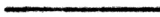


AN ANALYSIS OF SIDE LINES AND THEIR EFFECTS ON
NET OPERATING PROFITS OF KANSAS CO-
OPERATIVE ELEVATORS

by

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INTRODUCTION

Most of the cooperative elevators in Kansas were organized during the period 1913 to 1920, with a few dating back to 1900. These associations were organized primarily for the purpose of handling grain, but they gradually found it advantageous to handle a few side lines such as coal and feed, as a means of rendering a needed service to their members and also to meet competition from other elevators. It was found that the handling of side lines enabled the management to make more efficient use of labor and facilities, and thereby reduce overhead costs per unit of business handled. In some sections of the state where the potential volume of grain was limited, side-line enterprises were developed to furnish the association with a sufficient volume of total sales to maintain an active organization.

The importance of side lines has become more evident with the addition of oil products in recent years. Also, during the last two to three years of short crops, many cooperative elevator associations have had to depend upon side lines quite heavily as a source of income to apply on overhead expenses. Consequently, many questions arise as to what type of commodities are the most profitable as side lines in different sections of the state and to what extent

elevators could increase their side-line business with profitable results.

PURPOSE OF STUDY

The purposes of this study were: (1) to analyze side-line sales and gross profits to determine the different types of commodities handled as side lines by cooperative elevators in the southwestern and eastern sections of Kansas during the period, 1930-1934; to determine the value and trends in sales of each commodity during this period, and the relative profitableness of each item as shown by its gross margin and gross profit as compared to that of other side-line commodities; (2) to determine some of the effects the following factors pertaining to side lines had on net operating profits of the elevators: first, the percentages that side-line sales were of gross sales; second, the margins per dollar of side-line sales; third, the percentages that side-line gross profits were of the total expenses of the elevators.

The main differences in side lines and their effects on net operating profits between elevators in southwestern and those in eastern Kansas were determined.

It is hoped that such a study will provide practical information and conclusions which elevator managers and

others interested in cooperative elevator associations can use to advantage.

REVIEW OF PREVIOUS LITERATURE

Previous studies of cooperative elevators have considered the total business of the association from the standpoint of grain. Most of these studies were during the period, 1925-1932, and little consideration was given to side lines because of their minor importance as compared to grain during this time. A large volume of grain was available to handle, and oil products had not become an important side line.

Green and Ballow (6) studied five types of elevators in Kansas. They stated the principal advantage to be gained through cost reduction in the elevator comes from the better utilization of the time of the management and labor. The adoption of side lines to the grain business is sometimes looked to as means of accomplishing this result. Records were obtained on 59 elevators in 1921-1922 and 45 of these or 76 per cent handled some side lines. In 1922-1923, slightly more than one-half of 150 elevators studied handled side lines. In general, it was found side-line elevators made about as much net profit from side lines as from grain in 1921, but not in 1922. However, with com-

mercial and mill-line elevators, those not handling side lines, made more net profit or a smaller loss than the same type handling side lines. It was further stated that no conclusions could be drawn from the limited data on side lines. The information obtained showed that the single-unit elevator which must maintain its management and labor, regardless of volume of grain, may profitably include side lines. In the case of line-companies, it appeared that they could better afford to concentrate on the grain handling business.

Data compiled on the cooperative-line elevators showed that side lines constituted 12 per cent of gross sales in 1921. Gross profits were equal to 28 per cent of total gross profits and 27 per cent of total expenses. Approximately 14 per cent of total expenses were allocated to side lines, thus leaving an average net profit on side lines of \$575 per elevator. A loss of \$736 resulted from the grain business. Expenses were estimated by fieldmen with the assistance of the elevator managers.

In 1922, side lines were 16 per cent of the business; gross profits on side lines were 17 per cent of total gross profits and equal to 5 per cent of total expenses. The expenses allocated to side lines were 20 per cent of total expenses. An average loss occurred on side lines of \$155 per elevator and on grain of \$212 per elevator. Hence, in

both years the side-line business was more profitable than the grain business. The side lines were not analyzed to determine the various commodities and the sales of each.

A recent publication by Green and Rucker (7) shows that a majority of the higher-profit cooperative elevators in Kansas took a margin between cost and sales of side lines of 15 per cent or more on sales. The high-income group of elevators listed 87 per cent of its number with side-line costs 85 cents or less per dollar of sales; the medium-income group showed 59 per cent; and the low-income group showed 31 per cent of its number with side-line costs of 85 cents or less per dollar of sales. Their study of side-line sales and receivables showed that 4 out of 21 or 19 per cent of the elevators in the low-income group handled \$4 of side lines for each dollar of receivables; 25 per cent in the medium-income group and 39 per cent in the high-income group attained this standard.

Donaldson and Hemphill (4) found that some of the cooperative elevators in Colorado handle side lines because of an insufficient volume of grain business. Others handle them to more fully utilize the time of their employees. Also, some handle side lines merely as an accommodation to their members. Coal was the side line most frequently handled, with miscellaneous items such as twine, repairs, and hardware ranking second. In 1929, side lines of co-

operative elevators in Colorado constituted 26 per cent of gross sales. Expenses were allocated on the basis of the percentage of gross sales from side lines. The average net profit on side lines was \$2,169 per elevator while that on grain was only \$234 per elevator. In 1930, side-line sales constituted 19 per cent of gross sales, but the net profit on side lines averaged \$1,286 per elevator that year as compared to \$2,758 realized from grain. Some elevators showed losses on side lines each year but the data indicated that quite frequently the handling of side lines resulted in some profit and that if a loss occurred it was relatively small.

Ballinger (1) summarized the financial operations of a group of Oklahoma farmers' elevators for the period 1930-1932. The data revealed that side lines constituted 19.5 per cent of gross sales in 1930, 22.7 per cent in 1931, and 29.8 per cent in 1932. However, gross income from side lines averaged 33 per cent of the total gross income of the elevators each year. Income from side lines was equal to about 36 per cent of total expenses during this period. The average margin secured on side lines increased from 11.9 cents per dollar of sales in 1930 to 14.8 cents in 1931, but decreased to 14.2 cents in 1932. Expenses were not allocated to side lines in this study.

Bell (2) concluded that side lines are desirable for farmers' elevators in Montana under two different sets of conditions. First, where the volume of grain is insufficient for profitable operation on grain alone and second, where a successful farmers' elevator operated by a good business man has added side lines as a further service to its patrons. Side lines most commonly handled were flour, twine, coal, and mill feed. Oil products were handled successfully by two elevators studied. He reports that the average gross sales of side lines handled by Montana elevators was \$8,468 per elevator in 1926 as compared to the average in the United States of \$48,485 per elevator for that year. In analyzing the grain business, extra costs due to side lines were deducted.

Metzger and Price (9) concluded that while the handling of side lines makes possible a more complete utilization of buildings and labor, it does not substantially increase or decrease the cost of marketing grain under the usual conditions among elevators in Minnesota. The coefficient of correlation between total cost per bushel and per cent that side-line sales were of total sales was +0.18. They stated that side lines, when properly merchandised, do increase the total income, and thus increase the efficiency of the elevator business.

Price and Arthur (11) in a study of Minnesota elevators in 1925 found that 85 per cent of the elevators handled farm supplies. They included, in order of their importance, coal, feed, flour, twine, salt, seeds, implements, and miscellaneous items. More than 60 per cent handled coal, feed, and flour. In 1922, side-line business constituted 8.6 per cent of the total business. Usually the manager expected them to furnish a small amount of income above extra costs to help defray overhead and costs of the whole business. In most years, the gains and losses from side lines often meant the difference between a profit or a loss to the elevator. The selling of supplies for credit was listed as an important problem.

Post (10) divided side lines of South Dakota elevators into general and special side lines. The combined side lines usually averaged about 10 per cent of all sales. A distribution of general side-line sales during the 1926-1930 period showed 71 per cent of them consisted of coal, 12 per cent flour and feed, 9 per cent twine, 2 per cent salt, 1 per cent each for fencing and tankage, and 4 per cent miscellaneous. Expenses charged to handling of these side lines consisted of only extra expenses due to side lines. The gross income per dollar of side-line sales averaged \$.097 and expense \$.045, leaving a net income of \$.052 per dollar of total general side-line sales. Margins

or gross profit per dollar of sales of the various commodities were as follows: coal 11 cents, flour and feed 6 cents, twine 9 cents, salt 15 cents, fencing 9 cents, tankage 8 cents, and miscellaneous 9 cents per dollar of general side-line sales. Considering volume of sales, coal was the most profitable commodity. The gasoline-oil business was the most important type of special side-line business. It constituted 78 per cent of total special side-line sales with a margin of \$.178 per dollar of sales. The implement-hardware sales were 16 per cent and lumber 5 per cent of total sales. Margin per dollar of implement-hardware sales averaged \$.149 and that on lumber \$.150 per dollar of sales. The net income of total special side-line sales was \$.073 per dollar of sales. Handling of livestock and feed grinding were listed as services which furnished additional income from side lines.

Benton and Peightal (3) found that during the 1919-1925 period, farmers' elevators of North Dakota received 8.5 per cent of their income from the sale of side lines. More than 75 per cent of the elevators handled side lines, the most common ones being coal, wood, twine, seeds, flour, feed, machinery, and lumber. Coal and wood were the most profitable; lumber and machinery the least profitable.

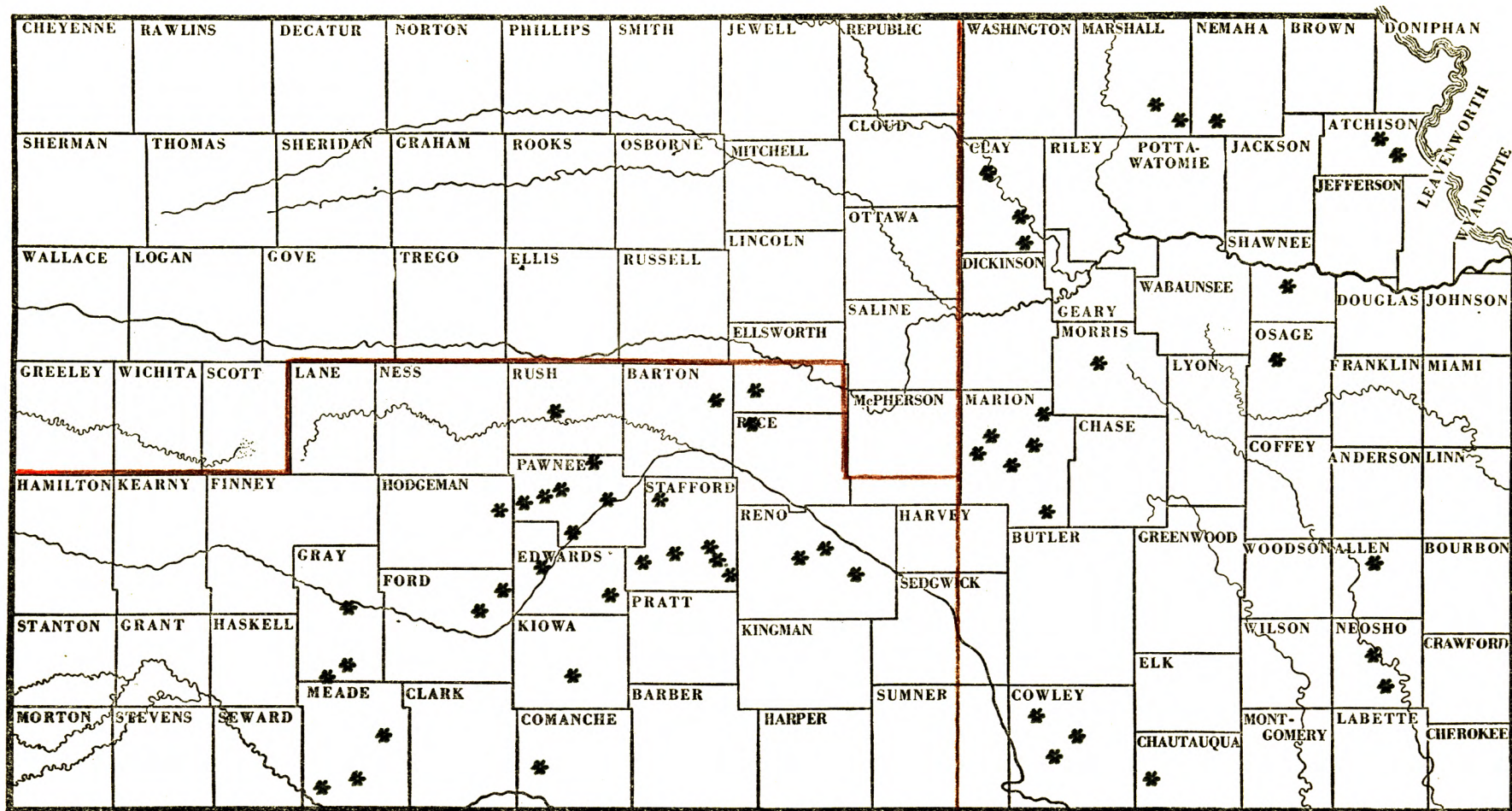
Froker and Price (5) questioned the advisability of Minnesota elevators handling bulk oil stations and tank

wagons. Six elevators handled this type of business as a side line in 1927. The writers stated that the peak load periods of the grain and oil business came at the same time of the year, and building and equipment demands were entirely different.

Knapp and Lister (8) reviewed the history of cooperative purchasing of farm supplies in the United States and in other lands. Legal phases, structure of farmers' cooperative purchasing associations, methods used in cooperative purchasing, and the financing of these associations are discussed. Also, some factors essential for their efficient operation and suggestions for organizing farmers' purchasing associations are included. A brief section was devoted to side lines as a part of the business of marketing organizations.

SCOPE AND METHOD OF PROCEDURE

This study was made of 32 cooperative elevators in southwestern Kansas and of 24 cooperative elevators in eastern Kansas for the period, 1930-1934. Figure 1 shows the location of the elevators included in the study. These were associations on which business analyses had been conducted by the Extension Division and the Department of Agricultural Economics of Kansas State College, Manhattan, Kansas. Records of the elevators were placed under number



Southwestern Kansas
Cooperative Elevators

Eastern Kansas
Cooperative Elevators

Fig. 1.—Location of Kansas Cooperative Elevators Included in the Study.

in the files of the Department of Agricultural Economics and served as the source of data for this study.

Cooperative elevators of northwestern Kansas were not included since their business was more or less a combination of the types found in eastern and southwestern Kansas. It appears that conclusions drawn from this study can be applied with qualifications to the elevators in the northwestern Kansas section.

The size of the sample of elevators for each section of the state was determined by the number of identical elevators for which five consecutive years' data were available. In all cases, data refer to crop years which are from July to June, inclusive.

A brief summary of the grain and side-line business of the elevators in the two sections of the state was included to show the main differences in the types of business and the trend of operating results during the five-year period, 1930-1934.

Side-line sales and gross profits of the elevators in both sections of the state were obtained from profit and loss statements and analyzed to determine the different types of commodities handled, the percentages of each, and the margins obtained on each item, or the relative profitability of the various commodities.

The remaining sections were devoted to the study of the relative effects side lines had on the net operating profits of the elevators during each of the five years. A preliminary study of the data was made by use of frequency distributions, scatter relationships, and graphic correlation studies. The elevators were arrayed and grouped into quartiles under four classifications or groupings, namely, side-line sales in percentage of gross sales, margins per dollar of side-line sales; side-line gross profits in percentage of total expenses; and net profit on operations. Quartiles were used so that the highest and the lowest 25 per cent of the elevators in each classification could be compared, and also the upper and lower 50 per cent of each group. The same number of elevators would always be in each group and open ends of the data were eliminated by this method. Statistical methods were used in studying the data by years and by various groupings of the elevators. The analysis proceeded along the comparative method and with the use of tables, charts, and graphs to support the discussion and conclusions.

Weighted averages were used predominantly, and in most instances they were near the medians in the case of percentages and margins. They were not representative of the trend of profits in a few cases or years, but these were discussed under sections dealing with marked yearly variations from

five-year averages of quartiles.

Relationship tables of side-line factors and the number of elevators showing profits or losses were compiled to show general effects of side lines and operating results. If net profits showed either a marked increase or decrease for the five-year period from the first to the fourth quartile when elevators were arrayed on the basis of side-line sales in percentage of gross sales, margins on side lines, or side-line gross profits in percentage of total expenses, even though many other factors were operating at the same time, then conclusions were drawn concerning the effects that any particular side-line grouping or factor had on net profits. However, before these conclusions were drawn, it was shown that the increase or decrease in profits was not due to other factors such as wide margins on grain, exceptionally large elevators with large overhead expenses, or an unusually large or small volume of business.

The most important factor or factors related to side lines were determined by observing the one showing the most effect on profits, or which increased or decreased with a corresponding change in profits, in all four groupings. The percentage or margin which was associated with the most marked increase in profits was determined by the results shown by the quartiles.

The effects of side lines on net profits on operations were selected instead of the effects on total net income. The latter included other income which consisted largely of storage revenue and rebates on wheat sold to terminal elevators, both of which were not related to side lines.

Expenses of grain and side lines were listed as total expenses on the records of the elevators and no attempt was made to allocate these expenses between grain and side lines and thus, determine the exact net profit on each. An accurate and reliable allocation would have required the assistance of the managers of the elevators, and the chief difficulty of this method would have been in estimating expenses more than one year previous to 1934 since data were studied for the five-year period, 1930-1934.

The method of allocating expenses on side lines on the basis of the percentage that side-line sales were of gross sales did not seem feasible for this study as the period of study included years in which grain sales were abnormally low as a result of crop failures, and declines in wheat prices were more severe than those in the prices of side-line commodities.

DEFINITION OF TERMS

For the sake of brevity and clearness of the discussion of data, the following definition of terms is included:

Side Lines - All commodities other than grain handled by the elevators.

Gross Sales - Total grain sales plus total side-line sales.

Gross Profit on Sales - Gross sales minus cost of gross sales. Cost of sales is determined by adding beginning inventory and purchases and deducting ending inventory.

Margin per Dollar of Sales - Gross profit per dollar of sales. One dollar of gross sale minus cost per dollar of gross sale.

Total Expenses - Total expenses of operating the elevator for one year. Includes both fixed or overhead expenses and operating expenses. Depreciation and bad debts written off are included but not interest on capital stock.

Net Operating Profit or Net Profit on Operations - The net profit on the actual buying and selling operations before other income is included. Determined by deducting total expenses from the gross profits on gross sales.

Other Income - Income not derived from buying and selling operations. Main sources of other income are revenue from storage of grain by local elevator, rebates on grain sold to terminal or regional organizations, income from grinding, rent, collection of bad debts, etc.

Total Net Income - Net profit on operations plus other income.

A BRIEF SUMMARY OF THE TOTAL GRAIN AND SIDE-LINE
BUSINESS OF KANSAS COOPERATIVE ELEVATORS
DURING THE PERIOD, 1930-1934

This section of the study presents a picture of the total grain and side-line business of the elevators each year for the period, 1930-1934, and the changes occurring during this time. A survey of the type of business of the elevators in each section of the state should serve as a basis for a better understanding of the relationship of side lines to grain merchandising during the period covered by this study.

Table 1 shows the averages of various profit and loss statement items for 32 identical cooperative elevators studied in southwestern Kansas, and Table 2 shows similar averages for 24 identical eastern Kansas cooperative elevators. The principal differences between the two groups

Table 1.—Financial Operations of Southwestern Kansas Cooperative Elevators
Averages of 32 Identical Elevators, 1930-1934.

	C R O P Y E A R									
	1930		1931		1932		1933		1934	
	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>
Gross Sales	310,646.28		215,537.74		121,016.42		99,095.60		153,946.03	
Side-line Sales	52,147.63		33,791.67		27,350.23		25,426.36		31,172.68	
Percentage of Gross Sales		16.8		15.7		22.6		25.7		20.3
Wheat Sales	253,309.10		179,120.32		91,520.77		68,788.53		116,351.65	
Percentage of Gross Sales		81.5		83.1		75.6		69.4		75.6
Other Grain Sales	5,189.55		2,625.75		2,145.42		4,880.71		6,421.70	
Percentage of Gross Sales		1.7		1.2		1.8		4.9		4.1
Gross Profit on Gross Sales	20,912.63		17,192.09		10,964.62		8,220.92		8,231.30	
Gross Profit on Side-line Sales	11,544.07		7,875.13		4,991.14		4,276.85		3,955.81	
Percentage of Total Gross Profit		55.2		45.8		45.5		52.0		48.1
Percentage of Total Expenses		83.3		65.7		48.0		54.1		52.2
Gross Profit on Wheat Sales	9,105.33		9,132.64		5,699.39		3,609.98		3,742.95	
Percentage of Total Gross Profit		43.5		53.1		52.0		43.9		45.5
Gross Profit on Other Grain Sales ..	263.23		184.32		274.09		334.09		532.53	
Percentage of Total Gross Profit		1.3		1.1		2.5		4.1		6.4
Salaries and Wages	6,471.15		6,072.34		4,725.94		3,736.55		3,630.07	
Percentage of Total Expenses		47.8		49.8		45.5		47.2		47.9
Percentage of Gross Sales		2.1		2.8		3.9		3.8		2.4
Total Expenses	13,528.45		11,995.26		10,395.18		7,911.51		7,583.68	
Net Profit on Operations	7,384.18		5,196.83		569.44		309.41		647.62	
Other Income	1,929.01		2,203.74		2,054.75		1,280.56		916.44	
Total Net Income	9,313.19		7,400.57		2,624.19		1,589.97		1,564.06	
	<u>Cents</u>		<u>Cents</u>		<u>Cents</u>		<u>Cents</u>		<u>Cents</u>	
Margin per Dollar of Gross Sales ...	6.73		7.98		9.06		8.30		5.35	
Margin per Dollar of Side-line Sales	22.14		23.30		18.25		16.82		12.69	
Margin per Dollar of Wheat Sales ...	3.59		5.10		6.23		5.22		3.22	
Margin per Dollar of Other Grain										
Sales	5.07		7.02		12.78		6.85		8.29	
Margin per Bushel of Grain Handled .	2.78		2.23		2.34		3.56		2.91	
Net Profit on Operations per Dollar										
of Gross Sales	2.38		2.41		.47		.31		.42	
Total Net Income per Dollar of Gross										
Sales	3.00		3.43		2.17		1.60		1.02	
	<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>	
Bushels of Grain Handled	337,440		410,149		248,023		108,787		146,847	
Average Capacity of Elevator	44,843		43,797		44,422		47,813		48,375	

Table 2.—Financial Operations of Eastern Kansas Cooperative Elevators
Averages of 24 Identical Elevators, 1930-1934.

	C R O P Y E A R									
	1930		1931		1932		1933		1934	
	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>
Gross Sales	92,092.15		60,608.94		45,174.32		63,033.96		98,390.35	
Side-line Sales	45,950.05		32,991.26		26,200.52		25,753.39		34,086.58	
Percentage of Gross Sales		49.9		54.4		58.0		40.9		34.6
Wheat Sales	27,157.20		18,589.36		14,256.58		26,873.89		41,243.72	
Percentage of Gross Sales		29.5		30.7		31.6		42.6		41.9
Other Grain Sales	18,984.81		9,028.31		4,717.22		10,406.68		23,060.05	
Percentage of Gross Sales		20.6		14.9		10.4		16.5		23.4
Gross Profit on Gross Sales	5,714.94		5,024.53		4,645.90		5,692.45		6,584.03	
Gross Profit on Side-line Sales	3,731.36		3,111.55		2,834.92		2,876.60		3,290.69	
Percentage of Total Gross Profit		65.3		61.9		61.0		50.5		50.0
Percentage of Total Expenses		53.9		49.5		49.3		51.4		54.8
Gross Profit on Wheat Sales	1,038.81		1,339.12		1,246.88		1,976.78		2,095.51	
Percentage of Total Gross Profit		18.2		26.7		26.8		34.7		31.8
Gross Profit on Other Grain Sales ..	928.11		573.86		564.10		839.07		1,197.82	
Percentage of Total Gross Profit		16.2		11.4		12.1		14.7		18.2
Salaries and Wages	--		3,236.24		2,806.79		2,587.63		2,657.75	
Percentage of Total Expenses		--		50.8		48.2		46.3		44.3
Percentage of Gross Sales		--		6.3		6.4		4.1		2.7
Total Expenses	6,925.88		6,285.15		5,751.89		5,594.89		6,003.64	
Net Profit or Loss on Operations ...	- 1,210.94		- 1,260.62		- 1,105.99		+ 97.56		+ 580.38	
Other Income	+ 661.12		+ 681.62		+ 626.17		+ 434.90		+ 562.80	
Total Net Income or Loss	- 549.82		- 579.00		- 489.82		+ 542.46		+ 1,143.18	
	<u>Cents</u>		<u>Cents</u>		<u>Cents</u>		<u>Cents</u>		<u>Cents</u>	
Margin per Dollar of Gross Sales ...	6.21		8.29		10.28		9.03		6.69	
Margin per Dollar of Side-line Sales	8.12		9.43		10.82		11.17		9.65	
Margin per Dollar of Wheat Sales ...	3.83		7.20		8.75		7.36		5.08	
Margin per Dollar of Other Grain										
Sales	4.89		6.36		11.96		8.06		5.19	
Margin per Bushel of Grain Handled .	3.60		3.23		4.00		4.53		4.48	
Net Profit or Loss on Operations per										
Dollar of Gross Sales	- 1.31		- 2.08		- 2.45		+ .15		+ .59	
Total Net Income or Loss per Dollar										
of Gross Sales	- .60		- .96		- 1.08		+ .86		+ 1.16	
	<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>		<u>Bushels</u>	
Bushels of Grain Handled	58,522		66,006		42,227		62,135		73,579	
Average Capacity of Elevator	15,304		15,634		14,386		16,326		16,326	

are mentioned in the following discussion.

The southwestern Kansas elevators handled a much larger volume of business and it followed a somewhat different trend during the 1930-1934 period. Gross sales of the southern elevators averaged \$310,646 per elevator in 1930; they declined to \$99,095 in 1933 and increased to \$155,964 in 1934. Gross sales of the eastern elevators averaged \$92,092 in 1930; they declined to \$45,174 in 1932 and increased to \$98,390 by 1934. Crop failures in southwestern Kansas accounted for the severe decline in gross sales while in eastern Kansas the volume of grain handled in 1934 exceeded that of any other year studied.

A noticeable feature was the fact that the value of side-line sales per elevator was approximately the same each year for both sections of the state, but they were responsible for a much larger portion of the eastern Kansas elevators' business. Side-line sales constituted 15 or 16 per cent of gross sales in 1930 and 1931, and 20 to 25 per cent of gross sales during the 1932-1934 period in the southwestern Kansas elevators. They fluctuated from 50 to 58 per cent of gross sales during 1930-1932 in eastern Kansas and were 35 to 40 per cent of gross sales in 1933 and 1934.

Margins per dollar of side-line sales were considerably larger in southwestern Kansas than in eastern Kansas.

In southwestern Kansas they declined from 22 cents per dollar in 1930 to 13 cents per dollar in 1934, while those of the eastern Kansas elevators were quite uniform each year, averaging 8 to 11 cents per dollar during the five-year period.

Gross profits on side lines varied from 45 to 55 per cent of the total gross profits of southwestern elevators and from 50 to 65 per cent of the total gross profits of eastern elevators. However, these profits on side lines were sufficient to cover a greater proportion of the total expenses of the elevators in the southwestern district than of those in eastern Kansas. They were equal to 60-65 per cent of the eastern Kansas elevators' expenses from 1930-1932 and to approximately 50 per cent of them in 1933 and 1934. A comparison showed that gross profits on side lines were equal to 83 and 65 per cent of total expenses of southwestern elevators in 1930 and 1931, respectively, and to about 53 per cent of them during the period, 1932-1934.

Expenses were somewhat larger for the southwestern elevators due to larger volume of sales and larger houses. The capacities of the individual elevators included in this study are shown in Table 3. The median of the eastern elevators was 10,000 bushels as compared to 20,000 bushels capacity for the southwestern elevators.

Net profits on operations followed an opposite trend

Table 3.—Kansas Cooperative Elevators
 Arrayed on the Basis of Capacity, 1934.

Capacity (Bushels)	Elevator Number	Capacity (Bushels)	Elevator Number
Southwestern Kansas Elevators			
10,000	47	23,000	34
10,000	32	23,500	1
15,000	33	25,000	2
15,000	15	25,000	31
15,000	11	27,000	37
15,000	10	30,000	12
15,000	9	31,000	28
16,000	4		
17,000	27	50,000	20
17,000	22	65,000	26
17,000	7	85,000	13
18,000	6	97,000	46
18,000	35	100,000	16
19,000	36	152,500	42
20,000	14	237,000	43
20,000	25	300,000	23
20,000	48		
Eastern Kansas Elevators			
*2,000	119	15,000	109
3,000	125	15,000	114
4,000	114	15,000	113
5,000	55	16,000	57
8,000	83	19,500	56
9,000	63	20,000	70
10,000	110	20,000	118
10,000	64	20,000	116
10,000	136	25,000	68
10,000	129	26,000	126
10,000	123	30,000	87
10,000	122	65,000	111

* No elevator, only a track loader and two bins.

in the two sections of the state. They declined from an average of \$7,384 per elevator in southwestern Kansas in 1930 to \$648 per elevator in 1934, while in eastern Kansas, the elevators had an average loss of \$1,200 per elevator from 1930-1932 and then realized profits of \$97 in 1933 and \$580 per elevator in 1934.

Other grains constituted a much larger part of the business of the eastern associations and margins per dollar on both wheat and other grain were more than those obtained by the southwestern elevators.

Side-line sales were never more than one-fourth of the business of the southwestern elevators, and gross profits on side lines usually equaled about one-half of the total gross profits. If one-fourth of the total expenses were charged to side lines, the net profit from side lines would greatly exceed that realized from grain. Apparently they were responsible for a substantial part of the net profit of these southwestern associations since they were usually such a small portion of gross sales, and yet, furnished such a large percentage of the income available to apply on total expenses. Side lines constituted approximately one-half the eastern elevators' business but furnished only about one-half the total gross profits.

While it seems reasonable to conclude by the yearly averages presented in this section of the study that a

larger per cent of the total net profits came from side lines in the southwestern elevators than in the eastern group, yet, side lines were of even greater importance to the eastern elevators. Side lines were usually responsible for about one-half of their total business, while in the southwestern region a larger volume of grain was generally available each year so that the same volume of side lines did not constitute more than one-fourth of the total business. It is apparent that the eastern elevators are dependent on side lines if a sufficient volume of sales is to be obtained to insure efficient and profitable operation or to permit them to even remain active organizations in short crop years. It appears that the southwestern elevators would have a much better chance of adjusting their operations so that profitable results might be obtained if no more side lines were handled than is possible by the eastern associations.

AN ANALYSIS OF SIDE-LINE SALES AND GROSS PROFITS

Southwestern Kansas Cooperative Elevators

Side-line sales were analyzed, first, to determine the various commodities constituting the side-line business, and the value and percentage each item was of total side-line sales; second, to determine the relative profitability of each commodity by calculating its gross margin per dollar of sales and the percentage that gross profits from each item were of total side-line gross profits; and third, to determine the trends in the percentage that sales of each commodity were of gross sales, and the margins per dollar of each side-line commodity.

In Table 4 the average dollar sales or percentage of each commodity is the average for those elevators actually handling or itemizing that particular item. The same method applies to the gross profits of the commodities. For instance, in 1931 oil product sales of 17 elevators averaged \$30,429 and in 1932 they averaged \$26,235 for 20 elevators. The same number of elevators apply to the charts represented by Figures 2 and 3.

Data of a detailed nature were available for the four-year period 1931 to 1934. However, in 1931, side lines

Table 4.—Analysis of Side-line Sales and Gross Profits of Southwestern Kansas Cooperative Elevators*
Data from 32 Identical Elevators, 1931-1934.

	C R O P Y E A R							
	1931		1932		1933		1934	
	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent
Coal:								
Total Sales	7,217.65		5,172.04		4,529.66		4,828.68	
Percentage of Total Side-line Sales		21.0		18.8		17.5		15.2
Gross Profit on Coal Sales	806.26		458.80		502.05		510.11	
Percentage of Gross Profit on Side Lines .		9.9		9.2		11.5		12.7
Number of Elevators Handling Coal	(26)		(29)		(31)		(31)	
Merchandise:								
Total Sales	7,665.89		6,120.56		7,569.33		13,565.72	
Percentage of Total Side-line Sales		21.1		20.9		28.1		38.9
Gross Profit on Merchandise Sales	761.50		658.93		738.11		880.78	
Percentage of Gross Profit on Side Lines .		9.2		12.7		16.2		20.2
Number of Elevators Handling Merchandise .	(18)		(18)		(22)		(22)	
Feed:								
Total Sales	10,980.56		7,808.82		7,391.76		10,439.75	
Percentage of Total Side-line Sales		21.4		27.2		17.6		22.0
Gross Profit on Feed Sales	1,430.60		904.91		837.13		827.76	
Percentage of Gross Profit on Side Lines .		10.9		21.6		11.7		13.9
Number of Elevators Itemizing Feed	(4)		(7)		(6)		(4)	
Oil Products:								
Total Sales	30,429.17		26,235.23		19,906.60		19,851.73	
Percentage of Total Side-line Sales		63.2		70.4		60.6		49.7
Gross Profit on Oil Product Sales	10,094.47		6,118.60		4,348.47		3,716.41	
Percentage of Gross Profit on Side Lines .		82.0		85.3		74.5		68.8
Number of Elevators Handling Oil Products	(17)		(20)		(22)		(22)	
Oil Products Itemized:								
Gasoline Sales	14,761.57		17,647.06		10,755.27		13,959.13	
Percentage of Total Oil Product Sales		68.4		82.4		67.0		75.8
Gross Profit on Gasoline Sales	5,281.57		4,232.92		2,606.02		3,070.36	
Percentage of Gross Profit on Oil Products		72.8		81.7		65.2		73.5
Number Itemizing Gasoline Sales	(6)		(10)		(7)		(9)	
Kerosene Sales	2,282.50		1,429.03		1,179.61		1,396.37	
Percentage of Total Oil Product Sales		10.0		7.9		7.4		8.3
Gross Profit on Kerosene Sales	849.26		489.13		482.64		389.83	
Percentage of Gross Profit on Oil Products		11.1		12.7		12.1		16.0
Number Itemizing Kerosene Sales	(4)		(5)		(7)		(7)	

Table 4.—(Con't.)

	C R O P Y E A R							
	1931		1932		1933		1934	
	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent
<u>Distillate Sales</u>	1,737.55		1,401.90		967.82		943.95	
Percentage of Total Oil Product Sales		6.9		9.7		6.7		14.4
Gross Profit on Distillate Sales	558.43		443.20		306.92		240.03	
Percentage of Gross Profit on Oil Products		6.1		16.4		8.7		13.7
Number Itemizing Distillate Sales	(3)		(3)		(6)		(5)	
<u>Oil and Grease Sales</u>	4,424.07		4,385.09		3,287.25		3,645.38	
Percentage of Total Oil Product Sales		20.5		20.9		20.5		21.7
Gross Profit on Oil and Grease Sales	1,134.68		955.97		646.46		865.33	
Percentage of Gross Profit on Oil Products		15.6		18.2		16.2		26.0
Number Itemizing Oil and Grease Sales	(6)		(6)		(7)		(7)	
<u>Accessories:</u>								
Total Sales	--		--		372.88		498.97	
Percentage of Side-line Sales		--		--		2.0		2.5
Gross Profit on Accessory Sales	--		--		40.46		39.58	
Percentage of Gross Profit on Side Lines .		--		--		1.1		1.1
Number of Elevators Handling Accessories .	(0)		(0)		(3)		(3)	
<u>Miscellaneous Side Lines:</u>								
Total Sales	520.52		329.91		151.50		7,142.83	
Percentage of Total Side-line Sales		3.0		1.4		2.5		11.7
Gross Profit on Miscellaneous Side Lines .	96.30		21.57		66.05		312.48	
Percentage of Gross Profit on Side Lines .		2.6		.4		12.8		5.5
Number of Elevators Handling Miscellaneous Side Lines	(4)		(3)		(1)		(2)	
<u>Total Side Lines:</u>								
Total Sales	34,089.42		27,638.65		25,426.36		31,172.68	
Percentage of Gross Sales		15.4		22.7		25.7		20.3
Gross Profit on Total Side-line Sales	8,113.93		5,036.51		4,276.85		3,955.81	
Percentage of Gross Profit on Gross Sales		46.4		45.6		52.0		48.1
Number of Elevators Handling Side Lines ..	(27)		(31)		(32)		(32)	

* The total sales, gross profits, and percentages, are the averages of those elevators actually handling or itemizing those commodities.

Table 5.—Margins Per Dollar of Side-line Commodity
Sales of Southwestern Kansas Cooperative Elevators
Data From 32 Elevators, 1931-1934.

	Crop Year			
	1931	1932	1933	1934
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Coal Sales	11.17	8.87	11.08	10.56
Merchandise Sales	9.93	10.77	9.75	6.49
Feed Sales	13.03	11.59	11.33	7.93
Oil Product Sales	33.17	23.32	21.83	18.72
Gasoline Sales	35.78	23.99	24.23	22.00
Kerosene Sales	37.21	34.23	40.92	27.92
Distillate Sales	32.14	31.53	31.71	25.43
Oil and Grease Sales ...	25.65	21.80	19.67	23.94
Accessory Sales	--	--	10.85	7.92
Implement Sales	21.27	13.48	18.25	13.02
Miscellaneous Side-line Sales	18.50	6.54	43.60	4.37
Total Side-line Sales	23.80	18.22	16.82	12.69

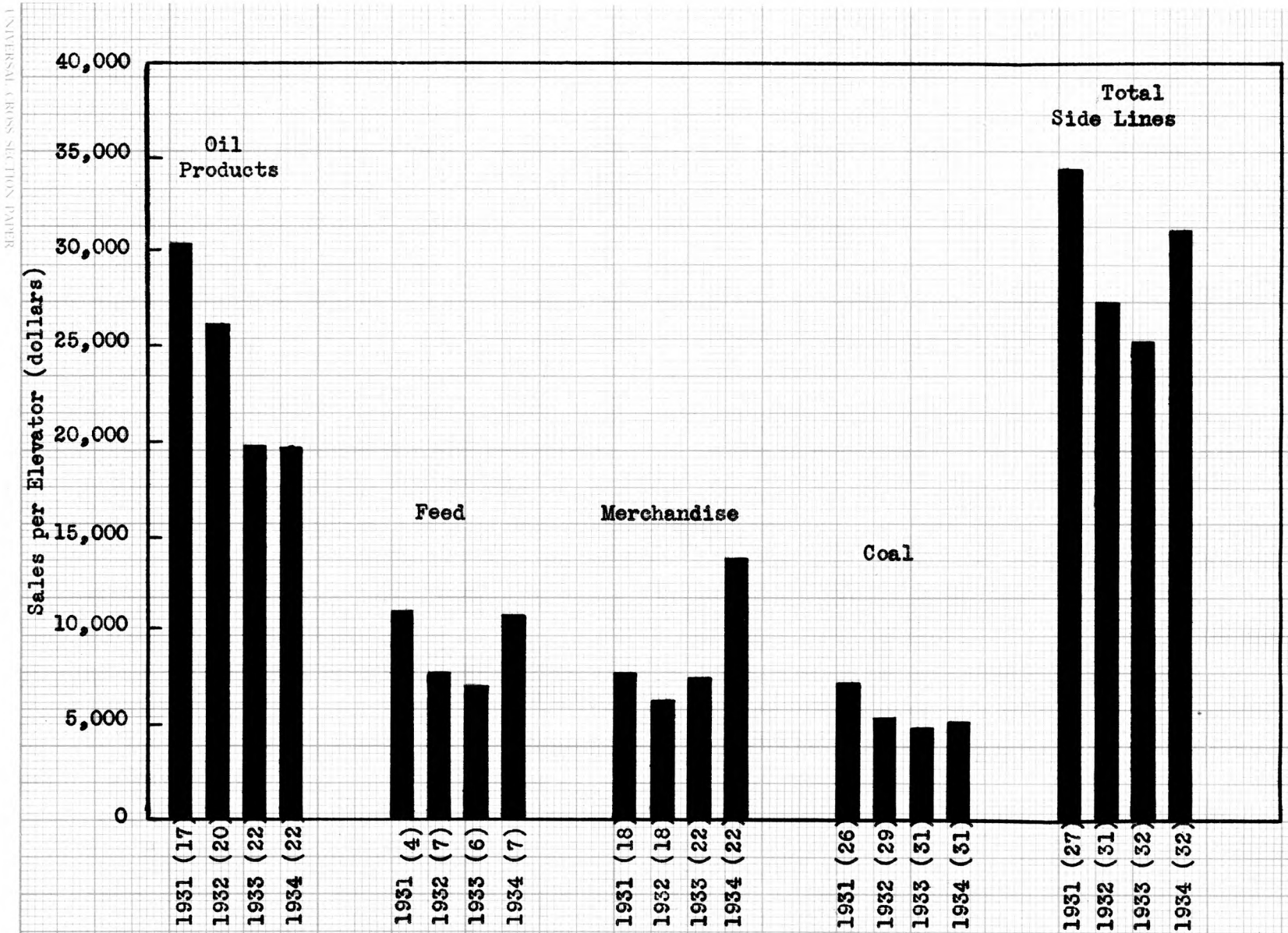


Fig. 2.—Average Sales of Side-line Commodities of Southwestern Kansas Cooperative Elevators, 1931-1934. (Numbers in parentheses refer to number of elevators itemizing each commodity.)

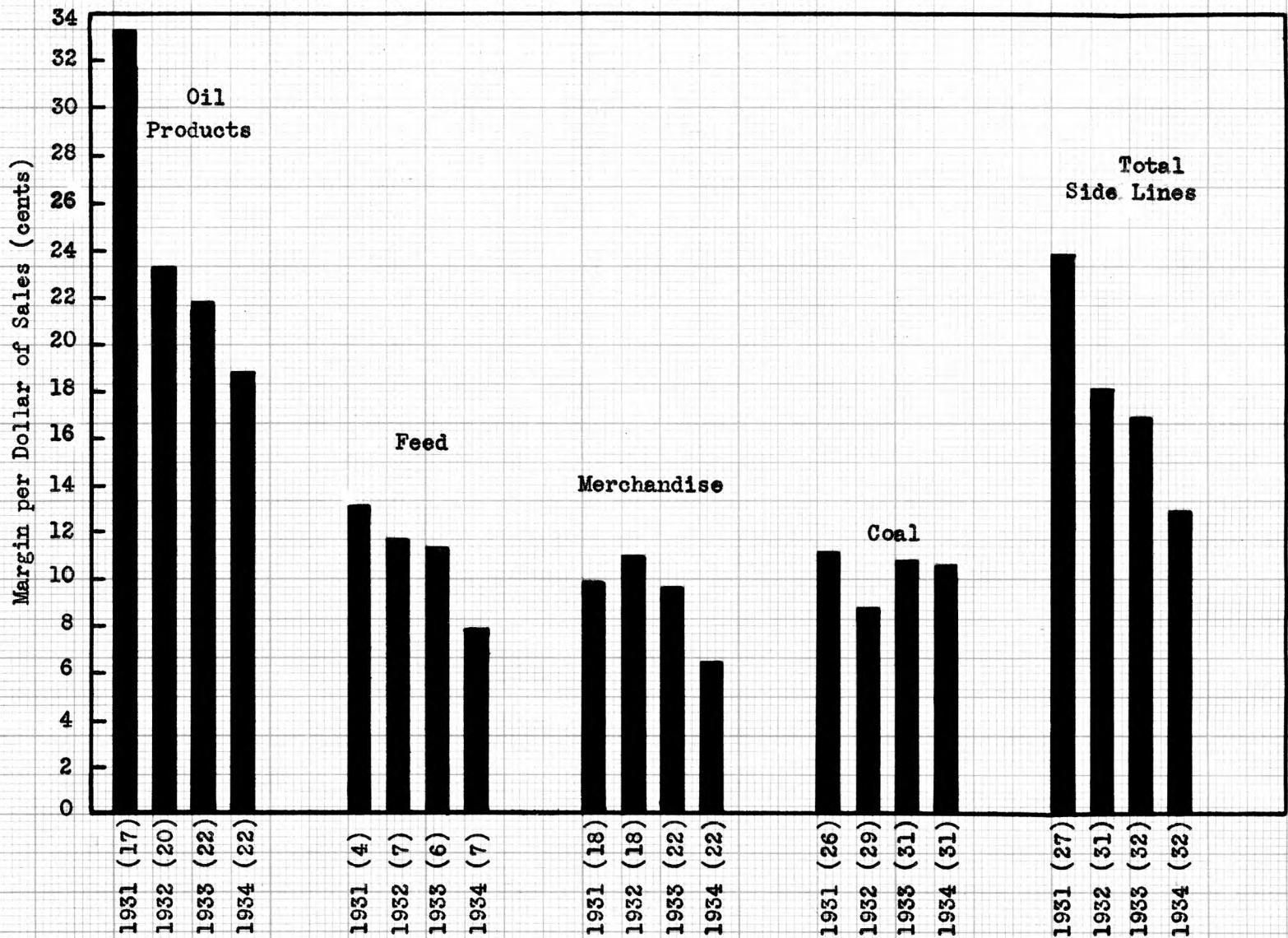


Fig. 3—Margins per Dollar of Side-Line Commodities of Southwestern Kansas Cooperative Elevators, 1931-1934. (Numbers in parentheses refer to number of elevators itemizing each commodity.)

were itemized in detail for only 27 of the 32 elevators and in 1932 for 31 of the 32 elevators. The 1933 and 1934 records were complete for all the elevators.

Coal was the commodity handled by most of the organizations. In 1931 there were 26 of the 27 elevators handling coal; in 1932, 29 of the 31; and in 1933 and 1934, 31 of the 32 elevators handled coal.

Oil and merchandise were about equal as far as the number of associations handling each were concerned. Of the 27 elevators itemizing side lines in 1931, there were 18 handling oil and 17 merchandise; of 31 elevators in 1932, 18 handled merchandise and 20 handled oil; and in both 1933 and 1934, 22 of the 32 elevators handled oil and merchandise.

Feed sales were itemized separately from merchandise sales by only four elevators in 1931; 7 in 1932; 6 in 1933; and 7 in 1934. During most of the above years about as many elevators handled feed as merchandise, but the majority did not separate the two commodities on their profit and loss statements.

Three elevators handled accessories in connection with oil in 1933 and 1934, and two associations handled implements in all four years. From one to four elevators listed other miscellaneous items during the 1931-1934 period.

Coal sales declined from 21 per cent of total side-line

sales to 15 per cent during the four-year period, 1931-1934. Margins or gross profits per dollar of coal sales averaged between 10 and 11 cents on the dollar except in 1932 when they were 8.9 cents per dollar, Table 5. However, the relative profitableness of coal as compared to other commodities improved. Gross profits from coal were equal to 10 per cent of total side-line gross profits in 1931, while in 1934 they constituted 13 per cent of the total side-line gross profits.

General merchandise sales in the southwestern Kansas elevators consisted principally of feeds, flour, seeds, twine, salt, wire, repairs, and various miscellaneous items. The value of merchandise averaged somewhat more than coal sales as shown by Figure 2. Sales of merchandise ranged from \$7,666 to \$6,120 per elevator from 1931 to 1933, but in 1934 they increased to \$13,566 per elevator. This increase consisted mainly of feed and hay sales as a result of the feed crop failure in that territory. Sales of merchandise in 1934 constituted 39 per cent of total side lines as compared to 28 per cent in 1933 and approximately 21 per cent in 1931 and 1932. Merchandise gross profits made up 9 per cent of total side-line gross profits in 1931; 13 per cent in 1932; 16 per cent in 1933; and 20 per cent in 1934. Margins per dollar of sales ranged from 9.8 cents to 10.8 cents per dollar during 1931-1933, and

dropped to 6.5 cents in 1934. This accounted for the smaller increase in the percentage of gross profits. It indicates the strong competition on the feed and merchandise sales existing during that year. An unusual situation causing narrow margins on these sales was the policy of the elevators to handle a large amount of the feed handled for relief agencies at as near cost as possible.

Associations listing feed separately handled slightly more than \$7,000 of feed sales per elevator in 1932 and 1933 and slightly more than \$10,000 in 1931 and 1934. This ranged from 17 to 27 per cent of total side lines, and gross profits on feed ranged from 10 to 21 per cent of total side-line gross profits. Margins declined from 13.0 cents on the dollar in 1931 to 7.9 cents in 1934.

The most important type of side lines handled by two-thirds of these elevators was oil products. They constituted 63 per cent of total side-line sales in 1931; 70 per cent in 1932; 61 per cent in 1933; and 50 per cent in 1934. However, the value of oil products the last two years was approximately the same -- averaging \$19,916 and \$19,852 per elevator in 1933 and 1934, respectively. The lower percentage was due to the increase in merchandise sales. The relative profitableness of oil products as a type of side-line business during the 1931-1934 period declined considerably. This was due not only to a decline in percen-

tage of sales but also to a marked decrease in margins from 33.2 cents to 23.3 cents per dollar from 1931 to 1932. They remained about steady in 1933 and then declined again in 1934 to 18.7 cents per dollar of oil product sales. Consequently, gross profits from oil fell from 85 per cent to 69 per cent of total side-line gross profits during this four-year period.

A small number of organizations itemized their oil product sales in detail. These data show that gasoline constituted two-thirds to three-fourths of the total oil product sales, and margins on gasoline were similar to the total margins on side lines in both amount and trend each year.

Kerosene sales were less than 10 per cent of total oil product sales and kerosene gross profits less than 15 per cent of the total each year. Margins were quite high, ranging from 34 to 41 cents on the dollar from 1931 to 1933, but dropped to 27.9 cents in 1934.

Distillate sales and gross profits usually averaged less than 10 per cent of total side-line sales and side-line gross profits during the four-year period. Margins on distillate sales averaged approximately 31 cents on the dollar from 1931 to 1933, but narrowed to 25.4 cents in 1934.

Oil and grease sales uniformly averaged around 21 per cent of total oil products each year, and their gross profits ranged from 15 to 18 per cent of the total gross

profits on oil products. Margins on oil and grease declined from 25.6 to 19.7 cents on the dollar from 1931 to 1933, and worked up to 23.9 cents again by 1934.

Since these records were available from only a few elevators, these are not sufficient data from which to draw conclusions or set up desirable standards for margins on different oil products. These data were included for what they may be worth as indications of the margins and the percentages of different types of oil products which constituted total oil product sales.

Accessory sales were of minor importance, and implements usually were responsible for 15 to 20 per cent of the total side-line sales and gross profits for the two elevators handling them. Margins obtained on implements varied from 13 to 21 cents per dollar. Miscellaneous items also were of minor importance and varied greatly each year.

Figure 3 presents the margins on total side-line sales and also those on each of the main commodities. The drop in total margins from 1931 to 1933 was due mainly to the narrowing of margins on oil products. The decline in 1934 was due to a lowering of oil, feeds, and merchandise margins. Coal margins remained the most steady throughout the four-year period.

Data were not available to determine the expenses of handling each item of side lines and hence the net profit

per dollar of each commodity.

From the standpoint of relative profitableness, oil products appear to be first. While more expenses were involved in the handling of oil products than for other commodities, yet, the margins and volume of this side line greatly exceeded those of other side lines. However, in many cases the gross profits on coal and feed were partly net profit since expenses of handling them were often included in cost of sales.

A Comparison of Southwestern Kansas Cooperative Elevators Handling Oil Products with Those Not Handling Oil Products as a Side Line. A separate analysis of those elevators with and without oil products as a side line was included in Tables 6 and 7. The average net profit or loss per elevator for each was as follows:

Year	: :Net Profit of Elevators: :Handling Oil Products	: Net Profit or Loss of : Elevators Not Handling : Oil Products
1931	\$8,050	\$+1,963
1932	2,367	-2,426
1933	606	- 343
1934	1,084	- 311

These data show distinctly more profitable results for the elevators handling oil products. Some of the main differences in favor of this group were: (1) Gross sales were

Table 6.—Financial Operations of Southwestern Kansas Cooperative Elevators Handling Oil Products, 1931-1934.

	Crop Year			
	1931	1932	1933	1934
Number of Elevators Handling Oil Products	(17)	(20)	(22)	(22)
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	256,862.97	143,744.49	101,419.80	165,505.50
Gross Profit on Gross Sales	22,761.47	14,864.53	9,772.56	9,777.33
Side-line Sales	48,171.54	38,164.23	32,882.75	39,320.76
Gross Profit on Side-line Sales	12,310.95	7,352.06	5,834.52	5,333.69
Wheat Sales	206,783.48	104,150.14	69,704.68	120,606.80
Gross Profit on Wheat Sales	10,256.21	7,248.85	3,698.36	3,878.38
Total Expenses	14,711.39	12,497.83	9,212.09	8,693.84
Net Profit on Operations	8,050.09	2,366.70	605.92	1,083.50
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales ..	18.8	26.6	32.4	23.8
Side-line Gross Profit in Percentage of Total Gross Profit	54.1	49.5	59.7	54.6
Side-line Gross Profit in Percentage of Total Expenses	83.7	58.8	63.3	61.4
Oil Products in Percentage of Total Side-line Sales	63.2	70.4	60.6	49.7
Gross Profit on Oil Products in Percentage of Total Side-line Gross Profit	82.0	85.3	74.5	68.8
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	8.86	10.34	9.64	5.91
Margin Per Dollar of Side-line Sales	25.56	19.26	17.74	13.56
Margin Per Dollar of Wheat Sales	4.96	6.96	5.31	3.22
Margin Per Bushel of Grain Handled	2.27	2.70	3.61	2.89
Net Profit on Operations Per Dollar of Sales ..	3.13	1.65	.60	.65

Table 7.— Financial Operations of Southwestern Kansas Cooperative Elevators
Not Handling Oil Products, 1931-1934.

	Crop Year			
	1931	1932	1933	1934
Number of Elevators Not Handling Oil Products..	(15)	(12)	(10)	(10)
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	168,702.49	83,136.29	82,982.36	128,515.17
Gross Profit on Gross Sales	10,880.12	4,464.77	4,807.33	4,830.02
Side-line Sales	17,494.49	9,326.88	9,022.32	13,246.89
Gross Profit on Side-line Sales	2,848.00	1,056.26	849.95	924.49
Wheat Sales	147,768.74	70,471.83	66,773.02	106,990.32
Gross Profit on Wheat Sales	7,859.26	3,116.96	3,415.56	3,445.02
Total Expenses	8,917.00	6,890.77	5,150.24	5,141.32
Net Profit or Loss on Operations	-1,963.13	-2,426.00	- 342.92	- 311.30
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales ..	10.4	11.2	10.9	10.3
Side-line Gross Profit in Percentage of Total Gross Profit	26.2	23.7	17.7	19.1
Side-line Gross Profit in Percentage of Total Expenses	31.9	15.3	16.5	18.0
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	6.45	5.37	5.79	3.76
Margin Per Dollar of Side-line Sales	16.28	11.32	9.42	6.98
Margin Per Dollar of Wheat Sales	5.32	4.42	5.12	3.22
Margin Per Bushel of Grain Handled	2.27	1.73	3.66	2.96
Net Profit or Loss on Operations Per Dollar of Sales	-1.16	-2.92	- .41	- .24

about 25 per cent larger; (2) Margins on gross sales and net profits per dollar of sales were materially higher; (3) Side-line sales were 2 to 3 times larger; (4) Margins per dollar of side-line sales were almost twice those when oil products were a part of side lines; (5) Total expenses were materially larger when oil products were handled, but gross profits on gross sales increased at a much faster rate than the expenses.

A further analysis of the largest-profit elevators which handled oil showed that their oil product sales were twice those of the lowest-profit group handling oil, and their margins on oil products were 4-5 cents more per dollar of sales.

Eastern Kansas Cooperative Elevators

The same method was used in analyzing side lines of the elevators in eastern Kansas as in the southwestern district, Tables 8 and 9. Average sales, gross profits, and percentages refer to those elevators actually handling that particular commodity.

Data of a detailed nature were available on these elevators for only the three-year period, 1932-1934. Side lines were itemized for the total 24 elevators all three years.

Coal and merchandise were the commodities handled by

Table 8.—Analysis of Side-line Sales and Gross Profits of Eastern Kansas Cooperative Elevators*
Data From 24 Identical Elevators, 1932-1934.

	C R O P Y E A R					
	1932		1933		1934	
	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>
Coal:						
Total Sales	2,646.73		1,971.35		1,836.03	
Percentage of Total Side-line Sales		10.4		8.9		6.5
Gross Profit on Coal Sales	409.28		270.00		225.69	
Percentage of Gross Profit on Side Lines .		16.8		12.5		9.2
Number of Elevators Handling Coal	(16)		(19)		(20)	
Merchandise:						
Total Sales	12,811.83		10,553.02		14,813.68	
Percentage of Total Side-line Sales		40.5		37.8		43.6
Gross Profit on Merchandise Sales	1,498.02		1,325.31		1,353.13	
Percentage of Gross Profit on Side Lines .		43.8		43.3		47.5
Number of Elevators Handling Merchandise .	(17)		(20)		(22)	
Feed:						
Total Sales	3,780.49		4,169.39		7,792.72	
Percentage of Total Side-line Sales		11.6		12.5		18.8
Gross Profit on Feed Sales	330.95		422.66		641.12	
Percentage of Gross Profit on Side Lines .		11.0		14.0		19.0
Number of Elevators Itemizing Feed	(12)		(11)		(12)	
Twine:						
Total Sales	781.93		504.11		652.95	
Percentage of Total Side-line Sales		4.9		3.6		3.5
Gross Profit on Twine Sales	54.39		57.23		65.03	
Percentage of Gross Profit on Side Lines .		3.4		3.9		4.2
Number of Elevators Handling Twine	(7)		(8)		(8)	
Produce:						
Total Sales	10,538.59		14,660.63		21,108.19	
Percentage of Total Side-line Sales		28.3		27.0		31.4
Gross Profit on Produce Sales	721.60		934.20		1,312.55	
Percentage of Gross Profit of Side Lines .		21.5		18.1		22.7
Number of Elevators Handling Produce	(7)		(8)		(8)	
Oil Products:						
Total Sales	23,508.18		19,795.50		15,745.09	
Percentage of Total Side-line Sales		51.2		49.2		38.8
Gross Profit on Oil Product Sales	3,425.65		3,384.62		2,052.91	
Percentage of Gross Profit on Side Lines .		60.1		56.1		42.6
Number of Elevators Handling Oil Products	(5)		(5)		(7)	

Table 8.-- (Con't.)

	C R O P Y E A R					
	1932		1933		1934	
	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>
Oil Products Itemized:						
<u>Gasoline Sales</u>	17,820.35		12,298.60		9,170.92	
Percentage of Total Oil Product Sales		61.9		51.7		76.8
Gross Profit on Gasoline Sales	1,918.73		2,047.95		942.27	
Percentage of Gross Profit on Oil Products		48.5		50.4		65.5
Number Itemizing Gasoline Sales	(3)		(3)		(5)	
<u>Kerosene Sales</u>	2,040.18		1,887.26		1,789.98	
Percentage of Total Oil Product Sales		7.1		7.9		9.3
Gross Profit on Kerosene Sales	475.04		493.69		289.38	
Percentage of Gross Profit on Oil Products		12.0		12.1		13.2
Number Itemizing Kerosene Sales	(3)		(3)		(3)	
<u>Distillate Sales</u>	433.50		723.20		1,036.18	
Percentage of Total Oil Product Sales		1.2		2.5		4.8
Gross Profit on Distillate Sales	122.31		185.44		165.61	
Percentage of Gross Profit on Oil Products		2.7		3.9		7.2
Number Itemizing Distillate Sales	(2)		(2)		(2)	
<u>Oil and Grease Sales</u>	6,523.84		2,035.82		1,647.59	
Percentage of Total Oil Product Sales		30.2		8.6		11.4
Gross Profit on Oil and Grease Sales	1,114.15		454.76		272.28	
Percentage of Gross Profit on Oil Products		37.5		11.2		16.6
Number Itemizing Oil and Grease Sales	(4)		(3)		(4)	
Accessories:						
Total Sales	--		1,796.53		5,331.47	
Percentage of Total Side-line Sales		--		2.3		5.1
Gross Profit on Accessory Sales	--		157.94		969.20	
Percentage of Gross Profit on Side Lines .		--		1.3		7.7
Number of Elevators Handling Accessories .	(0)		(1)		(1)	
Implements:						
Total Sales	8,074.65		7,956.53		12,772.36	
Percentage of Total Side-line Sales		12.2		14.2		20.1
Gross Profit on Implement Sales	552.33		827.25		1,644.00	
Percentage of Gross Profit on Side Lines..		9.1		15.9		27.8
Number of Elevators Handling Implements ..	(3)		(5)		(4)	

Table 8.—(Con't.)

	C R O P Y E A R					
	1932		1933		1934	
	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>	<u>Dollars</u>	<u>Per Cent</u>
Lumber:						
Total Sales	657.64		499.77		740.35	
Percentage of Total Side-line Sales		4.8		3.2		4.4
Gross Profit on Lumber Sales	115.22		102.34		83.66	
Percentage of Gross Profit on Side Lines .		11.8		6.3		3.7
Number of Elevators Handling Lumber	(2)		(2)		(2)	
Livestock:						
Total Sales	19,752.11		39,323.24		18,679.12	
Percentage of Total Side-line Sales		29.0		27.4		13.7
Gross Profit on Livestock Sales	534.85		985.35		212.94	
Percentage of Gross Profit on Side Lines .		8.1		8.5		1.6
Number of Elevators Handling Livestock ...	(3)		(1)		(2)	
Miscellaneous Side Lines:						
Total Sales	1,627.93		1,305.83		2,091.06	
Percentage of Total Side-line Sales		3.8		2.8		4.4
Gross Profit on Miscellaneous Side Lines .	191.79		153.06		205.26	
Percentage of Gross Profit on Side Lines .		4.9		4.1		5.5
Number of Elevators Handling Miscellaneous Side Lines	(6)		(5)		(6)	
Total Side Lines:						
Total Sales	26,200.52		25,753.39		34,086.38	
Percentage of Gross Sales		58.0		40.9		34.6
Gross Profit on Total Side-line Sales	2,834.92		2,876.60		3,290.69	
Percentage of Gross Profit on Gross Sales .		61.0		50.5		50.0
Number of Elevators Handling Side Lines ..	(24)		(24)		(24)	

* The total sales, gross profits, and percentages, are the averages of those elevators actually handling or itemizing those commodities.

Table 9.—Margins Per Dollar of Side-line Commodity
Sales of Eastern Kansas Cooperative Elevators
Data From 24 Elevators, 1932-1934.

	Crop Year		
	1932	1933	1934
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Coal Sales	15.46	13.70	12.29
Merchandise Sales	11.69	12.56	10.36
Feed Sales	8.75	10.14	8.23
Oil Product Sales	14.57	17.10	13.04
Gasoline Sales	10.77	16.56	10.27
Kerosene Sales	23.28	26.16	16.17
Distillate Sales	28.21	25.64	15.98
Oil and Grease Sales ...	17.08	22.34	16.53
Accessory Sales	--	8.79	18.18
Implement Sales	6.84	10.40	12.87
Lumber Sales	17.52	20.48	11.30
Livestock Sales	2.71	2.51	1.14
Twine Sales	6.96	11.35	9.96
Produce Sales	6.85	6.37	6.22
Miscellaneous Side-line Sales	11.78	11.72	9.82
Total Side-line Sales	10.82	11.17	9.65

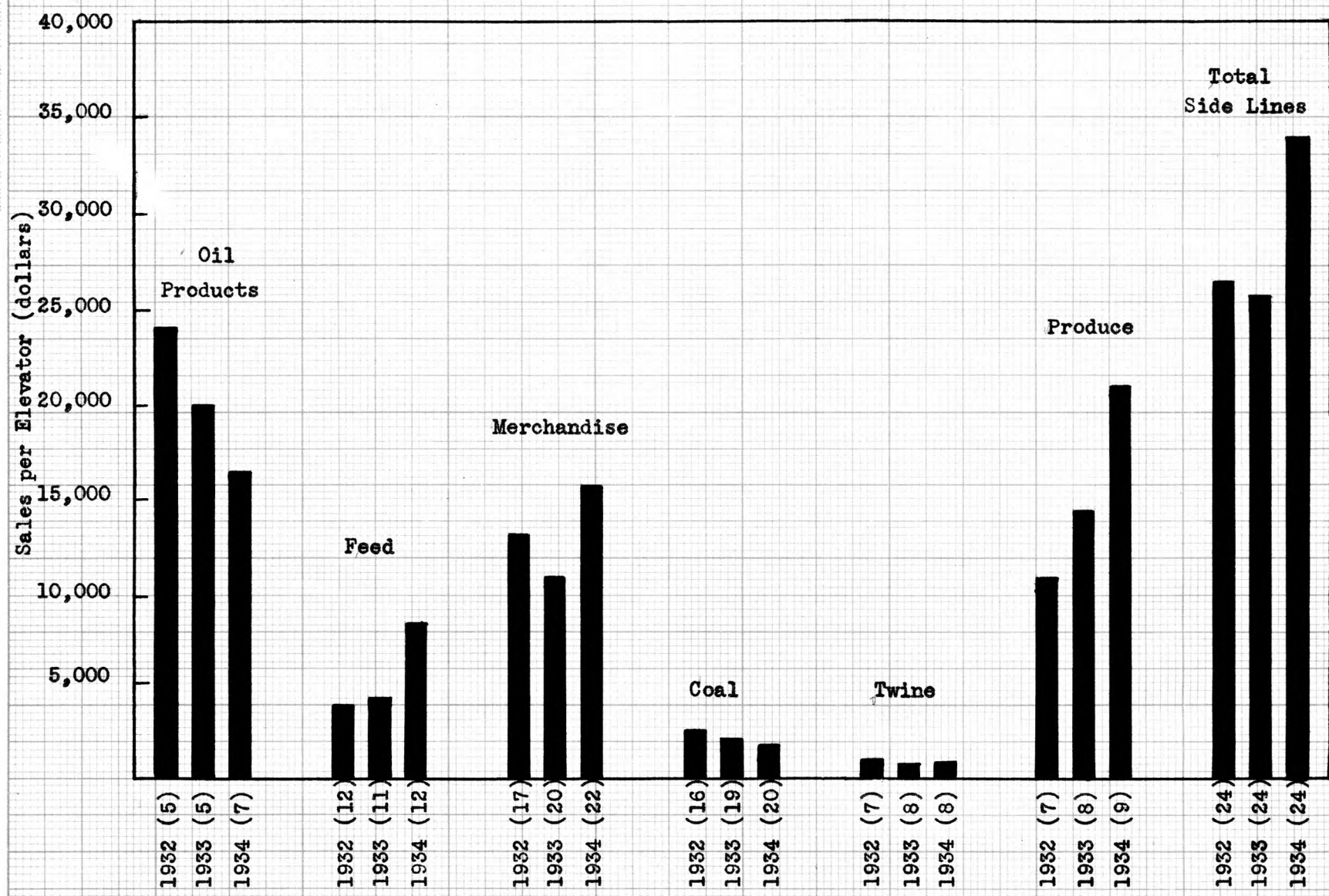


Fig. 4.- Average Sales of Side-line Commodities of Eastern Kansas Cooperative Elevators, 1932-1934. (Numbers in parentheses refer to number of elevators itemizing each commodity.)

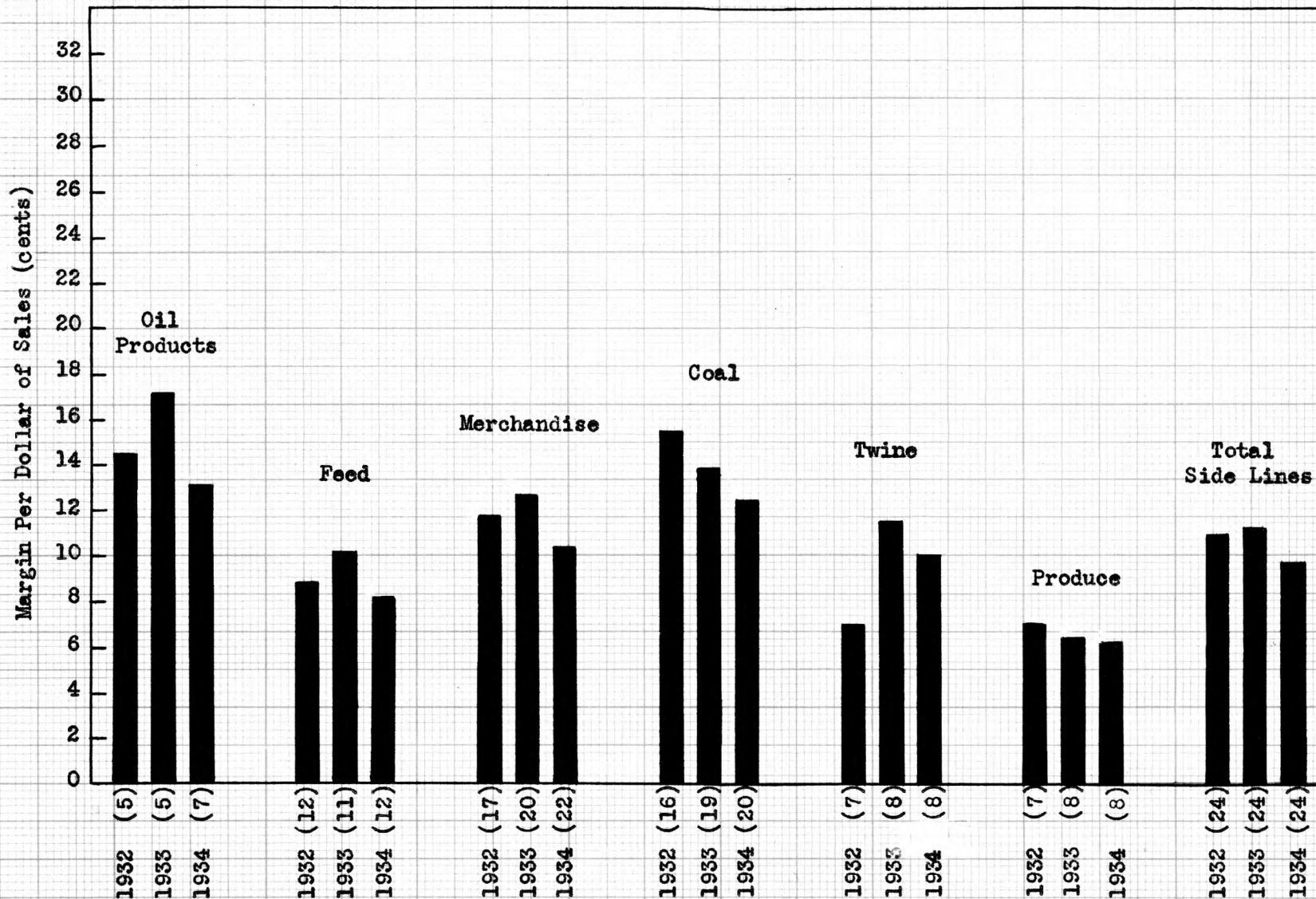


Fig. 5.—Margin Per Dollar of Side-line Commodities of Eastern Kansas Cooperative Elevators, 1932-1934. (Numbers in parentheses refer to number of elevators itemizing each commodity.)

the greatest number of elevators, Table 8. The number handling coal increased from 16 elevators to 20 elevators and those handling merchandise from 17 elevators to 22 elevators during this three-year period. Feed sales were itemized separately from merchandise by 11 or 12 of the associations each year from 1932 to 1934. One of the differences between this group of elevators and those in the southwestern section was the number handling oil products. In eastern Kansas only 5 elevators or 20 per cent sold oil products in 1932 and 1933 and by 1934 there were 7 of them handling this type of side line.

In addition to a few elevators carrying accessories and implements, a larger number of different commodities was handled in this section of the state. Merchandise often included a grocery department, a meat shop, or hardware, besides the usual line of feeds, twine, salt, seeds, repairs, and other miscellaneous items. Other items sometimes listed were as follows: coal, feed, flour, twine, oil products, cane seed, sweet clover seed, machinery, hardware, lumber, produce, dry goods, shoes, groceries, radios, stoves, meat, beef cattle, hogs, salt, stock remedies, and other miscellaneous items. One or two other associations in this section of the state even handled caskets with quite profitable results.

Coal sales declined from an average of \$2,647 to

\$1,836 per elevator during the 1932-1934 period or from 10 per cent to 7 per cent of the total side-line sales of those elevators handling coal, Table 8. Margins also declined from 15.5 cents to 12.3 cents per dollar of coal sales, Table 9. Both of these changes operated to lower the per cent of gross profits from coal sales and reduce the relative profitableness of this type of commodity.

Merchandise sales averaged considerably larger for these elevators than for those in southwestern Kansas. They constituted from 41 to 44 per cent of the total side-line business during the three-year period, 1932-1934. Margins on merchandise varied from 12.6 to 10.4 cents per dollar, while those of the southwestern elevators declined materially in 1934.

Feed sales averaged less per elevator in this section of the state but showed an increase in 1934 similar to that of the southwestern elevators. They ranged from 11 to 19 per cent of total side-line sales and their gross profits were also 11 to 19 per cent of total gross profits on side lines. Margins on feed did not vary greatly -- they averaged 8 to 10 cents per dollar of sales each year of this study.

Oil product sales declined from an average of \$23,508 per elevator or 51 per cent of side-line sales in 1932, to \$15,745 per elevator or 39 per cent of the side-line

business in 1934. Margins averaged 14.6 cents in 1932; 17.1 cents in 1933, and 13.0 cents per dollar in 1934. The gross profits on oil products constituted 43 per cent of side-line gross profits in 1934 as compared to 60 per cent in 1932. It is noted by Table 9 that the margins on gasoline sales were largely responsible for margins on total oil products being less than those for the oil products of the southwestern elevators. It appears that the relatively narrow margins which associations in eastern Kansas were able to realize on oil products was one of the principal causes for such a small number of elevators handling them as a side line. Perhaps more severe competition which prevented an adequate volume of oil sales, as well as sufficiently wide margins for profitable results, was another important factor in this section of the state. However, in most instances, the eastern elevators handling oil products showed somewhat larger total net profits than those which did not handle oil products.

Implements are often mentioned as a risky type of side line to handle, but the margins obtained on them by the elevators in this study seem to be in line with margins on other commodities. However, it would appear that somewhat wider margins should be obtained on implements than on many other types of side lines due to their slow turnover and the chances for a loss on inventories.

The narrow margins on livestock sales which ranged from 2.7 to 1.1 cents on the dollar, no doubt were largely net profits or margins rather than gross margins, since the costs of feed, labor, and handling of the livestock were usually included in the cost of sales.

Produce sales were handled on a somewhat narrow margin of approximately 6 cents on the dollar, but no doubt some of the expenses were included in the cost of produce sales which would cause this margin to be at that level. Twine and lumber usually were not responsible for more than 4 or 5 per cent of total side-line sales and gross profits. The bulk of the miscellaneous items were included under merchandise sales.

THE EFFECT OF SIDE LINES ON NET OPERATING PROFITS
OF ELEVATORS GROUPED ON THE BASIS OF SIDE-LINE
SALES IN PERCENTAGE OF GROSS SALES

Southwestern Kansas Cooperative Elevators

General Relationships. In discussing side-line sales and their relationship to the total business of the association, they are commonly expressed in percentages of the total or gross sales. The usual phraseology expresses them as being 10, 20, or 30 per cent or more of gross sales, or merely as one-fourth or one-third of the total business.

Questions arising when discussing the importance of

the percentage of gross sales consisting of side-line sales usually are: (1) Does the net profit of the elevator increase with an increase in the volume or percentage of side-line business, and (2) Is there an optimum percentage of side-line sales which will return the most net profit to the organization?

General relationship tables showed there were 96 of the 160 yearly records or 60 per cent showing profits during the five-year period, 1930-1934. Of the 100 elevator records with 15 per cent or more of gross sales from side lines, there were 62 of them realizing profits, or they had 3 chances out of 5 for a profit. However, of the 60 which had less than 15 per cent side-line business, 57 per cent showed a profit. One important fact noted was the decline each year since 1930 in the percentage of cases with a side-line business of 15 per cent or more of gross sales which had profits. During 1933 and 1934, only one-half or slightly less showed profits, as compared to 80 to 90 per cent of them in 1930 and 1931.

Another variation was the small percentage of elevators realizing profits in 1932 and 1933, when side lines were less than 15 per cent of the business.

There were 60 elevator records with side lines 20 per cent or more of the total business and 91 with less than 20 per cent of the gross sales from side lines, Table 10.

Table 10.—Relation of Side-line Sales Equal to 20 Per Cent or More of Gross Sales to Operating Profits of Southwestern Kansas Cooperative Elevators.

160 Yearly Records -- 32 Elevators, 1930-1934

Crop Year	Elevators Having a Profit	Elevators Having a Loss	Total	Per Cent Having a Profit
Side-line Sales 20 Per Cent or More of Gross Sales				
1930	6	1	7	85.7
1931	8	1	9	88.9
1932	10	7	17	58.8
1933	10	11	21	47.6
1934	<u>5</u>	<u>10</u>	<u>15</u>	<u>33.3</u>
Total	39	30	69	56.5
Side-line Sales Less Than 20 Per Cent of Gross Sales				
1930	19	6	25	76.0
1931	19	4	23	82.6
1932	4	11	15	26.7
1933	4	7	11	36.4
1934	<u>11</u>	<u>6</u>	<u>17</u>	<u>64.7</u>
Total	57	34	91	62.6
Grand Total	<u>96</u>	<u>64</u>	<u>160</u>	<u>60.0</u>

Using this basis, there seemed to be less association between the number of records with profits than when 15 per cent side-line sales was used. There were 57 per cent of the elevator records showing 20 per cent or more side-line business with profits, or they had slightly better than a 50-50 chance of showing a profit. In 1934, only one out of three showed a profit. However, 63 per cent of all the elevator records having less than 20 per cent of their gross sales from side-line sales realized profits.

From these tables, it appears that as side-line sales increased in percentage of gross sales, there was less likelihood of the elevator realizing a profit. Those handling more than 15 per cent side lines had about 62 chances out of 100 to make a profit while those having more than 20 per cent side lines had 57 chances out of 100 for a profit.

The Effect of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930-1934. The method of studying side-line sales in percentage of gross sales in detail was to group the data of the 32 elevators into quartiles each year. The first quartile contains those elevators with the lowest percentage of side-line sales and each succeeding quartile has a higher percentage of side lines.

The distribution of elevators by elevator numbers in

the quartiles each year is shown in Table 11. There was a high percentage of the same elevators occurring in each designated quartile each year. The first quartile shows the highest percentage of constancy. In most cases the shifting of elevators was from one quartile to the adjacent one rather than an extreme shifting. That is, few elevators shifted from the first or second quartile to the fourth quartile each year.

The five-year averages of various items of financial operation by quartiles is shown by Table 12.

The average percentage that side-line sales were of gross sales and the corresponding average net profit on operations per elevator for the 1930-1934 period by quartiles was as follows:

Quartile	:Percentage Side Lines : :were of Gross Sales :	Average Net Profit
First	5.2	\$ 794
Second	14.7	1,890
Third	21.1	4,152
Fourth	30.5	4,449

The data show there was a marked increase in profits with an increase in the percentage that side lines were of gross sales, especially from 5.2 to 14.7 per cent side lines and from 14.7 per cent to 21.1 per cent side lines. The average profits were the highest for the elevators with the

Table 11.—Distribution in Quartiles of Southwestern Kansas Cooperative Elevators Grouped on the Basis of Side-line Sales in Percentage of Gross Sales.

Crop Year	Elevator Numbers								
	<u>First Quartile</u>								
1930	31	1	27	32	16	36	43**	2	
1931	31	1	27	32	16	36	43	6*	
1932	31	1	27	32	16	36	37	2	
1933	31	1	27	32	46*	36	37	2	
1934	31	1	27	32	9*	36	37	2	
							<u>Second Quartile</u>		
1930	15	33	46	6	9	37*	35**	22*	
1931	15	33	46	2	9	26*	7	11	
1932	15	33	46	6	9	47**	7	11	
1933	15	28**	48*	35	9	47	7	11	
1934	15	33	28	6	15	34*	7	14*	
							<u>Third Quartile</u>		
1930	12	25	47	20	26**	11**	7*	48**	
1931	12	25	47	20	4**	23*	22*	14	
1932	12	25	43**	20	26	13	28*	14	
1933	12	25	6*	20	4	13	34*	14	
1934	12	35*	47	46*	43	13	48	11	
							<u>Fourth Quartile</u>		
1930	10	34	42	23	25**	14*	4**	13**	
1931	10	34	42	35**	28*	37*	48**	13	
1932	10	34	42	23	22	35	4	48	
1933	10	16**	42	23	22	33*	26**	43*	
1934	10	16	42	23	22	25	26	20*	

* Elevators appearing only once in the quartile.
 ** Elevators appearing only twice in the quartile.

Table 12.—Quartile Averages of 32 Southwestern Kansas Cooperative Elevators Grouped on the Basis of Side-line Sales in Percentage of Gross Sales, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	161,276.61	151,601.80	200,672.98	206,642.26
Gross Profit on Gross Sales	7,015.83	9,912.44	15,776.58	19,712.39
Side-line Sales	8,300.55	22,245.60	42,318.74	63,045.96
Gross Profit on Side-line Sales	912.75	4,600.73	8,590.71	12,010.22
Wheat Sales	147,219.42	126,624.65	155,618.89	137,809.37
Gross Profit on Wheat Sales	5,786.56	5,098.91	7,107.03	7,039.74
Other Grain Sales	5,756.63	2,731.55	2,735.38	5,786.93
Gross Profit on Other Grain Sales	316.53	212.81	78.84	662.44
Salaries and Wages	2,965.16	4,013.31	5,682.52	7,208.04
Total Expenses	6,221.70	8,022.20	11,624.14	15,263.24
Net Profit on Operation	794.14	1,890.24	4,152.45	4,449.16
Other Income	1,380.67	676.31	1,536.62	3,114.00
Total Net Income	2,174.81	2,566.55	5,689.07	7,563.16
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	5.2	14.7	21.1	30.5
Side-line Gross Profit in Percentage of Total Gross Profit	13.0	46.4	54.5	60.9
Side-line Gross Profit in Percentage of Total Expense	14.7	57.4	73.9	78.7
Wheat Sales in Percentage of Gross Sales	91.3	83.5	77.6	66.7
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	82.5	51.4	45.1	35.7
Other Grain Sales in Percentage of Gross Sales	3.6	1.8	1.4	2.8
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	4.5	2.1	.5	3.4
Salaries and Wages in Percentage of Total Expense .	47.7	50.0	47.7	46.8
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	4.35	6.54	7.86	9.54
Margin Per Dollar of Side-line Sales	11.00	20.68	20.30	19.05
Margin Per Dollar of Wheat Sales	3.93	4.03	4.57	5.11
Margin Per Dollar of Other Grain Sales	5.50	7.79	2.88	11.45
Margin Per Bushel of Grain Handled	2.39	2.35	2.60	3.02
Net Profit on Operations Per Dollar of Gross Sales	.49	1.25	2.07	2.15
Total Net Income Per Dollar of Gross Sales	1.35	1.69	2.83	3.66
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	254,882	225,587	278,023	255,096
Average Capacity of Elevators	42,400	21,475	47,821	72,612

highest per cent of side lines. This is contradictory to the general relationships previously discussed which considered the actual number of elevators realizing profits, or profits of \$2,000 or more, when side lines were equal to 20 per cent or more of the total business. The average net profit shows an increase in the fourth quartile due to the exceptionally large net profits realized in 1930 and 1931 which outweighed the small losses of a larger number of elevators in 1933 and 1934.

It is noted that gross sales averaged approximately \$50,000 more per elevator for the third and fourth quartiles than for the two lowest side-line percentage quartiles. This accounted for a larger total net profit, but the increase in profits between the first and second quartiles and between the third and fourth quartiles appears to be due to side lines primarily. Gross sales of the second group averaged \$10,000 less per elevator than those for the first quartile, and those of the third and fourth quartiles were approximately equal.

The higher margins per dollar of wheat sales of elevators in the third and fourth quartiles raised the question as to whether they might not have been more important than side lines in causing larger net profits on operations. The average gross margin on wheat sales was about 4 cents per dollar for the first and second groups, while it

averaged 4.6 cents and 5.1 cents for the third and fourth groups, respectively. However, since the wheat sales decreased from 91 per cent to 67 per cent of gross sales from the first to fourth quartile, the gross profit on wheat declined from 83 per cent to 36 per cent of total gross profit from the lowest to the highest side-line volume elevators; this shows that wheat margins were of minor importance with elevators handling a high percentage of side-line business.

The elevators in the lowest side-line group, or the first quartile, are primarily the ones which do not handle oil products. Margins per dollar of side-line sales for this group averaged only 11 cents as compared to 19 or 20 cents on the dollar for the other three groups. Hence, gross profits of the elevators in the first quartile constituted only 13 per cent of the total gross profits; while those of the three higher side-line groups ranged from 45 to 60 per cent of the total gross profits. A noticeable feature of this grouping of elevators is the uniform margins on side lines in the second, third, and fourth quartiles when the five-year average is used. Otherwise, this might have been a variable factor to consider in discussing profits and the percentage of gross sales from side lines of those elevators.

Expenses averaged \$6,222 for the lowest side-line

group of elevators and steadily increased until they averaged \$15,263 for the fourth quartile or the highest side-line group. However, further analysis of the elevators comprising the fourth quartile revealed that this increase was due to the heavy overhead expenses of exceptionally large elevators more than to an increase in side-line sales.

The average capacities of the elevators of the first three quartiles were 42,400 bushels, 21,475 bushels, and 47,821 bushels, respectively, while that of the elevators in the fourth quartile was 72,612 bushels. Table 13 contains a distribution of the eight exceptionally large elevators as grouped by years when the elevators were arrayed and grouped on the basis of side-line sales in percentage of gross sales. In 1930 and 1931 they were scattered uniformly among the quartiles, but in 1933 and 1934, five of them appeared in the fourth or highest percentage side-line quartile. They had no more grain to handle than the small elevators so were forced to obtain as much income as possible from other sources.

While it is to be expected that expenses should increase with an increase in volume of side lines handled, yet there was a large amount of expenses required to operate the elevator regardless of whether any side lines were handled. In the case of the low side-line elevators, gross profits from side lines constituted 13 per cent of total

Table 13.—Distribution in Quartiles of the Eight Largest Southwestern Kansas Cooperative Elevators Grouped on the Basis of Side-line Sales in Percentage of Gross Sales.*

Crop Year	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
1930	112,000 200,000	47,000	50,000 65,000	115,000 110,000 152,500
1931	112,000 290,000	47,000 51,500	50,000 115,000	110,000 152,500
1932	112,000	47,000	50,000 51,500 110,000 290,000	115,000 152,500
1933	97,000	--	85,000 50,000	65,000 100,000 300,000 237,000 152,500
1934	--	--	237,000 85,000 97,000	300,000 50,000 100,000 65,000 152,500
Number of times elevators appear in quartiles	(6)	(4)	(13)	(17)

* Elevators designated by bushels capacity of each one.

gross profits and were equal to 15 per cent of total expenses. They were 61 per cent of total gross profits for the fourth quartile and were equal to 79 per cent of total expenses for this group of elevators. It is apparent from these figures that gross profits from side lines increased at a greater rate than expenses with an increase in side-line sales.

From the five-year averages, it seems that those elevators handling side-line sales equal to at least 20 per cent of gross sales made considerably larger net profits on operations per dollar of sales than those handling a smaller percentage of side lines. However, a smaller actual number of elevators realized profits when 20 per cent or more of the business came from side-line sales than when side lines were less than 20 per cent of gross sales.

When elevators of approximately the same size are considered and an average or normal volume of grain is obtained, there does not seem to be an optimum percentage of side-line sales. The records for the southwestern elevators indicate that none of the elevators have handled side lines to the extent that expenses have increased to such an amount that smaller profits occurred as a result of too much side lines. In normal crop years, such as 1930, 1931, and 1932, those elevators with the largest percentage of gross sales from side lines realized the largest net

profits. Even in short crop years, such as 1933 and 1934, increasing the side-line business kept operating results at a higher level than would have been the case if side lines had constituted a smaller part of the total business.

Marked Variations from Five-Year Averages. It is noted there is a distinct break in the data between the years 1932 and 1933, Table 14. Each of the three years, 1930, 1931, and 1932, shows a material increase in net profits with an increase in the percentage of gross sales from side lines from one quartile to the succeeding one with two exceptions. The first exception, where profits of the first and second quartiles in 1930 were equal, was a result of somewhat wider margins on wheat sales of those elevators in the low side-line group. In 1931 the net profit of the third and fourth quartile was about the same. In this case, the average volume of wheat sales and total sales of the third quartile was considerably larger than the volume of the other three groups.

It should be pointed out that all the credit for the highest net profit per elevator should not be given to the high percentage of gross sales from side lines in 1932, since wheat margins for that group of elevators averaged 8.9 cents per dollar as compared to 6.3 cents for those of the third quartile.

Table 14.— Important Yearly Averages of 32 Southwestern Kansas Cooperative Elevators
Grouped on the Basis of Side-line Sales in Percentage of Gross Sales, 1930-1934.

	Crop Year	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
		<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	1930	281,726.53	258,770.02	285,761.74	416,326.80
	1931	202,480.66	174,378.08	261,681.46	223,610.75
	1932	85,297.12	91,904.23	167,077.12	139,787.20
	1933	89,911.30	82,023.80	126,319.44	98,127.87
	1934	146,967.42	150,932.85	162,525.15	155,358.70
	Ave.	161,276.61	151,601.80	200,672.98	206,642.26
		<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	1930	5.22	13.48	17.98	25.85
	1931	4.63	12.80	18.13	24.50
	1932	6.98	17.60	23.28	34.61
	1933	6.46	20.29	28.18	44.50
	1934	2.99	14.06	23.56	39.12
	Ave.	5.15	14.67	21.09	30.51
		<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Net Profit on Operations	1930	+ 4,128.10	+ 3,779.17	+ 8,791.47	+ 12,837.98
	1931	+ 1,516.30	+ 4,123.89	+ 7,748.17	+ 7,398.94
	1932	- 2,392.65	- 1,210.83	+ 2,471.06	+ 3,410.18
	1933	- 165.75	+ 413.95	+ 1,755.59	- 766.15
	1934	+ 884.69	+ 2,345.02	- 4.05	- 635.17
	Ave.	+ 794.14	+ 1,890.24	+ 4,152.45	+ 4,449.16

Table 14.—(Con't.)

	Crop Year	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
		<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Side-line Sales	1930	13.68	21.83	17.98	23.13
	1931	11.18	23.99	25.25	23.70
	1932	6.84	18.74	19.24	18.69
	1933	9.72	18.52	19.19	15.18
	1934	8.88	18.48	13.06	10.71
	Ave.	11.00	20.68	20.30	19.05
		<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Wheat Sales	1930	258,209.18	219,602.70	232,130.25	303,294.27
	1931	186,433.98	150,320.19	212,384.47	167,342.41
	1932	75,657.26	74,243.91	127,470.82	88,711.11
	1933	77,868.82	62,250.63	89,124.84	45,909.88
	1934	137,927.87	126,705.82	116,983.72	83,789.20
	Ave.	147,219.42	126,624.65	155,618.87	137,809.37
		<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margins Per Dollar of Wheat Sales	1930	3.83	2.56	4.53	3.42
	1931	4.75	5.40	4.45	6.64
	1932	3.51	5.83	6.29	8.93
	1933	4.33	5.16	4.44	8.47
	1934	3.01	3.32	3.07	3.59
	Ave.	3.93	4.03	4.57	5.11

The years 1933 and 1934 do not follow the trends of the three previous years. The greatest loss on operations was suffered by the fourth quartile, or the elevators with the largest percentage of side-line sales. However, in most cases this was not due to going into side lines too heavily. As previously mentioned these elevators were the large capacity houses with heavy overhead expenses and lack of adequate volume of business. Table 14 shows their average volume of wheat sales was only \$45,910 in 1933 and \$83,789 in 1934. This was by far too small an amount to return enough gross profit, regardless of margins realized, to apply on the relatively heavy overhead expenses which necessarily were associated with large elevators.

These associations naturally increase side-line business as much as possible when there was a shortage of grain available to handle. This no doubt was an important factor in enabling them to get out each year with a loss as low as \$700 per elevator. However, it is noted in Table 14 that gross profit or margin per dollar of side-line sales in the fourth quartile in 1933 was only 15.2 cents as compared to 19.2 cents per dollar by elevators in the highest net profit quartile. Likewise, in 1934, the average margin per dollar of side lines for the elevators with the greatest percentage of side-line business was 10.7 cents as compared to 18.5 cents for those of the second quartile which were

in the highest net profit group. This reduction in margins accounted for somewhat smaller total gross profits for elevators in the fourth quartile. However, gross profits still constituted 59 per cent of total gross profits which was approximately the same as for the most profitable groups.

Eastern Kansas Cooperative Elevators

General Relationships. As previously noted, only 34 per cent of the eastern Kansas elevators showed a profit during the 1930-1934 period. Hence, in compiling tables to determine if there was any association between the percentage that side-line sales were of gross sales and net operating profits, a \$500 loss was used as the dividing point. There were 59 of the 120 records which had a loss of \$500 or more and 61 records which either showed less than a \$500 loss, or net profits on operations. The results obtained show that as side lines became a larger per cent of the total business, smaller net profits or greater losses occurred.

Referring to Table 15, there were 71 elevator records showing side-line sales equal to 25 per cent or more of gross sales and only 29 or 41 per cent had a profit, or loss less than \$500 per elevator. In 49 cases, in which side-line sales were less than 25 per cent of gross sales, there

Table 15.—Relation of Side-line Sales Equal to 25 Per Cent or More of Gross Sales to Operating Profits of Eastern Kansas Cooperative Elevators.

120 Yearly Records -- 24 Elevators, 1930-1934

Crop Year	Elevators Having a Profit or Less Than \$500 Loss	Elevators Having a \$500 Loss or More	Total	Per Cent Having a Profit or Less Than \$500 Loss
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Side-line Sales 25 Per Cent or More of Gross Sales

1930	5	7	12	41.7
1931	4	12	16	25.0
1932	5	14	19	26.3
1933	7	5	12	58.3
1934	<u>8</u>	<u>4</u>	<u>12</u>	<u>66.6</u>
Total	29	42	71	40.8

Side-line Sales Less Than 25 Per Cent of Gross Sales

1930	5	7	12	41.7
1931	4	4	8	50.0
1932	3	2	5	60.0
1933	11	1	12	91.7
1934	<u>9</u>	<u>3</u>	<u>12</u>	<u>75.0</u>
Total	32	17	49	65.3

Grand Total	<u>61</u>	<u>59</u>	<u>120</u>	<u>50.8</u>
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Table 16.—Relation of Side-line Sales Equal to 50 Per Cent or More of Gross Sales to Operating Profits of Eastern Kansas Cooperative Elevators.

120 Yearly Records -- 24 Elevators, 1930-1934

Crop Year	Elevators Having a Profit or Less Than \$500 Loss	Elevators Having a \$500 Loss or More	Total	Per Cent Having Less Than \$500 Loss
Side-line Sales 50 Per Cent or More of Gross Sales				
1930	0	3	3	0.0
1931	2	10	12	16.7
1932	3	8	11	27.3
1933	3	2	5	60.0
1934	<u>3</u>	<u>0</u>	<u>3</u>	<u>100.0</u>
Total	11	23	34	32.3
Side-line Sales Less Than 50 Per Cent of Gross Sales				
1930	10	11	21	47.6
1931	6	6	12	50.0
1932	5	8	13	38.5
1933	15	4	19	78.9
1934	<u>14</u>	<u>7</u>	<u>21</u>	<u>66.7</u>
Total	50	36	86	58.1
Grand Total	<u>61</u>	<u>59</u>	<u>120</u>	<u>50.8</u>

were 36 elevators which were in the group with a profit or a loss less than \$500 per elevator.

When 35 per cent was used as a dividing line, the number of elevator records were divided more nearly equally. Those having 35 per cent or more of gross sales from side lines had only 37 chances out of 100 of showing a loss of less than \$500, or a profit; below 35 per cent side lines, there were 62 per cent occurring in the most profitable group. Table 16 further indicates there was still less chance for a loss of less than \$500 or a profit when side lines were increased up to 50 per cent of the business. There were 32 per cent of the cases with 50 per cent or more of gross sales from side-line sales which occurred in most profitable groups, while 58 per cent of those having less than 50 per cent of their business in side lines showed a loss not exceeding \$500, or a profit.

The Effect of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930-1934. The quartile average of the percentage that side-line sales were of gross sales and the corresponding average profit or loss per elevator, Table 17, was as follows:

Quartile	:Percentage Side Lines : :were of Gross Sales :	Average Profit or Loss
First	11.9	\$+ 362
Second	23.6	- 345
Third	47.8	-1,533
Fourth	75.2	- 801

These data reveal that those elevators handling the least side-line business were the most profitable. This was characteristic of almost every quartile during each of the five years. Table 18 shows that a high percentage of the same elevators occurred in each quartile each year. Wheat, which seems to have been the most profitable type of business to handle, accounted for 72 per cent and other grain for 16 per cent of the business of the elevators in the first quartile.

A marked difference is noted between the first and third quartiles, or the most and least profitable groups of elevators. They both handled approximately the same volume of business, but in one case side lines were about 12 per cent and in the other they were 55 per cent of the total business. The average size of the elevators in the first quartile was 20,600 bushels and of the second group, 13,217 bushels; however, expenses averaged only \$3,882 for the first group as compared to \$6,423 for the latter, which no doubt was due to side-line business. Salaries and wages

Table 17.— Quartile Averages of 24 Eastern Kansas Cooperative Elevators Grouped on the Basis of Side-line Sales in Percentage of Gross Sales, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	64,277.42	47,067.07	69,914.53	106,184.13
Gross Profit on Gross Sales	4,244.61	3,576.02	4,890.64	9,421.58
Side-line Sales	7,614.67	11,104.81	33,413.58	79,855.75
Gross Profit on Side-line Sales	1,025.32	1,221.09	2,702.22	7,730.84
Wheat Sales	46,456.71	28,015.17	16,994.03	11,030.79
Gross Profit on Wheat Sales	2,678.80	1,851.72	1,032.66	607.83
Other Grain Sales	10,206.04	7,947.11	19,506.91	15,297.59
Gross Profit on Other Grain Sales	540.49	503.21	1,155.76	1,082.91
Total Expenses	3,882.14	3,920.72	6,423.31	10,222.99
Net Profit or Loss on Operations	+ 362.46	- 344.70	-1,532.67	- 801.41
Other Income	+ 498.94	+ 359.91	+ 431.56	+1,071.50
Total Net Income or Loss	+ 861.40	+ 15.21	-1,101.10	+ 270.09
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	11.9	23.6	47.8	75.2
Side-line Gross Profit in Percentage of Total Gross Profit	24.2	34.2	55.3	82.1
Side-line Gross Profit in Percentage of Total Expense	26.4	31.1	42.1	75.6
Wheat Sales in Percentage of Gross Sales	72.3	59.5	24.3	10.4
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	63.1	51.8	21.1	6.5
Other Grain Sales in Percentage of Gross Sales	15.9	16.9	27.9	14.4
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	12.7	14.1	23.6	11.5
Salaries and Wages in Percentage of Total Expense .	38.0	38.6	42.8	54.7
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	6.60	7.60	7.00	8.87
Margin Per Dollar of Side-line Sales	13.47	11.00	8.09	9.68
Margin Per Dollar of Wheat Sales	5.77	6.61	6.08	5.51
Margin Per Dollar of Other Grain Sales	5.30	6.33	5.92	7.08
Margin Per Bushel of Grain Handled	3.60	4.45	4.16	4.35
Net Profit or Loss on Operations Per Dollar of Gross Sales	+ .56	- .73	- 2.19	- .75
Total Net Income or Loss Per Dollar of Gross Sales	+ 1.34	+ .03	- 1.57	+ .25
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	90,152	54,367	53,734	46,877
Average Capacity of Elevators	20,600	17,750	13,217	9,117

Table 18.—Distribution in Quartiles of Eastern Kansas Cooperative Elevators Grouped on the Basis of Side-line Sales in Percentage of Gross Sales.

Crop Year	Elevator Numbers					
	<u>First Quartile</u>					
1930	87	70	116	112	64	57
1931	87	70	116	112	114**	111**
1932	87	70	68**	112	64	111
1933	87	70	68	129**	64	57
1934	87	114	116	112	129	57
	<u>Second Quartile</u>					
1930	110	122	55	111	68	56*
1931	110	122	55	57**	68	64**
1932	110	122	55	57	114**	129
1933	110	122	116*	111	114	112
1934	110	109*	70*	111	68	64
	<u>Third Quartile</u>					
1930	126	136	114*	109	123	129**
1931	126	136	56	109	123	129
1932	126	136	56	109	123	116*
1933	126	136	56	109	63*	83**
1934	126	136	56	55*	122*	83
	<u>Fourth Quartile</u>					
1930	118	119	113	125	83	63
1931	118	119	113	125	83	63
1932	118	119	113	125	83	63
1933	118	119	113	125	123**	55*
1934	118	119	113	125	123	63

* Elevators appearing only once in the quartile.

** Elevators appearing only twice in the quartile.

constituted around 37 per cent of expenses in the first quartile as compared to 42 per cent in the third group.

One important factor in favor of the elevators in the first quartile with a small volume of side lines, was the margins obtained on their side lines. They averaged 13.5 cents per dollar of side-line sales as compared to only 8.1 cents per dollar in the third quartile; side lines were three-fourths of the total business in the latter group. Consequently, gross profits on side lines constituted 24 per cent of total gross profits in the first quartile with 12 per cent of gross sales from side lines, while the third quartile showed 48 per cent of gross sales from side lines with 55 per cent of all gross profits coming from these side lines.

Gross profits on side lines were equal to 26 per cent of the total expenses of the elevators of the first quartile and to 42 per cent of the total expenses of elevators in the third quartile. This relationship and the corresponding operating results were directly opposite to that found in the southwestern Kansas associations. The expenses increased at a faster rate than gross profits from side lines when side-line sales were increased by eastern Kansas elevators; especially, was this true when only an 8.1 cent margin was realized on each dollar of side-line sales by the ones handling the greatest percentage of side-line business. In

other words, it cost these elevators in the third quartile considerably more to maintain their volume of business at \$70,000 by increasing side lines to 48 per cent of gross sales, than it cost the elevators in the first group to maintain the same volume of gross sales consisting of 88 per cent grain and only 12 per cent side lines. The question as to whether these associations are justified in handling more side lines with a resulting increase in operating losses, which seems necessary if they were to remain open during this period, is a problem sufficient in itself to warrant special study.

Profits were smaller or losses larger for elevators in the second than those of the first quartile because of a smaller volume of total business. Their side lines averaged \$11,105 per elevator or 24 per cent of gross sales as compared to \$7,615 per elevator, or 12 per cent of gross sales for the elevators of the first quartile. Consequently, total operating expenses were practically the same for both groups. The margin per bushel of all grain was approximately the same for each group, but the margin on side lines of the second quartile elevators was only 11 cents per dollar as compared to 13.5 cents for those of the first quartile.

The improvement in operating results of the elevators in the fourth quartile seems to be due to an increase of

52 per cent in volume of gross sales over the elevators of the third quartile. Their average volume of business was \$106,184 of which side lines were responsible for \$79,856. This was an increase in side lines of 140 per cent over the third quartile. A margin of 8.9 cents was realized on each dollar of gross sales as compared to 7.0 cents in the third quartile. A wider margin on gross sales of the elevators in the fourth group was made possible by their margins on side lines averaging 9.7 cents per dollar of sales, while only 8.1 cents was obtained by elevators of the third quartile. Expenses increased from \$6,423 to \$10,223 or 59 per cent while gross profits on gross sales were 93 per cent greater. It is noted that side-line sales were 75 per cent of gross sales, and side-line gross profits were equal to 76 per cent of total expenses in the fourth quartile. These elevators in the fourth quartile seem to be handling a volume of business sufficient so that a further increase in side lines did not increase expenses proportionately. They had passed the point of 50 per cent side lines and 50 per cent grain which was the least profitable combination, so that a further increase in volume of sales decreased the cost per unit of handling side lines.

Since side lines constituted such a large proportion of the total business of the elevators handling 75 per cent side lines, a considerable amount of the "other income"

should be credited to side lines, also. However, this income averaged about the same in amount for the first three quartiles so the differences in total net income were approximately the same as shown by the net profits on operations. Other income amounted to more than twice as much in the fourth quartile which resulted in bringing the total net income for that group above the average for the elevators of the second quartile.

Marked Variations from Five-Year Averages. The data for no one of the years showed any marked variation from the five-year averages. The years 1933 and 1934 showed profits to be considerably larger or losses to be smaller in each quartile. A significant characteristic of these years was the increase in the percentage of gross sales from grain sales, and the decrease in percentage of side-line sales. The corresponding improvement in net profits during these years is in line with the trend of profits from one quartile to the next within each year when the elevators were grouped on the percentage that side lines were of gross sales.

The results shown when eastern elevators were grouped on the basis of side-line sales indicates that those elevators which still can handle a good volume of the business for which they were organized primarily to handle, namely,

grain, are the ones realizing the most net profits. Considering the fact that gross sales were exceptionally small for the elevators of the second quartile and that the actual volume of side lines for this group was only about \$4,000 more than that of the first quartile, it appears from these data that those elevators handling less than one-third side-line business were much more profitable than those handling a greater percentage. However, the results of the fourth quartile also indicate that there are a few elevators which can handle side lines as the predominating type of business, averaging 75 per cent of gross sales, with as profitable results as those with 25 per cent side lines. However, it appears necessary that they handle twice as large a volume of business to realize the same net profit.

Margins on side lines also become an exceedingly important factor when side lines constituted such a large portion of the business. Almost every year, wider margins were obtained by the elevators in the first and second or lowest side-line percentage groups. Apparently, they were able to select a few of the most profitable side-line commodities to handle, while many items commanding quite narrow margins had to be handled when side lines constituted a large portion of the business.

Since it was those elevators which handled about 50 per cent grain and 50 per cent side lines that lost the most

money each year, this evidently was the least desirable proportion between grain and side lines for elevator associations in this section of the state. No doubt the managers' time was too much divided between the two types of business, and keen competition situations often worked to the disadvantage of either the grain or side-line business, or both. The most satisfactory relationship between grain and side lines, where an adequate volume of grain can be obtained in this section of the state, is when side lines are side lines in the strictest sense of the word -- less than 25 per cent of the total business. Side lines provided an additional source of income to apply on operating and overhead expenses in these cases.

The next most profitable proportion was when side lines become the main part of the business providing that more than \$100,000 of total business per elevator was obtained. This type of business necessarily required management that really knew the buying and selling aspects of side-line products handled, how to meet competition, and how to maintain a sufficient volume of business to insure economical operation each year. With such a set-up, grain in reality became the side-line enterprise.

THE EFFECTS OF SIDE LINES ON NET OPERATING PROFITS
OF ELEVATORS GROUPED ON THE BASIS OF MARGIN
PER DOLLAR OF SIDE-LINE SALES

Southwestern Kansas Cooperative Elevators

General Relationships. The elevators were grouped on the basis of margin per dollar of side-line sales to determine; first, the margin on side lines which cooperative elevators should strive to obtain if profitable results are to be realized; and second, to determine if margins on side lines have as great as or a greater effect than the percentage of gross sales from side-line sales on operating profits.

Table 19 shows that of the 83 elevator records with 15 cents or more margin per dollar of side-line sales, there were 63 or 76 per cent which realized net profits. Of the 77 with less than a 15 cent margin, 33 or 43 per cent realized net profits. Similar relationships exist when margins were associated with elevators which made \$2,000 or more net profit. There were 66 per cent of those which had a margin of 15 cents or more that realized a profit of \$2,000 or more per elevator. Only 22 per cent of those with less than a 15 cent margin realized this amount of net profit on operations.

There were 51 or 32 per cent of the 160 records showing

Table 19.—Relation of Margins of 15 Cents or More Per Dollar of Side-line Sales to Operating Profits of Southwestern Kansas Cooperative Elevators .

160 Yearly Records -- 32 Elevators, 1930-1934

Crop Year	Elevators Having a Profit	Elevators Having a Loss	Total	Per Cent Having a Profit
Margins of 15 Cents or More Per Dollar				
1930	18	1	19	94.7
1931	20	1	21	95.2
1932	12	6	18	66.7
1933	9	7	16	56.3
1934	<u>4</u>	<u>5</u>	<u>9</u>	<u>44.4</u>
Total	63	20	83	75.9
Margins of Less Than 15 Cents Per Dollar				
1930	7	6	13	53.8
1931	7	4	11	63.6
1932	2	12	14	14.3
1933	5	11	16	31.3
1934	<u>12</u>	<u>11</u>	<u>23</u>	<u>52.2</u>
Total	33	44	77	42.9
Grand Total	<u>96</u>	<u>64</u>	<u>160</u>	<u>60.0</u>

a margin of 20 cents or more per dollar of side-line sales. Of these, 96 per cent showed a profit, and 86 per cent a profit of \$2,000 or more per elevator. However, there were 43 per cent of those with less than a 20 per cent margin that had a profit, but only 26 per cent with a profit of \$2,000 or more per elevator.

If the elevators did not obtain a 15 or 20 cent margin on side lines they still had slightly more than 40 out of 100 chances for a profit but if they were able to realize these or higher margins, they had between 65 and 75 chances in 100 for a profit. It is noted that during 1933 and 1934 only 50 per cent of the elevators with a 15 cent or larger margin showed profits, but if 20 cents could be obtained, their chances for a profit were materially improved.

The Effects of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930 to 1934.

The distribution of elevators in each quartile by years showed a high percentage of constancy in each group. A high percentage of the elevators occurred in the same quartile each year with most of the switching between the second and third groups. The average margin of each quartile for the five years, 1930 to 1934, and the corresponding average net profit or loss, Table 20, was as follows:

Quartile	Margin Per Dollar of Side Lines	Net Profit or Loss
First	7.8 cents	\$+ 125
Second	13.4 cents	- 187
Third	19.5 cents	+3,741
Fourth	27.2 cents	+7,635

This indicates that after a margin of approximately 16 cents per dollar of side-line sales was obtained (mid-point between second and third quartiles) substantial net profits on operations resulted. In the first quartile, side-line sales were only 9 per cent of gross sales but for the remaining three quartiles, the side-line sales were quite uniform -- ranging from 19 to 22 per cent of gross sales. Hence, as far as side lines are concerned, margins were the predominating factor in this classification.

Gross profits from side lines were equal to 15 per cent of the total expenses of the elevators in the first quartile, 42 per cent of those of the second, 74 per cent for the third, and 96 per cent of total expenses for the elevators in the fourth quartile. These data further indicate that margins and side-line gross profits in per cent of expenses were closely associated, and that net profits increase as these items increase, especially after enough income is derived from side lines to equal at least 40 per

Table 20.— Quartile Averages of 32 Southwestern Kansas Cooperative Elevators Grouped on the Basis of Margin per Dollar of Side-line Sales, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	144,903.38	167,734.53	226,083.92	187,871.80
Gross Profit on Gross Sales	6,529.68	10,108.95	16,933.57	18,626.29
Side-line Sales	12,428.67	32,601.44	50,248.54	39,000.81
Gross Profit on Side-line Sales	968.04	4,352.61	9,790.68	10,609.97
Wheat Sales	125,172.10	129,503.07	174,152.43	146,935.95
Gross Profit on Wheat Sales	5,166.44	5,161.91	6,922.76	7,936.60
Other Grain Sales	7,302.61	6,630.03	1,682.95	1,935.04
Gross Profit on Other Grain Sales	395.19	594.44	220.12	79.72
Salaries and Wages	2,954.75	4,605.61	6,727.17	5,076.13
Total Expenses	6,404.51	10,295.45	13,192.63	10,991.48
Net Profit or Loss on Operations	+ 125.16	- 186.50	+3,740.94	+7,634.81
Other Income	+1,225.94	+2,317.40	+2,388.13	+ 971.61
Total Net Income or Loss	+1,351.10	+2,130.90	+6,129.07	+8,606.43
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	8.6	19.4	22.2	20.8
Side-line Gross Profit in Percentage of Total Gross Profit	14.8	43.1	57.8	57.0
Side-line Gross Profit in Percentage of Total Expense	15.1	42.3	74.2	96.5
Wheat Sales in Percentage of Gross Sales	86.4	77.2	77.0	78.2
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	79.1	51.1	40.9	42.6
Other Grain Sales in Percentage of Gross Sales	5.0	4.0	.7	1.0
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	6.1	5.9	1.3	.4
Salaries and Wages in Percentage of Total Expense .	46.1	44.7	51.0	46.2
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	4.51	6.03	7.49	9.91
Margin Per Dollar of Sideline Sales	7.79	13.35	19.48	27.20
Margin Per Dollar of Wheat Sales	4.13	3.99	3.98	5.40
Margin Per Dollar of Other Grain Sales	5.41	8.97	13.08	4.20
Margin Per Bushel of Grain Handled	2.54	2.48	2.32	3.13
Net Profit or Loss on Operations Per Dollar of Gross Sales	+ .08	- .11	+1.65	+4.06
Total Net Income or Loss Per Dollar of Gross Sales	+ .93	+1.27	+2.71	+4.58
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	219,197	231,806	308,048	255,823
Average Capacity of Elevators	44,350	60,113	48,550	25,563

cent of total expenses. The distribution of the largest elevators, Table 21, indicates that as a larger volume of side lines was handled by these elevators, margins became much narrower. The large elevators with their heavy expenses were responsible for the small loss shown for the second quartile as compared to a small profit for the first.

It is noted that wheat margins of 5.4 cents for the elevators of the fourth quartile as compared to 4.0 cents for the other groups was an additional reason for those elevators realizing the largest profits.

Marked Variations from Five-Year Averages. There were no marked variations by years except that margins on side lines averaged much lower in 1933 and 1934 than during the period 1930 to 1932. Hence, an increase in margins did not show the marked increase in profits in 1933 and 1934, that was evident in the five-year averages.

Elevators obtaining margins of 15 to 16 cents or more on side lines showed distinctly more profitable results than those with less than these margins. Side-line margins appear to be the main factor making possible an increase in the amount of gross profit from side lines which can be applied on total expenses. This does not mean that 15 cents necessarily needs be realized on every commodity. This amount for all side-line sales combined is a desirable

Table 21.— Distribution in Quartiles of the Eight Largest Southwestern Kansas Cooperative Elevators Grouped on the Basis of Margin Per Dollar of Side-line Sales.*

Crop Year	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
1930	112,000	152,500	290,000 110,000 115,000	51,500 50,000 48,000
1931	112,000	290,000	110,000 115,000 152,500	48,000 51,500 50,000
1932	290,000	112,000 115,000	50,000 110,000 152,500	51,500 48,000
1933	100,000 97,000	237,000 300,000 152,500 85,000	50,000	65,000
1934	100,000 97,000 237,000	300,000 152,500 50,000	65,000 85,000	--
Number of times elevators appeared in quartiles	(8)	(11)	(12)	(9)

* Elevators designated by bushels capacity of each one.

standard to work toward, and if obtained, it will improve the elevators' chances for a profit.

Eastern Kansas Cooperative Elevators

General Relationships. Since side lines constitute such a large portion of the business of the elevators in this section of the state, the importance of margins on side lines is readily evident. Of the 120 yearly records, there were 66 per cent with a margin of 8 cents or more per dollar of side-line sales and 55 per cent of these showed losses of less than \$500 per elevator, or a profit.

Approximately one-half the yearly records showed margins on side lines of 10 cents or more per dollar and those in this range of margins had 2 out of 3 chances for occurring in the group of less than a \$500 loss, or a profit, Table 22. When less than 10 cents margin was realized, there were only 37 chances out of 100 for these same operating results. Elevators obtaining 12 cents or larger margins more often were associated with the most profitable operating results. The highest degree of association between margins and losses of less than \$500, or profits occurred in 1933 and 1934.

Table 22.—Relation of Margins of 10 Cents or More Per Dollar of Side-line Sales to Operating Profits of Eastern Kansas Cooperative Elevators.

120 Yearly Records -- 24 Elevators, 1930-1934

Crop Year	Elevators Having a Profit or Less Than \$500 Loss	Elevators Having a \$500 Loss or More	Total	Per Cent Having a Profit or Less Than \$500 Loss
Margins of 10 Cents or More Per Dollar				
1930	5	7	12	41.7
1931	5	5	10	50.0
1932	6	9	15	40.0
1933	14	2	16	87.5
1934	<u>11</u>	<u>2</u>	<u>13</u>	<u>84.6</u>
Total	41	25	66	62.1
Margins of Less Than 10 Cents Per Dollar				
1930	5	7	12	41.7
1931	3	11	14	21.4
1932	2	7	9	22.2
1933	4	4	8	50.0
1934	<u>6</u>	<u>5</u>	<u>11</u>	<u>54.5</u>
Total	20	34	54	37.0
Grand Total	<u>61</u>	<u>59</u>	<u>120</u>	<u>50.8</u>

The Effects of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930 to 1934.

The distribution of elevators indicated considerable shifting of elevators in quartiles each year. The average margin per dollar of side-line sales and the corresponding net profit or loss on operations per elevator for the period, 1930 to 1934 by quartiles, Table 23, was as follows:

Quartile	Margin Per Dollar of Side Lines	Net Profit or Loss
First	5.2 cents	\$-1,811
Second	8.2 cents	- 547
Third	11.7 cents	- 263
Fourth	17.3 cents	+ 301

These data clearly show the improvement in operating results as margins per dollar of side lines increase.

Side-line sales averaged approximately 50 per cent of the gross sales of the elevators in each of the first three quartiles, thus indicating the effect on profits was due to the increase in side-line margins. The elevators of the fourth quartile realized a 17 cent margin on side lines as compared to 12 cents by those of the third quartile. Side-line sales handled by those elevators in the fourth group were only 27 per cent of gross sales as compared to 48 per cent for the third group. However, approximately the same

Table 23.— Quartile Averages of 24 Eastern Kansas Cooperative Elevators Grouped on the Basis of Margin per Dollar of Side-line Sales, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	63,848.49	86,080.74	74,117.41	63,393.13
Gross Profit on Gross Sales	3,279.79	6,426.06	6,611.28	5,812.34
Side-line Sales	30,875.57	48,098.22	35,760.90	17,250.76
Gross Profit on Side-line Sales	1,589.09	3,925.71	4,174.56	2,986.73
Wheat Sales	20,032.91	16,584.78	28,532.02	37,346.98
Gross Profit on Wheat Sales	1,012.89	1,090.79	1,788.14	2,278.53
Other Grain Sales	12,940.01	21,397.76	9,824.50	8,795.39
Gross Profit on Other Grain Sales	677.81	1,409.57	647.91	547.08
Salaries and Wages	2,328.94	3,032.05	3,410.37	2,412.13
Total Expenses	5,091.26	6,973.13	6,873.88	5,510.89
Net Profit or Loss on Operations	-1,811.47	- 547.07	- 262.60	+ 301.45
Other Income	+ 546.88	+ 544.59	+ 562.31	+ 711.51
Total Net Income or Loss	-1,264.59	- 2.47	+ 299.71	+1,012.96
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	48.4	55.9	48.3	27.2
Side-line Gross Profit in Percentage of Total Gross Profit	48.5	61.1	63.1	51.4
Side-line Gross Profit in Percentage of Total Expense	31.2	56.3	60.7	54.2
Wheat Sales in Percentage of Gross Sales	31.4	19.3	38.5	58.9
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	30.9	17.0	27.1	39.2
Other Grain Sales in Percentage of Gross Sales ..	20.3	24.9	13.3	13.9
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	20.7	21.9	9.8	9.4
Salaries and Wages in Percentage of Total Expense	44.5	46.6	51.0	45.6
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	5.14	7.47	8.92	9.17
Margin Per Dollar of Side-line Sales	5.15	8.16	11.67	17.31
Margin Per Dollar of Wheat Sales	5.06	6.58	6.27	6.10
Margin Per Dollar of Other Grain Sales	5.24	6.59	6.59	6.22
Margin Per Bushel of Grain Handled	2.87	4.34	4.47	4.41
Net Profit or Loss on Operations Per Dollar of Gross Sales	- 2.84	- .64	- .35	+ .48
Total Net Income or Loss Per Dollar of Gross Sales	-1.98	- .002	+ .40	+1.60
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	66,587	52,910	60,821	66,368
Average Capacity of Elevators	10,133	12,033	14,983	23,533

percentage of side-line income was realized by the associations in the fourth quartile without incurring nearly as large an expense account.

Gross profits on side lines were equal to 50 to 60 per cent of total expenses of the elevators in the second, third, and fourth quartiles, thus indicating that an increase in margins on side lines does not increase side-line gross profits in proportion to total expenses as was characteristic of the southwestern Kansas elevators. As will be pointed out in the following section, an increase in the gross profits on side lines in relation to total expenses resulted in larger side-line sales, larger expenses, and less profitable operating results.

The data for individual years did not vary to any marked degree from the five-year averages. There were only a few instances where exceptionally large volumes of business or wide margins on wheat over-shadowed margins on side lines.

In addition to obtaining a greater amount of income from the same volume of side lines through wider margins, the highest margins were associated with a smaller volume of side-line sales. This kept expenses considerably lower than those of the other elevators with lower margins, but with more side-line sales, and enabled them to show more favorable operating results.

The mid-point between the average margins on side lines of the second and third quartiles was approximately 10 cents on the dollar. The average losses for the elevators of the first and second quartiles -- those with less than 10 cent margins -- were \$1,811 and \$547, respectively, while the average loss for the third group was \$261 and the average profit for the fourth group was \$301. These data reveal the amount of improvement in operating results of eastern Kansas elevators which occurs when a margin of 10 cents or more per dollar of side-line sales is obtained.

It was possible to obtain margins of more than 10 cents on some commodities, while for others, somewhat less than 10 cents was the maximum. The average of 10 cents refers to total side-line sales.

THE EFFECTS OF SIDE LINES ON NET OPERATING PROFITS OF ELEVATORS GROUPED ON THE BASIS OF SIDE-LINE GROSS PROFITS IN PERCENTAGE OF TOTAL EXPENSES

Southwestern Kansas Cooperative Elevators

General Relationships. One of the frequent reasons given by cooperative elevator managers and boards of directors for handling side lines is to more fully utilize labor and facilities and thereby reduce overhead costs. They say that quite often side lines are most helpful in serving as a form of insurance against high expenses by

furnishing an additional source of income or gross profit to apply on overhead and operating expenses. Apparently, those with the latter idea are of the opinion that a considerable proportion of the income derived from side lines is net profit. They do not feel that much more expense is incurred when side lines are handled, which no doubt is true in these particular cases, since side lines are handled by the same management and existing facilities.

Due to the difficulty of allocating expenses to side lines which would make possible the determination of the actual net profit from side lines, it was decided to study the relationship of gross profits on side lines to the total expenses of the elevator. What per cent of the total expenses could be covered or taken care of by gross profits from side lines each year, and was there any relationship between these percentages and the total net profits of the elevators? The theory underlying this method of approach is that the manager knows what his expenses have been averaging in past years and can estimate them quite accurately for the coming year, with crop prospects taken into consideration. Therefore, if a definite relationship between gross profits from side lines and total expenses can be established, above which the elevator has a good chance to make profits and below which there is little likelihood for profits, this will give the manager a goal or a standard

to work toward. He can figure approximately the amount of different types of side lines he will have to sell at average margins to realize enough income from side lines to take care of a certain per cent of the estimated total expenses. A relationship between side-line income and total expenses which indicates a high probability of net profit would be of value to the manager in budgeting his expense and income operations for the coming year. Of course margins on side lines and grains would affect the gross profits obtained each year.

It appears that such a standard would be more feasible than one based on the percentage of side-line sales to handle since the differences in prices and wheat crops fluctuate much more than do the total expenses of the elevators each year.

Several tables were compiled to determine if there was any association between net profits of elevators and the percentage of total expenses that could be covered by gross profits from side lines.

Of the 80 instances where more than 50 per cent of the total expenses could be covered by gross profits on side lines, 70 or 87 1/2 per cent of them realized net profits and only 10 or 12 1/2 per cent of them showed losses. This means that if an elevator could obtain gross profits from side lines equal to 50 per cent or more of total expenses,

it had 7 chances out of 8 to realize a net profit. There were 88 of the 160 yearly records showing a net profit of \$2,000 or more per year. Of these, 75.6 per cent had gross profits from side lines equal to 50 per cent or more of total expenses. Only 18.3 per cent realized this amount of profit when their side-line gross profit was not equal to 50 per cent of total expenses.

If a 40 per cent relationship is used, Table 24, almost as high a degree of association resulted as that mentioned above. There were 8 out of every 10 elevators or 80 per cent which showed profits, and 70 per cent with profits over \$2,000 when side-line gross profits were equal to 40 per cent or more of total expenses. Of those not attaining this amount, 36 per cent realized a profit and only 21 per cent a profit of \$2,000 or above.

A noticeable feature of these relationships is the smaller percentage of elevators realizing profits in 1933 and 1934 even though side-line gross profits were equal to 40 or 50 per cent of total expenses. As will be pointed out later, this is largely due to lack of profits from grain as a result of crop failures. Gross profits on side lines were sufficient to cover a large portion of total expenses of the exceptionally large elevators but losses still resulted.

Table 24.—Relation of Side-line Gross Profits
Equal to 40 Per Cent or More of Total
Expenses to Net Operating Profits of
Southwestern Kansas Cooperative Elevators.

160 Yearly Records -- 32 Elevators, 1930-1934

Crop Year	Elevators Having a Profit	Elevators Having a Loss	Total	Per Cent Having a Profit
Side-line Gross Profits 40 Per Cent or More of Expenses				
1930	20	2	22	90.0
1931	19	0	19	100.0
1932	13	5	18	72.2
1933	11	5	16	68.8
1934	8	7	15	53.3
Total	71	19	90	78.9
Side-line Gross Profits Less Than 40 Per Cent of Expenses				
1930	5	5	10	50.0
1931	8	5	13	61.5
1932	1	13	14	7.1
1933	3	13	16	18.8
1934	8	9	17	47.1
Total	25	45	70	35.7
Grand Total	<u>96</u>	<u>64</u>	<u>160</u>	<u>60.0</u>

The Effects of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930-1934. When elevators were arrayed and grouped according to side-line gross profits in percentage of total expenses, Table 25, the five-year averages per elevator by quartiles and the net profit for each were as follows:

Quartile	:Side-line Gross Profit : :in Percentage of Total : :Expenses	: Net Profit or Loss
First	9	\$+ 58
Second	41	- 356
Third	66	+3,087
Fourth	107	+8,496

These data show the importance of obtaining sufficient income from side lines to equal more than 40 per cent of total expenses. Very little shifting of elevators among quartiles occurred each year, Table 26. Side-line sales increased from 5 to 18 per cent of gross sales and margins increased from 8.0 to 14.8 cents on the dollar from the first to the second quartile, but less profitable results occurred in the second group due to heavy overhead expenses of large elevators in this group, Table 25.

Under this classification or grouping of elevators, the change from losses to relatively large net profits occurred between the second and third quartiles.

Table 25.—Quartile Averages of 32 Southwestern Kansas Cooperative Elevators Grouped on the Basis of Side-line Gross Profit in Percentage of Total Expense, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	130,365.39	153,518.86	213,738.65	222,570.75
Gross Profit on Gross Sales	5,742.97	9,768.09	17,035.35	19,870.84
Side-line Sales	6,358.35	27,988.64	49,268.78	52,295.08
Gross Profit on Side-line Sales	509.92	4,143.25	9,260.64	12,200.59
Wheat Sales	118,531.66	119,712.52	160,500.80	168,527.33
Gross Profit on Wheat Sales	4,950.80	5,131.82	7,344.39	7,605.23
Other Grain Sales	5,475.38	5,817.70	3,969.07	1,748.35
Gross Profit on Other Grain Sales	282.25	493.02	430.32	65.02
Salaries and Wages	2,707.23	4,145.09	6,684.83	5,867.56
Total Expenses	5,684.92	10,124.06	13,947.92	11,374.37
Net Profit or Loss on Operations	+ 58.05	- 355.98	+3,084.73	+8,496.48
Other Income	+1,019.43	+1,604.88	+3,062.08	+1,021.22
Total Net Income or Loss	+1,077.48	+1,248.90	+6,149.51	+9,517.70
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	4.9	18.2	23.1	23.5
Side-line Gross Profit in Percentage of Total Gross Profit	8.9	42.4	54.4	61.4
Side-line Gross Profit in Percentage of Total Expense	9.0	40.9	66.4	107.3
Wheat Sales in Percentage of Gross Sales	90.9	78.0	75.1	75.7
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	86.2	52.5	43.1	38.3
Other Grain Sales in Percentage of Gross Sales	4.2	3.8	1.9	.8
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	4.9	5.0	2.5	.3
Salaries and Wages in Percentage of Total Expense .	47.6	40.9	47.9	51.6
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	4.41	6.36	7.97	8.93
Margin Per Dollar of Side-line Sales	8.02	14.80	18.80	23.33
Margin Per Dollar of Wheat Sales	4.18	4.29	4.53	4.51
Margin Per Dollar of Other Grain Sales	4.36	8.47	10.84	3.72
Margin Per Bushel of Grain Handled	2.44	2.84	2.79	2.48
Net Profit or Loss on Operations Per Dollar of Gross Sales	+ .04	- .23	+1.44	+3.82
Total Net Income or Loss Per Dollar of Gross Sales	+ .83	+ .81	+2.87	+4.28
	<u>Bushels</u>	<u>Bushe ls</u>	<u>Bushe ls</u>	<u>Bushels</u>
Bushels of Grain Handled	214,437	197,990	278,949	309,621
Average Capacity of Elevators	34,475	61,750	59,938	26,950

Table 26.—Distribution in Quartiles of Southwestern Kansas Cooperative Elevators Grouped on the Basis of Side-line Gross Profits in Percentage of Total Expenses.

Crop Year	Elevator Numbers								
	<u>First Quartile</u>								
1930	31	32	33	27	1	36	37	2	
1931	31	32	33	27	1	36	16*	43**	
1932	31	32	33	27	1	36	46*	2	
1933	31	32	33	27	1	36	37	2	
1934	31	32	33	27	1	36	37	43	
									<u>Second Quartile</u>
1930	6	28	46	16	47**	43	42	26*	
1931	6	28	46	37**	47	2**	11**	22**	
1932	6	28	37	16	11	43	42	22	
1933	6	28	46	16	48*	43	9**	7**	
1934	6	28	46	20*	9	2	42	7	
									<u>Third Quartile</u>
1930	23	15	20	13	7	22	12*	11**	
1931	23	15	20	13	7	9**	42**	35**	
1932	23	15	20	13	7	9	48**	26*	
1933	23	15	20	14**	47**	22	42	11	
1934	23	15	16*	14	47	22	48	35	
									<u>Fourth Quartile</u>
1930	4	10	25	34	9*	14	35	48**	
1931	4	10	25	34	12	14	48	26	
1932	4	10	25	34	12	14	35	47*	
1933	4	10	25	34	12	13**	35	26	
1934	4	10	25	34	12	13	11	26	

* Elevators appearing only once in the quartile.
 ** Elevators appearing only twice in the quartile.

The gross profits on side lines in the second quartile elevators were equal to 44 per cent of total expenses and in the third group to 66 per cent of total expenses. The mid-point between these two groups was 54 per cent, or approximately that percentage above which the elevators show a marked or distinct increase in net profits, and below which there was an average net loss per elevator. However, the 1933 and 1934 averages were at variance somewhat with the five-year averages. Side-line sales averaged 18 per cent of gross sales for the second group and 23 per cent for the third group. This indicates that the turning point would be near 20 per cent side-line sales considering the five-year period. Margins seemed to have a greater effect on gross profits on side lines in relation to expenses than did the percentage of side-line sales. There was a marked increase in margins from one quartile to the succeeding one. The average for the second quartile was 14 cents and for the third group 18 cents per dollar of side-line sales. This indicates the turning point was approximately a 16 cent margin. Elevators obtaining more than a 16 cent margin on side lines realized much larger side-line gross profits to apply on total expenses, and in turn, distinctly more profitable operating results.

The elevators in the third group averaged almost as large in capacity as those in the second group and their total expenses averaged \$13,948 per elevator compared to \$10,124 for the second group. However, the marked increase in volume of both wheat and side lines enabled this third quartile group to show a good net profit instead of a small loss as was the case of the organizations of the second quartile.

The elevators in the fourth quartile averaged slightly smaller than those in the first quartile. They handled \$168,527 of wheat sales as compared to \$118,531 of wheat for the first group, yet they derived 61 per cent as contrasted to 9 per cent of their total gross profits from side lines.

The relation of side-line gross profits to total expenses is of even greater importance. As previously noted, they were equal to only 9 per cent of total expenses for the first quartile and to 107 per cent of total expenses in the fourth group of elevators. This, together with the average net profits of the two groups shows conclusively the effect of side lines on the financial results of these elevators.

With the data presented herein which includes various size elevators, the turning point for a marked increase in profits seems to be around 50 per cent. That is, those

elevators realizing enough gross profits from side lines to equal 50 per cent or more of their expenses showed distinctly more profitable results than those with less than 50 per cent. As previously noted, the elevators had 8 chances out of 10 for a profit if 40 per cent of total expenses could be covered by gross profits from side lines, but this was the number of elevators with a profit rather than those with distinctly large profits.

Marked Variations from Five-Year Averages. The gross profits on side lines were equal to a greater per cent of total expenses in 1930 and 1931 than during the 1932-1934 period of the study in all quartiles. They were exceptionally uniform each year during the latter period, averaging approximately 7 per cent for the first quartile, 30 per cent for the second, 50 per cent for the third, and 90 per cent for the fourth quartile.

Concerning net profits on operations, the 1930 year was the only one showing a steady increase in profits with an increase in the extent to which total expenses could be covered by income from side lines. In all other years, the smallest net profit or greatest loss per elevator occurred in the second quartile. This was due to gross sales being somewhat less or to higher expenses as a result of larger capacity elevators, or in some cases to both factors.

While gross profits from side lines had to be considerably greater than 40 or 50 per cent of total expenses before net profits were realized in 1934, due to crop failures and lack of grain profits, no doubt much heavier losses would have occurred if at least 40 or 50 per cent of the total expenses had not been taken care of by side lines.

Margins on side lines of the fourth quartile during 1933 and 1934 were considerably wider than in any other quartile and since these were smaller houses, the gross profits from side lines were equal to approximately 90 per cent of total expenses as compared to 49 per cent for the third quartile and 30 per cent for the second quartile elevators. Those elevators in the fourth quartile realized slightly more than \$4,000 profit while all others suffered losses.

In 1933 there were 9 elevators showing profits of \$2,000 or more and 8 of these had gross side-line profits equal to 40 per cent or more of total expenses. In 1934 there were 9 elevators with more than \$2,000 profits of which 6 had gross profits from side lines equal to 40 per cent or more of total expenses. Apparently these elevators constituted the fourth quartile grouping in 1933 and 1934.

The grouping of elevators under this section of the study also shows the importance of an adequate volume of business if net profits are to be realized. While income

from side lines equal to 40 to 50 per cent of total expenses improved an elevator's chances for a profit, it did not insure a profit unless there was sufficient gross business to bring the association's total volume of sales to at least \$100,000, and preferably \$150,000 or \$200,000, depending upon the size of elevator. Practically all of the elevators in quartiles showing losses each year had less than \$100,000 of gross sales, and those which had somewhat more than this volume of business and still had a loss, did not realize income from side lines sufficient to pay 40 per cent of their total expenses.

Eastern Kansas Cooperative Elevators

General Relationships. The data of the southwestern Kansas elevators in each grouping showed a close relationship between net profits and the extent to which side-line gross profits would cover total expenses. With the grouping of eastern elevators on the percentage of gross sales from side lines, this relationship showed an opposite trend to that of the southwestern elevators. With an increase in side lines, there was an increase in the percentage that their gross profits were of total expenses, but the net losses became larger because expenses increased at a faster rate than total gross profits.

The following data indicated similar relationships, ex-

cept that a slight improvement resulted when side-line gross profits were equal to 50 per cent or more of total expenses over that shown when they were equal to only 40 per cent of total expenses.

There were 60 per cent of the records with gross profits on side lines equal to 30 per cent or more of total expenses which had a profit or less than a \$500 loss. Those with side-line gross profits equal to less than 30 per cent of total expenses had 34 per cent occurring in the less than \$500 loss group. When 40 per cent gross profits was used, it is noted by Table 27, that this divided the elevators almost equally. Only 56 per cent of the elevators with side-line gross profits equal to 40 per cent or more of total expenses were found to be in the most profitable group. However, in 1933 and 1934, there were 73 and 85 per cent respectively, occurring here. A slightly better relationship existed when 50 per cent was used. Especially was this true in 1934 when 100 per cent of those with side-line gross profits above 50 per cent of total expenses occurred in the most profitable grouping. When less than 40 or 50 per cent of total expenses can be covered by gross profits on side lines, this does not necessarily mean that heavier losses will result. The elevators still have 45 or 46 chances out of a 100 to remain in the most profitable section. Perhaps some of the causes for their low degree

Table 27.—Relation of Side-line Gross Profits Equal to 40 Per Cent or More of Total Expenses to Net Operating Profits of Eastern Kansas Cooperative Elevators.

120 Yearly Records -- 24 Elevators, 1930-1934

Crop Year	Elevators Having a Profit or Less Than \$500 Loss	Elevators Having a \$500 Loss or More	Total	Per Cent Having a Profit or Less Than \$500 Loss
Side-line Gross Profits 40 Per Cent or More of Expenses				
1930	8	8	16	50.0
1931	4	8	12	33.3
1932	3	6	9	33.3
1933	8	3	11	72.7
1934	<u>11</u>	<u>2</u>	<u>13</u>	<u>84.6</u>
Total	34	27	61	55.7
Side-line Gross Profits Less Than 40 Per Cent of Expenses				
1930	2	6	8	25.0
1931	4	8	12	33.3
1932	5	10	15	33.3
1933	10	3	13	76.9
1934	<u>6</u>	<u>5</u>	<u>11</u>	<u>54.5</u>
Total	27	32	59	45.8
Grand Total	<u>61</u>	<u>59</u>	<u>120</u>	<u>50.8</u>

of association with profitable operating results can be discovered when the elevators are arrayed and grouped into quartiles based on the percentage that side-line gross profits will cover total expenses.

The Effects of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930-1934. The distribution of elevators in each quartile by years revealed that those in the third and fourth quartiles occurred most consistently in those groups each year.

The average percentages that side-line gross profits were of expenses and the corresponding net profits or losses for each quartile, Table 28, were as follows:

Quartile	:Side-Line Gross Profit : :in Percentage of Total : :Expenses	: Net Profit or Loss
First	12.9	\$-1,577
Second	32.9	- 409
Third	49.1	+ 98
Fourth	77.7	- 431

These data indicate there was a distinct improvement in operating results with the extent to which total expenses can be covered by side-line gross profits up to the point where they were equal to more than 50 per cent of total expenses. In the fourth quartile, profits from side lines were equal to 78 per cent of total expenses but no better

Table 28.—Quartile Averages of 24 Eastern Kansas Cooperative Elevators Grouped on the Basis of Side-line Gross Profit in Percentage of Total Expense, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	43,917.21	53,448.84	79,449.19	110,624.52
Gross Profit on Gross Sales	2,518.91	4,171.54	5,755.99	9,683.03
Side-line Sales	11,089.71	13,626.10	30,445.48	76,824.14
Gross Profit on Side-line Sales	528.91	1,507.66	2,776.05	7,863.48
Wheat Sales	24,822.87	31,003.85	32,474.21	14,195.76
Gross Profit on Wheat Sales	1,461.03	1,990.27	2,059.73	659.99
Other Grain Sales	8,004.63	8,818.89	16,529.51	19,604.63
Gross Profit on Other Grain Sales	528.97	673.62	920.22	1,159.56
Salaries and Wages	1,392.02	1,684.09	2,358.42	5,687.92
Total Expenses	4,095.70	4,580.73	5,658.27	10,114.47
Net Profit or Loss on Operations	-1,576.79	- 409.18	+ 97.72	- 431.44
Other Income	+ 536.53	+ 384.37	+ 528.31	+ 916.09
Total Net Income or Loss	-1,040.26	- 24.82	+ 626.03	+ 484.65
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	25.3	25.5	38.3	69.5
Side-line Gross Profit in Percentage of Total Gross Profit	21.0	36.1	48.2	81.2
Side-line Gross Profit in Percentage of Total Expense	12.9	32.9	49.7	77.7
Wheat Sales in Percentage of Gross Sales	56.5	58.0	40.9	12.8
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	58.0	47.7	35.8	6.8
Other Grain Sales in Percentage of Gross Sales	18.2	16.5	20.8	17.7
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	21.0	16.2	16.0	12.0
Salaries and Wages in Percentage of Total Expense .	36.2	38.2	46.9	55.0
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	5.74	7.80	7.24	8.75
Margin Per Dollar of Side-line Sales	4.77	11.06	9.12	10.00
Margin Per Dollar of Wheat Sales	5.88	6.42	6.34	4.65
Margin Per Dollar of Other Grain Sales	6.61	7.64	5.57	5.91
Margin Per Bushel of Grain Handled	3.78	4.23	4.26	3.96
Net Profit or Loss on Operations Per Dollar of Gross Sales	- 3.59	- .77	+ .12	- .39
Total Net Income or Loss Per Dollar of Gross Sales	- 2.37	- .05	+ .79	+ .44
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	56,121	65,622	70,073	50,907
Average Capacity of Elevators	11,950	22,050	17,000	9,683

operating results were realized than by the elevators of the second quartile where gross profits on side lines were equal to only 33 per cent of total expenses.

The most significant characteristics relating to side lines in each of the four groups might be mentioned. Concerning the first and second quartiles, gross sales averaged \$43,917 and \$53,449, respectively, with side lines comprising 25 per cent of the business in each group. Operating expenses averaged only \$500 more for the elevators of the second quartile. However, an average margin of only 4.8 cents per dollar was obtained on the side lines of the first quartile as compared to 11.1 cents for the second quartile. Hence, only 21 per cent of the total gross profits were derived from side lines in the first quartile. These profits were equal to only 13 per cent of their total expenses. In the second quartile, side-line gross profits constituted 36 per cent of total gross profits and were equal to 33 per cent of total expenses. Margins obtained on grain by these elevators were somewhat wider, also.

These facts show the importance of side-line margins to side-line gross profits and, in turn, the effect these profits, in relation to total expenses, have on operating profits or losses.

Concerning the third quartile, gross sales averaged \$79,449 with expenses averaging \$5,658 per elevator which

was approximately \$1,000 more expenses than those of the second quartile. Side-line sales constituted 39 per cent of these sales. A margin of 9.1 cents was realized on each dollar of these side lines which produced sufficient gross profits to equal 48 per cent of total gross profits and 49 per cent of total expenses. In this case an improvement occurred in operating profits as a result of a higher percentage of gross sales from side lines. This in turn increased the extent to which side-line gross profits covered total expenses.

The average of the gross sales of the fourth quartile elevators was \$110,625 and side lines constituted 70 per cent of the business with a 10 cent margin realized on them. Gross profits from side lines were equal to 81 per cent of total gross profits, but expenses increased to such an extent that only 77 per cent of them could be covered by the income from side lines. The average expenses of the elevators for this quartile were \$10,114 as compared to \$5,658 for the third quartile.

The obtaining of gross profits from side lines sufficient to cover much more than 50 per cent of the total expense account seems to decrease the elevator's chances for a profit due to a more than proportionate increase in operating expenses.

In the southwestern district, the increase in the side-

line gross profit-expense ratio was usually characterized by the widening of margins on side lines which, of course, did not increase operating expenses. An increase in this ratio in eastern Kansas was made possible only by increasing side-line sales which in turn caused an increase in operating expenses. Due to the nature of the side lines handled in this section of the state, margins uniformly averaged around 10 cents on the dollar each year, while in southwestern Kansas there seemed to be more range in the margins. Especially was this true with oil products, and it was those elevators which handled this type of side line that had the highest percentage of their total expenses covered by income from side lines and in turn the highest net profits.

THE EFFECT OF SIDE LINES ON NET OPERATING PROFITS
OF ELEVATORS GROUPED ON THE BASIS OF NET
PROFIT ON OPERATIONS

Southwestern Kansas Cooperative Elevators

General. In the three preceding sections of this study elevators were grouped on definite factors such as percentage side-line sales were of gross sales, margins on side lines, and side-line gross profits in percentage of total expenses, to determine the effects each might have on total net profits. The fourth grouping of elevators based on net

profit on operations considered the most and least profitable elevators separately so that any of the factors concerning side lines were free to appear as the most important one. This would be the one following a uniform trend corresponding to that of the net profits better than any other factor. Also, such a grouping of elevators would serve as another basis of comparison to substantiate or refute conclusions drawn from previous sections of the study.

The Effects of Side Lines on Net Operating Profits as Shown by Quartile Averages for the Period, 1930-1934.

There was considerable shifting of elevators among the first three quartiles, but a high percentage of the same elevators remained in the fourth group each year.

The most important characteristic of side lines from the lowest to the highest profit groups was the relationship of side-line gross profit to total expenses. Margins also increased consistently with an increase in profits since they were the main factor affecting the amount of side-line gross profits realized which can be applied on expenses. However, the side-line gross profit-total expense relationship was the one showing the most consistent and marked increase with an increase in profits in all four groupings, Table 31.

The five-year averages of the above items by quartiles

Table 29.—Quartile Averages of 32 Southwestern Kansas Cooperative Elevators Grouped on the Basis of Net Profit on Operations, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	126,326.23	138,834.40	193,403.03	261,629.99
Gross Profit on Gross Sales	6,979.13	7,451.66	13,839.91	24,146.54
Side-line Sales	26,723.84	18,183.55	34,493.66	56,509.79
Gross Profit on Side-line Sales	3,484.03	3,079.93	6,363.37	13,187.07
Wheat Sales	92,600.17	116,403.96	155,311.99	202,956.19
Gross Profit on Wheat Sales	2,854.69	4,119.40	7,325.19	10,732.96
Other Grain Sales	7,002.22	4,246.89	3,597.37	2,164.01
Gross Profit on Other Grain Sales	640.42	252.33	151.35	226.51
Salaries and Wages	4,237.08	3,551.12	4,809.99	6,806.51
Total Expenses	9,924.72	7,018.05	10,279.52	13,890.98
Net Profit or Loss on Operations	-2,945.59	+ 433.62	+3,542.39	+10,255.55
Other Income	+1,983.55	+ 940.84	+1,436.35	+ 2,346.88
Total Net Income or Loss	- 962.04	+1,374.46	+4,978.74	+12,602.43
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	21.2	13.1	17.8	21.6
Side-line Gross Profit in Percentage of Total Gross Profit	49.9	41.3	46.0	54.6
Side-line Gross Profit in Percentage of Total Expense	35.1	43.9	61.9	94.9
Wheat Sales in Percentage of Gross Sales	70.3	83.8	80.3	77.6
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	40.9	55.3	52.9	44.5
Other Grain Sales in Percentage of Gross Sales	5.5	3.1	1.9	.8
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	9.2	3.4	1.1	.9
Salaries and Wages in Percentage of Total Expense	42.7	69.6	55.9	49.0
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	5.52	5.37	7.16	9.23
Margin Per Dollar of Sideline Sales	13.04	16.94	18.48	23.34
Margin Per Dollar of Wheat Sales	3.08	3.54	4.72	5.29
Margin Per Dollar of Other Grain Sales	9.15	5.94	4.21	10.47
Margin Per Bushel of Grain Handled	2.26	2.10	2.63	3.12
Net Profit or Loss on Operations Per Dollar of Gross Sales	-2.33-	+ .31	+1.83	+3.92
Total Net Income or Loss Per Dollar of Gross Sales	- .76	+ .99	+2.57	+4.82
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	154,662	208,132	284,467	351,236
Average Capacity of Elevators	66,375	23,313	56,488	36,938

were as follows:

Quartile	: :Net Profit :or Loss	:Side-Line Gross Profits: :in Percentage of Total : :Expenses	: Margin on : Side Lines
First	\$-2,946	35.1	13.0 cents
Second	+ 434	43.9	14.9 cents
Third	+3,542	61.9	18.5 cents
Fourth	+10,256	94.9	23.3 cents

These data indicate the most marked increase in net profits occurred in the third quartile. The mid-point between the average margins for the second and third quartiles was approximately 16 cents or that margin above which profits showed a distinct upturn. The mid-point between these quartiles concerning the percentage side-line profits were of total expenses was 53 per cent, but a simple average for the five years was approximately 45 per cent.

The average percentage side-line sales were of gross sales for the elevators grouped on the basis of net profits in the quartiles were as follows: 21.2 per cent, 13.1 per cent, 17.8 per cent, and 21.6 per cent. This shows the same relationship as when elevators were arrayed on the basis of side-line sales in percentage of gross sales.

At first, it might appear that the low profit group of elevators was handling too large an amount of side lines for efficient operation. This is not the case because each year the largest net profit elevators handled a larger

volume of side-line sales than the smallest profit group of elevators, although, the percentages were the same for both quartiles. As previously mentioned, the exceptionally large elevators in 1933 and 1934 were the ones causing the percentage of side lines to average so high in the first quartile for the five years. An increase in percentage side-line sales were of gross sales resulted in an increase in profits for the elevators in the second, third, and fourth quartiles during the five years, 1930-1934.

Marked Variations from the Five-Year Averages. In this section of the study, the yearly trends were similar to the five-year averages. Each year except 1932, there was a higher percentage of side lines handled in the first quartile or lowest profit group of elevators than by those in the second quartile. The years 1933 and 1934 show a considerably higher percentage of gross sales from side lines in the first quartile than other years, with 1934 being the most unusual.

Side-line business constituted 31 per cent of all sales of the elevators in the first quartile in 1934 and a 10 cent margin per dollar was realized on these side-line sales. Side lines in the fourth quartile or highest profit elevators constituted 16 per cent of gross sales but a margin of 16.5 cents was realized on them. Hence, gross

profits from side lines in both cases constituted 48 to 52 per cent of total gross profits but they were sufficient to cover 79 per cent of total expenses in the fourth quartile and only 35 per cent of expenses in the first quartile.

Wheat sales of the elevators in the fourth quartile were three times larger than those of the elevators in the first quartile and margins on wheat were wider, also. These factors together with the amount of side-line gross profit in relation to total expenses made possible an average net profit of \$5,339 for the fourth quartile elevators as compared to a loss of \$3,346 for the elevators of the first quartile.

Eastern Kansas Cooperative Elevators

The final grouping of these elevators on the basis of their net profits shows facts similar to those found in the preceding sections of this study. The most distinctive feature of the eastern elevators brought out by the data in Table 30 is the decline in the percentage that side-line sales were of gross sales and that side-line gross profits were of total gross profits as the average net profit per elevator increases.

The five-year averages for these items were as follows:

Quartile	: :Net Profit :or loss	: :Percentage of :Gross Sales :from Side Lines	:Percentage Side-Line :Gross Profits were :of Total Gross :Profits
First	\$-2,978	58.0	71.0
Second	- 979	62.5	72.8
Third	- 79	33.8	49.1
Fourth	+1,716	31.7	39.3

Margins on side lines were quite uniform in each quartile -- averaging from 9 to 11 cents per dollar. Side-line gross profits were equal to 45 to 51 per cent of expenses in each quartile with the exception of the second one where they were equal to 63 per cent of the expenses.

In the other three sections of this study it was noted that the most uniform increase in profits occurred when the elevators were grouped on the basis of margins on side lines. However, the association of an increase in margins with an increase in profits was not consistent in all the groupings. There seemed to be a more consistent relationship between percentage side-line sales were of gross sales and net profits in the various groupings. The data in these groupings also showed that as the percentage side-line sales were of gross sales increased, the margins on side lines decreased. However, when the elevators were grouped according to net profits, where either percentage side lines were of gross sales, margins on side lines, or side-line gross

Table 30.— Quartile Averages of 24 Eastern Kansas Cooperative Elevators Grouped on the Basis of Net Profit on Operations, 1930-1934.

	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Gross Sales	69,988.00	69,681.22	48,346.35	99,424.20
Gross Profit on Gross Sales	5,130.90	5,944.74	3,723.95	7,329.89
Side-line Sales	40,607.19	43,554.58	16,355.18	31,468.49
Gross Profit on Side-line Sales	3,640.57	4,325.96	1,827.95	2,881.62
Wheat Sales	18,589.52	15,339.32	21,711.95	46,855.89
Gross Profit on Wheat Sales	790.86	882.36	1,228.24	3,269.56
Other Grain Sales	10,791.30	10,787.32	10,279.22	21,099.82
Gross Profit on Other Grain Sales	699.47	736.43	667.76	1,178.88
Salaries and Wages	3,824.25	3,293.43	1,733.32	2,029.24
Total Expenses	8,109.24	6,924.71	3,802.97	5,613.25
Net Profit or Loss on Operations	-2,978.34	- 978.98	- 79.01	+1,716.64
Other Income	+ 863.36	+ 732.82	+ 342.21	+ 426.92
Total Net Income or Loss	-2,114.98	- 246.16	+ 263.19	+2,143.56
	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>	<u>Per Cent</u>
Side-line Sales in Percentage of Gross Sales	58.0	62.5	33.8	31.7
Side-line Gross Profit in Percentage of Total Gross Profit	71.0	72.8	49.1	39.3
Side-line Gross Profit in Percentage of Total Expense	44.9	62.5	48.1	51.3
Wheat Sales in Percentage of Gross Sales	26.6	22.0	44.9	47.1
Gross Profit on Wheat Sales in Percentage of Total Gross Profit	15.4	14.8	33.0	44.6
Other Grain Sales in Percentage of Gross Sales	15.4	15.5	21.3	21.2
Gross Profit on Other Grain Sales in Percentage of Total Gross Profit	13.6	12.4	17.9	16.1
Salaries and Wages in Percentage of Total Expense .	46.4	50.5	46.7	42.2
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
Margin Per Dollar of Gross Sales	7.33	8.53	7.70	7.37
Margin Per Dollar of Side-line Sales	8.97	9.93	11.18	9.16
Margin Per Dollar of Wheat Sales	4.25	5.73	5.82	6.98
Margin Per Dollar of Other Grain Sales	6.48	6.83	6.50	5.59
Margin Per Bushel of Grain Handled	3.08	3.44	4.23	5.02
Net Profit or Loss on Operations Per Dollar of Gross Sales	- 4.26	- 1.40	- .16	+ 1.73
Total Net Income or Loss Per Dollar of Gross Sales	- 3.02	- .35	+ .54	+ 2.16
	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>	<u>Bushels</u>
Bushels of Grain Handled	53,560	54,413	48,116	89,859
Average Capacity of Elevators	13,000	12,533	14,200	21,283

profits in percentage of total expenses have an equal chance of appearing as the most important factor, the percentage side-line sales were of gross sales outweighed the importance of margins. This seemed to be due to the fact that there was a greater range or variation in the percentages that side-line sales were of gross sales among the elevators than in the margins.

A few of the more noticeable features of the data in Table 30 might be noted. Gross sales averaged almost \$70,000 for the elevators in both the first and second quartiles, \$48,000 for the third, and \$99,000 for the fourth group. The average net profit of \$1,717 for the elevators of the fourth quartile as compared to losses for those in the other quartiles reveals first, the importance of an adequate volume of business which appeared to be about \$100,000, and second, the relative profitableness of grain as compared to side lines. However, the elevators in the third quartile show that not nearly as large a volume was necessary to rank second in profits, provided a large part of the business consisted of grain rather than side lines. The gross sales of these elevators averaged only \$48,000 with grain responsible for 66 per cent of these sales. Also, margins on wheat were the highest in the elevators of largest profits.

The increased cost of handling a large amount of side

lines was evident from these data. Total expenses averaged \$5,613 when sales of \$99,000 were handled consisting of 68 per cent grain, while they averaged \$8,109 per elevator when gross sales were \$70,000 of which 42 per cent was grain. Salaries and wages constituted a greater proportion of the expenses in the elevators handling the highest percentage of gross sales from side lines.

Tables 31 and 32 show a summary of the four groupings of elevators for both sections of the state and the five-year averages by quartiles of the principal factors relating to side lines and net operating profits.

SUMMARY AND CONCLUSIONS

The business of the cooperative elevators in southwestern Kansas varied distinctly from that of the elevators in eastern Kansas. Gross sales for southwestern elevators averaged three times the sales of the eastern elevators during the period, 1930-1932 and one and one-half times larger during 1933 and 1934. Net profits on operations of the southwestern elevators declined from an average of \$7,384 per elevator in 1930 to \$648 per elevator in 1934, while the eastern Kansas elevators showed losses of \$1,200 per elevator in 1930-1932, and profits of \$97 and \$580 in 1933 and 1934, respectively.

Table 31.—Summary of Groupings of Southwestern Kansas Cooperative Elevators
Five-Year Averages of Quartiles -- 32 Elevators, 1930-1934.

Grouping	Side-line Sales in Percentage of Gross Sales				Margin Per Dollar of Side-line Sales				Side-line Gross Profit in Percentage of Total Gross Profit				Side-line Gross Profit in Percentage of Total Expenses				Net Profit on Operations			
	Quartile				Quartile				Quartile				Quartile				Quartile			
	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth
	Per Cent				Cents				Per Cent				Per Cent				Dollars			
Side-line Sales in Percentage of Gross Sales	5.2	14.7	21.1	39.5	11.0	20.7	20.3	19.1	13.0	46.4	54.5	60.9	14.7	57.4	73.9	78.7	+ 794	+ 1,890	+ 4,152	+ 4,449
Margin Per Dollar of Side-line Sales	8.6	19.4	22.2	20.8	7.8	13.4	19.5	27.2	14.8	43.1	57.8	57.0	15.1	42.3	74.2	96.5	+ 125	- 187	+ 3,741	+ 7,635
Side-line Gross Profit in Percentage of Total Expenses ..	4.9	18.2	23.1	23.5	8.0	14.8	18.8	23.3	8.9	42.4	54.4	61.4	9.0	40.9	66.4	107.3	+ 58	- 356	+ 3,087	+ 8,496
Net Profit on Operations	21.2	13.1	17.8	21.6	13.0	14.9	18.5	23.3	49.9	41.3	46.0	54.6	35.1	43.9	61.9	94.9	- 2,946	+ 434	+ 3,542	+10,256

Table 32.—Summary of Groupings of Eastern Kansas Cooperative Elevators
Five-Year Averages of Quartiles -- 24 Elevators, 1930-1934.

Grouping	Side-line Sales in Percentage of Gross Sales				Margin Per Dollar of Side-line Sales				Side-line Gross Profit in Percentage of Total Gross Profit				Side-line Gross Profit in Percentage of Total Expenses				Net Profit on Operations			
	Quartile				Quartile				Quartile				Quartile				Quartile			
	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth
	Per Cent				Cents				Per Cent				Per Cent				Dollars			
Side-line Sales in Percentage of Gross Sales	11.9	23.6	47.8	75.2	13.5	11.0	8.1	9.7	24.2	34.2	55.3	82.1	26.4	31.1	42.1	75.6	+ 362	- 345	- 1,533	- 801
Margin Per Dollar of Side-line Sales	48.4	55.9	48.3	27.2	5.2	8.2	11.7	17.3	48.5	61.1	63.1	51.4	31.2	56.3	60.7	54.2	- 1,811	- 547	- 263	+ 301
Side-line Gross Profit in Percentage of Total Expenses ..	25.3	25.5	38.3	69.5	4.8	11.1	9.1	10.0	21.0	36.1	48.2	81.2	12.9	32.9	49.1	77.7	- 1,577	- 409	+ 98	- 431
Net Profit on Operations	58.0	62.5	33.8	31.7	9.0	9.9	11.2	9.2	71.0	72.8	49.1	39.3	44.9	62.5	48.1	51.3	- 2,978	- 979	- 77	+ 1,716

When elevators were arrayed according to capacity, the median of the eastern elevators was 10,000 bushels as compared to 20,000 bushels capacity for the elevators in southwestern Kansas.

Side-line sales averaged approximately the same in total dollars per elevator each year for the two districts of the state; however, they constituted one-fifth of the business of southwestern Kansas cooperative elevators, and one-half of the business of the eastern Kansas elevators during the period, 1930-1934. Percentages of gross sales from side lines varied each year with the size of wheat crop and the prices of grain and side lines.

Margins per dollar of side lines handled by southwestern Kansas elevators declined from 22 cents in 1930 to 13 cents in 1934; oil products, feed, and merchandise all contributed to this decline. Margins on side lines obtained by eastern elevators fluctuated between 8 and 11 cents on the dollar during the 1930-1934 period.

Gross profits on side lines were equal to approximately 50 per cent of total gross profits and to about 60 per cent of total expenses of the southwestern Kansas elevators. They were equal to approximately 58 per cent of total gross profits and to 52 per cent of total expenses of the eastern Kansas elevators.

In addition to the income furnished by side lines to

the eastern Kansas elevators, of even greater importance was the place these side lines occupied in providing the elevators with enough volume of business each year to enable them to remain active organizations. Without side lines, many would have shown less profitable results or would have had to close their doors during the 1930-1934 period. While side lines were a valuable asset to the business of most of the elevators in the southwestern section of the state, yet, it appears that many more of them could exist without side lines than would be the case in eastern Kansas. Those in southwestern Kansas are located in a district with a larger potential volume of grain, even though competition is keener than in the eastern region.

An analysis of the commodities constituting side lines showed that coal was the item handled by the largest number of organizations in both sections of the state. Practically every elevator handled coal and it constituted 18 per cent of total side lines in the southwest, and 10 per cent of the eastern elevators' side-line business. Margins on coal sales averaged 11 cents per dollar in southwestern Kansas. In eastern Kansas margins on coal sales declined from 15 to 13 cents during the period 1932-1934, but averaged considerably more than margins on most other commodities.

General merchandise was handled by most of the eastern

elevators and constituted about 40 per cent of all the side-line sales. It commanded a margin of 11 to 12 cents per dollar. Approximately two-thirds of the southwestern elevators handled merchandise and it normally constituted 20 per cent of the side lines for those elevators handling this type of side line. As a result of drought conditions, merchandise which usually included feed sales, constituted 30 to 40 per cent of side-line sales in 1933 and 1934.

Margins on merchandise averaged 10 cents per dollar of sales in this district. Feed sales were itemized by 11 or 12 of the eastern elevators and averaged about 15 per cent of all side-line sales; margins were similar to those on merchandise.

One of the main differences in the side-line business of the elevators in the two districts of the state was the number which handled oil products. In southwestern Kansas 22 of the 32 elevators handled oil while only 5 to 7 of the 24 eastern elevators handled this type of side line. Oil product sales usually constituted 65 per cent of the side-line sales for those elevators in southwestern Kansas handling them, and margins on these oil products declined from 33 cents in 1931 to 19 cents per dollar of sales in 1934. A comparison of net profits showed that those elevators handling oil products realized distinctly larger profits than those not handling oil products. In fact, losses

occurred in most years for those not handling this type of side line.

In eastern Kansas the oil products were responsible for 50 per cent of the side lines of those handling this commodity but margins averaged only 14 cents per dollar of oil product sales. Gasoline constituted two-thirds of the oil product sales in both sections of the state, with kerosene, distillate, and oil and grease responsible for the remainder of the sales.

Implements and accessories were listed as side lines by the southwestern elevators and in addition to these, lumber, twine, livestock, and produce sales were listed by eastern Kansas elevators.

The conclusions derived from this study concerning the effects of side lines on net operating profits of Kansas cooperative elevators were as follows:

(1) The most profitable type of side lines handled in the southwestern Kansas elevators was oil products and the most profitable type in the eastern Kansas elevators was coal.

(2) In normal crop years, net profits of southwestern Kansas elevators tend to increase with an increase in side-line sales. In short crop years the least profits were shown by those elevators having the highest percentage of

gross sales from side lines because most of these elevators were exceptionally large with high expenses. Side lines were just as important in keeping losses of these elevators at a minimum as they were in increasing profits in normal crop years.

(3) Southwestern Kansas elevators, in which side lines averaged at least 20 per cent of gross sales, showed a marked increase in net profits over those handling less than 20 per cent side-line sales.

(4) In eastern Kansas the most profitable group of elevators were those handling the smallest percentage of side-line sales. The largest losses occurred when side-line sales constituted 50 per cent of gross sales. Increasing side lines in these elevators usually resulted in expenses increasing at a faster rate than side-line gross profits increased.

(5) Southwestern Kansas elevators maintaining margins of 15 cents per dollar of side-line sales realized larger profits than those with less than this margin.

(6) Margins on side lines of these elevators were of more importance than the percentage of gross sales from side lines in determining the extent to which side-line gross profits would cover total expenses of the elevators.

(7) Eastern Kansas elevators which realized a margin

of 10 cents or more per dollar of side lines had 2 chances out of 3 to occur in the most profitable group consisting of 50 per cent of the elevators. With less than a 10 cent margin, they had only 1 chance out of 3 of occurring in this group.

(8) In the eastern elevators, an increase in margins on side lines was associated with a decrease in the percentage of gross sales from side lines, less expense per dollar of all business, and larger total net profits. An increase in these margins did not result in an increase in the amount of side-line gross profits in relation to total expenses of the elevators.

(9) Elevators in southwestern Kansas which realized sufficient gross profits on side lines to cover 40 per cent or more of the elevator's total expenses had 8 chances out of 10 of realizing a profit, while those which did not obtain this amount had only 3 chances out of 10 for a profit.

(10) In eastern Kansas, gross profits on side lines equal to 50 per cent of the total expenses of the elevator was the optimum percentage in relation to total net profits.

(11) The most important single factor relating to side lines which affected net operating profits of southwestern Kansas elevators was the extent to which side-line gross profits covered total expenses. Second in importance

was margins on side lines.

(12) The most important factor affecting net operating profits of eastern Kansas elevators was the percentage that side-line sales were of gross sales. Margins on side lines were next in importance.

(13) Side-line business was one of the major factors affecting operating profits of most cooperative elevators in each section of the state, both from the standpoint of furnishing income to apply on overhead and operating expenses, and in providing volume of business where the potential volume of grain was limited.

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LITERATURE CITED

- (1) Ballinger, Roy A.
Financial operations of a group of Oklahoma farmers' elevators, 1930-1932. Oklahoma A. and M. Expt. Sta. Bul. 221. 15 p. 1934.
- (2) Bell, E. J. Jr.
Current problems of Montana farmers' elevators. Mont. Agr. Expt. Sta. Bul. 226. 48 p. 1930.
- (3) Benton, Alva H. and Peightal, M. F.
Farmers' elevators in North Dakota. N. Dak. Agr. Expt. Sta. Bul. 206. 52 p. 1927.
- (4) Donaldson, D. N., and Hemphill, Perry V.
Operating practices of farmers' cooperative elevators in Colorado. Colo. Expt. Sta. Bul. 397. 59 p. 1932.
- (5) Froker, Rudolph K., and Price, H. Bruce
Organization and management of cooperative oil associations in Minnesota. U. S. Dept. Agr. Cir. 80. 46 p. 1929.
- (6) Green, R. M., and Ballow, E. B.
Country elevator margins and costs in marketing Kansas wheat. Kans. Agr. Expt. Sta. Bul. 246. 60 p. 1928.
- (7) Green, R. M., and Rucker, Vance M.
Marketing problems of farmers' elevators in Kansas. Kans. State Col. Ext. Cir. 106. 20 p. 1934.
- (8) Knapp, Joseph G., and Lister, John H.
Cooperative purchasing of farm supplies. Farm Credit Admin. Coop. Div. Bul. 1. 92 p. 1935.
- (9) Metzger, Hutzal, and Price, H. Bruce
Economic aspects of local elevator organizations. Minn. Agr. Expt. Sta. Bul. 251. 55 p. 1929.

- (10) Post, R. E.
Farmers' elevators in the spring wheat area of
South Dakota. S. Dak. Agr. Expt. Sta. Bul.
282. 90 p. 1933.
- (11) Price, H. Bruce and Arthur, Charles M.
Management problems of farmers' elevators.
Minn. Agr. Expt. Sta. Bul. 224. 94 p. 1925.