys of Kansas country elevators were taken at three different dates. The first survey was taken in the summer of 1955. Operating data obtained from participating firms was for 1954.

The same schedule was repeated in the spring of 1961, obtaining data for 1960. The first two questionnaires used were designed by the North Central Regional Grain Marketing Research Committee (NCM-10).

The third survey, taken in 1968, contained the same basic questions as the NCM-10 surveys. Additional information was obtained concerning net income, capital structure, trade radii and changes the managers felt would be undertaken in the structure of country elevators in the next three to five years.

The random 10 percent sample was stratified by crop reporting districts. In each survey year, the sample was representative of the state population and within each crop reporting district on the basis of number of firms (table 1).

Total capacity of the population and of the sample by districts is represented for each of the survey periods in

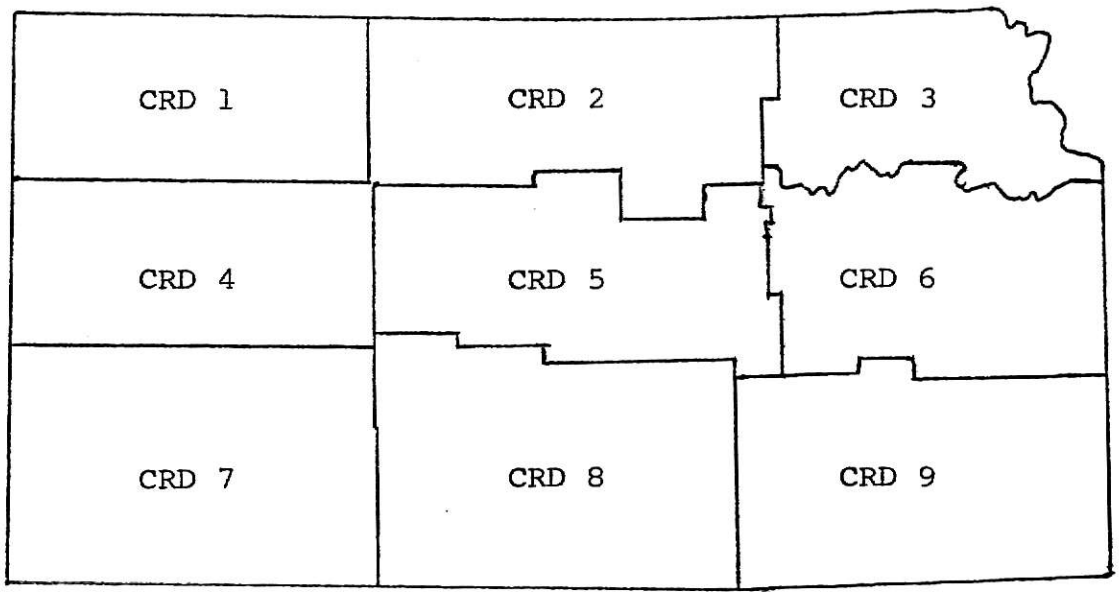

Fig. 2--Kansas crop reporting districts

TABLE 1

NUMBER OF ELEVATORS IN POPULATION AND SAMPLE, 1955, 1961, AND 1968 BY CROP REPORTING DISTRICTS

Crop Reporting District	Population (Number)	Sample	
		Number	Percent of Population
1955			
1	105	10	9.5
2	167	17	10.2
3	110	11	10.0
4	112	11	9.8
5	231	23	10.0
6	117	12	10.3
7	151	15	10.0
8	301	31	10.3
9	144	14	9.8
State	1,438	144	10.0
1961			
1	107	10	9.3
2	152	15	9.9
3	97	11	11.3
4	108	11	10.2
5	211	21	10.0
6	122	12	9.8
7	142	15	10.6
8	259	26	10.0
9	137	14	10.2
State	1,335	135	10.1
1968			
1	90	8	8.8
2	140	15	10.7
3	87	9	10.3
4	90	9	10.0
5	177	16	9.0
6	102	10	10.2
7	128	12	9.3
8	197	18	9.1
9	102	12	11.7
State	1,113	109	9.8

table 2. In 1955, the total sample percentage was larger for capacity than for the number of plants in the study. In 1961, this comparison indicated that the percent of capacity represented the same percentage as percent of plants. The 9.8 percent of elevator plants in the 1968 survey compares with 9.6 percent of the 1968 capacity.

Exit from the industry has been similar for the sample and for the population. Sample size was 144 firms in 1955. In 1961, there were 132 firms in the sample. Seven of the twelve firms no longer operating in 1961 were purchased by local competitors and facilities were either operated jointly with those of the acquiring firm or the acquired facilities had been abandoned. Five firms had gone out of business and facilities had either been abandoned or torn down. Capacity in 1955 of the twelve elevators not in the sample in 1961 ranged from 7,000 to 28,000 bushels.[1]

From 1961 to 1968, the number of firms in the sample decreased from 132 to 116. Of the 116 in business, 109 usable questionnaires were obtained. The number used to arrive at an expansion factor throughout this study is 109 elevators. Thus, of the 132 firms in 1961, sixteen had gone out of business by

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[1]Leonard Orlo Sorenson, An Economic Analysis of Government Grain Storage Programs and Their Impact on Grain Market Organization in Kansas. (Unpublished PhD Thesis, University of Minnesota 1963.) Page 134.

TABLE 2

TOTAL CAPACITY OF THE POPULATION AND OF THE SAMPLE, BY DISTRICTS, 1955, 1961 AND 1968

Crop Reporting District	Population (capacity)	Sample	
		Capacity	Percent of Population
1955	(thousand bushels)		
1	10,629	1,242	11.7
2	13,432	1,684	12.5
3	7,583	664	8.8
4	13,536	1,716	12.7
5	23,870	2,964	12.4
6	5,500	619	11.3
7	32,113	3,971	12.4
8	33,087	3,359	10.2
9	5,187	568	11.0
State	144,937	16,788	11.6
1961			
1	34,881	2,872	8.2
2	41,141	3,626	8.8
3	16,978	1,746	10.3
4	37,650	2,827	7.5
5	60,713	5,994	9.9
6	19,299	585	3.0
7	73,217	10,953	15.0
8	70,239	8,726	12.4
9	19,973	489	2.45
State	374,091	37,818	10.1
1968			
1	35,821	3,108	8.7
2	47,189	4,628	9.8
3	24,309	2,567	10.6
4	43,328	3,685	8.5
5	64,844	4,566	7.0
6	24,359	1,151	4.7
7	85,711	12,021	14.0
8	81,554	8,568	10.5
9	23,735	941	4.0
State	430,850	41,235	9.6

1968. Eight of the elevator plants had been abandoned, two had vacated the facilities but were in condition that they could be brought back into business, one elevator burned and was not rebuilt, four were sold to cooperatives, and one large elevator was leased to a cooperative. These changes are shown in table 3.

Since 1961, 19.6 percent of the 116 elevator plants doing business in 1968 had transferred ownership or form of business organization. The 26 changes were name changes which may have included incorporation of a proprietorship business, mergers or consolidations. The nature of the questionnaire did not clearly indicate the exact nature of the changes of the 26 elevators considered.

Observations in tables 4, 5 and 6 indicate the trends to larger elevators within the population. Table 4 indicates 1,193 elevators in 1955 of less than 200,000 bushels capacity. Table 5 shows that by 1961 the number of small elevators had declined. The decline in smaller elevators continued through 1968 as shown in table 6.

There were only 245 elevators of over 200,000 bushel capacity from the population of 1,438 in 1955. There were 243 elevators with over 400,000 bushel capacity by 1961. In 1968, 296 elevators had 500,000 bushel or larger capacity. Elevators with over one million bushel capacity increased from 65 in 1961 to 88 in 1968.

TABLE 3

DERIVATION OF POPULATION AND EXPANSION FACTORS

Crop Reporting District	1 Population 1961	2 Sample Used 1961	3 Population 1968	4 Sample 1968	5 In Business (Not used in Sample)	6 Total 4 + 5	Out of Business Since 1961
1	107	10	90	8	1	9	1
2	152	15	140	15	0	15	0
3	97	11	87	9	1	10	1
4	108	11	90	9	0	9	2
5	211	21	177	16	1	17	4
6	122	12	102	10	0	10	2
7	142	15	128	12	0	12	3
8	259	26	197	18	3	21	2
9	137	14	102	12	1	13	1
State	1335	135[1]	113	109[2]	7	116	16[3]

[1] (132) usable questionnaires

[2] 109 usable questionnaires (see col. 6)

[3] Average capacity 83,857 bushels; Sample 378,302 bushels; Population 387,106 bushels.

Burned-1
Sold to Cooperative-4
Vacant-2 (could be used)
Abandoned-8
Leased-1

TABLE 4

COMPARATIVE DISTRIBUTION OF FIRMS IN THE SAMPLE AND IN THE POPULATION BY CAPACITY GROUPS BY CROP REPORTING DISTRICT, 1955

Crop Reporting District	Size distribution by bushel capacity								
	0-9,999		10,000-74,999		75,000-199,999		200,000 or more		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total
1 : Sample	0	0.00	5	50.00	1	10.00	4	40.00	10
Population	4	3.81	70	66.67	14	13.33	17	16.19	105
2 : Sample	0	0.00	10	58.83	5	29.41	2	11.76	17
Population	8	4.79	100	59.88	30	17.96	29	17.37	167
3 : Sample	3	27.27	5	45.45	3	27.27	0	0.00	11
Population	14	12.73	76	69.09	14	12.73	6	5.45	110
4 : Sample	0	0.00	6	54.55	3	27.27	2	18.18	11
Population	6	5.36	59	52.68	22	19.64	25	22.32	112
5 : Sample	0	0.00	14	60.87	5	21.74	4	17.39	23
Population	14	6.06	142	61.48	39	16.88	36	15.58	231
6 : Sample	2	16.67	9	75.00	1	8.33	0	0.00	12
Population	28	23.93	78	66.67	7	5.98	4	3.42	117
7 : Sample	0	0.00	6	40.00	2	13.33	7	46.67	15
Population	3	1.99	65	43.05	20	13.25	63	41.71	151
8 : Sample	3	9.68	20	64.51	2	6.45	6	19.36	31
Population	40	13.29	169	56.15	34	11.29	58	19.27	301

TABLE 4--Continued

Crop Reporting District	Size distribution by bushel capacity								
	0-9,999		10,000-74,999		75,000-199,999		200,000 or more		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total
9 : Sample	3	21.43	11	78.57	0	0.00	0	0.00	14
Population	36	25.00	98	68.06	3	2.08	7	4.86	144
State Sample	11	7.60	86	59.90	22	15.30	25	17.40	144
State Population	153	10.60	857	59.60	183	12.70	245	17.00	1438

TABLE 5

COMPARATIVE DISTRIBUTION OF FIRMS IN THE SAMPLE AND IN THE POPULATION BY CAPACITY GROUPS BY CROP REPORTING DISTRICTS, 1961

Crop Reporting District	Size distribution by bushel capacity										
	0-99,000		100,000-299,000		300,000-499,000		500,000-999,000		1,000,000 or more		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total
1 : Sample	3	30.0	3	30.0	1	10.0	3	30.0	0	0.0	10
Population	27	25.2	48	44.9	10	9.3	18	16.8	4	3.7	107
2 : Sample	4	26.7	6	40.0	3	20.0	2	13.3	0	0.0	15
Population	33	21.7	71	46.7	26	17.1	18	11.8	4	2.6	152
3 : Sample	3	45.5	4	36.4	2	18.2	0	0.0	0	0.0	11
Population	42	43.3	39	40.2	13	13.4	3	3.1	0	0.0	97
4 : Sample	5	45.5	2	18.2	2	18.2	1	9.1	1	9.1	11
Population	38	35.2	24	22.2	19	17.6	21	19.4	6	5.6	108
5 : Sample	5	23.8	8	38.1	5	23.8	2	9.5	1	4.8	21
Population	71	33.6	70	33.2	34	16.1	31	14.7	5	2.4	211
6 : Sample	10	83.3	2	16.7	0	0.0	0	0.0	0	0.0	12
Population	81	66.4	28	23.0	1	0.8	10	8.2	2	1.6	122
7 : Sample	2	13.3	2	13.3	3	20.0	4	26.7	4	26.7	15
Population	38	26.8	28	19.7	18	12.7	33	23.2	25	17.6	142

TABLE 5--Continued

Crop Reporting District	Size distribution by bushel capacity										
	0-99,000		100,000-299,000		300,000-499,000		500,000-999,000		1,000,000 or more		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total
8 : Sample	11	42.3	6	23.1	3	11.5	4	15.4	2	7.7	26
Population	128	49.4	52	20.1	27	10.4	37	14.3	15	5.8	259
9 : Sample	14	100.0	0	0.0	0	0.0	0	0.0	0	0.0	14
Population	104	75.9	18	13.1	4	2.9	7	5.1	4	2.9	137
State Sample	59	43.7	33	24.4	19	14.1	16	11.9	8	5.9	135
State Population	562	42.1	378	28.3	152	11.4	178	13.3	65	4.9	1335

TABLE 6

COMPARATIVE DISTRIBUTION OF FIRMS IN THE SAMPLE AND IN THE POPULATION BY CAPACITY GROUPS BY CROP REPORTING DISTRICTS, 1968

Crop Reporting District	Size distribution by bushel capacity										Total
	0-99,000		100,000-299,000		300,000-499,000		500,000-999,000		Over 1,000,000		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	
1 : Sample	0	0	4	50.0	1	12.5	3	37.5	0	0	8
Population	9	10.0	37	41.1	22	24.4	17	18.9	5	5.6	90
2 : Sample	0	0	8	53.3	5	33.3	2	13.4	0	0	15
Population	23	16.4	58	41.4	30	21.4	24	17.2	5	3.6	140
3 : Sample	1	11.1	5	55.6	1	11.1	2	22.2	0	0	9
Population	20	22.9	38	43.7	12	13.8	15	17.2	2	2.2	87
4 : Sample	0	0	3	33.3	5	55.6	0	0	1	11.1	9
Population	21	23.3	14	15.6	21	23.3	23	25.6	11	12.2	90
5 : Sample	4	25.0	7	43.8	4	25.0	1	6.2	0	0	16
Population	30	16.9	61	34.5	42	23.8	35	19.8	9	5.0	177
6 : Sample	6	60.0	3	30.0	1	10.0	0	0	0	0	10
Population	53	51.9	30	29.4	6	5.9	7	6.9	6	5.9	102
7 : Sample	1	8.3	1	8.3	1	8.3	5	41.8	4	33.3	12
Population	18	14.0	23	17.9	20	15.7	40	31.3	27	21.1	128

TABLE 6--Continued

Crop Reporting District	Size distribution by bushel capacity										
	0-99,000		100,000-299,000		300,000-499,000		500,000-999,000		Over 1,000,000		
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total
8 : Sample	4	22.2	3	16.7	4	22.2	5	27.8	2	11.1	18
Population	57	28.9	52	26.4	29	14.8	39	19.8	20	10.1	197
9 : Sample	9	75.0	2	16.7	1	8.3	0	0	0	0	12
Population	56	54.9	27	26.4	8	7.9	8	7.9	3	2.9	102
State Sample	25	23.0	36	33.0	23	21.1	18	16.5	7	6.4	109
State Population	287	25.7	340	30.4	190	17.2	208	18.6	88	7.9	1,113

Although the population has decreased during the period considered, the capacity has increased from 144,937,000 bushels in 1955, to 374,091,000 bushels in 1961, to a capacity 430,850,000 bushels in 1968.

Country elevator storage of over 430 million bushels represents 56.7 percent of the total off-farm storage capacity in Kansas. This compares with 1963 data which indicated country elevators had 50.8 percent of the total commercial grain storage capacity in Kansas.[1]

Summary

While the number of firms decreased over 23 percent from 1955 to 1968, capacity increased almost threefold. An increase in average size to 387,106 bushels was associated with the changed distribution by capacity groups. Fourteen of 16 elevators exiting from the industry between 1961 and 1968 were less than 100,000 bushel capacity. One elevator which burned and the one elevator which was leased to a cooperative were larger. Future chapters will expand on the relationship between size and net income.

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[1] Off-Farm Commercial Storage Facilities for Grain, Economic Research Service 252 (August, 1965), p. 29.

CHAPTER IV

ORGANIZATION OF THE INDUSTRY

Changes in numbers and capacity which occurred during the period surveyed were indicated for Kansas and each crop reporting district in Chapter III as a basis for validating the sample. Exit pattern discussions logically paralled numbers in the previous chapter. The present discussion examines capacity by organization and type of facility followed by receipts, stocks, processing and custom services.

The number and distribution of the 1968 elevator sample is shown by type of business organization and crop reporting district in table 7. Thirty-six and seven-tenths percent of the plants surveyed were owned by cooperatives. Counting the firms having cooperatives appear in their names from the total population of 1,113 verified the sample percent showing cooperative ownership. Crop reporting districts 3 and 9 show no line elevators. This does not indicate the absence of line elevators in this area although line concentrations are in the higher wheat producing areas other than the eastern one-third of the state. Slightly over one-fourth of the Kansas population is owned by lines, with 36.7 percent of the Kansas elevators being independently owned.

TABLE 7

NUMBER AND DISTRIBUTION OF SAMPLE BY ORGANIZATION AND CROP REPORTING DISTRICTS (1968)

Type Organization	Crop Reporting District 1	2	3	4	5	6	7	8	9	Total	Percent of Total
Cooperative	2	5	5	3	6	1	5	10	3	40	36.7
Independent	2	6	4	2	4	8	1	4	9	40	36.7
Line	4	4	0	4	6	1	6	4	0	29	26.6
Total	8	15	9	9	16	10	12	18	12	109	100.0

Storage Capacity in Bushels

While cooperatives represented 36.7 percent of the firms in the 1968 sample, they owned 54.9 percent of the available country elevator storage capacity. The independents' share of storage was 22 percent and the lines', 23.1 percent.

Table 8 shows various details concerning storage facilities. Startling differences may be observed concerning type of storage utilized by cooperatives, independents and lines. Cooperative capacity consisted of 78.8 percent concrete, independents 26.8 percent and lines 41.4 percent. Only 14.2 percent of cooperative storage was in steel bins and flat structures. Independents had 60.4 percent in these two types of structures and lines had 47.2 percent.

TABLE 8

TYPE STORAGE CAPACITY FOR THE 1968 COUNTRY ELEVATOR SAMPLE - BY CROP REPORTING DISTRICTS AND ORGANIZATION

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
					(1000 bushels)					
					COOPERATIVE					
Total Bulk	1113	2040	1254	2081	1585	450	7045	6677	394	22639
Concrete	520	1316	802	2016	1095	310	5545	5993	250	17847
Steel Bin	435	449	201	0	105	140	0	49	81	1460
Flat	0	110	50	65	115	0	860	575	0	1775
Working Space	105	147	67	123	177	18	197	264	70	1168
Aerated	631	940	903	650	711	190	4078	1837	193	10133
Licensed	1113	1990	1204	2081	1585	450	7090	6664	394	22571
					INDEPENDENT					
Total Bulk	1234	1118	1313	616	1518	564	983	1215	547	9108
Concrete	650	0	16	302	636	50	585	200	6	2445
Steel Bin	0	585	1015	0	800	417	0	288	222	3327
Flat	584	441	85	260	0	20	98	575	117	2180
Working Space	0	61	47	25	87	52	0	0	86	358
Aerated	1114	866	1194	260	1170	402	500	963	237	6706
Licensed	650	1300	1313	616	1518	422	683	1215	528	8245

TABLE 8--Continued

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
					(1000 bushels)					
					LINE					
Total Bulk	761	1470	0	988	1463	137	3993	676	0	9488
Concrete	329	190	0	815	495	52	1852	201	0	3934
Steel Bin	116	106	0	112	394	85	85	145	0	1042
Flat	205	892	0	0	265	0	1990	1100	0	3452
Working Space	50	95	0	135	155	11	327	79	0	852
Aerated	639	997	0	335	665	84	2700	445	0	5865
Licensed	761	1470	0	2203	1463	137	3918	661	0	10613
				GRAIN STORAGE CAPACITY IN BUSHELS - KANSAS						
Total Bulk	3108	4628	2567	3685	4566	1151	12021	8568	941	41235

During the late 1950's and early 1960's when storage was increasing rapidly, there was much interest in flat storage. Aeration is needed in flat storage for it to be licensed for Commodity Credit use. Flat storage may be obtained at a lower cost than other types of storage and has alternative uses. Looking at flat storage alone, cooperatives have 7.8 percent of their capacity in flat storage, independents 23.9 percent and lines 36.3 percent. Combining the three groups for the state shows 17.9 percent of storage is in flat type structures, 14.1 percent is in steel bins and 53.9 percent is in concrete. This accounts for 85.9 percent of the total storage. The other storage is made up of older wooden elevators and miscellaneous type tanks which were not categorized on the survey.

All elevators used 5.7 percent of total capacity for working space as shown in table 8. This ranged from 8.9 percent for lines to 3.9 percent for independents, with cooperatives being in between at 5.1 percent.

For the state, nearly 100 percent of the capacity in the survey was licensed. Lines indicated over 100 percent as one elevator still licensed some storage not used. Cooperatives indicated 99.7 percent of their storage licensed. Only independents with 90.5 percent of capacity licensed was significantly below full capacity.

Summary of Storage Capacity

Slightly over one-half of the total off-farm grain storage in Kansas is by country elevators. Fifty-five percent of the country elevators' capacity is in concrete structures. Significant differences were found for types of storage between firms according to business organization. Licensed capacity for all elevators surveyed was 100 percent and average capacity used for working space was 5.7 percent.

Bushels Received

The bushels received by the Kansas elevators in 1954 and 1968 are shown in table 9. Total bushels received by country elevators from all sources increased from 251 million to 426 million over this period. It can be seen from table 9 that line elevators' bushel volume remained stable while the independents' bushel volume increased even though their percentage of total receipts of all country elevators remained the same. Bushels received by cooperatives more than doubled from 1954 to 1968.

Total receipts have increased less than capacity. In 1954, receipts were 170 percent of capacity while in 1968 receipts were 99 percent of capacity.

It was shown earlier that number and capacity of cooperatives have increased relative to independent and line

TABLE 9

TOTAL BUSHELS RECEIVED BY KANSAS ELEVATORS FROM ALL SOURCES

	1954	1968
	(1000 bushels)	
Cooperative	100,344	211,507
Independent	82,784	140,280
Line	67,733	73,848
Total	250,861	425,635

elevators. Table 10 indicates that cooperatives relative share of receipts increased during the same period at the expense of lines. No significant change can be observed concerning farm receipts as compared to elevator total receipts for each type organization.

TABLE 10

PERCENT OF TOTAL RECEIPTS BY TYPE OF BUSINESS ORGANIZATION 1954, 1960, 1968

Type of Firm	Receipts from Farmers			Total Receipts		
	1954	1960	1968	1954	1960	1968
Cooperative	40%	47%	50%	39%	46%	50%
Independent	33%	31%	32%	33%	33%	33%
Line	27%	22%	18%	28%	21%	17%
Total	100%	100%	100%	100%	100%	100%

Wheat and soybeans received by country elevators originated wholly from farmers. The feed grains originated from farmers and truckers. No feed grains were received by rail. Kansas corn production in 1968 was listed as 72,080,000 bushels by the Kansas State Board of Agriculture, with 47,573,000 bushels sold from farms. Using the expansion factor of 10.2, the survey data shows Kansas elevators received 44,839,000 bushels. This checks closely with the 1968 Board of Agriculture statistics.

Country elevators in Kansas received 11,741,000 bushels of feed grain by truck from sources other than farmers. This indicates that several areas in Kansas are not producing enough feed grain to fulfill the grain merchandising needs of country elevators. Eighty-nine percent of the corn received from sources outside the local trade area was delivered to elevators in the central reporting districts (i.e., 2, 5 and 8).[1]

Grain sorghum deficiency also occurred in the central districts. Ninety-six percent of the grain sorghum received from sources other than farmers was delivered to elevators in the three central crop reporting districts. For the state, 9,945,000 bushels of grain sorghum were received by truck from sources other than farmers. This compares with 11,741,000 bushels of corn. Over 21 million bushels of feed grains were shipped into the state by truck, exclusive of oats and barley. Other than corn, grain sorghum, wheat and soybeans, 1,316,000 bushels of grain were shipped into the state.[2] This represented 24.2 percent of the other grain received by the elevators.

Summary of Grain Received

Twenty-four percent of other grains, over 20 percent of

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[1]Crop reporting districts are shown in Chapter III, Fig. 2.

[2]Other grain includes grain other than corn, grain sorghum, wheat and soybeans. The term other grain will be used in several parts of the study.

corn and over 9 percent of grain sorghum received by country elevators was received by truck from sources other than farmers. Compared with 1954 data, the total bushels received by elevators increased substantially. Wheat increased from 178 million to 225 million; corn from 23 million to 56 million; grain sorghum from 37 million to 115 million; and soybeans from 3 million to 21 million.

Grain production in Kansas increased from 1954 to 1960 and again to 1968. Consequently each type organization increased grain receipts; however, the relative position of the plants changed as evidenced by table 10. Independent percentage of total receipts remained the same while cooperative receipts from farmers and others increased. The increase in cooperative receipts came from the volume of the line elevators.

Shipments of Grain to Specified Destinations

Only one elevator of the 109 surveyed was not on a railroad. It was a small elevator of 25,000 bushel capacity.

Trucks have captured an increasing share of total shipments from country elevators. Table 11 indicates the bushels shipped by rail and truck and the percentage of each for 1968. Table 11 also indicates the percentage of each grain shipped by rail in 1954.

TABLE 11

TOTAL 1968 SAMPLE SHIPMENTS AND PERCENT RAIL 1968 AND 1954

Grain	Total Shipped 1968	Percent Rail 1968	Percent Rail 1954[a]
Wheat	15287	95	99.7
Corn	3118	29	37.3
Grain Sorghum	2342	41	63.8
Soybeans	1322	54	70.8
Total	22069	67	90.1

[a]Percent shipped by rail in 1954. Source: Grain Market Statistics for the North Central States.

Kansas City continues to be the most popular destination for both independent and cooperative elevator wheat shipments. Cooperatives designated 30 percent of their shipments to Kansas City and 20 percent to the Gulf. Hutchinson received 15 percent of cooperative wheat shipments. Location of the regional cooperatives apparently affected destinations of wheat shipped by cooperatives.

Wheat shipments from independent elevators showed no specific patterns other than Kansas City. Independent elevators indicated by the survey that they had no market ties and would ship to several markets.

Changes in 1964 in rail rate structures were thought to attract wheat to the west coast for export. Data for 1954 indicated no destinations west of the Rocky Mountains for Kansas wheat shipments originating from country elevators. Intra-regional shipments of grains from Kansas in 1958 and 1963 did not indicate any shipments west of the Rockies.[1]

Survey data in 1968 again indicated no wheat shipments from country elevators to areas west of the Rockies. One elevator indicated shipping grain sorghum to the west coast. Destinations of all shipments are shown in tables 12, 13 and 14.

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[1] Changes in Transportation Used by Country Grain Elevators in the North Central Region, 1958-63 Market Research Report No. 72, USDA ERS, Page 24.

TABLE 12

QUANTITY SHIPPED TO SPECIFIED DESTINATIONS BY LOCAL COOPERATIVE ELEVATORS IN 1968 SURVEY SAMPLE[a]

Destination	Wheat		Corn		Grain Sorghum		Soybeans	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
				(1000 bushels)				
Kansas City	2515	40	35	50	172	10	20	
Gulf	1664	15		1257				
Denver area	33		20	83		24		
Bellville, Kansas	140							
Atchison	180							
Salina	730							
Hutchinson	1203							
Wichita	631	50				65	25	95
St. Joseph, Mo.	450		33		50		46	
Topeka	120		500		100			
Newton	141	20						
West Coast					89			
Oklahoma		45		85				
Ft. Worth, Texas	242						270	
Lincoln, Nebraska	185	—	—	—	—	—	—	—
Total Known Destinations	8234	170	608	1475	411	99	122	365
Unknown Destinations	—	—	—	478	—	503	—	—
Total Shipments	8234	170	608	1953	411	602	122	365

[a]No "other grain" destinations were designated.

TABLE 13

QUANTITY SHIPPED TO SPECIFIED DESTINATION BY LOCAL INDEPENDENT ELEVATORS IN 1968 SURVEY SAMPLE[a]

Destination	Wheat		Corn		Grain Sorghum		Soybeans	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	(1000 bushels)							
Kansas City	1352	53	146	40	203	44	62	8
Gulf		93		61		189		
Denver area	33							
Denver	32							
Bellville	170				60			
Atchison	164	21	63			9	59	
Salina	573							
Hutchinson	256	50					12	
Wichita	283	3	33		50		296	183
Topeka	25							
Emporia							16	25
Arkansas City	141	342		30		10		
Newton	10							
Oklahoma	187							
Fredonia	—	—	—	—	—	—	145	—
Total Known Destinations	3226	562	242	131	313	252	590	216
Unknown Destinations	—	—	—	35	—	122	—	20
Total Shipments	3226	562	242	166	313	374	590	236

[a]No other grain destinations were designated.

TABLE 14

QUANTITY SHIPPED TO SPECIFIED DESTINATION BY LOCAL LINE ELEVATORS IN 1968 SURVEY SAMPLE[a]

Destination	Wheat		Corn		Grain Sorghum		Soybeans	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	(1000 bushels)							
Kansas City	557	4			96		2	
Gulf		10			40			
Denver			60	24		385		
	30							
Central Nebraska	432							
Salina	290							
Hutchinson	645				96			
Wichita	258	40						7
Topeka	170							
Oakley	25							
McPherson	375							
Oklahoma	257	2						
Western Kansas				65		25		
Total Known Destinations	3039	56	60	89	232	410	2	7
Unknown Destinations								
Total Shipments	3039	56	60	89	232	410	2	7

[a]No "other grain" destinations were designated.

Grain Shipped or Sold

During the period covered by the survey, 99 percent of the wheat leaving the country elevators was shipped.[1] This included shipments for sale or for storage and for relocation of Commodity Credit Corporation stocks. This would indicate that little wheat was sold locally for feed.

Corn shipped out of the local areas was 34.8 percent of the total corn merchandised. Grain sorghum shipments were 54.2 percent. The percentage of soybeans shipped was 96.9 and 19 percent of the other grains merchandised were shipped from the local community.

The amount of wheat shipments for sale totaled 77.5 percent. There was no significant difference between the types of organization concerning the percent shipped for sale.

One hundred percent of the corn shipped was for sale; 97.2 percent of the grain sorghum; and 96.2 percent of the soybeans shipped were for sale, also. Local sales and shipments accounted for 80 percent of receipts. Off-farm stocks as listed in Kansas Farm Facts in 1967 were 84 percent of 1968, substantiating the fact that grain storage increased from 1967 to 1968.[2]

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[1] Shipped, as used here, means out of the local area.

[2] Farm Facts 1967-68, Kansas State Board of Agriculture, page 37.

Processing and Custom Services

Cooperatives reported 19 elevators of 40 sampled, processing grain for sale. Fifteen independents of 40 sampled and 4 lines of 29 sampled reported processing grain for sale.

Cooperative processing was significantly larger than independent or line as the average size was 4,047 tons processed annually. This compares with 1,206 tons processed annually for independents and 1,312 tons processed by the 4 lines. Cooperative processing was relatively stable throughout the year, indicating that labor would not be available from this segment of the business to significantly contribute to peak labor periods such as receiving grain at harvest time. Cooperative monthly variation was only 8.7 percent of tons processed from the high month to the low month. Independent elevators indicated a somewhat higher percentage of variation at 14.5 percent. Only 4 lines indicated processing and their variation was 22.8 percent of tons processed annually.

No drying equipment for custom use was reported by cooperatives or independent elevators in the western third of the state. Two line elevators reported drying equipment in crop reporting district 1 and two reported in crop reporting district 7. For the state, 30 elevators reported drying equipment but

reported only drying 3,309 bushels as a custom service to others, resulting in a population total of 33,752 bushels.

Crop Drying in the United States in 1966 reported 12.1 million bushels dried in Kansas. Forty-five percent of this was dried by custom operators. Similar figures were presented for grain sorghums. Custom operators dried 57 percent of the 13.1 million bushels of grain sorghum which was reported dried.[1]

While the 1966 Crop Drying Report indicated a much higher amount of feed grain dried in Kansas by custom operators, the custom operators were not restricted to country elevators in the report.

Summary

Storage capacity has grown more rapidly in cooperative elevators than line or independent elevators. Cooperatives have utilized more concrete structures than the other type organizations. Cooperatives also receive 50 percent of the grain handled by country elevators in Kansas. Feed grain receipts originate from other than local areas. This indicates definite areas of production.

Trucks have captured a larger share of country elevator shipments for the 1954 to 1968 period. Insignificant amounts of

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[1] U.S. Department of Agriculture, Crop Drying in the United States, Stat. bulletin no. 439 (ERS/SRS, 1966).

wheat and soybeans were sold locally. Almost one-half of the grain sorghum and two-thirds of the corn was merchandised locally.

Processing volume is relatively stable from month to month indicating this activity is not a seasonal labor user. Additional information is needed to clarify the role of country elevators concerning drying.

CHAPTER V

ELEVATOR PERFORMANCE

Storage Utilization

Elevator revenue from storage has been declining in recent years. Present capacity to fulfill the storage function is more than adequate. This is evidenced by 1968 average utilization of storage capacity of only 41.2 percent.[1] Average utilization of storage capacity by crop reporting districts for 1954 and 1968 is shown in table 15.

Although not shown in table form, average utilization of storage capacity in 1961 was approximately equal to 1954 utilization. Thus, 1961 to 1968 is the period when storage utilization dropped considerably. Declining storage has created a need for elevators to search for other income producing means and accounts for lower 1968 utilization.

The capacity of country elevators has not been utilized to its fullest extent for storage. However, the present capacity may be needed to fulfill other functions. The harvesting period

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[1]Average utilization refers to the average inventory of grain on hand as a percent of storage capacity.

TABLE 15

AVERAGE UTILIZATION OF STORAGE FACILITIES
OF COUNTRY ELEVATORS BY CROP
REPORTING DISTRICTS,
1954 AND 1968

Crop Reporting District	Total Storage Capacity	Total Average Inventory	Percent Average Storage Utilization
		1954[1]	
1	10,361	9,218	88.97
2	14,412	12,779	88.67
3	6,425	4,779	74.38
4	18,624	16,272	87.37
5	28,335	26,705	94.25
6	9,406	5,557	59.08
7	37,217	29,392	78.97
8	31,542	27,949	88.61
9	7,720	3,153	40.84
State	164,042	135,804	82.79
		1968	
1	35,821	12,896	36.00
2	47,189	27,322	47.90
3	24,309	14,877	61.20
4	43,328	17,591	40.60
5	64,844	20,880	32.20
6	24,359	13,154	54.00
7	85,711	28,542	33.30
8	81,554	32,944	40.40
9	23,735	14,858	62.60
State	430,850	177,510	41.20

[1] Grain Marketing Statistics for the North Central States, June, 1958.

has shortened with the rapid mechanization and changes in harvesting methods. If transportation facilities were adequate to move harvested grain to terminals and processors as rapidly as received, the present capacity would not be needed. Grains have been piled on the ground in certain areas during recent harvest seasons because the elevators could not remove the grain as fast as it was received.

The elevators in the sample were asked if receiving or handling capacity limited receipts at any time in the past 5 years. Forty percent of the elevators interviewed indicated that receiving or handling capacity had limited receipts sometime during the past 5 years. Business organizations were noted as fifty-two percent of the line elevators, 42 percent of the cooperatives, and 30 percent of the independent elevators had receipts limited by handling or receiving facilities. Storage capacity was indicated by 15 percent as a limiting factor.

Forty-three of the 109 elevators reporting indicated that they were filled to 100 percent capacity sometime during the year. Thus, of the 43 that reached full capacity, 17 indicated that the grain was not moved out rapidly enough to facilitate receiving. Customers were turned away or alternative, temporary storage was needed such as piling grain outdoors. Table 16 shows peak inventories as a percent of capacity for each type organization.

TABLE 16

PEAK INVENTORY DISTRIBUTION BY ORGANIZATION
SAMPLE FIRMS 1968

Type Organization	0-24%	25-49%	50-74%	75-100%	Total
Cooperatives	0	6	7	27[a]	40
Independents	1	6	5	28[b]	40
Lines	2	2	7	18[c]	29
Total	3	14	19	73	109

[a] 16 Cooperatives indicated working 100 percent capacity.

[b] 12 Independents indicated working 100 percent capacity

[c] 15 Lines indicated working 100 percent capacity.

Fifteen elevators indicated that the leg had limited receipts, nine indicated that box cars were the limiting factor, three indicated labor and one indicated scales as the limiting factor from the 109 surveyed.

Elevator inventories reaching 100 percent varied across the state as evidenced in table 17. Crop reporting district 9 had 12 of the 17 elevators in the eastern one-third of the state that reached 100 percent capacity at some time during the year. The central area of the state was influenced by crop reporting district 2, which had 8 of the 16 elevators reaching 100 percent capacity sometime during the year.

Wheat continues to be the predominant commodity stored in elevators. Twenty-five percent of total capacity was utilized for wheat inventories. Six and eight-tenths percent of the total wheat stored in country elevators in 1968 was the elevator's own inventory. This compared with 1.7 percent in 1955.

Owned corn inventories equaled 26 percent of total corn inventories, grain sorghum equaled 27 percent and soybeans 23 percent for 1968.

Other grain inventories were composed of 59 percent elevator-owned inventories. However, this was only 130,000 bushels in the sample which compares with 704,000 bushels of owned inventory wheat (of 10,318,000 bushels total stored).

TABLE 17

PEAK INVENTORY BY AREA OF STATE
SAMPLE FIRMS 1968

Area[d]	0-24%	25-49%	50-74%	75-100%	Total
West	2	8	8	13[a]	31
Central	0	4	11	32[b]	47
East	1	2	0	28[c]	31
Total	3	14	19	73	109

[a]10 in West indicated reaching 100 percent capacity.

[b]16 in Central indicated reaching 100 percent capacity.

[c]17 in East indicated reaching 100 percent capacity. (12 of the 17 in East were in Crop Reporting District #9).

[d]Areas of the state are computed by totaling crop reporting districts in 1/3 of the state (see Fig. 2).

Total grain bank storage for the state was 4 percent of total inventories. Commodity Credit storage was 19.4 percent and farmer storage was 61.6 percent for all grains.

Summary of Grains Inventory

Average utilization of storage capacity declined during the 1960's. Only 41.2 percent of total storage capacity was utilized in 1968. Storage for farmers accounted for 61.6 percent of storage utilization followed by 19.4 percent for Commodity Credit storage, 15 percent for own inventories and 4 percent for grain bank.

Significant increases have taken place for farmer storage. In 1955, less than one-third of the wheat inventories were owned by farmers. Farmers reported having no corn or soybeans in commercial elevator storage in 1955. Farmers did, however, own one-third of the grain sorghum inventories.

In 1968, farmers owned over one-half of the corn in storage, over one-half of the grain sorghum, over one-half of the soybeans and 40 percent of the other grains reported.

Excess capacity is available to fulfill the storage function but due to the short harvest periods, excess capacity is not indicated for the gathering function with existing handling and transportation equipment. This is especially noticeable in the north central and southeastern parts of the state.

The 1954 data indicate that it is possible to receive and merchandise volumes in excess of capacity. Volumes handled in 1968 were less than absolute capacity. Performance could be improved if the fixed costs of the elevator operations were spread over larger storage volumes per plant. This could be accomplished with fewer plants or larger receipts. With excess production capacity in the farming sector and grain supplies exceeding demand, the farmer is a more plausible adjustment in the country elevator organization.

Trade Radius

By ignoring any spatial adjustments due to changing production patterns, trade radii studies suggest many future adjustments in country elevator's organization. The elevators sampled reported an average trade radius of 12.25 miles. The trade radius ranged from 17.4 miles in the west to 11.46 in the eastern third of the state.

With the average of 12.25 mile radius per elevator, the area covered is 471.19 square miles. The U.S. Census lists 50,271,117 acres in Kansas.[1] This is 78,549 square miles. With the average trade radius reported, only 167 plants would be needed to service the state. Over-lapping of plants' trade area

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[1] U.S. Census of Agriculture, Vol. I, Part 21 (Kansas, 1964).

accounts for the greater number of plants than reported by the normal trade radius.

The 1968 population of 1,113 would have only 70 square miles or 44,800 acres exclusive trade area. Production from an area of this geographical size would compound the reduced receipts of existing elevators.

There were 486 Kansas elevators of 300,000 bushel capacity, or larger, in 1968. The same period had 296 elevators of over 500,000 bushel size.

Using the midpoint of the size distributions in table 5 results in total capacity of 337,600,000 bushels for the 486 elevators. The same procedure results in 261,000,000 bushels capacity for the 296 elevators of over 500,000 bushel size.

Average turnover of 1.25 would allow the 486 elevators to handle the 1968 production. The 296 elevators of over 500,000 bushel capacity could handle Kansas receipts similar to 1968 with a 1.65 turnover.

If the numbers were further reduced to the 167 elevators suggested by the average trade radius of 12.25 miles, volume handled per elevator would be 2,548,900 bushels. Eighty-eight existing plants are over 1,000,000 bushels, therefore, the largest 167 plants could handle receipts of the magnitude of 1968 with turnovers near 3.0.

Receipts were limited by inadequate receiving facilities in 15 percent of the elevators in 1968. Boxcars were limiting in 8 percent of the cases. These limits suggest capacity to store until transportation moved the harvest peaks or receiving facilities may be factors which limit performance.

The foregoing statements indicate that the elevator facilitative functions could be served by 500 or fewer elevator plants strategically located. Receipts similar to 1968 could be handled without new facilities if harvest periods and deliveries remain near 1968 levels. If turnovers were near 1954 levels the population could be further reduced to 350 plants. CRD's 2 and 9 where high percents of small elevators are predominate would be the areas needing some entry.

Equipment Added Since 1961

Equipment additions costing over $2,000 were tabulated from the 1968 survey. Equipment added since 1961 discloses additions to grain storage capacity, changes or additions of other facilities, and specific shifts to equipment used for merchandising and custom services. Some degree of technological change can be shown by this data.

Each type of organization spent more for additional storage than any other addition. The next most popular addition

was feed mills. Independents and cooperatives ranked fertilizer equipment third.

For all elevators, 39.8 percent of funds expended on equipment purchases since 1960 was for storage, followed by 23.8 percent for feed mills, 19.3 percent for fertilizer equipment, 9.9 percent for other equipment and 7.1 percent for drying or aeration equipment.

The average cost of equipment added by the firms surveyed who had added equipment was $33,908. Cooperatives spent over twice the average. Cooperative expenditures were $71,575 for additional equipment since 1961. During the same period, independent elevators expended $28,275 and lines, $24,206 per elevator.

Table 18 indicates by Crop Reporting district the number of plants adding different types of equipment costing over $2,000.

Thirty-nine and eight-tenths percent of cooperative funds used for adding equipment were spent for additional storage by 22.5 percent of the plants, as shown in tables 18 and 19. Forty percent of the cooperatives added fertilizer equipment, 25 percent added feed mill equipment and 15 percent made drying or aeration additions. Miscellaneous items costing over $2,000 were added by 35 percent of the cooperatives.

Independent plants surveyed showed 40 percent adding storage compared with the cooperative 22.5 percent. Other plant

TABLE 18

NUMBER OF SAMPLE ELEVATORS PURCHASING EQUIPMENT
AFTER 1960 COSTING OVER $2,000

Crop Reporting Districts	1	2	3	4	5	6	7	8	9	Total Ks.
COOPERATIVES										
Fertilizer	0	2	2	1	2	1	2	5	1	16
Drying and Aeration	0	2	0	0	0	1	1	2	0	6
Feed Mill	0	3	0	0	1	1	1	4	0	10
Storage	1	1	2	0	0	1	0	2	2	9
Miscellaneous	0	3	0	1	4	0	2	4	0	14
INDEPENDENTS										
Fertilizer	0	2	2	0	0	2	0	1	2	9
Drying and Aeration	0	2	2	0	1	0	0	0	0	5
Feed Mill	2	2	2	0	0	2	0	1	1	10
Storage	0	4	3	1	0	4	0	1	3	16
Miscellaneous	0	2	2	0	0	4	0	1	3	12
LINES										
Fertilizer	0	2	0	0	1	0	0	1	0	4
Drying and Aeration	1	0	0	1	1	0	1	0	0	4
Feed Mill	0	0	0	1	1	0	1	0	0	3
Storage	1	3	0	0	2	0	1	1	1	9
Miscellaneous	0	0	0	0	2	0	0	1	0	3

TABLE 19

COST OF EQUIPMENT PURCHASED AFTER 1960 BY SAMPLE ELEVATORS (ITEMS COSTING $2,000 OR MORE) BY CROP REPORTING DISTRICTS

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
				(,000 omitted)						
				COOPERATIVES						
Fertilizer	0	41	140	40	40	68	102	194	45	670
Drying or Aeration	0	33	0	0	0	40	54	58	0	185
Feed Milling	0	92	0	0	10	65	296	343	0	806
Storage	14	90	276	0	0	150	0	171	240	941
Miscellaneous	0	38	0	10	62	0	52	99	0	261
				INDEPENDENTS						
Fertilizer	0	35	52	0	0	47	0	9	37	180
Drying or Aeration	0	16	32	0	1	0	0	0	0	49
Feed Milling	45	24	84	0	0	85	0	24	2	264
Storage	0	101	85	22	0	131	0	9	107	455
Miscellaneous	0	31	76	0	0	14	0	8	54	183
				LINES						
Fertilizer	0	46	0	0	2	0	0	9	0	57
Drying or Aeration	44	0	0	2	2	0	52	0	0	100
Feed Milling	0	0	0	14	28	0	8	0	0	50
Storage	155	134	0	0	27	0	156	0	0	472
Miscellaneous	0	0	0	0	9	0	0	14	0	23

additions were for: miscellaneous equipment, 30 percent; feed mill equipment, 25 percent; fertilizer equipment, 22.5 percent; and drying or aeration equipment, 12.5 percent.

The line elevators indicated 17.5 percent added storage, 10 percent added fertilizer equipment and 10 percent added drying or aeration equipment while 7.5 percent added feed mill equipment and 7.5 percent added miscellaneous equipment.

For Kansas, 32 of the elevators surveyed added storage capacity costing over $2,000 from 1961 to 1968. The next most popular addition was fertilizer equipment followed by feed mill and drying or aeration equipment. Twenty-nine plants indicated adding miscellaneous equipment to their operations. This is distributed over many items such as legs, scales, trucks, non-grain storage warehousing, et cetera.

Expansion of expenditures for the state indicate the following Kansas country elevator expenditures by items costing over $2,000 for the period 1961 to 1968:

Storage	$19,053,000
Feed Mill	11,424,000
Fertilizer	9,251,000
Miscellaneous	4,763,000
Drying or Aeration	3,406,000
Total	$47,897,000

The total divided by the average number of elevators for the period results in $36,843 spent per elevator.

Elevator operators recognize the need for additional drying equipment. The survey showed that 3 plan to add drying equipment in the next 3 to 5 years and stated they expect to receive more high moisture grain. This is also pointed out as 10 percent of the elevators in Kansas had personnel attending Grain Conditioning and Handling Conferences at Kansas State University in 1967 and 1968.[1]

Net equipment additions are impossible to accurately measure due to the nature of replacement versus new equipment. The nature of the survey results do indicate that elevators are not static in adopting new equipment. These expenditures then can be viewed as an indication of technological progress.

Summary of Equipment Added

Elevators continue to perform the gathering function for Kansas grain production; however, other functions performed by country elevators is changing. Aerated capacity of the elevators has increased to 55.7 percent of total capacity. As shown in Chapter III, plant capacity has increased. This accounts for storage being the equipment most often added since 1961. Merchandising of farm services and farm supplies has been increased

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[1]Grain Conditioning and Handling Conferences, KSU Extension, Manhattan, Kansas. Sept. 23, 1967 and Sept. 8, 1968.

substantially by the addition of fertilizer, feed mill and other equipment.

Economic Structure

Developing a solid capital structure is one of the most important problems facing any business. Cooperatives, lines, or independents will die a slow but sure death without adequate financing. Additions to elevator plants as a measure of the magnitude and direction of technological progress was previously discussed. Although grain storage additions were the predominant use of physical facility funds, other activities pursued by elevators are important. Elevators are searching for sidelines to replace reduced storage revenue. Elevator business organization does not determine success or survival. Success, whether in terms of net income, return on investment, growth or survival is determined by individual decision makers who capitalize on competitive advantages as they occur.

For any industry, long run variations in output can result from more or less intensive use of existing plants or from scale of plants or from some combination of these.[1] This is true in the elevator business. But increased output can be achieved by

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[1]Viner, Jacob "Cost and Supply Curves," Readings in Economic Analysis, Vol. II, edited by Richard V. Clemence, Addison-Wesley Press, Inc., New York, 1950.

the individual firm only if exogenous constraints are not placed upon the industry. Examples of limiting factors are: limited production from the farming industry, limited demand, or limited transportation (which would tend to maintain short term country storage). The latter limits Viner's intensive use of all existing plants for grain merchandisers in the country grain elevator business. Expansion of individual plants is limited by prospective customer distance from the facility and other services offered at or near the elevator.

Long run cost curves or planning curves exhibit larger economies of scale in the lower volume ranges. Past studies indicate that long run average costs are reduced fairly rapidly in grain storage when elevator storage capacities increased from 100,000 bushel to 300,000 bushel. Beyond 300,000 bushels the long run curve flattens out and costs decline at a much slower rate.[1]

Cost curves indicate that costs decline from 10.21 cents a bushel for the 100,000 bushel elevator to 7.33 cents a bushel for the 700,000 bushel elevator--a decrease of almost 3 cents a bushel. The rate of decline is faster for the smaller sizes. Slightly more than two-thirds of the total decline occurred

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[1]Sorenson, Leonard Orlo, An Economic Analysis of Government Grain Storage Programs and Their Impact on Grain Market Organization In Kansas. Unpublished Ph. D. Thesis, University of Minnesota 1963.

between the 100,000 bushel capacity and the 300,000 bushel capacity. Costs only decline about one-half cent per bushel from 400,000 bushel capacity to 700,000 bushel capacity.[1]

Average capacity of country elevators in Kansas has increased from the time of McDonald and McCoy's study from 145,000 bushel to 387,106 bushel average size per elevator in 1968. Thus, according to their study, many of the economies of scale have been instigated in the country elevators of Kansas. Income from storage was also higher when their study was made, affecting the internal business organization as far as income producing segments are concerned.

Average inventory on hand in 1968, as a percent of capacity, showed available storage utilization to be 41 percent. Turnover, as related to capacity, was slightly greater than one as evidenced by receipts being 99 percent of capacity. Therefore external constraints concerning production and transportation, or internal limitations such as inadequate handling facilities, as evidenced by many elevator operator answers in the questionnaire, were limiting factors for amounts of grain received at harvest time. Additional work is needed to determine whether economies of scale can be obtained through mergers or consolidations to

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[1]McDonald, Eileen M., and John H. McCoy, Cost of Storing Reserve Stocks of Wheat at Country Elevators and on Farms in Kansas, USDA, AMS, Marketing Research Report No. 124, June 1956.

reduce the number of firms performing the marketing services required at country points.

1968 Income Data

The elevators were asked to provide information concerning net income, gross sales, and a break-down of the gross sales. All elevators providing financial information gave the amount of gross sales and grain sales. However, all elevators did not have a break-down of their gross sales into categories such as feed, seed, fertilizer, petroleum, and miscellaneous sale items. This would indicate that more detailed bookkeeping is needed for elevators to make meaningful managerial decisions from past information.

To determine the success of the business, as measured in terms of net income, four independent variables were enumerated to determine their effect on the dependent variable, net income. Correlation analysis was used by utilizing a step-wise regression computer program. Independent variables considered were gross sales, grain sales and storage capacity. Other sales were determined by gross sales minus grain sales.

Regression Results for Cooperatives

Grain sales were the predominant segment of gross sales. Grain sales comprised 69.1 percent of the gross sales.

The simple correlation coefficients for the independent variables were as follows: gross sales, .699; grain sales, .724; other sales, .530; and capacity, .321. Thus, 48.9 percent of the variation in net income was associated with variations in gross sales. Grain sales explained 52.4 percent of net income, other sales 28.1 percent and capacity only 10.3 percent.

Multiple regression considered various combinations of the variables. The results did not differ significantly as other sales, grain sales or capacity were considered with gross sales. Although financial information was lacking for detailed studies to find the cause of variation in net income, it would appear that although gross sales are necessary for net income, they are not sufficient for net income.

Regression Results for Independent Elevators

Independent elevator analysis had the same general assumptions as the preceding section for cooperatives. However, the amount that the dependent variable, net income, can be explained for independents varied significantly from the cooperatives. The net income variable for the independent elevator is explained as follows: gross sales, 32.3%; grain sales, 24.0%; other sales, 20.2%; and capacity, .1%.

Line Elevators

Financial information for the above type analysis was not available from local managers of line elevators because the plant managers indicated that the books were kept by their central offices. Information was available concerning physical capacity and movements as evidenced by survey findings on other subjects.

The elevators were asked to give their net income for the previous four years. This was not available in all cases and, therefore, was not tabulated. However, a normative view of those reporting indicates that net income has declined in the five years under consideration. This supports the evidence that merchandising, sideline and other activities may be necessary in the country elevator industry to maintain income at a level which will maintain and restructure a continued viable industry.

The foregoing regression would indicate that grain sales and gross sales would likely increase net income as their magnitude increased. The picture for other components of gross sales is not so clear. Profit prospects need to be clearly analyzed before it is assumed that higher gross income from other than grain sales will automatically raise net income.

This section supports the previous section which indicated fewer plants could service Kansas and be more efficient. It can

be implied that management could effectively concentrate on rapid turnover rather than invest in capacity as a means of increasing net income. Higher utilization of existing storage could also produce higher gross. Sidelines are positively correlated as measured by sales and if no internal diseconomies were present would increase gross and hence net income. After examining supply expectations in Chapter VI the implications for the future will become more evident.

CHAPTER VI

SUPPLY AND DEMAND FOR AGRICULTURAL PRODUCTS WITH GRAIN MARKETING IMPLICATIONS

The aggregate level of demand for agricultural commodities in the U.S. is made up of 2 major components:[1]

1. Domestic utilization
2. Export utilization

Food needs for domestic use in the United States are inelastic. The assumption made in this report is that changing per capita income in the U.S. will not change food demands greatly. It is also assumed that domestic increases in demand will come about from population changes. Changes considered will be from the present time until 1980. With birth rates currently at the lowest level in the history of the U.S., 17 plus per 1,000, the outlook for increases in domestic food use in the United States is rather small. The estimated population for the U.S. in 1980 is 243 million people.[2]

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[1] Food Needs and U.S. Agriculture in 1980, Aug., 1967, Vol. I.

[2] Leo M. Mayer and Earl Heady, Projected State and Regional Resource Requirements for Agriculture in the United States in 1980, Research Bull. 568, (June, 1969), p. 372.

With the foregoing assumptions that domestic food uses of agricultural products are rather stable, the major emphasis when looking at future demand for agricultural products should be viewed through possible U.S. exports and domestic feed use. In looking at world demand, several assumptions need to be made about such factors as population growth, agricultural growth, economic development and per capita income.

Caloric level is one of the ways to measure the uses of food products. As a guide post, U.S. consumers purchased 4,319 calories per capita in 1967. However, their consumption was determined to be 3,211 calories with 1,108 calories wasted. Japan currently consumes 2,424 calories; an increase from 10 years earlier of 2,124 calories.

Two-thirds of the world's people live in countries with national average diets that are nutritionally inadequate, considering proteins and fat, in addition to calories.[1] In the period 1959 to 1961, all of the less-developed countries in the free world were diet deficient except Argentina, Brazil, Chile, Mexico, Uruguay and Costa Rica. The average deficiency on a caloric level was 750 calories per day.

The nutritional standard of 2,400 calories required for normal activity and health is the basis for this deficit.

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[1] World Food Situation, FAS Report 35, (1967).

Table 20 shows the population and annual growth rate of the less-developed countries of the free world with projections to 1980.

Table 21 shows the developed and less-developed exporters and their grain production.

Consumer preferences and tastes should be noted when considering demand shifts. The past history of the U.S. and more recent history of certain European countries and Japan indicate that as income on a per capita basis increases, shifts will be away from the grains toward meat products. As per capita income is raised in the less-developed countries, these shifts to substitute products to fulfill individual preferences will also be influenced by background and other sociological aspects of the country under consideration.

Table 22 indicates the tons of grains needed in each of several countries using different assumptions. The combined excess food production capacity of all the developed countries in 1980 will be more than adequate to provide for the increased food import needs of the less-developed countries as shown in table 22. This is possible even if the less-developed countries do not improve their rates of growth and grain production. World surplus grain production capacity is projected to be about 30 to 34 million metric tons under historical trend projections. Grain surplus could go even higher if the developing countries do a

TABLE 20

POPULATION AND ANNUAL GROWTH RATE, LESS DEVELOPED COUNTRIES OF THE FREE WORLD, 1960-65 AND PROJECTIONS TO 1970, 1975, AND 1980

Country or region	1960 population (Millions)	Growth rate 1960-65 (Percent)	1965 population (Millions)	Growth rate 1965-70 (Percent)	1970 population (Millions)	Growth rate 1970-75 (Percent)	1975 population (Millions)	Growth rate 1975-80 (Percent)	1980 population (Millions)
India	432.6	2.4	486.8	2.4	546.8	2.4	615.1	2.2	685.8
Pakistan	100.2	2.6	113.9	2.6	129.3	2.6	146.7	2.3	164.3
Net grain exporters[1]	111.5	2.7	127.5	2.8	146.4	2.8	168.1	2.7	191.8
Other less developed countries	716.4	2.6	812.9	2.6	922.3	2.7	1,054.6	2.7	1,204.7
All less developed countries	1,360.7	2.5	1,541.1	2.6	1,744.8	2.6	1,984.5	2.5	2,246.6

[1]Argentina, Mexico, Burma, Thailand, and Cambodia.

Sources: 1960 and 1965 figures from Agency for International Development except for Nigeria. For Nigeria, United Nations estimates (52,000,000 to 57,500,000) were used instead of the AID estimates of 38,540,000 and 42,680,000. 1970 to 1980 figures from population projections prepared for the Food and Agricultural Organization's Indicative World Plan, adjusted by including Kashmir and excluding West Irian to make the projections comparable with the 1960 and 1965 figures, and by raising projections for Mexico and Thailand to bring them in line with the latest AID estimates of 1965 population.

TABLE 21

TOTAL GRAIN PRODUCTION IN THE DEVELOPED AND LESS DEVELOPED GRAIN EXPORTING COUNTRIES, 1956-66

Year	Developed exporters					Less developed exporters				
	United States	Canada	Australia	France	South Africa	Argentina	Mexico	Burma	Thailand	Cambodia
	(Million metric tons)									
1956	137.6	32.0	5.7	19.3	4.9	14.8	6.0	5.0	5.6	1.4
1957	148.2	22.7	4.3	19.5	5.4	11.5	6.4	4.1	3.8	1.5
1958	172.6	23.7	9.2	18.6	4.7	15.2	7.2	5.1	4.8	1.5
1959	168.3	24.5	7.5	21.9	5.1	15.0	7.4	5.4	4.8	1.7
1960	180.4	26.7	10.9	23.0	5.4	11.3	7.3	5.2	5.7	1.8
1961	162.6	16.8	9.1	20.7	6.7	13.6	7.5	5.3	6.0	1.5
1962	161.3	29.4	11.1	25.2	7.0	13.0	8.6	5.5	6.8	1.9
1963	173.6	34.3	11.7	25.3	7.4	17.0	9.0	5.7	7.6	2.0
1964	159.7	28.6	12.9	26.0	5.8	20.5	9.8	5.6	7.3	1.9
1965	181.8	32.4	9.5	29.1	5.8	13.6	10.6	5.7	7.3	1.8
1966	181.5	39.0	13.9	26.3	6.2	17.5	10.9	5.7	8.1	1.8

TABLE 22

WORLD CONSUMPTION OF GRAINS BY REGIONS; PROJECTIONS TO 1980 UNDER ALTERNATIVE ASSUMPTIONS FOR GROWTH IN PRODUCTION IN THE LESS DEVELOPED COUNTRIES OF THE FREE WORLD

Country or region	Historical trends I		Historical trends II		Moderate improvement in production[1]		Rapid improvement in production[2]	
	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)
Less developed countries:[3]								
India	120.0	175	122.6	179	125.0	182	127.4	186
Pakistan	30.0	183	30.7	187	31.0	189	31.8	194
Other less developed countries, excluding grain exporters	214.5	178	214.5	178	224.0	186	228.4	190
Subtotal	364.5	177	367.8	179	380.0	185	387.6	189
Net grain exporters	48.0	250	48.0	250	49.0	255	49.0	255
Total, less developed countries	412.5	184	415.8	185	429.0	191	436.6	195
Developed countries:								
United States[4]	205.5		205.5		205.5		205.5	
Developed exporters (less U.S.)	72.5		72.5		72.5		72.5	
Other developed free world	180.0		180.0		180.0		180.0	

TABLE 22--Continued

Country or region	Historical trends I		Historical trends II		Moderate improvement in production[1]		Rapid improvement in production[2]	
	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	Per capita consumption (Kg.)	Total consumption (Mil. Metric tons)	
Eastern Europe (incl. USSR)	231.4		231.4		231.4		231.4	
Total developed countries	689.4		689.4		689.4		689.4	
Communist Asia	192.5		192.5		192.5		192.5	
World Total	1,294.4		1,297.7		1,310.9		1,318.5	

[1]Assumes that the strong pressures for more emphasis on agriculture in less developed countries will have positive effects on agricultural production and consumption.

[2]Rate of growth on production increases to 4 percent by 1975 and continues at that rate to 1980; rate of growth in per capita disappearance increases to 1 percent by 1975 and continues at that rate to 1980.

[3]Projected growth in grain consumption in the less developed countries does not take account of the income effect that may result from interaction between the rates of growth in the agricultural and industrial sectors.

[4]Grain production in the United States is based on 186 million harvested acres in 1980, 150 million in 1964, and 158 million in 1970.

better job of increasing their food production as indicated in table 22. Surpluses of 63 million tons over world 1980 effective demand would be possible as with rapid production improvements.

Though the world has ample capacity for food production through 1980, the less-developed countries will have to increase food output at significantly higher rates in the future to avoid rapidly rising dependence on food imports and food aid. A continuation of past growth rates for food production in the less-developed importing countries would result in projected grain import requirements in 1980 of 60 million metric tons to more than double the 1964-65 imports. Although food imports of this magnitude could be met through expanded production in the developed countries, ways to finance a large portion of the imports would have to be found. Furthermore, the less-developed countries would have to develop the physical capacity to effectively import and distribute this much more grain.

Summary of World Supply and Demand

Supply and demand can be summarized in a short paragraph. The world food problem is basically one of disparity of food production and food availability between the developed and developing nations. The food problem is inseparable from the development gap problem between rich and poor nations. It is a

physical distribution problem with the poor lacking dollars to signal food needs.

U.S. and Kansas Future Production

The projections shown affect U.S. and Kansas production which in turn has a direct bearing on the grain handled by Kansas elevators. The goals of the United States are: (a) adequate farm income for American producers; (b) expanding commercial exports of American farm products; and (c) increasing the rate of growth in food production in the developing countries to stimulate better rates of economic development and to reduce the need for food aid.[1]

If acreage adjustment programs in the United States were discontinued, an additional 20 million acres would be needed over the 1967 level for export and domestic needs in 1980. Presently the U.S. has more than adequate production capacity to meet such needs. One important consideration is whether this country continues to pursue supply management programs or whether this function is distributed more broadly among other agricultural exporting countries. Under the first assumption, the United States grain exports would be a little above its historical share of about 50 percent of world trade and would require only

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[1] *Ibid.*

165 million acres for production. Assuming the supply management responsibility would be shared, the U.S. could use 186 million acres in grain production.[1] Either assumption leaves unused productive capacity in the farming sector for 1980. The problem reduces to one of choosing a feasible model for Kansas which will accurately reflect volumes of grain potentially available to country elevators.

Assuming a relatively stable domestic use for Kansas grain production necessitates estimating export demand as the most important variable affecting the amount of grain handled by Kansas elevators from variable farm production.

Mayer and Heady indicate that models simulating a competitive market would indicate a smaller total acreage of crops even though domestic and total demand increased to 1980.[2] The decrease would be possible even with an increase in domestic demand because feed grain yields increased, particularly corn. They projected national average yields of corn of about 100 bushels per acre by 1980 and Kansas yields of 79 bushels per acre. Mayer and Heady suggest that U.S. excess capacity would

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[1] Don D. Pretzer, article in Looking Ahead, Kansas State University, (October 17, 1967).

[2] Leo M. Mayer and Earl Heady, Projected State and Regional Resource Requirements for Agriculture in the United States in 1980, Research Bull. 568, (June, 1969), p. 386.

be 78.4 million acres compared with 1966 cropland retired under government programs of 55.4 million acres.

Under the same model, maintaining domestic demand but increasing exports along recent upper trends to 1980, results in an excess capacity of 47.0 million acres.

The same model, with the assumption that all agricultural resources are put in use and that all production in excess of domestic demand is exported through use of government subsidies or enlarged commercial demand results in increased acreage as follows: wheat 88.7 million acres, feed grain 94.4 million acres (66.8 million tons more production than in 1966), and soybean 58.6 million acres. The maximum 1980 feed grain acreage is 3.4 million fewer than in 1966 because yields increased. Increased feeding of wheat combines to fulfill the increased livestock feed needs.

Mandatory restraints with strict acreage quotas requiring a given proportion of cropland in each region to be moved from production and trend level exports was considered by Mayer and Heady.[1] This program resulted in 63.2 million acres for wheat, 96.4 million acres for feed grains, 42.2 million acres for soybeans. Excess capacity totals 38.0 million acres under the strict acreage quota model. Thus, strict acreage quotas reduce

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[1] Ibid., p. 402.

acres of unused cropland by approximately 10 million acres over models with trend level exports and no acreage controls.

Another model considered by Mayer and Heady was strict acreage quotas and termination of all export subsidy programs.[1] Exports of each crop are lowered to cash sale trend levels to indicate the estimated quantities that might move unsubsidized in 1980. Price is lower as lower level production requires fewer marginal acres. Export levels were 560 million bushels of wheat, 36.0 million bushels of feed grains and 17.0 million tons of oil meals. Acreage under these conditions would be 42.2 million for wheat, 43.7 million acres of feed grains and 33.8 million acres of soybeans. Excess capacity rises to 71.3 million acres.

Exports in 1968-69 and projections for 1969-70 indicate that the latter model discussed would seem more realistic for the next decade. Different assumptions may be used concerning agricultural production in the U.S., as modified by the developed and developing countries; however, projections for Kansas will be made assuming the model which encompasses acreage quotas and termination of export subsidies. Table 23 indicates the projected acres for 1980 along with yield and Kansas production. Although table 23 indicates there is only a slight increase in

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[1] Ibid., p. 408.

acreage, a comparison with the average production of raw grains in Kansas for the last several years (table 24) indicates a considerable increase in bushels produced due to the increase in yields. For the period from 1955 to 1967, Kansas production for wheat, corn, oats, barley, sorghums and soybeans combined was lowest in 1956 with 236,338,000 bushels. The highest production over this period was 594,090,000 bushels in 1960. The average for the period was 425,501,000 bushels.

TABLE 23

KANSAS ACRE AND YIELD PROJECTIONS 1980[a]
UNDER A FEED GRAIN TYPE PROGRAM
AND TREND LEVEL EXPORTS

Crop	Acres 1966	Acres 1980	Yield	Production 1980 (000)
Wheat	10,260	9,586	30	287,580
Feed Grains	4,275	4,395	63	277,600
Soybeans	917	2,022	23	46,506
Totals	15,452	16,003	--	611,686

[a]Leo M. Mayer and Earl Heady, Projected State and Regional Resource Requirements for Agriculture in the United States in 1980, Research Bulletin 568, (June, 1969), Ames, Iowa, p. 383.

Wheat production varied from a low of 100,111,000 bushels in 1957 to 290,640,000 bushels in 1960. Production in 1969 is estimated at 299 million bushels.

Thus Kansas grain production is estimated to increase 41 percent by 1980 from the 1955-67 average. Off-farm sales in Kansas for the four grains listed in this study have been near 80 percent. They range from near 60 percent for the feed grains to over 95 percent for wheat and feed grains. Eighty percent of the 1980 projected yield of 611,686,000 bushels would result in 489,348,800 bushels sold off farms. This compares with 1967-68 production of 462,050,000 bushels.

The implications are for some increases in country elevator receipts. This may be dampened somewhat by increased livestock feeding. Large feedlots buy directly from producers, thus bypassing country elevators.

Supply Summary

Kansas grain producers are in a relatively good position to increase production from the present until 1980. Kansas will continue to have excess acreage and the increased production will take place from increased yields. Wheat yields will be near the present levels, indicating that elevators situated in the major wheat producing areas of the state will continue to handle the volume of grain similar to that of the past several years. Therefore, they will continue to have excess capacity as far as storage function is concerned and in some areas will be limited in fulfilling the gathering functions due to the rapid harvest

period. The eastern area of the state, under the assumptions of production in table 23, may need to increase capacity to handle the increased feed grain and soybean production.

Feed grain production in irrigated areas, particularly southwest and southcentral Kansas, will see increased acreages of feed grain production, thereby creating a need for additional drying and handling equipment by elevators in these areas. Relatively unstable weather conditions will cause the flow of grain to vary greatly from year to year. This is evidenced in table 24 with the range shown by the high and low years during the period.

TABLE 24

AVERAGE AND RANGE OF ANNUAL PRODUCTION OF WHEAT, FEED GRAINS AND SOYBEANS, KANSAS 1955-67[a]

	Average 1955-67	Range	
		Low	High
Wheat	208,808	100,111 (1957)	290,640 (1960)
Feed Grain	212,593	90,032 (1956)	290,558 (1960)
Soybeans	11,792	2,461 (1957)	20,632 (1966)
Totals	433,193	192,604	601,830

[a]Kansas Farm Facts, selected issues.

CHAPTER VII

SUMMARY

Continuous adjustments have been taking place in the organization of Kansas country elevators. As these changes occur, current maps of the organization are needed for use by those with an active interest in the adjustment process. This need for factual information concerning the structure of Kansas country elevators was of primary importance in the instigation of this study.

Specifically, this study focuses on the changes that have occurred from 1954 to 1968. To complete the analysis, certain aspects of current performance were viewed in addition to structure, with implications for future elevator requirements considering 1980 Kansas farm production. The study is based on data from 1955, 1961, and 1968 surveys of a random 10 percent sample of the country elevator population. The survey information was stratified by the nine Kansas Crop Reporting Districts and by the type of business organization. The basic questions were analyzed with the use of the 360-50 computer. The computer was also utilized in the income regression analysis.

The period studied was characterized by reduced numbers of local elevators but an increase in total capacity, average capacity in 1968 was 387,106 bushels. The 1113 Kansas country elevators have a total storage of 430,850,000 bushels. This represents 56.7 percent of the off farm storage in Kansas. Results of the study verify more than adequate capacity when only considering storage. Average utilization was 41.2 percent in 1968 compared with 80 percent in 1954. Slight increases in storage for farmers were much more than offset by declining government storage. The shorter harvest periods and/or boxcar shortages at harvest caused several elevators to reach 100 percent of capacity for short periods of time.

Destination of shipments from country elevators did not change during the period under consideration. Line or cooperative marketing commitments were not the factors causing the static destination pattern as independent elevators, who had no marketing specific commitments concerning destinations, did not change during the same time span.

Local feed grain receipts in crop reporting districts 2, 5 and 8 were inadequate in 1968 to meet local demand. This was evidenced by receipts from other than farmers being much higher for these districts than for the remainder of Kansas.

Average size of elevators in terms of capacity in 1968 is on a less rapidly declining portion of the long run average

cost curve when using secondary data for economy of scale studies. However, utilization of facilities for merchandising as measured by turnover rates is low. Trade radii analysis suggest overlapping of trade territories and possible duplication of elevator facilities.

Regression analysis considered the effect of the independent variables; grain sales, gross sales capacity and other sales on the dependent variable; net income. Grain sales showed a high correlation with net income. Likewise, gross income which was composed of a large percent of grain sales showed a high correlation. Little correlation was found for capacity. Other income is income from other than grain sales. Low correlation was also found for other income. The magnitude of gross income from other than grain sales was not high enough to prove or disprove any hypothesis that services, sideline merchandising or processing is the panacea for higher net income.

Grain production was projected to remain rather constant for the next decade in Kansas. Domestic use has been stable and exports are predicted to level out due to less import demand in the importing countries.

Future industry adjustments will be made as an internal industry adjustment rather than adjusting to meet expected supply changes. Local production shifts to feed grains due to irrigation may be the exception but the state totals will be stable. Small

elevators, especially in crop reporting districts 2 and 9 will be more likely to leave the industry as harvesting adjustments are still taking place and older, smaller elevator facilities of these areas will need to be replaced.

Cooperatives have increased in numbers and capacity more rapidly than lines or independents over the period observed. The increase has been greater in capacity than number of firms. Cooperatives have over one-half of the country storage capacity in Kansas. Their capacity is composed of more permanent storage such as concrete elevators. However firm longevity as related to net income will not be dependent on capacity, as shown by the regression analysis.

The country elevators will continue as a viable factor in grain marketing. Adjustments will continue to take place. This study suggests that Kansas country elevators are adequately fulfilling the gathering function for Kansas producers. Efficiency of the industry could be improved by fewer plants with less duplication of trade territory. Fewer plants without increases in storage would indicate the need for more rapid receiving facilities and temporary storage or more rapid shipment from the local gathering facility.

New channels of shipments have not been observed over the 1964 to 1968 period. Lastly, adjustments to increase net income

by other than grain activities should be carefully studied before its initiation.

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APPENDIX I

The following tables are presented to provide details concerning the 1968 survey results. Parts of many of the tables have been presented in the main body of the thesis. However, they are attached here as to be available for those desiring data for additional implications. It is hoped they may serve as benchmarks for additional studies concerning Kansas Country Elevators.

TABLE A AVERAGE WHEAT INVENTORY, LAST CROP YEAR
In thousand bushels (000 omitted)

Bushels On Hand: Wheat Type of Organization - Cooperative

CRD		1	2	3	4	5	6	7	8	9	TOT
1	Own Inventory	117	0	5	41	0	0	32	11	10	216
2	Grain Bank	0	0	0	5	0	0	0	0	0	5
3	CCC	168	212	61	140	75	12	223	464	45	1400
4	Farmer Storage	100	493	319	454	400	38	625	1700	35	4164
5	Total	385	705	385	634	475	50	881	2175	90	5780

Bushels On Hand: Wheat Type of Organization - Independent

CRD	1	2	3	4	5	6	7	8	9	TOT
1	65	15	3	3	18	16	0	3	20	143
2	0	0	0	0	0	0	0	0	1	1
3	200	117	60	26	77	30	0	78	7	595
4	25	468	129	76	92	50	150	304	27	1321
5	290	599	192	105	187	96	150	385	55	2059

Bushels On Hand: Wheat Type of Organization - Line

CRD	1	2	3	4	5	6	7	8	9	TOT
1	15	0	0	123	174	33	0	0	0	345
2	0	0	0	0	0	0	0	0	0	0
3	90	180	0	232	22	0	70	156	0	750
4	235	250	0	115	265	42	335	143	0	1385
5	340	430	0	470	461	75	405	298	0	2479

All Elevators' Sampled

Total Wheat	1015	1734	577	1209	1133	221	1436	2856	145	10318

TABLE B AVERAGE CORN INVENTORY, LAST CROP YEAR
In thousand bushels (000 omitted)

Bushels On Hand: Corn Type of Organization - Cooperative

CRD	1	2	3	4	5	6	7	8	9	TOT
1	2	16	49	18	2	10	17	23	26	163
2	0	0	50	0	0	0	0	0	7	57
3	0	0	26	0	0	0	0	0	0	26
4	50	105	10	0	6	50	227	61	30	539
5	52	121	135	18	8	60	244	84	63	785

Bushels On Hand: Corn Type of Organization - Independent

CRD	1	2	3	4	5	6	7	8	9	TOT
1	0	70	20	0	20	54	0	0	61	225
2	0	0	0	0	0	7	0	0	10	17
3	0	41	35	0	0	0	0	0	0	76
4	0	47	124	0	0	0	24	0	10	205
5	0	158	179	0	20	61	24	0	81	523

Bushels On Hand: Corn Type of Organization - Line

CRD	1	2	3	4	5	6	7	8	9	TOT
1	5	7	0	0	0	1	0	0	0	13
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	55	0	0	55
4	5	0	0	0	0	0	135	0	0	140
5	10	7	0	0	0	1	190	0	0	208

All Elevators' Sampled

Total Corn	62	286	314	18	28	122	458	84	144	1516

TABLE C AVERAGE GRAIN SORGHUM INVENTORY, LAST CROP YEAR
In thousand bushels (000 omitted)

Cooperative

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	8	77	126	81	72	50	60	240	24	738
Grain Bank	0	0	20	17	0	0	460	15	1	513
CCC	0	0	0	0	2	0	0	0	0	2
Farmer Storage	6	143	206	0	77	75	998	132	30	1667
Total	14	220	352	98	151	125	1518	387	55	2920

Independent

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	5	41	21	0	20	110	0	16	38	251
Grain Bank	0	0	0	0	0	7	0	4	76	87
CCC	0	169	31	0	6	0	0	0	0	206
Farmer Storage	5	69	83	20	29	10	225	10	10	461
Total	10	288	135	20	55	127	225	30	119	1009

Line

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	3	73	0	100	65	0	44	0	0	285
Grain Bank	0	0	0	0	0	0	0	0	0	0
CCC	I2	0	0	0	0	0	100	0	0	112
Farmer Storage	3	72	0	50	20	0	210	25	0	380
Total	18	145	0	150	85	0	354	25	0	777

All Elevators' Sampled

Total Grain Sorghum	42	653	487	268	291	252	2097	442	174	4706

TABLE D AVERAGE SOYBEAN INVENTORY, LAST CROP YEAR
In thousand bushels (000 omitted)

Cooperative

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	0	0	2	0	1	0	0	0	12	15
Grain Bank	0	0	0	0	0	0	0	0	0	0
CCC	0	0	60	0	1	0	0	0	0	61
Farmer Storage	0	0	45	0	0	5	0	3	23	76
Total	0	0	107	0	2	5	0	3	35	152

Independent

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	0	0	2	0	0	10	0	0	28	40
Grain Bank	0	0	0	0	0	0	0	0	0	0
CCC	0	0	13	0	1	2	0	0	0	16
Farmer Storage	0	0	56	0	7	0	0	0	13	76
Total	0	0	71	0	8	12	0	0	41	132

Line

Crop Reporting District	1	2	3	4	5	6	7	8	9	TOT
Own Inventory	0	0	0	0	0	0	0	0	0	0
Grain Bank	0	0	0	0	0	0	0	0	0	0
CCC	0	0	0	0	0	0	0	0	0	0
Farmer Storage	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

All Elevators' Sampled

Total Soybean	0	0	178	0	10	17	0	3	76	284

TABLE E

Average Inventory on Hand of Grain other than Wheat, Corn, Grain Sorghum and Soybeans for the Last Crop Year, In Thousand Bushels (000 omitted).

COOPERATIVE

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
Own Inventory	0	3	12	1	0	2	0	26	22	66
Grain Bank	0	0	0	0	0	0	0	0	2	2
Farmers Storage	0	0	0	0	0	0	0	15	15	30
Total	0	3	12	1	0	2	0	41	39	98

INDEPENDENTS

Own Inventory	0	2	3	0	9	8	0	14	10	46
Grain Bank	0	0	0	0	0	0	0	0	1	1
Farmers Storage	0	0	0	0	11	0	0	15	0	26
Total	0	2	3	0	20	8	0	29	11	73

LINE

Own Inventory	0	1	0	0	0	0	0	0	0	1
Grain BAnk	0	0	0	0	0	0	0	0	0	0
Farmers Storage	0	0	0	0	0	0	11	7	0	18
Total	0	1	0	0	0	0	11	7	0	19

ALL ELEVATORS SAMPLED

Total Other Grain	0	6	15	1	20	10	11	77	50	190

TOTAL ALL GRAIN INVENTORY

Total All Grain	1119	2679	1571	1496	1472	622	4002	3464	589	17014

TABLE F

Bushels Wheat Received from Farmers
Last Crop Year (000 omitted)[1/]

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
COOPERATIVE										
Farmers	751	1269	655	1331	1600	195	868	4281	664	11614
INDEPENDENT										
Farmers	272	1115	696	198	463	562	250	1120	1206	5882
LINE										
Farmers	758	858	0	334	1220	175	504	770	0	4619

[1/] All of the country elevator wheat receipts were from farmers.

TABLE G

Bushels Corn Received from Farmers and Truckers
Last Crop Year (000 omitted)

COOPERATIVE										
Farmers	117	600	591	0	6	100	192	175	195	1976
Truckers	0	50	0	15	22	0	0	93	0	180
Total	117	650	591	15	28	100	192	268	195	2156
INDEPENDENT										
Farmers	1	517	756	0	20	211	48	0	311	1864
Truckers	0	800	0	0	0	50	0	2	54	906
Total	1	1317	756	0	20	261	48	2	365	2770
LINE										
Farmers	105	35	0	0	0	25	391	0	0	556
Truckers	0	25	0	0	40	0	0	3	0	68
Total	105	60	0	0	40	25	391	3	0	624

TABLE H

Bushels Grain Sorghum Received from Farmers and Truckers
Last Year Crop (000 omitted)

COOPERATIVE

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
Farmers	26	783	1175	407	223	450	1166	693	230	5153
Truckers	0	0	0	0	30	0	0	580	0	610
Total	26	783	1175	407	253	450	1166	1273	230	5763

INDEPENDENT

Farmers	5	564	1211	22	40	376	385	68	683	3354
Truckers	0	60	0	0	0	30	0	45	105	240
Total	5	624	1211	22	40	406	385	113	788	3594

LINE

Farmers	41	398	0	247	161	100	824	37	0	1808
Truckers	0	0	0	0	125	0	0	0	0	125
Total	41	398	0	247	286	100	824	37	0	1933

TABLE I

Bushels Soybeans Received From Farmers and Truckers
Last Crop Year (000 omitted)

COOPERATIVE

Farmers	0	0	393	0	3	50	0	27	366	839

INDEPENDENT

Farmers	0	12	455	0	8	286	0	3	500	1264

LINE

Farmers	2	2	0	0	3	0	0	4	0	11

TABLE J

Bushels Grain other than Wheat,Corn, Grain Sorghum and Sorghum Received from Farmers and Truckers last Crop Year (000 omitted)

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
				COOPERATIVE						
Farmers	0	0	35	4	0	5	0	167	52	263
Truckers	0	9	10	12	10	20	0	30	10	101
Total	0	9	45	16	10	25	0	197	62	364
				INBEPENDENT						
Farmers	6	7	21	0	21	27	0	104	41	227
Truckers	0	2	2	0	0	7	0	0	5	16
Total	6	9	23	0	21	34	0	104	46	243
				LINE						
Farmers	0	0	0	0	0	1	13	27	0	41
Truckers	0	6	0	0	2	4	0	0	0	12
Total	0	6	0	0	2	5	13	27	0	53

TABLE K

				Average Trade Radius in Miles						
Cooperative	12	11	8	16	7	12	18	12	15	12
Independent	20	10	11	27	7	8	25	14	13	12
Line	16	6	0	15	9	20	15	7	0	11
				Number Reporting Trade Radius						
Cooperative	2	5	5	3	6	1	5	10	3	40
Independent	2	6	3	2	4	8	1	4	9	39
Line	3	4	0	4	6	1	5	4	0	27

TABLE L

Average Maximum Volume in Bushels which can be Received in a Ten Hour Day (000 omitted).

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
Cooperative	19	57	46	51	46	50	108	88	33	64
Independent	48	31	32	35	40	20	70	60	23	33
Line	28	55	0	48	44	25	76	46	0	50
Number of Elevators Reporting										
Cooperative	2	5	5	3	6	1	5	10	3	40
Independent	2	5	3	2	4	8	1	4	9	38
Line	3	4	0	4	5	1	5	4	0	27
Total Bushels which can be Received in a Ten Hour Day[1/]										
Cooperative	38	286	234	154	280	50	540	880	101	2563
Independent	96	156	97	70	162	166	70	243	211	1271
Line	85	220	0	194	265	25	380	186	0	1355
Total Sample	219	662	331	419	707	241	990	1309	312	5189

[1/] 105 elevators reporting results in an expanding factor of 9.926, therefore, the population can receive 50,971,547 bushels per day if all were operating simutaneously.

TABLE M

Type: Wheat Sales or Shipments Last Crop Year (000 omitted)

COOPERATIVE										
Local Sales	0	0	0	0	0	0	118	0	0	118
Shipped Sales	725	578	505	961	520	160	1259	2066	494	7268
Shipped CCC	0	0	0	0	0	0	221	0	30	251
Shipped Storage	15	167	15	0	385	0	0	692	40	1314
Total Shipped	740	745	520	961	905	160	1480	2758	564	8833
Total Merchandized	740	745	520	961	905	160	1598	2758	564	8951
INDEPENDENT										
Local Sales	0	0	2	0	0	16	0	0	15	33
Shipped Sales	202	420	153	135	125	367	159	407	850	2818
Shipped CCC	0	0	0	0	0	5	0	0	0	5
Shipped Storage	0	64	13	0	165	90	0	230	324	886
Total Shipped	202	484	166	135	290	462	159	637	1174	3709
Total Merchandized	202	484	168	135	290	478	159	637	1189	3742

TABLE N

Type: Corn Sales or Shipments Last Crop Year (000 omitted).

COOPERATIVE

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
Local Sales	34	515	265	15	28	100	99	204	195	1455
Shipped Sales	83	115	133	0	0	0	0	9	0	340
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	83	15	133	0	0	0	0	9	0	340
Total Merchandized	117	630	398	15	28	100	99	213	195	1795

INDEPENDENT

Local Sales	1	188	267	0	20	136	48	0	174	834
Shipped Sales	0	165	282	0	0	109	0	0	151	707
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	0	165	282	0	0	109	0	0	151	707
Total Merchandized	1	353	549	0	20	245	48	0	325	1541

LINE

Local Sales	21	60	0	0	40	1	311	3	0	436
Shipped Sales	84	0	0	0	0	0	65	0	0	149
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	84	0	0	0	0	0	65	0	0	149
Total Merchandized	105	60	0	0	40	1	376	3	0	585

TABLE O

Type: Grain Sorghum Sales or Shipments, Last Crop Year (000 omitted).

COOPERATIVE

Local Sales	2	683	205	407	220	400	1937	1078	190	5122
Shipped Sales	24	90	970	0	0	50	1157	150	40	2481
Shipped CCC	0	0	0	0	0	0	93	0	0	93
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	24	90	970	0	0	50	1250	150	40	2574
Total Merchandized	25	773	1175	407	220	450	3187	1228	230	7696

INDEPENDENT

Local SAles	5	179	590	22	86	357	381	76	479	2175
Shipped Sales	0	115	232	0	40	94	4	0	249	734
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	30	0	0	0	0	0	0	30
Total Shipped	0	115	262	0	40	94	4	0	249	764
Total Merchandized	5	294	852	22	126	451	385	76	728	2939

LINE

Local Sales	16	260	0	247	189	20	120	22	0	874
Shipped Sales	25	130	0	0	368	0	554	15	0	1092
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	25	130	0	0	368	0	554	15	0	1092
Total Merchandized	41	390	0	247	557	20	673	37	0	1966

TABLE P

Type: Soybean Sales or Shipment, Last Crop Year (000 omitted)

COOPERATIVE

Crop REporting District	1	2	3	4	5	6	7	8	9	Total
Local SAles	0	0	10	0	0	0	0	0	0	10
Shipped Sales	0	0	127	0	3	50	0	108	316	604
Shipped CCC	0	0	0	0	0	0	0	0	50	50
Shipped Storage	0	0	0	0	0	0	0	0	0	00
Total Shipped	0	0	127	0	3	50	0	108	366	654
Total Merchandized	0	0	137	0	3	50	0	108	366	664

INDEPENDENT

Local Sales	0	0	0	0	0	10	0	0	30	40
Shipped Sales	0	12	310	0	5	301	0	3	484	935
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	3	0	0	8	11
Total Shipped	0	12	130	0	5	304	0	3	492	946
Total Merchandized	0	12	130	0	5	314	0	3	522	986

LINE

Local SAles	0	0	0	0	0	0	0	0	0	0
Shipped SAles	0	2	0	0	3	0	0	4	0	9
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	0	0	0	0	0	0
Total Shipped	0	2	0	0	3	0	0	4	0	9
Total MErchandized	0	2	0	0	3	0	0	4	0	9

TABLE Q

Type: Grain Sales or Shipments other than Wheat, Corn, Grain Sorghum or Soybean, Last Crop Year, (000 omitted).

COOPERATIVE

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
Local Sales	0	9	15	16	10	25	0	25	45	145
Shipped Sales	0	0	0	0	0	0	0	0	0	0
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	21	0	0	0	0	0	21
Total Shipped	0	0	0	21	0	0	0	0	0	21
Total Merchandized	0	9	15	37	10	25	0	25	45	166

INDEPENDENT

Local Sales	6	2	21	0	11	34	0	30	19	123
Shipped Sales	0	0	0	0	0	0	0	8	0	8
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped STorage	0	0	0	0	0	0	0	0	0	0
Total Shipped	0	0	0	0	0	0	0	8	0	8
Total Merchandized	6	2	21	0	11	34	0	38	19	131

LINE

Local Sales	0	1	0	0	2	5	0	0	0	8
Shipped Sales	0	0	0	0	0	0	0	27	0	27
Shipped CCC	0	0	0	0	0	0	0	0	0	0
Shipped Storage	0	0	0	0	10	0	0	0	0	10
Total Shipped	0	0	0	0	10	0	0	27	0	37
Total Merchandized	0	1	0	0	12	5	0	27	0	45

TABLE R

Average Number of Tons Processed Annually with Monthly Variation

COOPERATIVE

Crop REporting District	1	2	3	4	5	6	7	8	9	Total
Tons Annually	0	265	2000	4637	3000	2200	19600	2533	386	4047
Monthly Variation	0	50	0	416	75	600	200	494	155	353

INDEPENDENT

Tons Annually	0	487	1900	0	0	1283	0	543	1837	1206
Monthly Variation	0	0	0	0	0	0	0	250	150	175

LINE

Tons Annually	701	1300	0	1500	0	1750	0	0	0	1312
Monthly Variation	0	0	0	0	0	300	0	0	0	300

Number Elevator Plants Reporting Processing

COOPERATIVE

Tons Annually	0	2	1	3	1	1	2	6	3	19
Monthly Variation	0	1	0	3	1	1	1	5	2	14

INDEPENDENT

Tons Annually	0	3	2	0	0	3	0	3	4	15
Monthly Variation	0	0	0	0	0	0	0	1	3	4

LINE

Tons Annually	1	1	0	1	0	1	0	0	0	4
Monthly Variation	0	0	0	0	0	1	0	0	0	1

Total Tons Processed by Type Organization

COOPERATIVE

Tons Annually	0	530	2000	13611	3000	2200	39200	15200	1160	76901
Monthly Variation	0	50	0	1248	75	600	200	2470	310	4953

INDEPENDENT

Tons Annually	0	1463	3800	0	0	3850	0	1630	7350	18093
Monthly Variation	0	0	0	0	0	0	0	250	450	700

LINE

Tons Annually	701	1300	0	1500	0	1750	0	0	0	5251
Monthly Variation	0	0	0	0	0	300	0	0	0	300

TABLE S

Average Physical Volume Custom Services 1/

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
COOPERATIVE										
Grinding	0	1756	501	5400	1067	5000	13550	1850	1313	2887
Mixing Feed	0	865	501	5400	1350	5000	35200	1685	1313	3478
Drying Grain	0	120	250	0	0	0	200	134	10	150
INDEPENDENT										
Grinding	0	303	4100	0	0	400	0	696	5150	2743
Mixing Feed	0	303	4400	0	0	400	0	696	5022	2643
Drying Grain	0	93	233	0	200	25	0	2	12	87
LINE										
Grinding	0	1125	0	0	1400	1750	0	0	0	1360
Mixing Feed	0	1125	0	0	1400	1750	0	0	0	1360
Drying Grain	12	5	0	0	80	0	270	0	0	108

1/ Grinding and mixing reported in tons and drying in thousand bushels.

TABLE T

Number Elevator Plants Reporting Cusom Services

COOPERATIVE										
Grinding	0	3	2	2	4	1	2	8	3	25
Mixing Feed	0	3	2	2	2	1	1	7	3	21
Drying Grain	0	2	2	0	0	0	1	3	1	9
INDEPENDENT										
Grinding	0	3	3	0	0	2	0	2	5	15
Mixing Feed	0	3	2	0	0	2	0	2	5	14
Drying Grain	0	3	3	0	1	3	0	1	4	15
LINE										
Grinding	0	2	0	0	2	1	0	0	0	5
Mixing Feed	0	2	0	0	2	1	0	0	0	5
Drying Grain	2	1	0	0	1	0	2	0	0	6

TABLE U

Total Physical Volume for Elevators Reporting Custom Services[1/]

Crop Reporting District	1	2	3	4	5	6	7	8	9	Total
COOPERATIVE										
Grinding	0	5270	1002	10800	4270	5000	27100	14800	3940	72182
Mixing Feed	0	2597	1002	10800	2700	5000	35200	11800	3940	73039
Drying Grain	0	240	500	0	0	0	200	402	10	1352
INDEPENDENT										
Grinding	0	910	12300	0	0	800	0	1392	25750	41152
Mixing Feed	0	910	8800	0	0	800	0	1392	25110	37012
Drying Grain	0	280	700	0	200	75	0	2	50	1307
LINE										
Grinding	0	2250	0	0	2800	1750	0	0	0	6800
Mixing Feed	0	2250	0	0	2800	1750	0	0	0	6800
Drying Grain	25	5	0	0	80	0	540	0	0	650

[1/] Grinding and mixing reported in tons and drying in thousand bushels.

TABLE V

Average Gross Sales and Their Major Components of Gross Last Fiscal Year in Thousand Dollars (000 omitted)

COOPERATIVE										
Gross Sales	1015	692	1652	536	625	1650	1637	2049	1266	1398
Grain SAles	802	583	1078	327	375	950	1121	1314	894	935
Fertilizer Sales	137	0	225	81	18	335	173	250	119	181
Petroleum Sales	177	0	135	145	145	0	169	111	89	126
INDEPENDENT										
Gross Sales	311	291	968	173	217	632	769	816	743	609
Grain Sales	278	230	635	102	84	429	671	387	450	412
FertilizerSales	0	20	147	0	0	104	0	150	107	111
Petroleum Sales	0	0	0	0	0	0	0	0	0	0
LINE										
Gross Sales	0	0	0	0	0	400	224	447	0	324
Grain Sales	0	0	0	0	0	105	219	400	0	236
Fertilizer Sales	0	0	0	0	0	0	0	30	0	30
Petroleum Sales	0	0	0	0	0	0	0	0	0	0

TABLE W

Number Reporting Sales

Crop REporting District	1	2	3	4	5	6	7	8	9	Total
COOPERATIVE										
Gross Sales	2	3	3	3	2	1	5	8	3	30
Grain Sales	2	3	3	3	2	1	5	8	3	30
Fertilizer Sales	1	0	1	1	2	1	3	7	3	19
Petroleum Sales	1	0	1	1	1	0	3	8	3	17
INDEPENDENT										
Gross Saels	1	4	4	2	2	7	1	2	8	31
Grain Sales	1	2	4	2	1	4	1	2	7	25
Fertilizer Sales	0	1	3	0	0	4	0	1	7	16
Petroleum Sales	0	0	0	0	0	0	0	0	0	0
LINE										
Gross Sales	0	0	0	0	0	0	1	2	1	4
Grain Sales	0	0	0	0	0	1	2	1	0	4
Fertilizer Sales	0	0	0	0	0	0	0	1	0	1
Petroleum Sales	0	0	0	0	0	0	0	0	0	0

TABLE X

Physical Plant and Equipment Debt by Organization
In Thousand Dollars (000 omitted)

Cooperative	124	52	220	276	0	140	234	85	63	144
Independent	0	300	21	0	0	1	0	28	29	54
Line	0	0	0	0	0	0	200	0	0	200 1/

1/ Only one plant reporting.

Number Reporting Physical Plant and Equipment Debt

Cooperative	1	1	1	3	0	1	2	5	3	17
Independent	0	1	2	0	0	1	0	1	4	9
Line	0	0	0	0	0	0	1	0	0	1

TABLE Y

Average Working Capital REquired in Thousand Dollars (000 omitted)

Cooperative	2	3	4	3	2	1	4	7	3	29
Independent	1	5	4	2	1	6	1	1	8	29
Line	0	0	0	1	0	1	2	1	0	5

APPENDIX II

FUTURE RESEARCH POSSIBILITIES AND NEEDS

This section is added for a normative view, but a view tempered by the author's extension experience and answers given on the questionnaire, to aid the organization of future research. The elevator industry needs to organize their businesses to serve the functions which an efficient market system desires. There are many unanswered questions concerning the most efficient present and future country elevator organizations. The answers are also needed by universities and others seeking answers to generalities and specifics. Putting all the pieces together can benefit everyone with an interest in marketing.

Additional information is needed in several specific areas. One area concerns receiving capacity. A possible new approach would be to investigate the transportation means necessary to move grain from existing gathering points rapidly enough to reduce the need for country storage. Economies of scale indicate there are still many small country elevators which could be eliminated. Producers might be willing to transport grain a greater distance if the savings from the economies of scale were passed on to them.

Area planning could be done to indicate the most efficient locations in relation to crop producing areas. The survey radii studies are a case in point.

It would be hoped that location studies would shed additional light on the feedgrain import requirements of central Kansas. The projections concerning livestock numbers put forth by the Kansas State University Department of Economics need to specify the general areas of the state concerning the most probable growth areas.

There appears to be conflicting information on drying capacity in this study and others. This conflict needs to be resolved as well as some cost studies for Kansas conditions to present to producers and elevator operators so a rational choice can be made as to who will fulfill this role .... a role that is certain to increase in absolute and relative terms.

Economies of scale studies were quoted in this thesis. Others have been undertaken. "Today's technology", however, is no trite phrase. Studies ten years old certainly can be changed by today's technology. This is especially true with changing resource prices.

There were no clear cut opinions by the elevator operators as to what factors would or should be changed in the next few years to maintain a viable, or in some cases, salvage a subviable business.

Large investments have certainly been made in many "single purpose structures". Many of the costs are fixed for the very long period of time. Management appears fixed in many of the elevators. An attempt should be made to evaluate and value management. In many cases, present management would be expendable .... certainly not a fixed, single purpose, non-expendable item.

Studies of this type might indicate that management is in the irrational Region I of a production function with management as the single variable input.

Lastly, case studies are needed to demonstrate to economists, students and management that modern accounting methods are the first step in strengthening the profitable lines of any business and eliminating the unprofitable ones. Elevators with records to supply the kind of information needed for the case studies may be few and far between. The limited 1968 financial information was not as complete as desired, not because of lack of cooperation from the elevator people but from lack of records from which they could derive any plausible figures concerning breakdown of sales and expenses according to lines or enterprise.

An effective research program is not impossible; however, for universities to serve adequately with up-to-date information means a coordinated rather than a piece-meal effort. Staffing and carrying out this effort can be financed by industry and traditional sources if rapid, coordinate, confidential output is forthcoming in concise form identified as to source.

APPENDIX III

 Confidential

Kansas State University
Kansas Agricultural Experiment Station
Department of Economics

Country Elevator Schedule, S-1
1968

Date of interview_____

1. Elevator Name:_____

   Manager:_____

2. Town:_____ County:_____ CRD:_____

A. Organization and Facilities

1. Type of Organization:
   (a) Independent____, Partnership____, Proprietorship____, Corporation____.
   (b) Co-op_____, No. of plants_____, Headquarters_____,
   Other plants_____.
   (c) Line_____, No. of plants_____, Headquarters_____,
   (d) Branch_____, No. of plants_____, Headquarters_____,
   Other plants_____.
   (e)

2. Plant Facilities:
   (a) Date acquired_____ Cost(if after 1960)_____
   (b) Major additions since 1960:
   1. Mergers or consolidations:

   2. Facility or equipment purchase since 1960: ($2000 or greater)

Item	Year	Cost	Capacity	Comments

B. Grain Storage and Merchandising:

1. Grain Storage Capacity:
   a. Total Bulk_____ bu. Concrete Tank_____ bu., Steel Bins_____bu.
   Flat Buildings_____ bu., Other_____ bu.(define)_____
   _____.
   b. Capacity for working space:_____ bu.
   c. Aerated capacity_____
   d. Licensed capacity_____

2. Average number of bushels on hand of: (last crop year)

Kind of Grain	Wheat	Corn	Gr. Sorg.	Soybean
(a) Own inventory				
(b) Grain Bank				
(c) CCC Storage				
(d) Farmer storage				
(e) Other_____				
Total				

3. Peak Inventory of Stocks_____ bu., Month_____

4. What Rail is elevator on:_____
If none, how far to rail:_____

5. Bushels of Grain Received: (1967 Crop Year)

Source		Wheat	Corn	Grain Sorg.	Soybeans
Farmers (inc. CCC)					
Grain Handlers by:					
Rail:	origin				
	bushels				
Truck:	origin				
	bushels				
	origin				
	bushels				

(Use back of this sheet for additional origins from grain handlers).

6. What is your approximate normal trade radius? _____ miles.

7. What volume can be received in a 10-hour day? _____

8. Has receiving or handling capacity limited receipts at any time in the past 5 years? Yes_____. No_____.
(a) If yes, describe:_____

9. Bushels of grain merchandised or shipped for storage: (1967 crop year)

Kind of Grain	Wheat	Corn	Grain Sorg.	Soybeans
Sold Locally				
Shipped: For Sale				
For CCC				
For Storage				
Total Shipped				

10. Destination of Shipments:

Kind of Grain		Wheat	Corn	Gr. Sorghum	Soybeans
By Rail:	1. destination:				
	bushels				
By Rail:	2. destination:				
	bushels				
	3. destination:				
	bushels				
By Truck:	1. destination:				
	bushels				
By Truck:	2. destination:				
	bushels				
	3. destination:				
	bushels				
	Total				

(Use back of this sheet for additional shipment destinations).

11. Truck Rates:

Commodity	Low	High	Usual

12. Do you have any business or financial arrangements or agreements that influence where grain is shipped for sale?

Wheat: _____

Corn: _____

Grain Sorghum: _____

Soybeans: _____

Others: _____

C. Grain Processing and Services

1. Processed for Sale:
   (a) Is processing done: Yes_____ No _____
   (b) Tons annually _____; Monthly variation_____tons;;
   Peak Month_____.
   (c) Type licensed additives(Restrictions?)_____
   (d) Deliveries_____ Tons Sacked_____ Charge_____.
2. Custom Services:
   (a) Custom Grinding: Tons_____ Charge_____
   (b) Custom Mixing: Tons_____ Charge_____
   (c) Deliveries: Tons Bulk_____ Tons Sacked_____Charge_____
   (d) Custom Drying: Bushels_____ Charge_____
   (e) Other Custom Services:_____

D. Outlook:

1. What plans do you have to change your business in the next 3 - 5 years? (New services, new facilities, new products or product lines, services or products to be discontinued.)

_____

_____

_____

_____

_____

2. What trends do you see that will change the character of the grain business in the next 3 - 5 years?

_____

_____

_____

_____

_____

E. Financial Information:

1. Gross Sales $_____(last fiscal year).
   a. Grain Sales $_____
   b. Feed Sales $_____
   c. Seed $_____
   d. Fertilizer $_____
   e. Petroleum $_____
   f. Other farm supplies $_____
   g. Other(specify) $_____
   _____

2. Net Income(after taxes):
   Last fiscal year _____
   Previous years:
   a. _____
   b. _____
   c. _____
   d. _____

3. Debt:
   a. Physical plant and equipment debt_____
   b. Major source: Bank_____ Individual_____
      Equipment supplies_____ Other _____
   c. Working capital - required average:_____
   d. Major source: Banks_____ Individuals_____
      Grain firms_____Merchandiser suppliers_____

4. Tax value of real property_____, Tax appraisal year.
   Tax value of equipment_____ (exclude inventories).

5. Current cash price on wheat _____
   (Basis for pricing?)

6. Could we come back for more details?_____

The Organization of Country Elevators in Kansas

by

Don D. Pretzer

B.S., Kansas State College of Agriculture
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AN ABSTRACT OF A MASTER'S THESIS

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Manhattan, Kansas

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Kansas country elevators are business organizations operated to perform functions of assembling farm production, storing until time of demand and merchandising to demand locations. The elevators also merchandise farm production items and service. The country elevator industry has experienced some dynamic changes in recent years. Evidence indicates both short and long run adjustments will continue.

Decisions by the industry, processors, and millers concerning ongoing adjustments need a base from which to launch their efforts. Consumers and exporters also benefit by an industry which makes efficient and effective use of resources.

This study focuses on the current organizational description of country elevators and changes that have occurred from 1954 to 1968. The analysis includes certain aspects of performance and projections of future requirements for elevator services with implications for organizational changes.

The study is based on data from interview surveys of a 10 percent random sample of Kansas elevators. The interviews were taken in 1955, 1961 and 1968. The first two questionnaires were designed by the North Central Regional Grain Marketing Research Committee (NCM-10). The 1968 survey contained basically the same information as the earlier surveys plus data on net income, capital structure, trade radii and expected changes which managers think will occur in the next 3-5 years.

The basic information was arranged in appropriate matrix form with the 360-50 computer. From the matrix arranged by nine crop reporting districts and three organizations (cooperative, independent and line) stratified data could be obtained for several aspects of the Kansas elevator industry. A stepwise regression analysis was also run on the computer with net income as the dependent variable and gross sales, grain sales, other sales and capacity as independent variables.

The number of elevators in Kansas declined to 1,113 during the period studied. Shifts were from line to cooperative. Independents share remained relatively constant.

While numbers declined the average size increased to 387,106 bushel, resulting in country elevator total capacity of 430,850,000 bushel. This represents 56.7 percent of the off farm storage in Kansas.

The study verified that capacity to serve the short harvest gathering function was not adequate. The storage function is more than adequately served in terms of utilization as only 41.2 percent of total storage was utilized in 1968. This is in contrast to over 80 percent utilization in 1954. Elevator storage for farmers increased during the period studied.

Feed grain shortages appear in central areas of the state. Line shipments are influenced by parent organizations and cooperative have shipped to regionals. Freight rate changes did not alter shipment patterns by elevators studied.

Size of elevators have more nearly reached the perigee on their attainable long run total cost curves. However, if some economies of scale are still to be obtained, the elevator will need to move toward spatial monopolies if farmers will transport grain only a given distance to market.

Lastly, outlook concerning demand in the next decade for grain would indicate producers selling quantities similar to production of the last decade.