A COST ANALYSIS OF THREE COOPERATIVE ELEVATOR

ASSOCIATIONS IN SOUTHWESTERN OKLAHOMA

By

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INTRODUCTION

The success of a farmers cooperative association depends to a large extent upon the successful and efficient operation of the association as a business unit. This success further depends upon the efficient use of the resources used in the operations of the organization. The association must be aware of the costs of operation and, through its management and Board of Directors, the means whereby these costs may be controlled in order for the association to realize maximum profits. These cost conditions differ between different types of associations. The two principal types of local cooperatives which operate in Oklahoma are the multiple unit and single unit associations. A multiple unit cooperative is an organization operating elevators in more than one community but maintaining administrative headquarters in one community. A single unit cooperative is one operating one or more elevators in any one community. This study deals with a group of single unit associations.

Purpose of Study

The purpose of this study is to make a cost analysis of three single unit grain cooperative associations.[1] The associations under study are located in southwestern Oklahoma at the towns of Rocky, Mountain View, and Carnegie. Included in the analysis is a study of the operating expenses, the proportion used in the wheat and sideline departments, how

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[1] This study is one phase of a project comparing the operations of multiple unit associations with single unit associations being undertaken by the Department of Agricultural Economics of Oklahoma A. and M. College.

the expenses vary seasonally, and a fixed and variable cost analysis. A further analysis includes a proposed organization of the three associations operating as a multiple unit association and the comparative efficiencies of this organization as compared with the existing associations.

Method of Procedure

The information presented in this study is primary data obtained from the three associations' audits, expense ledgers, and interviews with the managers. The period under study is the crop years of 1946 through 1948.

The expenses are taken from the associations' audits except for a calculated interest expense which is also included in this study. The departmental expenses are based on allocations obtained from the managers. The seasonal analysis was obtained from the expense ledgers of the associations. The proportion of the expenses which were fixed or variable are based on estimates of the probable fixity of each individual expense.

In the projection of a proposed multiple unit association, the proposed expenses were based on the existing expenses of the single unit associations. These expenses were further analysed into a proposed departmental analysis, seasonal analysis, and fixed and variable analysis.

The method of procedure in regard to each analysis is explained in greater detail in the section in which the analysis occurs.

THE PHYSICAL AND FINANCIAL STRUCTURE OF THE ASSOCIATIONS

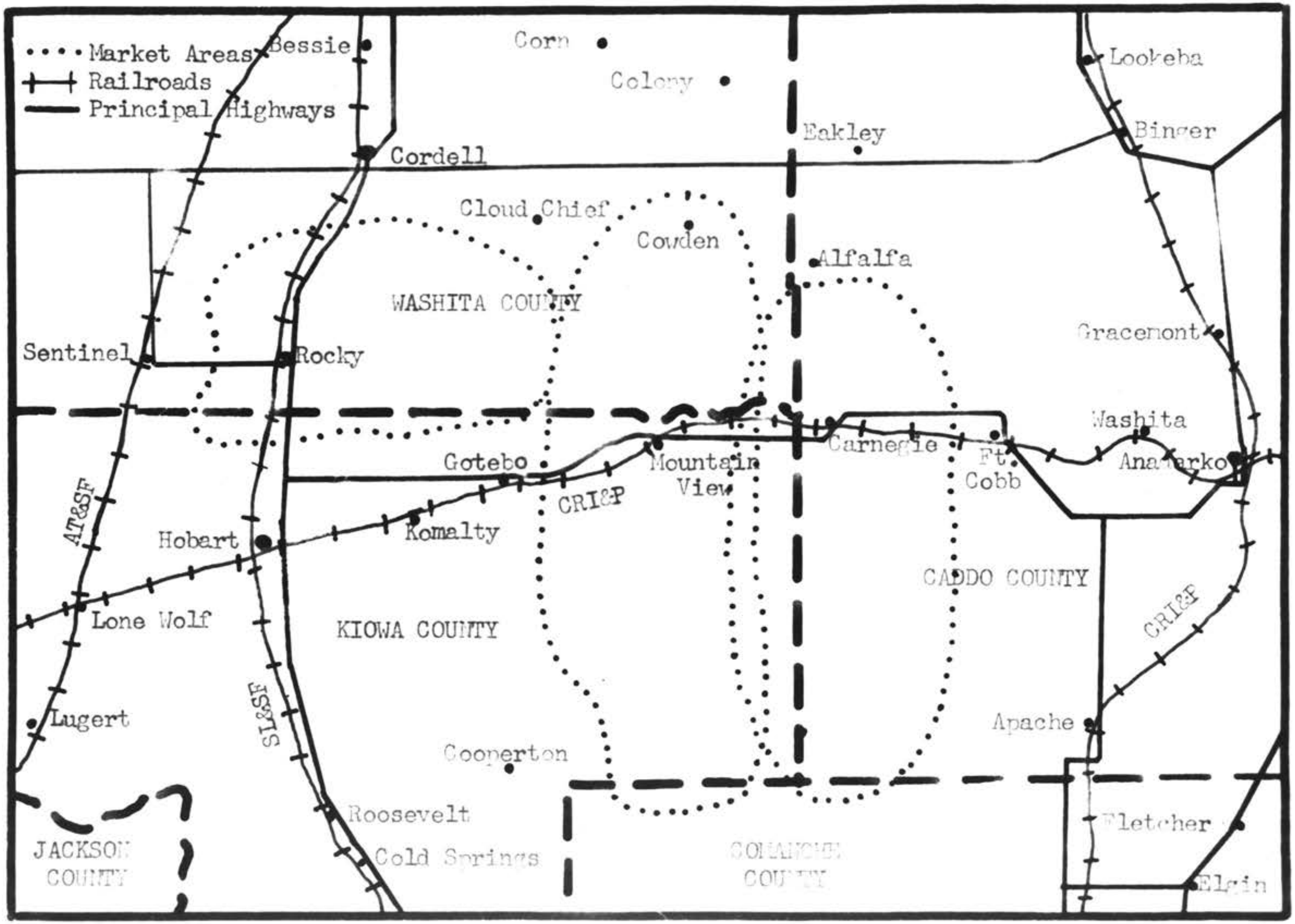
Both the physical and financial structures of the associations are important in obtaining an overall view of the organizations before a cost analysis is attempted. The relative sizes of the cooperatives often help to explain differences in the costs of operation of them. This section is intended to describe the associations' differences in regard to their physical and financial structure. The physical structure will be presented in the first part of the section, while the second part will present the financial structure.

Physical Description of the Associations

Location and Market Areas. The three associations are located at Rocky, Mountain View, and Carnegie in southwestern Oklahoma (Figure 1). The principal cash crop of the area is wheat. The area formerly produced a great deal of cotton, however much of the land has been diverted to wheat production in recent years. The fact that wheat has gained in importance as a cash crop has a great deal to do with the availability of storage facilities. The land becomes more rolling and less inducive to the production of wheat east of Rocky so that the production of other crops is more prominent in the vicinities of Mountain View and Carnegie.

The market areas of the three associations overlap so that the three associations compose one continuous market area. The market area of each association rarely extends farther than about 15 miles from the town in which it is located.

Figure 1. Location and Market Areas
of the Three Associations



Facilities Available. Since the associations are primarily wheat marketing organizations, they each have an elevator which composes the largest investment. The facilities for sideline trade vary considerably between the associations. Rocky has two elevator structures which are used for both wheat and sideline grains. They have a total capacity of about 40,000 bushels. Besides these they have a new feedroom and office building.

Mountain View has recently constructed a new 100,000 bushel concrete elevator. In addition to this they have the old structure of 20,000 bushels which is now used principally to store sideline grains. Mountain View also has a produce station and feedroom. They have a gas pump, however the gasoline sales are negligible and the gasoline business actually does not constitute a department of the business.

At the time of the study Carnegie had a wood-frame elevator structure which had a capacity of approximately 30,000 bushels. Since the period of the study they have purchased another elevator with 30,000 capacity so that their total capacity is now 60,000 bushels. Carnegie also has a feed warehouse, produce station, and gasoline station. They have more facilities for sideline business than does either Rocky or Mountain View. Carnegie also maintains the necessary trucks for delivering petroleum products to the farmers.

Commodities Handled. Besides wheat all of the associations handle sideline grains, coal, and merchandise. Included in the sideline grains are grain sorghums, oats, corn and barley. Most of the merchandise consists of commercial feeds, however other items such as poultry remedies and fertilizers are included in this category.

Both Mountain View and Carnegie maintain produce stations which handle cream, eggs, poultry and hides. Carnegie also has a petroleum department which accounts for a large share of the sideline business. The petroleum sales at Mountain View accounted for less than one tenth of one per cent of the total sales (Table 1).

Wheat sales composed the major portion of the sales of all three associations, however the proportion of total sales due to wheat varied among the three associations. Wheat accounted for 91.6 per cent of the total sales at Rocky followed by Mountain View with 79.2 per cent and Carnegie with 70 per cent (Table 1). The amount of wheat sales at Carnegie was less than was indicated by the percentage since their total sales were also less.

Carnegie had the greatest amount of sideline sales followed by Mountain View and Rocky in that order. The coal sales accounted for approximately .5 of one per cent of the sales at all three associations. Rocky and Carnegie had approximately the same amount of sideline grain sales which were considerably more than those at Mountain View. The merchandise sales also accounted for a large portion of the sideline sales at all three associations.

The produce sales at Mountain View were more than twice the amount at Carnegie. The petroleum sales were only negligible at Mountain View, however they were the largest sideline item at Carnegie. The petroleum sales accounted for 12.2 per cent of the total sales at Carnegie.

The market outlet for the wheat of all three associations is the Union Equity Cooperative Exchange of Enid, Oklahoma. The Union Equity is a federated cooperative organization, the earnings of which are prorated to the member associations on the basis of business done with them. The sideline grains are retailed by the associations or sold to independent grain firms over the state.

TABLE 1

AVERAGE ANNUAL SALES OF COMMODITIES FOR THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	ROCKY		MOUNTAIN VIEW		CARNEGIE	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Wheat	648,932.38	91.6	641,094.58	79.2	473,798.30	70.0
Coal	3,581.68	.5	4,445.84	.5	2,711.49	.4
Sideline Grains	29,132.00	3.9	18,627.23	2.3	27,812.00	4.1
Produce	-0-		106,278.18	13.1	50,272.61	7.4
Petroleum	-0-		242.52	.1	82,475.57	12.2
Merchandise	29,955.22	4.0	38,470.57	4.8	39,623.74	5.9
Total Sidelines	62,668.90	8.4	168,064.34	20.8	202,895.41	30.0
Total Sales	747,601.28	100.0	809,158.92	100.0	676,693.71	100.0

*Source: Annual Audits of the Associations, from 1946 through 1948.

The outlets for the produce commodities are local produce stations in the area. The local buyers are principally from Hobart and Hinton, Oklahoma. The feed and supplies are obtained from the Consumers Cooperative Association of Kansas City and some local firms. Most of the outlets and sources of supply are overhead cooperative organizations or local firms in the area.

Financial Description of the Associations

In the financial description of the associations summaries of the balance sheets and operating statements will be given. These will give an indication of the amount of earnings as well as the amount of investments in the associations.

Summary of the Associations' Balance Sheets. Mountain View had the greatest amount of investment of the three associations (Table 2). This was due to the large amount of investment in the fixed assets due to the new concrete elevator. Rocky was next followed by Carnegie. Carnegie's investment was low because the book value of the elevator there had depreciated out. The remaining assets were approximately the same amount at the three associations.

Mountain View also had the largest amount of liabilities, both current and fixed. They were the only association which had any fixed liabilities and this was due to an outstanding mortgage on the concrete structure of $30,000 in 1946, and $16,000 in 1947 (Table 2). The mortgage was liquidated by 1948. The current liabilities were larger due to the holding of patronage dividends as a liability account until the mortgage was cleared. The total liabilities at Carnegie were about one fourth larger than those at Rocky.

TABLE 2

AVERAGE ANNUAL BALANCE SHEETS FOR THE THREE ASSOCIATIONS,
FROM 1946 THROUGH 1948*

	ROCKY		MOUNTAIN VIEW		CARNEGIE	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Current Assets	35,980.43	42.09	33,287.40	25.28	37,614.95	50.54
Other Assets	14,296.97	16.72	12,768.38	9.70	16,350.96	21.96
Fixed Assets	35,216.52	41.19	85,590.94	65.02	20,466.54	27.50
TOTAL ASSETS	85,493.92	100.00	131,646.72	100.00	74,432.45	100.00
Current Liabilities	15,519.06	18.15	33,601.81	25.52	21,668.41	29.11
Fixed Liabilities	-0-		15,333.33	11.65	-0-	
TOTAL LIABILITIES	15,519.06	18.15	48,935.14	37.17	21,668.41	29.11
Capital Stock	15,166.67	17.74	55,016.90	41.79	30,079.30	40.41
Other Equities	31,743.70	37.13	5,720.59	4.35	12,707.51	17.07
Surplus	23,064.49	26.98	21,974.09	16.69	9,977.23	13.41
TOTAL NET WORTH	69,974.86	81.85	82,711.58	62.83	52,764.04	70.89
TOTAL LIABILITIES AND NET WORTH	85,493.92	100.00	131,646.72	100.00	74,432.45	100.00

*Source: Annual Audits of the Associations, from 1946 through 1948.

The net worth of the association was the largest at Mountain View followed by Rocky and Carnegie in that order. Capital stock composes the largest share of the net worth at Mountain View and Carnegie while at Rocky the other equities were the largest. The other equities consist of earnings which are retained by the local associations for operating and expansion purposes and are allocated to the individual farmer members. These earnings originate through the operations of the local associations and through dividends received from the overhead organizations, primarily the Union Equity. This amount was considerably lower at both Mountain View and Carnegie. Rocky and Mountain View both had large surplus accounts, which at Rocky was less than one-half of either of the other associations.

The situation which this summary presents is that Mountain View was the largest association as well as the one with the greatest amount of net worth. Much of their assets are not liquid, since they have the large investment in the concrete elevator. They are followed in both of these respects by Rocky and Carnegie, in that order.

Summary of the Associations' Operating Statements. The operating statements are a further means of measuring both the relative sizes and efficiencies of the association. The net earnings are of primary interest in the operating statement. They were the largest at Rocky averaging $22,340.10 for the three years (Table 3). They were followed by Mountain View with $13,519.67 and Carnegie with $10,223.06. These will later be broken down by departments in the section on departmental analysis.

Mountain View showed the greatest amount of sales with an average yearly sales figure of $809,158.92 followed by Rocky with $747,601.28 and Carnegie with $676,693.71 (Table 3). The sales do not present a true picture of the volume of business because the sideline commodities have

TABLE 3

AVERAGE ANNUAL OPERATING STATEMENTS FOR
THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	ROCKY		MOUNTAIN VIEW		CARNEGIE	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Sales	747,601.28	100.00	809,158.92	100.00	676,693.71	100.00
Cost of Sales	718,193.21	96.07	781,160.13	96.54	635,605.25	93.93
Other Operating Income	3,889.03	.52	6,475.20	.80	4,124.89	.61
Gross Earnings	33,297.10	4.45	34,473.99	4.26	45,213.35	6.65
Expenses	19,602.80	2.62	28,549.70	3.53	37,396.63	5.53
Operating Earnings	13,694.30	1.83	5,924.29	.73	7,816.72	1.15
Other Additions	10,346.67	1.38	9,878.05	1.22	5,932.74	.88
Other Deductions	1,702.87	.23	2,282.67	.28	3,526.40	.52
Net Earnings	22,340.10	2.99	13,519.67	1.67	10,223.06	1.51

*Source: Annual Audits of the Associations, from 1946 through 1948.

a larger gross margin and also more expense is required for them. Carnegie had more sideline business than either of the other associations and even though their sales were smaller, their outlay of expense was larger. The larger margin on sidelines can be further exemplified by the gross earnings. These were the largest at Carnegie although more expense offset this. The gross earnings were approximately the same at both Rocky and Mountain View.

This summary of the operating statements indicates that Rocky and Mountain View did more business although much of the business at Carnegie was due to sidelines and therefore their gross earnings and expenses were larger resulting in a smaller amount of net earnings.

THE OPERATING EXPENSES OF THE ASSOCIATIONS

The operating expenses are those incurred in the annual operation of the associations. Before these expenses are analyzed in the later sections, a description of them will give a background of their nature and variations. This section will give a description of the operating expenses, how each association's expenses varied between years, and how the expenses varied between associations.

Types of Expenses

Salary and Wage Expense. The salary and wage expense was the largest of the operating expenses, amounting to 49.5 per cent of the total expenses for the three associations over the three year period (Table 4). Included in this cost are all salaries, wages, bonuses, and repair labor. Since this expense accounts for such a large proportion of the total expenses, the control of it has a great deal of effect in an association's operating efficiency.

The proportion of the expenses which are accounted for by labor would be more in a period of high prices than would certain of the other expenses, which remain relatively constant over long periods of time. We had such a period from 1946 to 1948 so that this expense may constitute a larger share of the total expense in this study than would be the case if this study were made in a period of lower prices. Salaries and wages would nevertheless be the largest expense in an association of this type.

TABLE 4

COMBINED AVERAGE ANNUAL OPERATING EXPENSES
FOR THE THREE ASSOCIATIONS, FROM
1946 THROUGH 1948*

Operating Expense	Dollars	Percent
Salary and Wage Expense	14,117.94	49.5
Physical Facility Expenses	4,847.39	17.0
Depreciation	2,111.31	7.4
Insurance and Bonds	1,511.65	5.3
Taxes	1,224.43	4.3
Interest Expense	3,268.23	11.5
Other Expenses	6,282.82	22.0
Utilities	1,052.92	3.7
Telephone and Telegraph	242.20	.8
Repairs	946.18	3.3
Supplies	1,115.15	3.9
Advertising	296.77	1.0
Truck Expense	874.55	3.1
Administrative and Selling Expense	1,755.05	6.2
Total Expenses	28,516.38	100.0

*Source: Annual Audits of the Associations from 1946 through 1948.

<u>Physical Facility Expenses.</u> The second group of expenses is one that remains relatively constant over long periods of time. This category is the physical facility expenses and includes depreciation, insurance, and taxes. They constituted 17 per cent of the total expenses (Table 4).

Depreciation was the largest expense item of this group composing 7.4 per cent of the total expenses. This is not an out-of-pocket cost that must be paid each year, however it must be considered in the annual operating expenses because of depletion of the fixed facilities which eventually must be replaced. This is accomplished by dividing the cost of each asset by its estimated life and apportioning that share to the annual expenses. The cost of depreciation tends to remain constant each year so that it will constitute a smaller percentage of the total expenses in those years that the other expenses rise such as the situation which existed from 1946 to 1948. If prices go down in future years this cost will possibly constitute a larger share of the total costs. The elevator and machinery depreciation usually involves the largest amount of the total depreciation expense.

Insurance and bonds accounted for 5.3 per cent of the total expenses. The largest amounts of insurance expense occur on the elevators, inventories, and trucks. The insurance policies on inventories are usually blanket policies which cover approximately the average inventory. Included in the coverage is any member's wheat which may be in storage with the association.

The bonds are principally managers' bonds and warehouse bonds. The associations usually require their managers to be bonded. The government requires a warehouse bond on elevators which store wheat under the government loan program.

Taxes averaged 4.3 per cent of the total operating expenses. The largest taxes were the advalorem taxes on the land, facilities, and inventories. Another large portion of the taxes were the payroll or social security taxes which are paid according to the wages paid.

Income taxes and sales taxes were excluded from the operating expenses. Income taxes are based on the net earnings of a business at the close of the year. They therefore should not be included in the operating expenses since the expenses are deducted before the net earnings are determined. Both Mountain View and Carnegie are exempt from the payment of income taxes although Rocky is not. Sales taxes also were excluded from the operating expenses. These taxes are collected by the associations on merchandise sales and are later paid to the government. The associations are only intermediate agencies in the payment of sales taxes by the consumers and therefore this tax is not an operating expense. Any sales tax or use tax paid by the associations on materials for their own use was included in the tax expense.

Calculated Interest Expense. In this study a calculated interest expense is considered. This cost usually is not included in the operating expenses. It however should be considered since the capital invested in the association could be used for other purposes. The capital used in any business should be charged a rate of interest as an opportunity cost although it usually is not a cash expenditure. If the capital were not used in the business it could earn a return in some other investment. The value of the use of the capital is considered as an operating expense. The calculated interest constituted 11.5 per cent of the total operating expenses (Table 4).

The assets of the association were used to arrive at a cost of interest. These assets were separated into the three classes of capital upon which the Bank for Cooperatives base their loans. These classes are facility, operating, and commodity capital. The rate of interest applied to facility loans is currently four per cent. These are long term loans used for the construction of permanent assets. The rate for operating capital is three per cent, being used for short periods in the operation of the business. The commodity loan rate is 2.25 per cent, being applied to capital that is invested in inventories.

After the prevailing rates are applied to the various types of capital, an interest cost is determined. Any interest which was actually paid by the association was disregarded. The interest cost may appear to be too large but nevertheless it should be considered as an opportunity cost of doing business.

Other Expenses. The remaining expenses constituted 22 per cent of the total operating expenses (Table 4). The largest portion of these were composed of utilities, repairs, supplies, truck expense, and the administrative and selling expense. Of less significance to the total expense were the telephone and telegraph expense and advertising. These expenses tend to fluctuate as the annual business of the associations fluctuate. The percentage range of these items to the total operating expenses was .8 of one per cent to 6.2 per cent.

The utilities is largely power used for the feed mills and other machinery used in the elevator operations. The repairs include all repairs to machinery, buildings, and any other facilities except for truck repairs which were considered as truck expense. Truck maintenance composed the remainder of the truck expense. The supplies were largely office supplies although some elevator supplies are also required.

Although the telephone and telegraph expense is small it is important in obtaining daily market quotations and in buying and selling grain, especially in the fast-moving harvest period. Advertising accounted for only one per cent of the total expenses. The associations do not advertise a great deal however they have a small amount of local advertising. The fact that the members usually trade with their association decreases the need for advertising to a certain extent.

The administrative and selling expense was the largest item of this group composing 6.2 per cent of the total expenses. This is a group of expenses which are incurred in the administrative and selling operations of the business. Among the more important items which are included are director's fees, auditing and legal expense, loss on bad debts, rentals and miscellaneous expense. This expense contains a group of items which are of little significance to the total expenses although some of them are important. Because of their similar nature in many respects they were combined for the sake of brevity.

Variations of Yearly Expenses by Associations

This section will deal with the manner in which the expenses varied in each association from year to year. There was a general increase in total operating expenses from 1946-48 at all three associations. This was due primarily to two conditions; first, the business at all of the stations increased during the period and second, the general price level increased causing an increase in the cost of certain items of expense. The total expense in 1948 was 25 per cent more than those of 1946. The increase was rather constant between the associations, however the individual expense items differed in the increase. Each association will be observed separately in observing the variations of yearly expenses.

Rocky. There was an increase in the total expenses at Rocky which was brought about by the construction of new assets plus a slight increase in some of the other items. The total expenses increased by 24 per cent from 1946 to 1948 (Table 5). Salaries and wages increased in amount, however the per cent of the total expenses which they composed decreased from 44.5 per cent to 41.4 per cent. This was due to an increase in the total expenses that was proportionately larger than the increase in salaries and wages.

The greatest expense increase at Rocky was in the physical facility expense which was 65 per cent greater in 1948 than it was in 1946. This increase was due to the construction of a new office and feedroom in 1947 which increased depreciation, insurance and advalorem taxes. The physical facility expenses composed 20.4 per cent of the total expenses in 1946, 24.7 in 1947, and 27.0 per cent in 1948.

The calculated interest expense increased at Rocky over the three years which also was due to the new construction which increased the fixed capital. In 1946 interest accounted for 11.7 per cent of the total expenses, and by 1948 it had increased to an amount equal to 16.2 per cent of the total expenses.

Most of the other expenses remained fairly constant over the period, however some of them showed a slight decline of which the administrative and selling expense was the most prominent. This decline was due to an abnormal expense in 1946 of yardwork which did not reoccur.

Mountain View. The operating expenses at Mountain View increased by 24.7 per cent over the three years. Almost the entire increase was accounted for by increased labor cost and an increase in physical facility expense. They were both a result of the construction of the new elevator. The new elevator permitted more business to be accommodated

TABLE 5

ANNUAL OPERATING EXPENSES FOR
THE FARMERS COOPERATIVE GRAIN AND SUPPLY COMPANY, INC.
OF ROCKY, OKLAHOMA, FROM 1946 THROUGH 1948*

	1946		1947		1948	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Salaries and Wages	7,628.38	44.5	8,448.71	41.6	8,834.33	41.4
Depreciation	1,744.80	10.2	2,461.04	12.1	3,119.37	14.6
Insurance and Bonds	1,059.18	6.2	1,072.48	5.3	1,127.45	5.3
Interest	2,014.96	11.7	3,045.44	15.0	3,451.16	16.2
Taxes	691.35	4.0	1,491.35	7.3	1,523.61	7.1
Utilities	876.64	5.1	925.63	4.5	843.13	4.0
Telephone and Telegraph	139.23	.8	134.65	.7	138.29	.6
Repairs	702.64	4.1	697.73	3.4	614.88	2.9
Supplies	219.26	1.3	401.46	2.0	309.40	1.5
Advertising	107.00	.6	279.19	1.4	92.42	.4
Truck Expense	224.10	1.3	224.53	1.1	107.94	.5
Administrative and Selling Expense	1,743.04	10.2	1,145.22	5.6	1,168.42	5.5
TOTALS	17,150.58	100.00	20,327.43	100.00	21,330.40	100.00

*Source: Annual Audits of the Association, from 1946 through 1948.

since the capacity was increased from 20,000 bushels to 120,000 bushels. The new business which they were able to obtain increased the labor costs from $11,673.45 in 1946 to $16,016.75 in 1948, or an increase of 37 per cent (Table 6). The new structure also increased the physical facility and interest expenses over the three years.

The other expenses, except the administrative and selling expenses, increased slightly over the period. The administrative and selling expenses declined in 1948 to about one-half its 1946 value. This was due to a large decrease in hauling, loss on bad debts, and legal expense.

Carnegie. The total expenses at Carnegie increased 25.8 per cent over the three years (Table 7). This was accomplished by a general increase in salary and wages, physical facility expense, and interest expense. The value of these expenses increased however the percentages which they constituted of the total did not signify the full increase. This was due to a larger increase in the total expenses. This large increase in the total expenses was brought about by a large increase in the administrative and selling expense.

The increase in administrative and selling expense was largely accounted for by an increase in loss on bad debts and additional legal expense. The administrative and selling expense increased from $1,749.92 in 1946 to $6,214.02 in 1948.

Variations of Expenses Between Associations

The amount of sideline business of an association determines to a large degree the amount of expenses that are incurred. A comparison of the average expenses for each association with the average expenses for the three associations exemplifies this fact. Rocky's expenses were 68.7 per cent as much as the average expenses for all of the associations.

TABLE 6

ANNUAL OPERATING EXPENSES FOR THE FARMERS COOPERATIVE ASSOCIATION OF MOUNTAIN VIEW, OKLAHOMA, FROM 1946 THROUGH 1948*

	1946		1947		1948	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Salaries and Wages	11,673.45	46.2	14,313.95	49.6	16,016.75	50.8
Depreciation	1,417.15	5.6	2,260.37	7.8	2,439.65	7.7
Insurance and Bonds	1,475.28	5.8	1,708.17	5.9	1,534.29	4.9
Interest	4,605.71	18.2	4,613.78	16.0	4,858.84	15.4
Taxes	1,032.91	4.1	1,137.36	3.9	1,487.25	4.7
Utilities	977.71	3.9	856.45	3.0	948.91	3.0
Telephone and Telegraph	321.30	1.3	340.13	1.2	399.47	1.3
Repairs	1,191.24	4.7	1,096.51	3.8	1,524.70	4.8
Supplies	1,002.63	4.0	964.74	3.4	1,308.94	4.2
Advertising	118.40	.5	280.23	1.0	159.27	.5
Truck Expense	236.24	.9	482.26	1.7	193.57	.6
Administrative and Selling Expense	1,227.43	4.8	781.26	2.7	663.71	2.1
TOTALS	25,279.45	100.0	28,834.31	100.0	31,535.35	100.0

*Source: Annual Audits of the Associations, from 1946 through 1948.

TABLE 7

ANNUAL OPERATING EXPENSES FOR
THE FARMERS COOPERATIVE MILL AND ELEVATOR ASSOCIATION
OF CARNEGIE, OKLAHOMA, FROM 1946 THROUGH 1948*

	1946		1947		1948	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Salaries and Wages	18,709.80	56.7	19,723.82	52.3	21,713.22	52.3
Depreciation	1,649.93	5.0	1,953.14	5.2	1,956.33	4.7
Insurance and Bonds	1,342.39	4.1	1,991.93	5.3	2,293.71	5.5
Interest	2,004.31	6.1	2,263.79	6.0	2,556.10	6.2
Taxes	899.29	2.7	1,425.75	3.8	1,330.97	3.2
Utilities	1,202.41	3.6	1,456.95	3.9	1,388.46	3.4
Telephone and Telegraph	229.41	.7	190.65	.5	286.66	.7
Repairs	884.36	2.7	1,248.03	3.3	555.51	1.3
Supplies	1,455.62	4.4	3,366.84	8.9	1,007.47	2.4
Advertising	324.18	1.0	522.72	1.4	737.56	1.9
Truck Expense	2,532.21	7.7	2,456.44	6.5	1,413.63	3.4
Administrative and Selling Expense	1,749.92	5.3	1,102.42	2.9	6,214.02	15.0
TOTALS	32,983.83	100.0	37,702.48	100.0	41,503.64	100.0

*Source: Annual Audits of the Association, from 1946 through 1948.

At Mountain View they were 100.1 per cent followed by Carnegie with 131.1 per cent. As mentioned before, this was also the increase in the amount of sideline business.[2] These percentages illustrate that Mountain View is about the average for the three associations, Rocky with fewer and Carnegie with more sidelines. The variations of the expenses will be considered in the four categories which were previously mentioned.

Comparison of Salary and Wage Expense. The salary and wage expense increases with an increase in sideline business. This was the largest of the operating expenses at all three associations. It accounted for 42.4 per cent of the total expenses at Rocky, 49 per cent at Mountain View and 53.6 per cent at Carnegie (Table 8). The dollar value of this expense with more sidelines was greater than the percentages indicate. This occurred because the total expenses also increased with more sidelines, having a tendency to offset somewhat the percentage increase.

Comparison of Physical Facility Expenses. The fixed facility expense composed a larger share of the total expenses with the associations having fewer sidelines. This is due to two things; first, the greatest amount of facilities are required for wheat trade and second, there is a smaller amount of total expenses with fewer sidelines causing the same amount to represent a larger percentage of this total. The cost of depreciation had a great deal of influence with this expense. It was the highest at Rocky because they had two elevators which depreciated at an annual rate of 5 per cent. Although the investment in the concrete elevator at Mountain View was greater, the rate of depreciation was only 2 per cent annually due to the longer estimated life of this type of structure. The book value of the elevator at Carnegie had already been

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[2] Cf. ante. page 6.

TABLE 8

AVERAGE ANNUAL OPERATING EXPENSES FOR
THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	ROCKY		MOUNTAIN VIEW		CARNEGIE	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Salaries and Wages	8,303.80	42.4	14,001.08	49.0	20,048.94	53.6
Depreciation	2,441.74	12.5	2,039.06	7.1	1,853.13	4.9
Insurance and Bonds	1,036.37	5.5	1,572.58	5.5	1,376.01	5.0
Interest	2,837.19	14.5	4,692.78	16.4	2,274.73	6.1
Taxes	1,235.44	6.3	1,219.17	4.3	1,218.67	3.3
Utilities	881.80	4.5	927.69	3.3	1,349.27	3.6
Telephone and Telegraph	137.39	.7	353.63	1.2	235.57	.6
Repairs	671.75	3.4	1,270.32	4.5	895.97	2.4
Supplies	310.04	1.6	1,092.10	3.8	1,943.31	5.2
Advertising	159.54	.8	185.97	.7	544.82	1.5
Truck Expense	185.52	.9	304.02	1.1	2,134.09	5.7
Administrative and Selling Expense	1,352.22	6.9	890.80	3.1	3,022.12	8.1
TOTALS	19,602.80	100.0	28,549.70	100.0	37,396.63	100.0

*Source: Annual Audits of the Associations, from 1946 through 1948.

fully depreciated and this considerably reduced the cost of depreciation at that association.

Comparison of Interest Expense. The interest expense accounted for 14.5 per cent of the total expenses at Rocky, 16.4 per cent at Mountain View and 6.1 per cent at Carnegie. This expense was similar to the physical facility expense at the three associations in the manner in which it varied between associations having varying amounts of sidelines. The interest was higher at Mountain View due to the large amount of fixed assets and operating capital on hand.

Comparison of Other Expenses. The remaining expenses averaged 18.8 per cent of the total expenses at Rocky, 17.7 per cent at Mountain View and 27.1 per cent at Carnegie (Table 8). The administrative and selling expense composed the largest share of this item at Rocky and Carnegie. This was due to the large amount of miscellaneous expenses which increased this amount. The sideline business at Carnegie caused an increase in truck expense and a few of the other expenses. The remaining items were about the same proportion between the associations.

AN ANALYSIS OF THE DEPARTMENTAL EXPENSES

The three associations in this study were established primarily for the purpose of marketing wheat. Since the associations have been organized, other departments have been added so that now a great deal of their business is from sidelines although wheat marketing remains the principal function of the associations.

It would be advantageous to make the study with each sideline department separated, however the associations do not have a cost accounting system and any method that could be used in this analysis would be inaccurate because of the incomplete information. To simplify the study the sideline departments were combined so that the departmental analysis is a comparison of wheat and sideline expenses.

This section deals with the departmental expenses and a brief analysis of the operating statements for both wheat and sidelines. It was necessary to arrive at a means of allocating the expenses between the departments. Some expenses are easily distinguishable as to whether they are incurred in wheat or sideline operations. Others are not and as a result the manager's estimates were largely used. The manager of each association is probably in the best position to make these estimates. He is familiar with the operations and usually knows approximately what portion of each expense is incurred in wheat or sideline transactions.

Wheat Department

Expenses for Wheat. The wheat expenses were the largest at Mountain View with $14,497.07, followed by Rocky with $11,239.50 and Carnegie with $8,140.21 (Table 9). The wheat expenses were larger at Mountain View since they handled the largest volume of wheat and had the largest investment in wheat facilities. Rocky had almost as much volume, however their investment was not as large. Carnegie had the smallest volume as well as the least investment in an elevator. There was 57.3 per cent of the total expenses allocated to wheat at Rocky, 50.8 per cent at Mountain View, and 21.8 per cent at Carnegie. These percentages are directly related to the proportion of the total sales due to wheat. Although Mountain View handled more wheat than Rocky, they also handled more sidelines which decreased the proportion of wheat sales to total sales.

Salaries and wages accounted for 33.9 per cent of the wheat expenses at Rocky, 39.3 per cent at Mountain View and 52.5 per cent at Carnegie (Table 9). This expense composed the major portion of the wheat expenses since a large amount of labor is required in the unloading, handling, and loading operations of the wheat business. A large amount of labor is required during harvest to accommodate the wheat trade as well as some additional labor required to turn and load wheat in the period following harvest. The principal cause for this expense to compose such a large share of the total wheat expenses at Carnegie is due primarily to the fact that their physical facility expenses were smaller as well as the possibility that less efficiency existed with that organization.

The physical facility expenses composed 28.7 per cent of the total expenses at Rocky, 22.4 per cent at Mountain View, and 12.1 per cent at Carnegie. Although the percentage is smaller at Mountain View than at Rocky, approximately the same amount of this expense was incurred at both organizations. The larger total wheat expenses caused the percentage to be smaller at Mountain View. This group of expenses totaled $3,222.37

TABLE 9

AVERAGE ANNUAL WHEAT AND SIDELINE EXPENSE FOR THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	ROCKY					MOUNTAIN VIEW					CARNEGIE				
	TOTAL EXPENSE	WHEAT		SIDELINES		TOTAL EXPENSE	WHEAT		SIDELINES		TOTAL EXPENSE	WHEAT		SIDELINES	
		Dollars	Percent	Dollars	Percent		Dollars	Percent	Dollars	Percent		Dollars	Percent	Dollars	Percent
Salaries and Wages	8,303.80	3,813.68	33.9	4,490.12	53.7	14,001.08	5,693.83	39.3	8,307.25	59.1	20,048.94	4,277.99	52.5	15,770.95	53.9
Depreciation	2,441.74	1,704.92	15.2	736.82	8.8	2,039.06	1,277.03	8.8	762.03	5.4	1,853.13	578.02	4.6	1,475.11	5.0
Insurance and Bonds	1,086.37	814.78	7.2	271.59	3.2	1,572.58	1,179.88	8.1	392.70	2.8	1,876.01	315.13	3.9	1,560.88	5.3
Interest	2,837.19	2,032.37	18.1	804.82	9.6	4,692.78	3,391.52	23.4	1,301.26	9.3	2,274.73	700.08	8.6	1,574.65	5.4
Taxes	1,235.44	702.67	6.3	532.77	6.4	1,219.17	789.38	5.5	429.79	3.1	1,218.67	289.08	3.6	929.59	3.2
Utilities	881.80	352.72	3.1	529.08	6.3	927.69	556.61	3.8	371.08	2.6	1,349.27	269.85	3.3	1,079.42	3.7
Telephone and Telegraph	137.39	80.22	.7	57.17	.7	353.63	300.00	2.1	53.63	.4	235.57	143.75	1.8	91.82	.3
Repairs	671.75	335.88	3.0	335.87	4.0	1,270.82	381.25	2.6	889.57	6.3	895.97	627.18	7.7	268.79	.9
Supplies	310.04	155.02	1.4	155.02	1.9	1,092.10	327.63	2.2	764.47	5.4	1,943.31	194.33	2.4	1,748.98	6.0
Advertising	159.54	131.70	1.2	27.84	.3	185.97	37.19	.3	148.78	1.1	544.82	54.48	.7	490.34	1.7
Truck Expense	185.52	17.99	.1	167.53	2.0	304.02	-0-	-0-	304.02	2.2	2,134.09	-0-	-0-	2,134.09	7.3
Administrative and Selling Expense	1,353.22	1,097.55	9.8	254.67	3.1	890.80	562.75	3.9	328.05	2.3	3,022.12	890.32	10.9	2,131.80	7.3
TOTALS	19,602.80	11,239.50	100.0	8,363.30	100.0	28,549.70	14,497.07	100.0	14,052.63	100.0	37,396.63	8,140.21	100.0	29,256.42	100.0

*Source: Annual Audits of the Associations, from 1946 through 1948, and estimates of the managers.

at Rocky and $3,246.29 at Mountain View. The cost of depreciation was larger at Rocky since their wooden structure depreciated at 5 per cent whereas the concrete elevator at Mountain View had a rate of depreciation of 2 per cent, however insurance and taxes were higher at Mountain View which offset the larger depreciation cost at Rocky. The physical facility expenses were low at Carnegie due to the low value of their wheat facilities. Their elevator had depreciated out which reduced these expenses considerably.

The calculated interest expense composed 18.1 per cent of the wheat expenses at Rocky, 23.4 per cent at Mountain View, and only 8.6 per cent at Carnegie. The large cost at Mountain View was due to the large investment in the concrete elevator, whereas the small expense at Carnegie was due to the small value of the elevator.

The remaining expenses composed a total of 19.3 per cent of the wheat expenses at Rocky as compared to 14.9 per cent at Mountain View and 26.8 per cent at Carnegie (Table 9). Although the percentage was greater at Rocky than at Mountain View, the dollar value was almost the same. These expenses totaled $2,171.08 at Rocky, $2,165.43 at Mountain View, and $2,179.91 at Carnegie. Rocky handled almost as much wheat as did Mountain View, however the volume at Carnegie was considerably lower. Probably the cause for these expenses to total about the same was due to less efficiency as was the situation with the labor expense at Carnegie. The unit costs will help to clarify the relation between expenses and volume a great deal.

<u>Unit Margins and Costs for Wheat.</u> The gross margin and expense per bushel of wheat are important indicators for the management to use in determining the net margin which the organization is obtaining. The management is interested in having a gross margin which is adequate to

cover the operating expenses but also low enough not to discourage business. The margins and costs per bushel therefore are important measures for which the management should be aware.

The gross margin is calculated from the earnings on commodities in addition to any other operating income. The gross margin averaged 6.94 cents per bushel at Rocky, 5.43 cents at Mountain View and 7.03 cents at Carnegie (Table 10). The lowest margin per bushel was realized in 1946 at all three associations. It was just sufficient to cover the operating expenses at Rocky and Carnegie, and it was not sufficient to accomplish this at Mountain View. Mountain View had the lowest margin of the associations every year. This was due to the manner in which the margin per bushel was calculated. The number of bushels handled, rather than the wheat sales, was used in determining the margin. Mountain View handled a large amount of wheat which was not sold through the association before the close of the fiscal year in 1948. The large storage capacity which they had enabled the farmer members to store wheat in anticipation of higher prices. Much of this wheat was in the elevator and although it was not sold, it was included in the bushels handled. Another possible factor causing the lower margin could be due to keener competition in the trade area. They are between the other two associations as well as having several other elevators in the trade area. This situation might possibly force them to operate with a slightly smaller net margin.

The gross margin per bushel is used to advantage when compared to the operating costs per bushel. The average cost for handling a bushel of wheat at Rocky was 3.09 cents. This cost averaged 3.9 cents at Mountain View and 3.22 cents at Carnegie (Table 10). Rocky's cost was lower than Mountain View's because of their smaller facility investment. The cost of interest was larger at Mountain View thus increasing the cost per

TABLE 10

MARGINS AND COSTS PER BUSHEL OF WHEAT HANDLED AT THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	Wheat Handled	Wheat Gross Earnings	Wheat Expenses	Gross Margin per Bushel	Expense per Bushel	Net Margin per Bushel
	Bu.	$	$	¢	¢	¢
ROCKY:						
1946	318,932	14,820.48	9,844.37	4.65	3.09	1.56
1947	368,277	33,181.99	11,787.96	9.01	3.20	5.81
1948	402,167	27,627.81	12,086.18	6.87	3.00	3.87
Average	363,125	25,210.09	11,239.50	6.94	3.09	3.85
MOUNTAIN VIEW:						
1946	253,588	9,755.75	13,066.22	3.85	5.15	-1.30
1947	424,455	23,813.46	14,518.57	5.61	3.42	2.19
1948	437,279	27,047.59	15,906.43	6.18	3.64	2.54
Average	371,774	20,205.60	14,497.07	5.43	3.90	1.53
CARNEGIE:						
1946	178,024	8,809.91	6,745.65	4.95	3.79	1.16
1947	281,885	20,464.06	7,972.95	7.26	2.83	4.43
1948	297,799	23,982.75	9,702.02	8.05	3.26	4.79
Average	252,569	17,752.24	8,140.21	7.03	3.22	3.81

*Source: Annual Audits of the Associations, from 1946 through 1948.

bushel. Rocky's cost was lower than Carnegie's because of both the number of bushels handled and efficiency of operations. Rocky had a larger turnover of wheat and less labor costs which permitted them to operate with a smaller cost per bushel. Although Carnegie's cost per bushel was higher, it would have been still higher if it were not for their low investment. Their large unit cost was therefore a result of less efficiency in labor and the other expenses that were not related to their physical assets.

The large handling cost per bushel at Mountain View is almost entirely due to the small volume of wheat handled in 1946. The cost that year was 5.15 cents per bushel. They had to maintain their fixed costs that year in addition to the necessary operating costs. The low volume handled was not sufficient to lower the handling cost per bushel. The following year a new concrete elevator was constructed and this increased their total costs through depreciation, interest and taxes. Their volume was still too inadequate to lower the cost below 3.42 cents per bushel, however this was considerably lower than the 1946 cost.

The operating expenses per bushel at Carnegie appear to be low considering the small volume of wheat handled. They handled considerably less wheat each year than did either Rocky or Mountain View. It would appear as if this would result in a larger cost per bushel. They were, however, faced with lower depreciation, insurance, interest and tax costs since the wheat facilities had a low value because the elevator already was depreciated its full value. This helped to decrease the handling cost per bushel.

The gross margin and operating expenses per unit are used to the best advantage when they are compared, and the resulting net margin is observed. This net margin averaged 3.85 cents per bushel at Rocky, 1.53

cents per bushel at Mountain View, and 3.81 cents per bushel at Carnegie (Table 10). This is a measure of the earnings from local operations. It is usually sufficient to cover any other deductions and allow some net earnings to be realized even though the cooperative may receive no dividends from the overhead organizations. The net margin was larger each year over the succeeding year at every association except Rocky where the largest net margin was obtained in 1947. Both 1947 and 1948 were more favorable years than was 1946 in obtaining a larger net margin. This was due to higher wheat prices and a larger crop in Oklahoma.

Sideline Department

Expenses for Sidelines. The sideline expenses amounted to $8,363.30 at Rocky, $14,052.63 at Mountain View, and $29,256.42 at Carnegie (Table 9). This was the same order in which the sideline sales increased between the associations. The sideline expenses accounted for 78.2 per cent of the total expenses at Carnegie, 49.2 per cent at Mountain View, and 42.7 per cent at Rocky. With an increase in sideline sales, the expenses allocated to them increased proportionately more. This was due to more expenses being required for sidelines than for wheat, primarily caused by more labor being required in that department.

Salaries and wages accounted for 53.7 per cent of the sideline expenses at Rocky, 59.1 percent at Mountain View, and 53.9 per cent at Carnegie. This exemplifies the fact that a large amount of labor is required for sideline business. This expense was larger than the percentage indicates at Carnegie due to the larger amount of total expenses. The labor expense was $15,770.95 at Carnegie as compared with $8,307.25 at Mountain View and $4,490.12 at Rocky. As was the situation with the total sideline expenses, an increase in sideline business causes a larger that proportionate increase in the salary and wage expense.

The physical facility expenses for sidelines totaled $1,541.18 at Rocky, $1,584.52 at Mountain View, and $3,965.58 at Carnegie. The large expense at Carnegie was largely due to the service station which neither of the other organizations had. The amount was approximately the same at Mountain View and Rocky. Although Rocky's business was smaller, they nevertheless had to maintain the facilities to accommodate the business. They did not have the produce station which the other two organizations had, however they had a new feed house which was more elaborate than those of the other two cooperatives.

The interest expense composed a small share of the sideline expenses since the major portion of the expenses were the more variable expenses while less facilities were required. This expense amounted to $804.82 at Rocky, $1,301.26 at Mountain View, and $1,574.65 at Carnegie. This was closely related with the physical facility expenses although less was required at Rocky which was partially due to commodity interest. The commodity interest was largely due to sidelines since most of the wheat was marketed prior to the auditing.

The other expenses composed 18.3 per cent of the sideline expenses at Rocky, 20.3 per cent at Mountain View and 27.2 per cent at Carnegie. (Table 9). These expenses are the more variable of the operating expenses and are increased considerably by increases in sideline business. The proportion of the total expenses due to this group of expenses comprises a larger portion of the total expenses with increased business. This is due to the physical facility and interest expenses remaining relatively constant which would cause a given increase in these expenses to show a larger percentage increase. The largest of these expenses were the utilities, repairs, supplies, truck expense, and the administrative and selling expenses. A large portion of the administrative and selling expenses was composed of loss on bad debts which was exceptionally large at Carnegie due to a large amount of credit extended in connection with their sideline business.

Unit Margins and Costs for Sidelines. The unit used in calculating the unit margins and costs for sidelines was the dollar of sales. The sideline commodities cannot be grouped except by dollar value due to the variability of their physical units. Carnegie had the largest margin on sideline sales with 13.53 cents per dollar of sales. The margin was 12.90 cents at Rocky and 8.49 cents at Mountain View (Table 11). This lower margin at Mountain View was probably due to the fact that most of their sideline commodities were produce which had a smaller margin. Carnegie also had a produce station, however the petroleum sales more than offset the smaller volume of produce sales.

The expenses per dollar of sideline sales closely followed the margin per unit. The expense per dollar of sideline sales at Carnegie was 14.42 cents, followed by Rocky with 13.34 cents, and Mountain View with 8.36 cents per dollar of sales (Table 11). This allowed a net margin of .13 cents per dollar of sales at Mountain View, however the expenses exceeded the margin at the other two associations. This deficit was .89 cents at Carnegie and .44 cents per unit at Rocky. The deficit at Rocky was probably due to the small volume of sideline sales. The loss at Carnegie was probably due to inefficiency in the utilization of their resources, especially labor. It also could have been a result of additional services which the members desired.

Operating Statements for the Wheat and Sideline Departments

The operating statement provides information with respect to the financial operations of a business. These statements were divided between

TABLE 11

MARGINS AND COSTS PER DOLLAR OF SIDELINE SALES FOR THE THREE ASSOCIATIONS, FROM 1946 THROUGH 1948*

	Sideline Sales	Sideline Gross Earnings	Sideline Expenses	Gross Margin per Dollar Sales	Expense per Dollar Sales	Net Margin per Dollar Sales
	$	$	$	¢	¢	¢
ROCKY:						
1946	55,430.77	7,085.49	7,306.21	12.78	13.18	- .40
1947	66,665.24	9,922.99	8,539.47	14.88	12.81	2.07
1948	65,910.67	7,252.54	9,244.22	11.00	14.01	-3.02
Average	62,668.90	8,087.01	8,363.30	12.90	13.34	- .44
MOUNTAIN VIEW:						
1946	176,569.85	15,609.50	12,213.23	8.84	6.92	1.92
1947	179,373.97	16,235.94	14,315.74	9.05	7.98	1.07
1948	148,249.21	10,959.74	15,628.92	7.39	10.54	-3.15
Average	168,064.34	14,268.39	14,052.63	8.49	8.36	.13
CARNEGIE:						
1946	170,454.08	22,834.43	26,238.18	13.40	15.39	-1.99
1947	215,494.74	30,251.39	29,729.53	14.04	13.80	.24
1948	222,737.41	29,297.52	31,301.62	13.15	14.28	-1.13
Average	202,895.41	27,461.11	29,256.42	13.53	14.42	- .09

*Source: Annual Audits of the Associations, from 1946 through 1948.

wheat and sidelines in this study to determine the relative profitableness can be controlled but merely what situation exists and this is valuable information for the management. The audits provided the necessary information between departments except for the allocation of the expenses which was explained earlier. The remaining items of the department's operating statements will now be analyzed.

Sales. The sales represent the dollar volume of wheat or sidelines sold through an association each year. The three year average wheat sales were $684,932.38 at Rocky, $641,094.58 at Mountain View and $473,798.30 at Carnegie (Table 12). The wheat sales increased each year at every organization except for Mountain View. Their sales declined in 1948, however the volume handled was larger than the previous year. This situation was due both to price conditions and to the handling of wheat which was not sold until after the close of the year. The price of wheat was lower in 1948 than in 1947 which caused the sales in dollars to be less although a larger volume was sold. The farmers also stored a large volume that was not sold to the cooperative until after the close of the 1948 fiscal year. The 1948 wheat sales were nevertheless larger than the 1946 sales representing 148 per cent of the former year's sales.

The sideline sales averaged $62,668.90 at Rocky, $168,064.34 at Mountain View, and $202,895.41 at Carnegie (Table 12). The sideline sales increased with all three associations from 1946 to 1947 and a further increase occurred at Carnegie in 1948. The sideline sales decreased in 1948 at Mountain View and Rocky. This difference between associations can largely be accounted for by the nature of sideline products handled. The sideline sales at Rocky and Mountain View were largely feed, seed, and sideline grains with the addition of the sales of the produce station at Mountain View. A large portion of Carnegie's sideline sales was due to

TABLE 12

OPERATING STATEMENTS OF THE WHEAT AND SIDELINE DEPARTMENTS FOR THE THREE ASSOCIATIONS FROM 1946 THROUGH 1948*

	1946		1947		1948		Three Year Average	
	Wheat	Sidelines	Wheat	Sidelines	Wheat	Sidelines	Wheat	Sidelines
ROCKY:								
Sales	$529,387.19	$55,430.77	$736,172.14	$66,665.24	$788,737.82	$65,910.67	$684,932.38	$62,668.90
Cost of Sales	515,812.87	51,085.66	703,637.14	60,326.12	762,077.43	61,640.41	660,509.15	57,684.06
Other Operating Income	746.16	2,740.38	646.99	3,583.87	967.42	2,982.28	786.86	3,102.17
Total Gross Earnings	14,320.48	7,085.49	33,181.99	9,922.99	27,627.81	7,252.54	25,210.09	8,087.01
Expenses	9,844.37	7,306.21	11,787.96	8,539.47	12,086.18	9,244.22	11,239.50	8,363.30
Operating Earnings	4,976.11	- 220.72	21,394.03	1,383.52	15,541.63	- 1,991.68	13,970.59	- 276.29
Other Additions	7,166.42	71.77	12,784.14	270.06	10,677.37	76.27	10,209.30	139.37
Other Deductions	1,891.80	0.0	1,028.06	49.57	2,139.18	0.0	1,686.35	16.52
Net Earnings	10,250.73	- 148.95	33,150.11	1,604.01	24,079.82	- 1,915.41	22,493.54	- 153.44
MOUNTAIN VIEW:								
Sales	456,298.43	176,569.85	789,914.19	179,373.97	677,071.13	148,249.21	641,094.58	168,064.34
Cost of Sales	449,481.78	162,028.00	770,889.49	164,716.57	657,102.02	139,262.53	625,824.43	155,335.70
Other Operating Income	2,939.10	1,067.65	4,788.76	1,578.54	7,078.48	1,973.06	4,935.45	1,539.75
Total Gross Earnings	9,755.75	15,609.50	23,813.46	16,235.94	27,047.59	10,959.74	20,205.60	14,268.39
Expenses	13,066.22	12,213.23	14,518.57	14,315.74	15,906.43	15,628.92	14,497.07	14,052.63
Operating Earnings	- 3,310.47	3,396.27	9,294.89	1,920.20	11,141.16	- 4,669.18	5,708.53	215.76
Other Additions	8,257.07	53.01	8,724.97	1,261.47	10,745.13	592.49	9,242.39	635.66
Other Deductions	0.0	0.0	0.0	0.0	6,848.00	0.0	2,282.67	0.0
Net Earnings	4,946.60	3,449.28	18,019.86	3,181.67	15,038.29	- 4,076.69	12,668.25	851.42
CARNEGIE:								
Sales	302,799.62	170,454.08	550,039.35	215,494.74	568,555.94	222,737.41	473,798.30	202,895.41
Cost of Sales	294,773.43	149,148.23	529,575.29	189,268.06	544,779.23	199,271.50	456,375.99	179,229.26
Other Operating Income	783.72	1,528.58	0.0	4,024.71	206.04	5,831.61	329.92	3,794.97
Total Gross Earnings	8,809.91	22,834.43	20,464.06	30,251.39	23,982.75	29,297.52	17,752.23	27,461.12
Expenses	6,745.65	26,238.18	7,972.95	29,729.53	9,702.02	31,801.62	8,140.21	29,256.42
Operating Earnings	2,064.26	- 3,403.75	12,491.11	521.86	14,280.73	- 2,504.10	9,612.02	- 1,795.30
Other Additions	2,538.73	1,616.13	5,231.65	1,583.32	6,818.76	9.63	4,863.05	1,069.69
Other Deductions	273.92	725.80	3,251.24	4,143.87	0.0	2,184.37	1,175.05	2,351.35
Net Earnings	4,329.07	- 2,513.42	14,471.52	- 2,038.69	21,099.49	- 4,678.84	13,300.02	- 3,076.96

*Source: Annual Audits of the Associations, from 1946 through 1948.

the service station. In the period under observation, petroleum products did not decline in value as much as did the agricultural products which composed the sideline sales at Rocky and Mountain View. The value of the sideline sales at Rocky and Mountain View decreased although the decrease in physical volume was not as large as was indicated by the dollar volume. The petroleum products, which did not decrease in value, could easily have kept the sideline sales from declining at Carnegie. A clearer picture of the situation could have been obtained by the measurement of physical units. The variability of the products prevented this however, and only a dollar basis could be used in measuring the changes in sideline sales.

The time at which the fiscal year closed at Mountain View in 1948 could also have had a slight influence on the decrease in sideline sales. The year closed on December 11th of that year and previously the date had been December 31st. This resulted in shortening the 1948 fiscal year by over two weeks.

Cost of Sales. The cost of sales includes the purchases of the commodities with consideration given to any increase or decrease in the value of inventories during the year. The cost of sales closely follows the sales since the commodities are not retained for long periods of time and therefore the margin between the two remains relatively constant. If the price of a commodity increases, the cost of that commodity increases in about the same proportion so that a similar pattern exists between the sales and the cost of sales. The difference between these two items will be discussed after the total gross earnings are calculated by including the other operating income.

Other Operating Income. This income to the association includes any returns received on local business operations besides the gain on the sale of commodities. The types of income which are included are wheat storage and treating, custom grinding, and labor. Every organization had some grinding income. Rocky had some wheat treating income and Carnegie had a large amount of labor income in connection with the service station.

The storage operations at Mountain View accounted for the largest part of their other income. The other associations did not keep a separate storage account. Payment for storage of wheat was usually deducted from the purchases at these two associations. This resulted in other income at these organizations to be sideline business whereas at Mountain View it was primarily income to the wheat department (Table 12). The sideline department had other operating income amounting to $3,102.17 at Rocky, $1,539.75 at Mountain View, and $3,794.97 at Carnegie. The wheat department accounted for $4,935.45 at Mountain View whereas it was only $786.86 at Rocky and $329.92 at Carnegie.

Total Gross Earnings. The total gross earnings include earnings on the sale of commodities with the addition of the other operating income. It is the margin from which the operating expenses are paid. This is also the account which determined the gross margin per unit as explained earlier. The wheat department accounted for 75.7 per cent of the gross earnings at Rocky, 58.6 per cent at Mountain View, and 39.3 per cent at Carnegie. This was directly related to the amount of total sales due to wheat. The gross earnings is also a measure of the ability of each department to meet the operating expenses. They are primarily composed of the difference in the sales and the cost of sales.

The wheat department's total gross earnings averaged $25,210.09 at Rocky, $20,205.60 at Mountain View, and $17,752.23 at Carnegie (Table 12). Although this department accounted for the major portion of the gross earnings, the gross earnings per dollar of sales were greater in the sideline department. The sideline department accounted for $8,087.01 of the gross earning at Rocky, $14,268.39 at Mountain View, and $27,461.12 at Carnegie. More expenses were required for sidelines and therefore the gross margin per dollar of sales would necessarily have to be larger in that department.

Operating Earnings. The operating earnings are the returns after the operating expenses are deducted. These expenses will not be elaborated here since they were discussed previously. The wheat department accounted for the greatest share of the operating earnings at all three associations (Table 12). Since there are some other additions and deductions to be considered in each department, they will be included before an analysis of the earnings will be made.

Other Income and Deductions. Other income includes that derived from investments and financial income. This is not a result of the trading operations of the businesses. Some of the major items which are included are dividends, interest received, cash long, and gain on the sale of equipment. The major share of this income was in the wheat department. The income to this department averaged $10,209.30 at Rocky, $9,242.39 at Mountain View, and $4,863.05 at Carnegie (Table 12). The income to the sideline department amounted to only $139.37 at Rocky, $635.66 at Mountain View, and $1,069.69 at Carnegie.

Each association is a member of the Union Equity Cooperative Exchange of Enid and the Consumer's Cooperative Association of Kansas City. The net earnings of these central organizations is the basis for determining the amount to be paid back to the local cooperatives. These dividends are sometimes sufficient to compensate for operating losses by the cooperatives. This occurred in the wheat department at Mountain View in 1946. They had a loss of $3,298.98 until the dividend of $8,245.58

was received from the Union Equity. This resulted in net earnings of $4,946.60 in the wheat department that year. These dividends are paid to the local organizations on the basis of their business with the central associations. Dividends constituted the major portion of the other income.

Other deductions include cash short, loss on sale of capital assets, loss on wet wheat, cash unaccounted for, and other miscellaneous losses that are not actually operating expenses. These deductions were in certain instances the cause of success or failure in certain departments.

The deductions at Rocky amounted to $1,686.35 in the wheat department and $16.52 in the sideline department (Table 12). This was primarily income tax that was paid. This actually was not an operating expense and for two reasons was included in other deductions; first, income tax is based on net earnings and as such should not be included in the expenses that are deducted in calculating this base and second, Rocky was the only association paying income tax so that in order to have the operating expenses comparable between associations, it was not considered as an operating expense.

The only item included in other deductions at Mountain View was some loss on wet wheat in 1948 which was actually an operating loss of that department. It was an irregular occurrence however, and as such it should not be classed as a normal operating expense. The loss averaged $2,282.67 for the three year period.

Carnegie had other deductions amounting to $1,175.05 for the wheat department and $2,351.35 for the sideline department. (Table 12). Their deductions were the largest of the three associations. There are only two items of enough prominence to be mentioned. One of these items is sales tax paid. In 1947 and 1948 this organization did not deduct the sales tax received from their total sales figure. It must still be deducted before the net earnings are calculated. This item was mentioned in the discussion of the operating expenses in a previous section and requires no further elaboration.[3] The other of the two items mentioned was cash unaccounted for. A sum of over $10,000 was unaccounted for at Carnegie in 1947. The Board of Directors decided to absorb this loss by setting up an account receivable from the bookkeeper for approximately one-half the sum and the remainder was charged against the current year's earnings as a loss. This loss of $5,177.13 was included in other deductions. A basis of gross earnings was used in allocating this loss between departments. This basis of ability to pay was used since there was no better means of allocation between wheat and sidelines.

Net Earnings. The measure of success of the operations of any business is the net earnings. This is the amount that the association realizes after all obligations and income are considered. Every organization had an overall profit every year although there occurred frequent losses in the sideline departments (Table 12). The wheat department covered these losses and allowed the cooperatives to realize some net earnings. The wheat department had average net earnings of $22,493.54 at Rocky, $12,668.25 at Mountain View, and $13,300.02 at Carnegie. Mountain View's sideline department had net earnings amounting to $851.42, however Rocky had an average annual loss in that department of $153.44 while the loss at Carnegie averaged $3,076.96. The purpose of this section is to analyze the departmental losses.

Rocky had losses in their sideline business in both 1946 and 1948. Neither of them were large losses. It must be remembered that Rocky's

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[3]Cf. ante. page 16.

total business was composed almost entirely of wheat, the sales of which composed 91.6 per cent of the total (Table 1). It is only natural that possible inefficiencies existed due to the small volume of sideline business.

Mountain View had a loss in the wheat department before the Union Equity dividends were received in 1946 (Table 12). The small volume of business which they had was discussed earlier.[4] The handling cost per bushel was 5.15 cents and the gross margin per bushel was 3.85. Their operating expenses were 1.3 cents per bushel more than the gross margin.

Mountain View had a loss in their sideline activities in 1948. This too was a result of a low volume of business. Their expenses increased on sideline business largely due to a higher price level. They had a higher salary and wage expense as well as having to bear the fixed costs that were present. The sideline sales in 1948 were only 82.6 per cent of those in 1947 and with the slight increase in operating expenses, the loss resulted.

Carnegie had a loss on their sideline business every year (Table 12). The wheat business offset the loss in every instance, however it was not offset in 1946 until after the Union Equity dividend was received. Probably the foremost reason for these losses was less efficiency in the utilization of their resources, especially labor. In comparison with the other associations, Carnegie had a much larger increase in expenses than could be accounted for by the increase in sideline sales. This could possibly have been due to the operation of the service station which required more labor. Carnegie maintained a labor force of eight to twelve men the entire year and their sideline business was not sufficient to

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[4] Cf. ante. page 33

justify the extra service which caused the higher expenses.

The fact that a department of an association is not profitable does not necessarily mean that it should be abandoned. A department operating at a loss may increase the business in other departments to such an extent that the total net earnings are greater with than without the department.

A simple illustration may help to clarify this point. Assume that a farmer begins buying his gasoline from an association which is operating at a loss in that department. He might prefer to buy his gasoline from them because they afford superior service, this service possible being the cause for the loss. After becoming a member the farmer will be interested in the cooperative's earnings as they are the basis for the payment of patronage dividends. He would then take his wheat to the association that he formerly marketed with other elevators. The wheat business might more than offset any loss incurred in his gasoline business. This sums up the fact that the aggregate net earnings are the primary interest and if these are increased by the maintenance of a losing department, then that department should be kept.

It cannot be assumed that the above situation could be entirely true nor can it be assumed that it would not exist. Some departments could probably be dropped in certain instances with great aggregative net earnings. Each situation is unique in certain respects and should be considered as such.

AN ANALYSIS OF THE SEASONAL EXPENSES

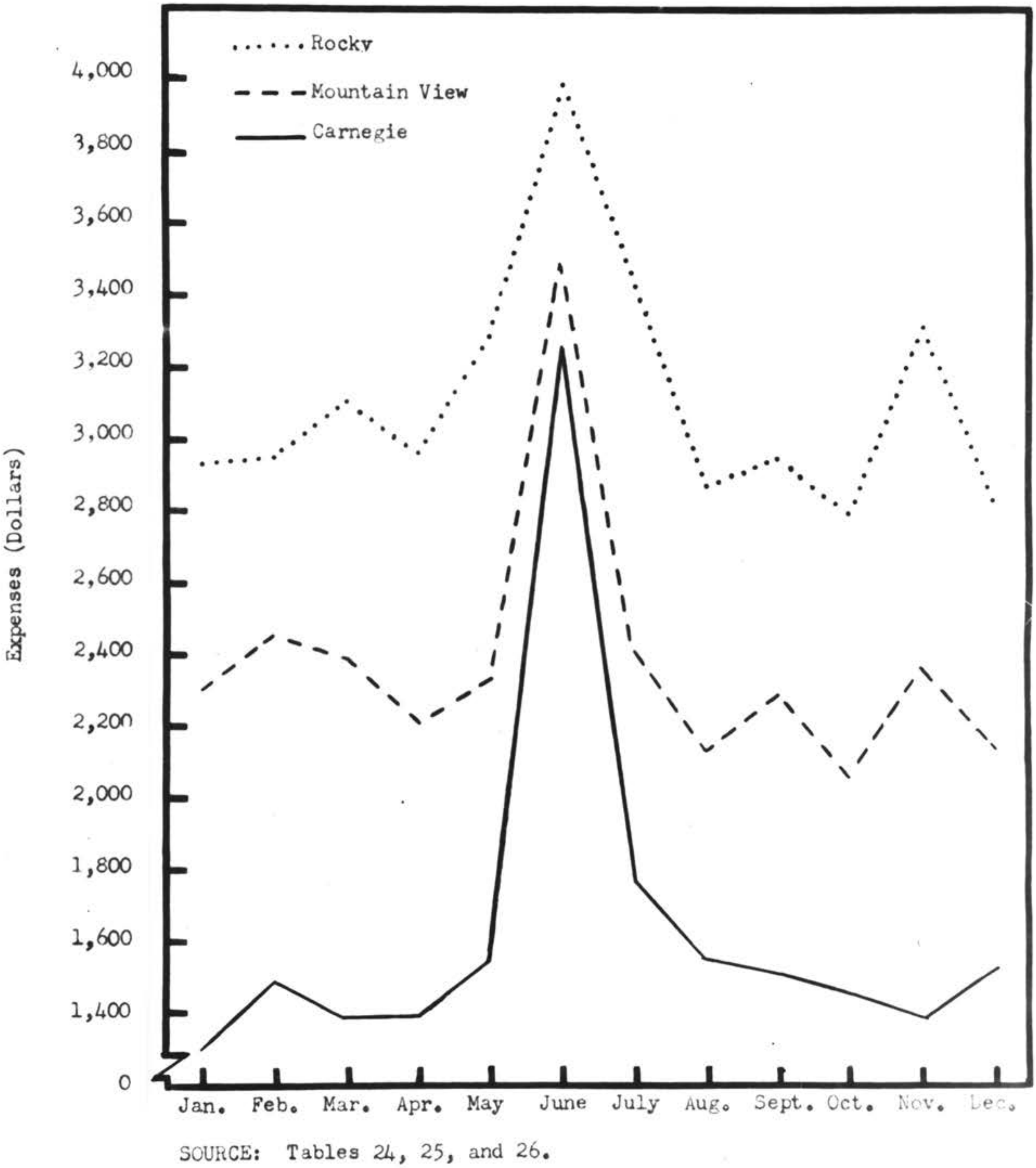
The seasonal marketings of farm products and the demand for services and supplies cause variations in the monthly expenses of the associations. These expenses follow much the same pattern for all three associations, however the various types of sidelines handled at each association caused different amounts of expenses to be incurred each month. Of the operating expenses salaries and wages had the greatest influence on the monthly variations since it was the largest of the operating expenses and also because it fluctuated greatly with the demand for services.

The data used for the seasonal expenses were obtained from the expense ledgers of each association. The expenses were entered in the month they were paid which was not necessarily the month in which they were incurred although this was the situation which usually existed. Some of the accumulative expenses which were paid only once a year were divided equally among the twelve months. Included in this was interest, insurance and bonds, and the taxes exclusive of the payroll taxes which are paid each month according to the labor incurred in that month.

Seasonal Fluctuations of Each Association

The seasonality of expenses at an association can explain a great deal about the seasonal operations of an elevator as well as the relation of sideline business with the monthly expenses. The expenses of all three associations reached a peak in June (Figure 2). This was due to wheat harvesting occurring in that month. The associations differed in the magnitude of this peak and also in the variations of the remaining months.

Figure 2. Average Seasonal Variation of the Operating Expenses for the Three Associations, From 1946 Through 1948



SOURCE: Tables 24, 25, and 26.

Rocky. The expenses incurred in June increased more at Rocky than at the other associations although the total expenses were lower each month (Figure 2). Previous to harvest the expenses varied only slightly ranging from about $1,300 to about $1,550 each month. The total expenses more than doubled from May to June when they were increased to almost $3,300. Rocky had a small amount of sideline business which kept the expenses low in the off-harvest periods. The large volume of wheat which they handled required a great deal of extra labor which in turn caused the large increase in June. The July expenses were also above the pre-harvest level due to the handling operations of wheat that was still on hand.

Following harvest the expenses remained about the same as before harvest. The small amount of monthly variations, exclusive of the harvest period, was largely due to a small labor force. Besides the manager and bookkeeper only one employee was usually retained to accommodate the sideline business. The sideline business was small which lessened the probability of any peaks in sideline expenses.

Mountain View. As an association handled more sidelines, the expenses fluctuated more in the months before and after harvest. The expenses at Mountain View were higher than those at Rocky but lower than those at Carnegie each month (Figure 2). A slight increase of the expenses at Mountain View in February was due to increases in the truck expense and supplies. The expenses varied little from February until harvest when they increased by approximately $1,200. Previous to harvest the expenses ranged from $2,200 to about $2,450. In June they reached about $3,500. Although this was higher than the expenses were at Rocky that month, the increase from the pre-harvest level was not as much due to more expenses being incurred in the earlier period. The expenses declined to about the pre-harvest level in July.

The expenses incurred each month following harvest varied greatly which was due almost entirely to variations in labor cost. This period is primarily one of sideline business since most of the wheat is already marketed. The expenses were lower in August, October, and December, ranging around $2,100. They were higher in two months totaling almost $2,300 in September and $2,350 in November. These two months are the most active of the post-harvest period. Labor was the principal expense effecting these increases, which was incurred due to more sideline business. Wheat sowing operations in September and the need for livestock feed due to the lack of available pasture in November were probably the causes for the increased business.

Carnegie. The expenses were more each month and varied more between months at Carnegie than at the other two associations (Figure 2). This was due to the large sideline business which required more expenses as well as some sideline peaks. The labor expense was the largest factor in the variations at Carnegie. This expense caused the pre-harvest inclines in March and May. The expenses of the pre-harvest period ranged from slightly over $2,900 to about $3,300 each month. The usual harvest peak occurred in June, however it exceeded the May expenses by only about $700. Although some additional labor was required in June, it was minimized due to the large labor force which was maintained the entire year. The expenses of July were also above the normal level due to a small amount of additional labor required to handle the late wheat.

From August through December the expenses were slightly lower than those of the pre-harvest period except for November. An increase in repairs, truck expenses, and the labor caused the expenses to be about $3,300 in November. The closing of the fiscal year on November 30th could also have had an influence on the increased expenses in that month. Some bills incurred earlier but not yet paid are usually paid before the auditing is done and they are entered in November.

Seasonal Fluctuations Between Associations

The expenses followed similar patterns between associations, however the occurrence or extent of the monthly changes differed between the associations (Figure 2). The pre-harvest period is one of little activity since little wheat is being marketed and sidelines constitute the largest portion of the business. In May the elevators usually are repaired and necessary supplies are obtained for harvest. This was the cause of an increase in expenses at both Rocky and Carnegie in May.

The largest part of the wheat in the area is marketed in June. This was the month of the largest total expenses at all three associations, however the magnitude of the increase differed with the associations. The increase was more noticeable with the organizations having less expense due to fewer sidelines. Less than $800 separated the associations having the highest and lowest expenses in that month whereas in the off-harvest periods this difference reached as much as $1,900. This was a result of two conditions. First, the associations in this study which handled fewer sidelines were also the ones handling the largest volume of wheat. Second, with more sidelines handled larger off-season labor forces are maintained which are diverted to the handling of wheat during harvest. This decreases to a certain extent the need for additional labor. The expenses in July were still higher than normal. This was caused by the handling and shipping of wheat on hand as well as the marketing of late wheat.

The post-harvest period from August through December is similar to the pre-harvest period (Figure 2). Sidelines accounted for most of the business since little wheat was then marketed. Mountain View and Carnegie followed the same pattern during this period while the monthly expenses at Rocky remained more stable. The fluctuations were caused primarily from changes in labor expense. The small amount of sideline business at Rocky decreased the fluctuations. With a decreasing amount of sidelines the expenses from month to month had a tendency to remain more stable.

AN ANALYSIS OF THE FIXED AND VARIABLE EXPENSES

The amount of fixed costs which a firm must bear is important in planning future operations. Fixed costs are present for a definite period of time regardless of output. They are generally regarded as remaining constant with changes in production while variable costs are those which change with different levels of production. This definition is not entirely valid unless it is used in relation with a specified length of time. For example, all costs tend to remain fixed at any given instant and with the passage of time more of the costs become variable. They become more flexible and more capable of being changed during longer periods. For the analysis in this study Larson's definition was used which states,

> "Fixed costs are those which are stationary for a particular production period of time, while variable costs are not, for the same period. Fixed costs are independent of output within this production period, while variable costs are a function of output although not necessarily proportional to it."[5]

Since a period of time must be used the practical length of time for use in this study would be one year. The fixed costs are those which extend beyond one year. Any particular cost would not necessarily be 100 per cent fixed or 100 per cent variable for this period. If 40 per cent of a cost's effect is extended into future years, then 60 per cent of the cost is assumed to be variable.

A schedule of the percentage fixity of each expense was arranged by estimating the proportion of each expense which is extended into future

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[5] Adlowe L. Larson, "The Fixity Gradient: A Tool for Fixed and Variable Cost Analysis," Journal of Farm Economics, Vol. XXVIII (August 1946) 827.

periods. It is assumed that the plant will remain a going concern during the period. The percentages from this schedule were then applied to the various expenses to obtain the amount of fixed costs for the period. For example managers' salaries were considered to be 100 per cent fixed while other salaries and wages were 50 per cent fixed. The manager and certain other key employees must be retained for long periods in order for the firm to remain a going concern. Some of the other labor can be hired and released at the will of the firm without disrupting operations.

The fixed costs may act as a guide in determining whether or not an association should extend or contract its operations in the future. As the variable costs do not increase proportionately to increases in operations, although they closely approach it, different levels of production should be considered with the aim of finding the most ideal production level. If a large amount of the costs are fixed, the rigidity of the costs may prevent a large amount of reduction in operations. They are most likely permitted to increase business with the addition of more variable costs.

The type of business of each association determines to a large extent the nature of its fixed costs. The variations of each association between the years as well as variations between associations will be analyzed.

Yearly Variations in Fixed and Variable Expenses for the Associations

The variations in expenses from year to year caused variations in the amount of fixed costs between years. Some expenses increased more than others causing the amount of fixed costs to fluctuate. These variations were limited since there was a relatively constant increase between the various expenses over the three years of this study. There were some changes however, so these changes will be observed from year to year at each association.

Rocky. The fixed costs increased each year at Rocky totaling $11,439.81 in 1946, $13,489.66 in 1947, and $14,768.27 in 1948 (Table 13). The increase was largely due to the construction of the feed house which caused larger physical facility and interest costs to be borne. These expenses are largely fixed so that an increase in them causes an almost proportionate increase in fixed costs.

The variable costs at Rocky increased from $5,710.77 in 1946 to $6,837.77 in 1947 followed by a slight decrease in 1948 when they totaled $6,562.13 (Table 13). The decrease was largely the result of a decrease in the expenses classified as other expenses which are largely variable. It would appear as if this decrease would accompany a decreased volume however the reverse was true. The increased volume was handled by an increased proportion of fixed expenses. Almost 70 per cent of the total costs were fixed. This increased the rigidity of the costs and any reduction in per unit costs would have to be accomplished through an increase in the volume handled and variable costs.

Mountain View. The fixed costs increased each year at Mountain View however the largest increase occurred in 1947 when the new elevator was put into operation (Table 14). These costs increased from $15,678.68 in 1946 to $18,093.23 in 1947 and $19,434.98 in 1948. The new structure caused a large increase in depreciation which is 100 per cent fixed. The remaining physical facility expenses and the calculated interest expense also increased. The other expenses increased in amount causing a slight effect on the total fixed costs, however these are largely variable costs and more effect was exerted with the total variable costs.

The variable costs were increased from $9,600.77 in 1946 to $10,741.08 in 1947 and $12,100.37 in 1948 (Table 14). Although there was an increase in 1947, it was not as proportionately large as was the

TABLE 13

FIXED AND VARIABLE EXPENSES FOR
THE FARMERS COOPERATIVE GRAIN AND SUPPLY COMPANY, INC. OF ROCKY, OKLAHOMA,
FROM 1946 THROUGH 1948*

	Percentage		1946			1947			1948		
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable
	(P E R C E N T)					(D O L L A R S)					
Salaries and Wages:											
Manager's Salary	100	0	1,995.00	1,995.00	-0-	2,150.00	2,150.00	-0-	2,175.00	2,175.00	-0-
Other Salaries and Wages	50	50	5,633.38	2,816.69	2,816.69	6,298.71	3,149.35	3,149.36	6,659.33	3,329.66	3,329.66
Depreciation	100	0	1,744.30	1,744.30	-0-	2,461.04	2,461.04	-0-	3,119.37	3,119.37	-0-
Insurance and Bonds	75	25	1,059.18	794.38	264.80	1,172.48	804.36	268.12	1,127.45	845.59	281.86
Interest:											
Operating Capital	50	50	694.94	347.47	347.47	1,262.19	631.10	631.09	1,610.30	805.15	805.15
Facility Capital	100	0	1,091.35	1,091.35	-0-	1,516.41	1,516.41	-0-	1,618.23	1,618.23	-0-
Commodity Capital	0	100	228.67	-0-	228.67	266.84	-0-	266.84	222.63	-0-	222.63
Taxes:											
Pay Roll	60	40	297.46	178.48	118.98	321.85	193.11	128.74	378.68	227.21	151.47
Advalorem	100	0	313.70	313.70	-0-	868.84	868.84	-0-	921.46	921.46	-0-
Corporation License	100	0	61.25	61.25	-0-	69.60	69.60	-0-	94.75	94.75	-0-
Sales Tax	0	100	7.54	-0-	7.54	162.81	-0-	162.81	27.72	-0-	27.72
Truck License	100	0	11.40	11.40	-0-	68.25	68.25	-0-	101.00	101.00	-0-
Excise Taxes	0	100	-0-			-0-			-0-		
Utilities	20	80	876.64	175.33	701.31	925.63	185.13	740.50	843.13	168.63	674.50
Telephone and Telegraph	25	75	139.23	34.81	104.42	134.65	33.66	100.99	138.29	34.57	103.72
Repairs	30	70	702.64	210.79	491.85	697.73	209.32	488.41	614.88	184.46	430.42
Supplies	25	75	219.26	54.81	164.45	401.46	100.36	301.10	309.40	77.35	232.05
Advertising	50	50	107.00	53.50	53.50	279.19	139.60	139.59	92.42	46.21	46.21
Truck Expense	25	75	224.10	56.02	168.08	224.53	58.13	166.40	107.94	26.98	80.96
Administrative and Selling Expense			1,743.04	1,500.03	243.01	1,145.22	853.40	291.82	1,168.42	992.65	175.77
TOTALS			17,150.56	11,439.81	5,710.77	20,327.43	13,489.66	6,837.77	21,330.40	14,768.27	6,562.13

*Source: Annual Audits of the Association, from 1946 through 1948.

TABLE 14

FIXED AND VARIABLE EXPENSES FOR
THE FARMERS COOPERATIVE ASSOCIATION OF MOUNTAIN VIEW, OKLAHOMA,
FROM 1946 THROUGH 1948*

	Percentage		1946			1947			1948		
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable
	(PERCENT)		(DOLLARS)								
Salaries and Wages:											
Manager's Salary	100	0	2,400.00	2,400.00	-0-	2,400.00	2,400.00	-0-	2,400.00	2,400.00	-0-
Other Salaries and Wages	50	50	9,273.45	4,636.72	4,636.73	11,913.05	5,956.52	5,956.53	13,016.75	6,508.37	6,508.38
Manager's Bonus	0	100	-0-			-0-			600.00	-0-	600.00
Depreciation	100	0	1,417.15	1,417.15	-0-	2,260.37	2,260.37	-0-	2,439.65	2,439.65	-0-
Insurance and Bonds	75	25	1,475.28	1,106.46	368.82	1,708.17	1,281.13	427.04	1,534.29	1,150.72	383.57
Interest:											
Operating Capital	50	50	848.41	424.20	424.21	723.31	361.65	361.66	1,222.96	611.48	611.48
Facility Capital	100	0	3,396.11	3,396.11	-0-	3,401.52	3,401.52	-0-	3,473.27	3,473.27	-0-
Commodity Capital	0	100	361.19	-0-	361.19	488.95	-0-	488.95	162.61	-0-	162.61
Taxes:											
Pay Roll	60	40	429.78	257.87	171.91	335.37	201.22	134.15	229.20	137.52	91.68
Advalorem	100	0	496.30	496.30	-0-	669.26	669.26	-0-	1,105.07	1,105.07	-0-
Corporation License	100	0	61.25	61.25	-0-	85.50	85.50	-0-	101.25	101.25	-0-
Sales Tax	0	100	45.58	-0-	45.58	47.23	-0-	47.23	51.73	-0-	51.73
Truck License	100	0	-0-			-0-			-0-		
Excise Taxes	0	100	-0-			-0-			-0-		
Utilities	20	80	977.71	195.54	782.17	856.45	171.29	685.16	948.91	189.78	759.13
Telephone and Telegraph	25	75	321.30	80.32	240.98	340.13	85.03	255.10	399.47	99.87	299,60
Repairs	30	70	1,191.24	357.37	833.87	1,196.51	328.95	767.56	1,624.70	457.41	1,167.29
Supplies	25	75	1,002.63	250.66	751.97	964.74	241.18	723.56	1,308.94	327.23	981.71
Advertising	50	50	118.40	59.20	59.20	280.23	140.11	140.12	159.27	79.63	79.64
Truck Expense	25	75	236.24	59.06	177.18	482.26	120.56	361.70	193.57	48.39	145.18
Administrative and Selling Expense			1,227.43	480.47	746.96	781.26	388.94	392.32	663.71	305.34	358.37
TOTALS			25,279.45	15,678.68	9,600.77	28,834.31	18,093.23	10,741.08	31,535.35	19,434.98	12,100.37

*Source: Annual Audits of the Association, from 1946 through 1948.

increase in fixed expenses. This resulted in a larger portion of the total costs becoming fixed. This was also accompanied with an increased volume of sales (Table 12). The variable expenses also increased in 1948 with a decreased dollar sales volume. Since this volume is measured in dollars instead of physical units and due to increasing prices, the physical volume decrease would not be so great. The wages, repairs, and supplies caused the increase in variable expenses in 1948. A higher wage rate existed so that a larger labor expense would occur for the same amount of labor. As was the situation with Rocky, an increase in variable expenses occurred in 1948 with a lower volume of business. The relation of farm and non-farm prices would tend to distort the situation somewhat since the same volume of agricultural products would bring less returns while the same amount of factors composing the expenses would cost more. The influence from this is unlikely to be the total cause for this situation however.

Carnegie. The fixed costs showed large increases each year at Carnegie. They totaled $17,304.43 in 1946, $20,276.89 in 1947, and $24,652.00 in 1948 (Table 15). A number of factors were responsible for this. The manager's salary, which was 100 per cent fixed, was increased each year. The physical facility expenses, expecially insurance and bonds, and interest increased. Some of the other expenses also increased and although most of them are highly variable, their small portion of fixity had an effect on the total fixed costs. Legal expense, included in the administrative and selling expenses, had a large effect on the fixed costs in 1948. It amounted to over $1,200 and, being 100 per cent fixed, increased the fixed costs considerably.

The variable costs at Carnegie increased from $15,679.40 in 1946 to $17,425.59 in 1947, and although they were smaller in 1948 they still

TABLE 15

FIXED AND VARIABLE EXPENSES FOR
THE FARMERS COOPERATIVE MILL AND ELEVATOR ASSOCIATION OF CARNEGIE, OKLAHOMA,
FROM 1946 THROUGH 1948*

	Percentage		1946			1947			1948		
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable
	(PERCENT)					(DOLLARS)					
Salaries and Wages:											
Manager's Salary	100	0	2,400.00	2,400.00	-0-	2,500.00	2,500.00	-0-	3,000.00	3,000.00	-0-
Other Salaries and Wages	50	50	16,309.80	8,154.90	8,154.90	17,223.82	8,611.91	8,611.91	18,713.22	9,356.61	9,356.61
Depreciation	100	0	1,649.93	1,649.93	-0-	1,953.14	1,953.14	-0-	1,958.33	1,958.33	-0-
Insurance and Bonds	75	25	1,342.39	1,006.79	335.60	1,991.93	1,493.95	497.98	2,293.71	1,720.28	573.43
Interest:											
Operating Capital	50	50	770.53	385.26	385.27	943.88	471.94	471.94	1,187.65	593.82	593.83
Facility Capital	100	0	749.88	749.88	-0-	756.16	756.16	-0-	949.94	949.94	-0-
Commodity Capital	0	100	483.90	-0-	483.90	563.75	-0-	563.75	418.51	-0-	418.51
Taxes:											
Pay Roll	60	40	332.93	199.57	133.04	384.60	230.76	153.84	463.64	278.18	185.46
Advalorem	100	0	333.93	333.93	-0-	855.15	855.15	-0-	762.58	762.58	-0-
Corporation License	100	0	57.50	57.50	-0-	70.75	70.75	-0-	61.25	61.25	-0-
Sales Tax	0	100	-0-			-0-			-0-		
Truck License	100	0	125.75	125.75	-0-	115.25	115.25	-0-	10.50	10.50	-0-
Excise Taxes	0	100	49.50	-0-	49.50	-0-			33.00	-0-	33.00
Utilities	20	80	1,202.41	240.48	961.93	1,456.95	291.39	1,165.56	1,388.46	277.69	1,110.77
Telephone and Telegraph	25	75	229.41	57.35	172.06	190.65	47.66	142.99	286.66	71.66	215.00
Repairs	30	70	884.36	265.31	619.05	1,248.03	374.41	873.62	555.51	166.65	388.86
Supplies	25	75	1,455.62	363.90	1,091.72	3,366.84	841.71	2,525.13	1,007.47	251.87	755.60
Advertising	50	50	324.18	162.09	162.09	522.72	261.36	261.36	787.56	393.78	393.78
Truck Expense	25	75	2,532.21	633.05	1,899.16	2,456.44	614.11	1,842.33	1,413.63	353.41	1,060.22
Administrative and Selling Expense			1,749.92	518.74	1,231.18	1,102.42	787.24	315.18	6,214.02	4,447.45	1,766.57
TOTALS			32,983.83	17,304.43	15,679.40	37,702.48	20,276.89	17,425.59	41,503.64	24,652.00	16,851.64

*Source: Annual Audits of the Association, from 1946 through 1948.

amounted to $16,851.64 which was larger than the 1946 total (Table 15). The cause for this situation was that repairs, supplies, and truck expense, all of which were largely variable, were exceptionally large in 1947.

The percentage of total costs which was fixed increased each year. There was 52.5 per cent of the total costs fixed in 1946, 53.8 per cent in 1947, and 59.4 per cent in 1948. This situation tends to increase the rigidity of the organization's operations. More of the costs which are being incurred are more fixed than variable and these constant costs must be taken into consideration in planning future operations.

Variations of Fixed and Variable Expenses Between Associations

A comparison between the different associations shows the relationship between the type of business done and the rigidity of the costs. The types of expenses incurred in wheat or sideline business varies and a comparison of these expenses helps to explain the type of costs involved in each type of operation. During the remainder of this section it would be well to keep in mind the fact that Carnegie had the greatest amount of sideline business followed by Mountain View and Rocky in that order as this had a large influence on the type of costs involved.[6]

<u>Comparison of Salary and Wage Expense.</u> More labor is required for sideline than for wheat business. The surplus labor in turn increased both fixed and variable costs. As the manager's salary does not vary materially between associations and the remainder of the labor is 50 per cent fixed, the larger labor cost decreases the percentage of the total labor cost that is fixed. The fixed labor expense totaled $5,205.23 at

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[6] Cf. ante. page 6.

Rocky, $8,100.54 at Mountain View, and $11,341.14 at Carnegie (Table 16). This was 62.7 per cent of the total labor expense at Rocky, 57.9 per cent at Mountain View, and 56.6 per cent at Carnegie. Increasing the volume of business would have a greater effect in reducing the labor cost per unit in the organizations having a higher percentage of fixed costs or in this situation, those which handled less sidelines.

Comparison of Physical Facility Expenses. Wheat requires more physical facilities than does sidelines. The expense related to these physical assets are the most highly fixed group of expenses.

Depreciation, which is 100 per cent fixed, was the largest at Rocky with $2,441.74 followed by Mountain View with $2,039.06 and Carnegie with $1,853.13 (Table 16). This expense remains constant for each asset until its value is recovered. An asset depreciates whether it is in use or not. Mountain View had a larger investment than the other associations since it had the new concrete elevator. This structure depreciated at only 2 per cent per year whereas the wooden structures depreciated at a rate of 5 per cent. This prevented the depreciation cost from being larger at Mountain View than it was at Rocky though their investment was larger.

Insurance and bonds, which was 75 per cent fixed, had the largest amount fixed at Carnegie with $1,407.01, followed by Mountain View with $1,179.44 and Rocky with $814.78. This expense was larger at Carnegie due to the higher rates on petroleum facilities. There was little difference in the amount of taxes which were fixed at the three associations. They totaled slightly more than $1,030 with each association. Although the advalorem taxes which were 100 per cent fixed were lower at Carnegie, the truck licenses and taxes brought their fixed taxes to about the same level as at Rocky and Mountain View.

TABLE 16

AVERAGE ANNUAL FIXED AND VARIABLE EXPENSES FOR THE THREE ASSOCIATIONS FROM 1946 THROUGH 1948*

	Percentage		Rocky			Mountain View			Carnegie		
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable
	(P E R C E N T)					(D O L L A R S)					
Salaries and Wages:											
Manager's Salary	100	0	2,106.66	2,106.66	-0-	2,400.00	2,400.00	-0-	2,633.33	2,633.33	-0-
Other Salaries and Wages	50	50	6,197.14	3,098.57	3,098.57	11,601.08	5,700.54	5,900.54	17,415.81	8,707.81	8,707.80
Depreciation	100	0	2,441.74	2,441.74	-0-	2,039.06	2,039.06	-0-	1,853.13	1,853.13	-0-
Insurance and Bonds	75	25	1,086.37	814.78	271.59	1,572.58	1,179.44	393.14	1,876.01	1,407.01	469.00
Interest:											
Operating Capital	50	50	1,189.15	594.57	594.58	931.57	465.78	465.79	967.35	483.68	483.67
Facility Capital	100	0	1,408.66	1,408.66	-0-	3,423.63	3,423.63	-0-	818.36	818.36	-0-
Commodity Capital	0	100	239.38	-0-	239.38	337.58	-0-	337.58	488.72	-0-	488.72
Taxes:											
Pay Roll	60	40	332.66	199.60	133.06	331.45	198.87	132.58	393.62	236.17	157.45
Advalorem	100	0	701.33	701.33	-0-	756.88	756.88	-0-	650.55	650.55	-0-
Corporation License	100	0	75.20	75.20	-0-	82.66	82.66	-0-	63.17	63.17	-0-
Sales Tax	0	100	66.02	-0-	66.02	48.18	-0-	48.18	-0-	-0-	-0-
Truck License	100	0	60.23	60.23	-0-	-0-	-0-	-0-	83.33	83.33	-0-
Excise Taxes	0	100	-0-			-0-			27.50	-0-	27.50
Utilities	20	80	881.80	176.36	705.44	927.69	185.54	742.15	1,349.27	269.85	1,079.42
Telephone and Telegraph	25	75	137.39	34.35	103.04	353.63	88.41	265.22	235.57	58.89	176.68
Repairs	30	70	671.75	201.52	470.23	1,270.82	381.24	889.58	895.97	268.79	627.18
Supplies	25	75	310.04	77.51	232.53	1,092.10	273.02	819.08	1,943.31	485.83	1,457.48
Advertising	50	50	159.54	79.77	79.77	185.97	92.98	92.99	544.82	272.41	272.41
Truck Expense	25	75	185.52	46.38	139.14	304.02	76.00	228.02	2,134.09	533.52	1,600.57
Administrative and Selling Expense			1,352.22	1,115.35	236.87	890.80	391.58	499.22	3,022.12	1,917.81	1,104.31
TOTALS			19,602.80	13,232.58	6,370.22	28,549.70	17,735.63	10,814.07	37,396.63	20,744.44	16,652.19

*Source: Annual Audits of the Associations, from 1946 through 1948.

<u>Comparison of Interest Expenses.</u> The fixed portion of the interest cost was larger at Mountain View than at either of the other associations. (Table 16). This amounted to $2,003.23 at Rocky, $3,889.41 at Mountain View, and $1,302.34 at Carnegie. The reason for the large amount of fixed interest at Mountain View was due to the large investment in the new elevator. This was larger although depreciation was not which was due to the rates applied with each expense. A lower rate of depreciation was used with the concrete elevator while the same rate of interest was applied although both costs are calculated from the book value of the assets.

Since the operating capital was 50 per cent fixed, it had no effect in increasing either the fixed or variable costs more than the other. The commodity capital was 100 per cent variable however it consisted of only a small amount at each cooperative. The inventories upon which it is based are usually small at the close of the year in order to simplify the auditing procedure. The commodity interest amounted to $239.38 at Rocky, $337.58 at Mountain View, and $488.72 at Carnegie. Most of the inventories was due to sideline products which caused this expense to be larger with the cooperatives handling more sidelines.

<u>Comparison of Other Expenses.</u> The remaining expenses were the most variable of the operating expenses due to their usual dependence upon the volume of business. The associations handling more sidelines were faced with a larger amount of these expenses. The total of this group was $3,698.26 at Rocky, $5,025.03 at Mountain View, and $10,125.15 at Carnegie (Table 16). At Rocky 53.2 per cent of these expenses were variable followed by Carnegie with 62.4 per cent, and Mountain View with 70.4 per cent. The expenses composing the largest portion of these variable costs were utilities, repairs, supplies, and the administrative and selling expenses. The truck expense was also large at Carnegie due to their maintenance of

the gasoline delivery trucks and other truck expense incurred in their large sideline business.

The administrative and selling expense had the greatest effect in causing the differences between associations as to the fixity of this group of expenses. Since this expense was composed of a varied group of items each was considered separately. The results was that at Rocky and Carnegie the greatest share of this expense was fixed, while more of it was variable at Mountain View. The cause of this situation was that a large amount of yard improvement and lease expense was incurred at Rocky while at Carnegie the increased fixed costs were due to legal expense. Loss on bad debts increased the expense considerably at Carnegie, however it was only 50 per cent fixed and thus had no influence on increasing either the fixed or variable expenses more than the other.

Comparison of Total Expenses. Of the total expenses 67.5 per cent was fixed at Rocky, 62.1 per cent at Mountain View, and 55.5 per cent at Carnegie (Table 16). As a firm has more of its costs fixed, it generally can decrease the cost per unit handled by increasing the volume more easily than if the costs were largely variable. This is assuming that the fixed facilities would be adequate to accomodate an increased volume without an increase in them. If this were true an increase in volume would lower the fixed costs per unit which would also lower the total costs per unit.

AN ANALYSIS OF THE PROPOSED MULTIPLE UNIT ASSOCIATION

Certain efficiencies in the operating expenses may be gained by multiple unit associations which are not achieved in single unit cooperatives. The previous analyses are concerned with the single unit organizations as they operate individually. The associations will now be combined to form a synthetic multiple unit cooperative and the cost conditions of this organization as compared to their operation as single units will be analyzed. The data used are based on the average expenses of the single unit associations.

Certain assumptions will need to be made in regard to the new association. The same facilities will be used with the same volume of business. This would possibly change in certain instances however only the relative expenses will be considered. The cost conditions will be based on the average expenses from 1946 through 1948 with the general level of prices to be similar to the prices of that period. The proposed association will be different only in organizational characteristics with the period of operation similar to the period covered by this study.

The expenses to be assumed are only estimates and would not necessarily coincide with the expenses that would actually be involved if the association were in operation. There would definitely be changes in the operating expenses and the estimates were made to correspond with the probable costs which would be involved if such an association were organized by combining the existing cooperatives. To obtain the exact cost data would require the new association to be put into operation.

Carnegie was chosen as the site of the administrative headquarters. The reason for selecting this station rather than one of the others is that they have the largest volume of sideline business and expenses. Mountain View could easily have been chosen however their sideline business is less. This station is also more centrally located however it appears as if more efficiency could be gained if the manager were located at the station handling the largest amount of sidelines which is Carnegie.

It is assumed that the same volume of business would be handled. Over a long period of time the sideline sales, especially through the gasoline trade, would be increased through extending more services to patrons who do not obtain these services from the present cooperatives. For instance some of the present members of the Mountain View cooperative would probably use the petroleum delivery service offered at Carnegie if this service were included in the same organization.

Increased efficiency through the lowering of costs would not necessarily be the only savings to some of the members. For example a member may now trade entirely with one of the cooperatives because of more services offered although he lives closer to another association. If they were combined he could go to one or all of the stations and still be doing business with the same organization. This may prove to be a shorter haul in marketing crops in certain instances. Any savings to members such as this are not considered in this study as it deals only with cost differences, however it would be well to recognize these possibilities also.

The Operating Expenses of the Proposed Association

Some of the operating expenses were reduced by combining the associations into one organization. These reductions were largely accomplished by reducing the managerial and administrative expenses. As a basis for comparison the average expenses for the three single unit firms for the three year period were used. In other words the average expenses for all of the associations for the three year period were totaled so that the average annual expenses paid by all three associations operating as single units were obtained. These are then compared with the annual expenses of the proposed multiple unit cooperative.

Some of the expenses remained the same since only the organizational structure was changed and not the physical structure. Those expenses relating to the physical assets which were regarded as remaining the same are depreciation, insurance and bonds, and interest expense. There would possibly be minor adjustments in these expenses, however we are considering the same assets as before and therefore little change if any would result.

Utilities, repairs, and truck expense were also considered as remaining the same. These expenses are closely related to the volume of business and since volume is to remain the same these expenses also would not change. The only possibility of reduction of the expenses in this group would be from allowing the trucks to serve more than one station which would increase the efficiency somewhat.

The expenses which were reduced will be discussed with the reasons supporting each instance in which the reduction was made. The most significant of these expenses are salaries and wages and the closely related payroll taxes. The other expenses which were estimated to be lower are telephone and telgraph, supplies, advertising and the administrative and selling expenses.

Salaries and Wages. Of the operating expenses salaries and wages would be the most logical expense with which to gain efficiency since they compose such a large portion of the total expense. The largest saving in labor expense would come from reorganization of the management. The proposed cooperative would have only one manager and bookkeeper whereas under the single unit system three of each are maintained. Station operators would still be kept, however the managerial decisions would not be in their hands. Instead of bookkeepers at each point, daily report sheets could be used with the central station maintaining the books. Some efficiency should be gained by having a higher paid, competent manager and also by having mobility of labor between stations which is not possible between single unit firms.

An estimated saving of $4,507.89 or 10.6 per cent of the original labor expense could be made by forming the multiple unit organization (Table 17). Approximately $2,940 of this would be due to having only one manager. This is calculated at an increased salary over that of any one manager under the single unit arrangement. The remaining reduction of approximately $1,570 would be due to the other labor, mostly from reducing the salary expense for bookkeepers. One bookkeeper could be used however the salary paid him would be larger than that of any one of the bookkeepers in the single unit organizations.

Both Rocky and Mountain View were considered as using the same labor force, except for the bookkeeper, in an attempt to arrive at an estimate of the other labor. The labor cost per unit for both wheat and sidelines at these two stations was then applied to the units handled at the Carnegie station. Neither Mountain View nor Rocky could operate with much reduction in the labor force. An extra amount was then added to account for the increased services which Carnegie must perform that are not afforded at the other two stations.

Closely related to the saving in labor costs would be less payroll taxes paid. Since this tax is based on wages paid the reduced labor cost

TABLE 17

AVERAGE ANNUAL OPERATING EXPENSES FOR
THE THREE SINGLE UNIT ASSOCIATIONS AND THE PROPOSED MULTIPLE UNIT ASSOCIATION,
FROM 1946 THROUGH 1948*

	Three Single-Unit Associations	Proposed Multiple Unit Association	Reduction of Expense	Percentage Reduction**
	$	$	$	%
Salaries and Wages	42,353.82	37,845.93	4,507.89	10.6
Depreciation	6,333.93	6,333.93	0.0	-
Insurance and Bonds	4,534.96	4,534.96	0.0	-
Interest	9,804.70	9,804.70	0.0	-
Taxes	3,673.28	3,560.56	112.72	3.1
Utilities	3,158.76	3,158.76	0.0	-
Telephone and Telegraph	726.59	633.50	93.09	12.8
Repairs	2,838.54	2,838.54	0.0	-
Supplies	3,345.45	2,882.02	463.43	13.9
Advertising	890.33	793.67	96.66	10.9
Truck Expense	2,623.63	2,623.63	0.0	-
Administrative and Selling Expense	5,265.14	4,356.72	908.42	17.2
TOTAL	85,549.13	79,366.92	6,182.21	7.2

* Source: Annual Audits of the Associations, from 1946 through 1948.

** The reduction as a percentage of the expense of the single unit associations.

would reduce this tax by about $112.72 (Table 17). This reduction was 3.1 per cent of the former total of all taxes. The remaining taxes would not change appreciably.

Telephone and Telegraph Expenses. A reduction of $93.09 in telephone and telegraph expense could be obtained by combining the units (Table 17). In many instances the central office could sell two or three times the amount of wheat that a single unit could and still be out little more telephone expense. The expense would still be larger than any one of the single unit organization's telephone expense but it was estimated that 12.8 per cent of the former expenses could be saved. This was determined by deducting 25 per cent of the telephone and telegraph expense at Rocky and Carnegie. Mountain View calls Enid each day to obtain the market quotations and occasionally sell wheat. This daily call could also serve all three stations alike and reduce the expense somewhat. A phone at each station would still have to be maintained.

Supplies. The supply expense was largely due to office supplies and this could be reduced appreciably by having a central bookkeeping system. This expense was reduced by $463.43 which was 13.9 per cent of the total cost for the single unit associations (Table 17). This was done by adjusting the office supplies to 75 per cent of the original expense and allowing the elevator and other supplies to remain as they were. This may appear to be an undue saving however the reorganization of the bookkeeping system would decrease the cost a great deal.

Advertising. The expense of advertising usually constitutes about one per cent of the total expenses in associations similar to the proposed organization. The multiple unit cooperatives vary considerably from this, however local advertising is about all that is done in this situation. The use of selected advertising by a competent manager could bring a slight saving in the expense. The estimated expense would be $793.67 or 10.9 per cent less than the total advertising under the single unit system (Table 17).

Administrative and Selling Expense. The largest percentage decrease in the operating expenses occurred with the administrative and selling expense (Table 17). This was due to the reduction of three items of which the expense is partially composed; directors fees, auditing and legal expense, and dues and subscriptions.

The multiple unit cooperative would require only one Board of Directors of five members whereas a similar board has been required with each separate unit. The one board would require more meetings and expense than any one of the existing boards. The adjusted cost amounts to $250 as compared with $385 under the former system.

The multiple unit organization would require the auditing of only one set of books whereas each single unit has a set. The usual cost of auditing the books for mulitple unit cooperatives is around $300 which would be $535 less than the former cost.

The estimated cost of dues and subscriptions for the association was $375 which is a decrease in the expense of $238.42. This saving is due to less dues for the Farmers Cooperative Grain Dealers Association of Oklahoma and other overhead organizations and less cost for trade journals and other publications.

The reduction of these three items reduces the administrative and selling expense by $908.42 or 17.2 per cent of the single units' expense.

Total Operating Expenses. These proposed expenses are only estimates and no doubt certain of them would be out of line with the actual expenses should the proposed organization be put into operation. Some of the expenses would possibly exceed these estimates depending a great deal upon the manager and his ideas toward advertising, annual meetings, donations, and certain other expenses. The estimates are of value only as a guide to be used in determining the relative efficiencies of the two types of associations before any reorganization is done.

The total expenses were reduced from $85,549.13 to $79,366.92 which is a decrease of $6,182.21 or 7.2 per cent of the former amount (Table 17). It is likely that a saving as large as this could easily be made, especially if a competent manager were used since a great deal of the efficiency to be gained is through his ability. Some expenses could easily be reduced by more than the estimated amount and offset any increased expenses which were not taken into account.

Comparison of the Departmental Expenses

The expenses of the proposed association would be lower in both the wheat and sidelines departments than they were with the single units. The allocations between wheat and sidelines probably would also change in proportion however this change would be difficult to determine unless the organization was actually in operation. Therefore the same proportion of each expense was allocated to wheat as existed with the single unit cooperatives.

Wheat Expenses. The wheat expenses were reduced by slightly over $2,100 (Table 18). The proportion of the total expenses due to wheat would be 40.0 per cent whereas under the single unit arrangement the percentage was 39.6. This percentage change was due to slightly more saving in expenses in the sideline department than in the wheat department. The expenses having the largest portion allocated to wheat were the physical facility expenses and interest expense. These expenses could not be reduced since we are assuming the same physical assets and therefore less could be gained in the wheat department by the reorganization. Telephone

TABLE 18

OPERATING EXPENSES OF THE WHEAT AND SIDELINE DEPARTMENTS FOR
THE THREE SINGLE UNIT ASSOCIATIONS AND THE PROPOSED MULTIPLE UNIT ASSOCIATION
FROM 1946 THROUGH 1948*

	Three Single Unit Associations					Proposed Multiple Unit Association				
	Total Expense	Wheat Expense	Percentage of Expense	Sideline Expense	Percentage of Expense	Total Expense	Wheat Expense	Percentage of Expense	Sideline Expense	Percentage of Expense
	$	$	%	$	%	$	$	%	$	%
Salaries and Wages	42,353.82	13,785.50	32.6	28,568.32	67.4	37,845.93	12,337.77	32.6	25,508.16	67.4
Depreciation	6,333.93	3,359.97	53.0	2,973.96	47.0	6,333.93	3,359.97	53.0	2,973.96	47.0
Insurance and Bonds	4,534.96	2,309.79	50.9	2,225.17	49.1	4,534.96	2,309.79	50.9	2,225.17	49.1
Interest	9,804.70	6,123.97	62.5	3,680.73	37.5	9,804.70	6,123.97	62.5	3,680.73	37.5
Taxes	3,673.28	1,781.13	48.5	1,892.15	51.5	3,560.56	1,726.87	48.5	1,833.69	51.5
Utilities	3,158.76	1,179.18	37.3	1,979.58	62.7	3,158.76	1,179.18	37.3	1,979.58	62.7
Telephone and Telegraph	726.59	523.97	72.1	202.62	27.9	633.50	458.75	72.1	176.75	27.9
Repairs	2,838.54	1,344.31	47.4	1,494.23	52.6	2,838.54	1,344.31	47.4	1,494.23	52.6
Supplies	3,345.45	676.98	20.2	2,668.47	79.8	2,882.02	582.17	20.2	2,299.85	79.8
Advertising	890.33	223.37	25.1	666.96	74.9	793.67	199.21	25.1	594.46	74.9
Truck Expense	2,623.63	17.99	.7	2,605.64	99.3	2,623.63	17.99	.7	2,605.64	99.3
Administrative and Selling Expense	5,265.14	2,550.62	48.4	2,714.52	51.6	4,356.72	2,108.65	48.4	2,248.07	51.6
TOTALS	85,549.13	33,876.78	39.6	51,672.35	60.4	79,366.92	31,746.63	40.0	47,620.29	60.0

*Source: Annual Audits of the Associations, from 1946 through 1948.

and telegraph was the only other expense with the major portion going to wheat.

The handling costs of wheat could easily be reduced by reorganization of the cooperatives into a multiple unit association. For example the manager could sell a larger volume of wheat with fewer telephone calls if he had control of a larger volume. This would be a saving in both the labor and telephone expenses. This is only one illustration as to how efficiency could be gained by having the administrative control centralized. Another means of gaining efficiency would be the possibility of more utilization of the large capacity elevator at Mountain View. This structure would be more apt to be filled to capacity by the multiple unit association than by Mountain View alone.

The unit handling cost of wheat would be reduced from 3.43 to 3.21 cents per bushel. This is assuming that the same volume of wheat would be handled through the multiple unit association as was handled by the three single unit cooperatives.

Sideline Expenses. The sideline department would have a decrease in operating expenses of slightly over $4,000. The decrease in labor expense largely accounts for this since 67.4 per cent of the labor cost is allocated to sidelines (Table 18). The remaining expenses which had the largest share allocated to sidelines are included in the group designated as other expenses.[7] A competent manager would probably reduce the sideline costs to a large extent. There would also be a possibility of reorganization of certain of the sideline activities so that the efficiency of the department could be increased. This study does not take into account such changes as it deals only with the continued operation of the

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[7]Cf. ante. page 17.

existing facilities and the same volume of business.

The handling cost per dollar of sideline sales was reduced from 11.92 to 10.98 cents by the reorganization. Since most of the manager's salary is devoted to sidelines, the reduction in this expense would have a large effect in reducing the sideline expenses.

Departmental Net Earnings. The operating expenses and net earnings are the only items of the departmental operating statements which would change upon forming the multiple unit association. This is assuming the remainder of the items to remain the same as with the single unit organizations. The results of the lower expenses would be reflected in the net earnings of each department by the same amount that the expenses of the department were reduced. Upon forming the proposed cooperative the net earnings due to wheat would be increased from $48,461.81 to $50,591.96 (Table 19). The sideline departments of the single unit organizations had a net loss of $2,378.98. The reduced expenses would permit the department to have net earnings of $1,673.08. The total net earnings of the association would thus be increased from $46,082.83 to $52,265.04 or an increase of the same amount as the operating expenses were decreased which was $6,182.21.

Comparison of the Seasonal Expenses

The reduction in the operating expenses would not cause the seasonal pattern of the expenses to change materially from what it was when the stations operated as single unit associations. There would probably be some changes although only the actual operation of the proposed association could accurately designate the changes. The expenses occurring each month were changed slightly but little proportionate difference each month was noticeable.

TABLE 19

OPERATING STATEMENTS OF THE WHEAT AND SIDELINE DEPARTMENTS FOR THE THREE SINGLE UNIT ASSOCIATIONS AND THE PROPOSED MULTIPLE UNIT ASSOCIATION, FROM 1946 THROUGH 1948*

	Three Single Unit Associations		Proposed Multiple Unit Association	
	Wheat	Sidelines	Wheat	Sidelines
		(DOLLARS)		
Sales	1,799,825.26	433,628.65	1,799,825.26	433,628.26
Cost of Sales	1,742,709.57	392,249.02	1,742,709.57	392,249.02
Other Operating Income	6,052.23	8,436.89	6,052.23	8,436.89
Total Gross Earnings	63,167.92	49,816.52	63,167.92	49,816.52
Expenses	33,876.78	51,672.35	31,746.63	47,620.29
Operating Earnings	29,291.14	- 1,855.83	31,421.29	2,196.23
Other Additions	24,314.74	1,844.72	24,314.74	1,844.72
Other Deductions	5,144.07	2,367.87	5,144.07	2,367.87
Net Earnings	48,461.81	- 2,378.98	50,591.96	1,673.03

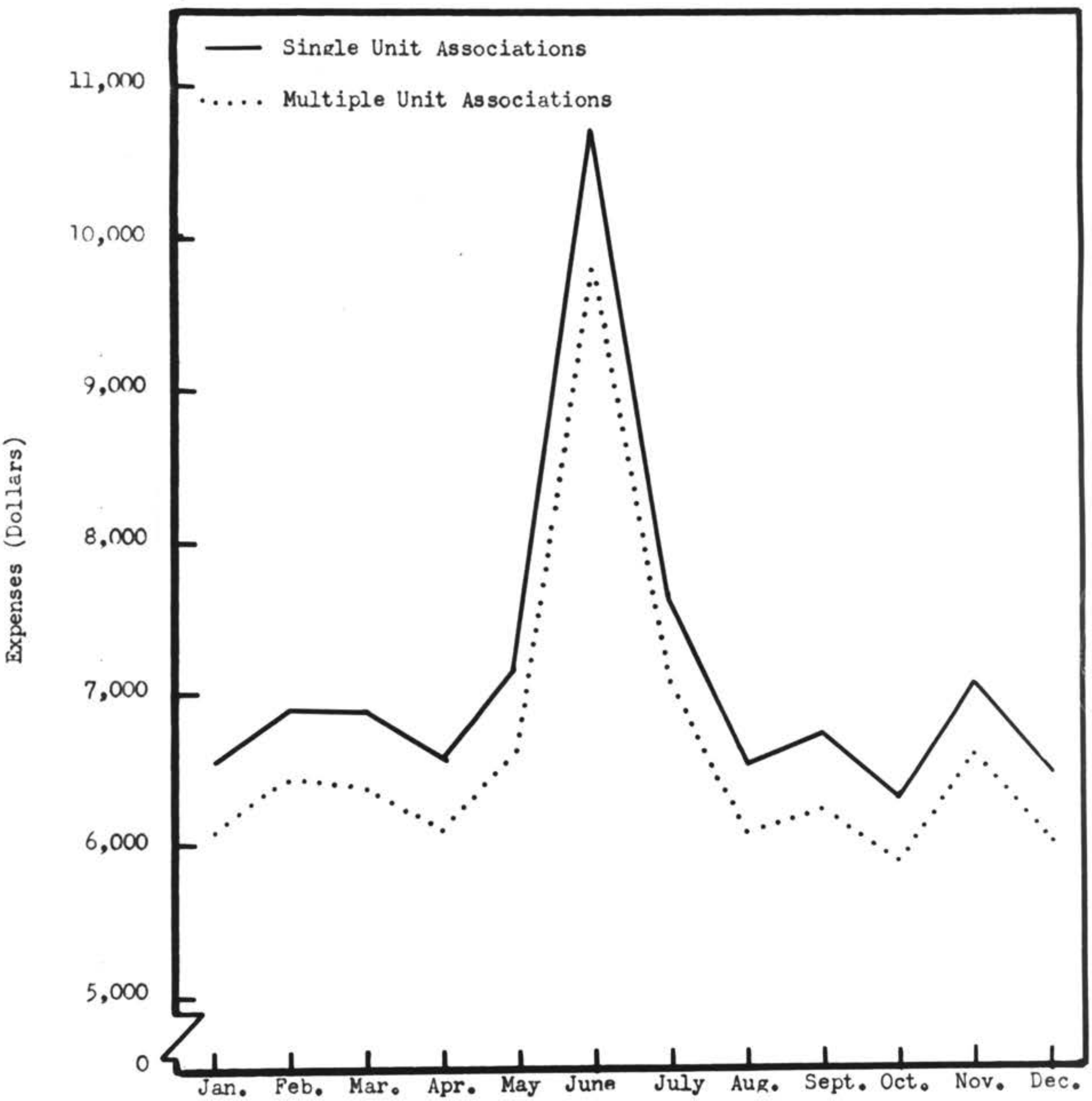
*Source: The Annual Audits of the Associations, from 1946 through 1948.

Operating as a multiple unit cooperative would tend to lessen the large peaks which appear in each separate unit's seasonal pattern. This is due to the fact that an abnormal amount of expenses which occurred in a month at a station would partially be offset by the expenses of the other stations.

The total expenses paid each month did not vary a great deal from January through May, the period prior to harvest (Figure 3). They increased in February and March which was largely due to the early spring operations of the farmers which in turn increases the expenses necessary to maintain a slightly increased sideline business. Labor was the principal expense causing the increase these two months as well as the decrease which followed in April. As the spring pastures come into use the sideline feed and custom grinding decreases and the farmers tend to concentrate on their spring crops rather than to feeding livestock or other operations which increases the cooperative's business. The monthly expenses previous to May ranged from about \$6,100 to about \$6,400 each month.

The elevators are repaired and the necessary preparations for harvest are made in May. The supply and repair expenses increased the May expenses to about \$6,600. June is the peak month of the year since most of the wheat is then marketed. The total expenses for the proposed association show the greatest variation from the single units' expenses in that month (Figure 3). The spread between the two types of organizations expenses usually was about \$500 each month except in June when this spread was about \$900. The increase however was not as large as for the single unit cooperatives. With them the expenses increased from about \$7,200 in May to over \$10,700 in June whereas the proposed cooperative's expenses increased from about \$6,600 in May to only \$9,800 in June. This was due to the large decrease in labor expense caused by forming the multiple unit

Figure 3. Average Seasonal Variation for the Three Single Unit Associations and the Proposed Multiple Unit Association, From 1946 Through 1948



SOURCE: Tables 27 and 28.

organization since labor expense increased more than the others in that month and therefore the largest effect in changing the seasonal expenses was then shown. The expenses of July are also rather large due to the late marketing and shipping of wheat.

The expenses drop after harvest to about the same amount as they were before harvest. The expenses of that period ranged from about \$5,900 to about \$6,600 (Figure 3). August is a rather inactive month for grain business and the petroleum business probably maintains the expenses to the level which they are. The fall planting and seeding operations increased the expenses of the cooperative in September. The October expenses were the lowest of the year totaling only about \$5,900 (Figure 3). This was due almost entirely to lower labor costs, this expense also reaching its lowest point that month. A general increase in most of the expenses caused November to be the highest cost month of the post-harvest period. The sideline feed business is usually active in November as the summer pastures have been exhausted and the wheat pastures usually are not ready for winter grazing. Feed grinding which requires a large amount of labor is also increased in that month. The decreased labor expenses lowered the December expenses to approximately the January level.

Comparison of the Fixed and Variable Expenses

The fixed expenses were generally the ones which were decreased by forming the multiple unit organization. The fixed expenses were lowered from \$51,712.66 to \$46,949.03 or a difference of \$4,763.63 (Table 20). These reductions however did not occur in the fixed expenses which were related to the physical assets since they remained the same. The decrease was largely due to less expense required for the manager's salary and some of the administrative and selling expenses. The manager's salary is

TABLE 20

FIXED AND VARIABLE EXPENSES FOR
THE THREE SINGLE UNIT ASSOCIATIONS AND THE PROPOSED MULTIPLE UNIT ASSOCIATION
FROM 1946 through 1948*

	Percentages		Three Single Unit Associations			Proposed Multiple Unit Association		
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable
	(P E R C E N T)		(D O L L A R S)					
Salaries and Wages:								
Manager's Salary	100	0	7,139.99	7,139.99	-0-	4,200.00	4,200.00	-0-
Other Salaries and Wages	50	50	35,213.83	17,506.91	17,706.92	33,645.93	16,822.96	16,822.97
Depreciation	100	0	6,333.93	6,333.93	-0-	6,333.93	6,333.93	-0-
Insurance and Bonds	75	25	4,534.96	3,401.22	1,133.74	4,534.96	3,401.22	1,133.74
Interest:								
Operating Capital	50	50	3,088.07	1,544.03	1,544.04	3,088.07	1,544.03	1,544.04
Facility Capital	100	0	5,650.95	5,650.95	-0-	5,650.95	5,650.95	-0-
Commodity Capital	0	100	1,065.68	-0-	1,065.68	1,065.68	-0-	1,065.68
Taxes:								
Pay Roll	60	40	1,057.73	634.64	423.09	945.01	567.01	378.00
Advalorem	100	0	2,108.76	2,108.76	-0-	2,108.76	2,108.76	-0-
Corporation License	100	0	221.03	221.03	-0-	221.03	221.03	-0-
Sales Tax	0	100	114.20	-0-	114.20	114.20	-0-	114.20
Truck License	100	0	144.06	144.06	-0-	144.06	144.06	-0-
Excise Taxes	0	100	27.50	-0-	27.50	27.50	-0-	27.50
Utilities	20	80	3,158.76	631.75	2,527.01	3,158.76	631.75	2,527.01
Telephone and Telegraph	25	75	726.59	181.65	544.94	633.50	158.37	475.13
Repairs	30	70	2,838.54	851.56	1,986.98	2,838.54	851.56	1,986.98
Supplies	25	75	3,345.45	836.36	2,509.09	2,882.02	720.51	2,161.51
Advertising	50	50	890.33	445.17	445.16	793.67	396.84	396.83
Truck Expense	25	75	2,623.63	655.91	1,967.72	2,623.63	655.91	1,967.72
Administrative and Selling Expense			5,265.14	3,424.74	1,840.40	4,356.72	2,540.14	1,816.58
TOTALS			85,549.13	51,712.66	33,836.47	79,366.92	46,949.03	32,417.89

*Scource: Annual Audits of the Associations, from 1946 through 1948.

100 per cent fixed. The reductions of the administrative and selling expenses were in the director's fees and legal and auditing expense both of which are 100 per cent fixed, and the dues and subscriptions which are 90 per cent fixed. These expenses accounted for $3,824.59 of the difference in fixed costs.

The variable expenses were lowered from $33,836.47 to $32,417.89 or a difference of $1,418.58 (Table 20). The major portion of this change was due to other labor and supplies. The variable expenses changed less than did the fixed expenses since the volume handled was assumed to be the same.

The total expenses of the multiple unit association would be 59.2 per cent fixed as compared to 60.5 per cent for the stations operating as separate organizations. This is a rather insignificant change and would not cause much change in the proportion of fixed to variable costs per unit. The effect which it would have in the power to reduce the cost per unit by increasing the volume would be lessened more than if the fixed costs composed a larger share of the total costs. When more of the costs are fixed a change in volume would have more effect in reducing the cost per unit since the fixed costs are assumed to remain constant regardless of the volume and therefore more volume would decrease the fixed costs per unit.[8]

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[8] For example, if a firm has fixed costs of $40,000, the fixed cost per unit with an output of 4,000 units would be $10. If the output is increased to 8,000 units the fixed costs per unit would be $5, decreasing the total cost per unit by $5.

SUMMARY AND CONCLUSIONS

The farmers grain cooperatives of Rocky, Mountain View, and Carnegie are primarily wheat marketing organizations. Sideline departments have been added so that now a great deal of their business is from sidelines. The cost conditions which exist at each association is in close relation to the amount of sideline business which it has.

Wheat composed 91.6 per cent of the total sales at Rocky, 79.2 per cent at Mountain View, and 70 per cent at Carnegie during the period from 1946 through 1948. Among the sideline commodities handled were sideline grains, merchandise, coal, produce, and petroleum products.

Mountain View had the largest investment as a result of their concrete elevator. They also had more net worth than either of the other associations. Both Rocky and Mountain View had more sales than did Carnegie, however the increased sideline business at Carnegie resulted in that organization having more gross earnings and higher costs of operation but less net earnings.

Salaries and wages was the largest of the operating expenses composing 49.5 per cent of the total. Taxes, depreciation, and insurance composed 17 per cent of the operating expenses. A calculated interest expense was included which accounted for 11.5 per cent of the operating expenses. The remaining expenses were of such items as utilities, repairs, supplies, truck expense, and the administrative and selling expenses. The expenses increased each year as a result of increases in both the general price structure and the volume of business. The total expenses of 1948 were approximately 25 per cent higher than in 1946.

The physical facility and interest expenses composed a larger share of the total expenses at Rocky and Mountain View than at Carnegie. This was a result of the type of business done with each organization. Rocky and Mountain View had more wheat facilities while Carnegie's sideline business increased the more variable expenses.

More labor was required with sidelines than with wheat while the wheat business required more depreciation, insurance, and interest as related to the larger physical facilities. More expenses were required for a dollar of sideline sales than for a dollar of wheat sales. The average cost for handling a bushel of wheat was 3.09 cents at Rocky, 3.9 cents at Mountain View, and 3.22 cents at Carnegie. The larger cost at Mountain View was a result of the large investment in facilities. The cost of handling a dollar of sideline sales was 12.9 cents at Rocky, 8.49 cents at Mountain View and 13.53 cents at Carnegie. The cause for this variation was a low volume of sales at Rocky and less efficiency at Carnegie in addition to more services being required in the service station. The larger sideline expenses were primarily a result of more labor requirements.

The net margin per bushel of wheat was 3.85 cents at Rocky, 1.53 cents at Mountain View, and 3.81 cents at Carnegie. The net margin per dollar of sideline sales was .13 cents at Mountain View while a deficit of .44 cents at Rocky and .39 cents at Carnegie occurred. The wheat department returned net earnings each year to all three associations. This department's net earnings averaged $22,493.54 at Rocky, $12,668.25 at Mountain View, and $13,300.02 at Carnegie. Mountain View was the only association which realized net earnings over the period from sidelines. These earnings averaged only $851.42, while the average loss in the sideline department was $153.44 at Rocky and $3,076.96 at Carnegie.

The seasonal marketings of crops and demands for services caused seasonal variations in the expenses of the associations. The labor cost exerted the largest influence on the seasonal pattern. The marketing of wheat in June caused the expenses to reach a peak in that month. The extent of the peak as well as the variations of other months differed between the associations. The expenses tended to remain more stable in the periods before and after harvest with the organizations having less sideline business. They however increased more in the period of harvest as a result of more additional labor being required to supplement the smaller labor forces at those organizations.

The associations handling more wheat had a larger proportion of their expenses fixed. This was the result of more facilities being required for that type of operation. The amount of fixed costs increased each year at the associations. The variable costs also increased, however these increases were not as large as the proportional increase in total expenses. This resulted in an increase in the ratio of fixed to variable costs in the organizations. With an increase in sideline business between organizations, the proportion of variable expenses increased. This was a result of the type of expenses required for sideline business. An increase in this type of business required more labor and other expenses which are largely variable.

It was determined that the operating expenses could be reduced considerably by combining the single unit cooperatives to form a mulitple unit organization. An estimated reduction in total expenses of 7.2 per cent could be accomplished. The largest decrease in expenses would be through reducing the labor expense by having only one manager and one bookkeeper. An approximate saving of 10.6 per cent would result in this expense. The administrative and selling expense could be reduced by 17.2

per cent by having less expense for director's fees, legal and auditing expense, and dues and subscriptions. The payroll taxes, telephone and telegraph expense, supplies, and advertising are the remaining expenses which could be lowered by forming the multiple unit cooperative.

The sideline expenses would be reduced more than would the wheat expenses. The expenses related to the physical assets would not be reduced since the plants would remain the same. Most of these expenses are allocated to the wheat department and therefore less reduction of expenses would occur in that department. The largest decreases occurred in labor and the other variable expenses which were largely allocated to the sideline department. The cost of handling a bushel of wheat would be 3.21 cents as compared with the existing 3.43 cents. The handling cost for a dollar of sideline sales would also be reduced, from 11.92 cents to 10.98 cents. These reductions would result in the net earnings of the wheat department to be increased from $48,461.81 to $50,591.96 while the loss of $2,378.98 in the sideline department would be eliminated and net earnings of $1,673.08 could be realized.

Another effect of the reorganization would be lessening the large seasonal peaks of some of the single unit organization's expenses. The entire seasonal pattern of expenses would be somewhat stabilized.

Both the fixed and variable expenses would be reduced, however the ratio of fixed expenses to total expenses would be decreased. The proposed association would have 59.2 per cent of its expenses fixed as compared with 60.5 with the single unit organizations. The variable expenses could not be reduced as much due to the fact that the same volume of business was assumed. With a smaller portion of the costs fixed, the association would generally have less power to reduce the costs per unit by increasing the volume.

APPENDIX

TABLE 21

EXPENSES OF THE WHEAT AND SIDELINE DEPARTMENTS FOR
THE FARMERS COOPERATIVE GRAIN AND SUPPLY COMPANY, INC. OF ROCKY, OKLAHOMA,
FROM 1946 THROUGH 1948*

	1946			1947			1948		
	Total	Wheat	Sidelines	Total	Wheat	Sidelines	Total	Wheat	Sidelines
					(DOLLARS)				
Salaries and Wages	7,628.38	3,511.50	4,116.88	8,448.71	3,894.38	4,554.33	8,744.33	4,035.16	4,709.17
Depreciation	1,744.80	1,308.60	436.20	2,461.04	1,845.78	615.26	3,119.37	1,960.38	1,158.99
Insurance and Bonds	1,059.18	794.39	264.79	1,072.48	804.36	268.12	1,127.45	845.89	281.56
Interest	2,014,96.	1,437.55	577.41	3,045.44	2,274.82	770.62	3,451.16	2,384.74	1,066.42
Taxes	691.35	418.89	272.46	1,491.35	856.58	634.77	1,523.61	832.55	691.06
Utilities	876.64	350.66	525.98	925.63	370.25	555.38	843.13	337.25	505.88
Telephone and Telegraph	139.23	69.62	69.61	134.65	67.33	67.32	138.29	103.72	34.57
Repairs	702.64	351.32	351.32	697.73	348.87	348.86	614.88	307.44	307.44
Supplies	219.26	109.63	109.63	401.46	200.73	200.73	309.40	154.70	154.70
Advertising	107.00	81.75	25.25	279.19	233.68	45.51	92.42	79.67	12.75
Truck Expense	224.10	-0-	224.10	224.53	-0-	224.53	107.94	53.97	53.97
Administrative and Selling Expense	1,743.04	1,410.46	332.58	1,145.22	891.18	254.04	1,168.42	991.01	177.41
TOTALS	17,150.58	9,844.37	7,306.21	20,327.43	11,787.96	8,539.47	21,330.40	12,086.18	9,244.22

*Source: Annual Audits of the Association, from 1946 through 1948, and estimates of the manager.

TABLE 22

EXPENSES OF THE WHEAT AND SIDELINE DEPARTMENTS FOR
THE FARMERS COOPERATIVE ASSOCIATION OF MOUNTAIN VIEW, OKLAHOMA,
FROM 1946 THROUGH 1948*

	1946			1947			1948		
	Total	Wheat	Sidelines	Total	Wheat	Sidelines	Total	Wheat	Sidelines
					(DOLLARS)				
Salaries and Wages	11,673.45	4,731.25	6,942.20	14,313.05	5,801.08	8,511.97	16,016.75	6,549.17	9,467.58
Depreciation	1,417.15	921.49	495.66	2,260.37	1,399.20	861.17	2,439.65	1,510.40	929.25
Insurance and Bonds	1,475.28	1,180.22	295.06	1,708.17	1,366.54	341.63	1,534.29	992.88	541.41
Interest	4,305.71	3,203.53	1,402.18	4,613.78	3,322.33	1,291.45	4,558.84	3,348.69	1,210.15
Taxes	1,032.91	617.71	415.20	1,137.36	725.80	411.56	1,437.25	1,024.64	412.61
Utilities	977.71	586.63	391.08	856.45	513.87	342.58	948.91	569.35	379.56
Telephone and Telegraph	321.30	300.00	21.30	340.13	300.00	40.13	399.47	300.00	99.47
Repairs	1,191.24	557.57	633.67	1,096.51	328.95	767.56	1,524.70	437.41	1,087.29
Supplies	1,002.63	300.79	701.84	964.74	289.42	675.32	1,308.94	392.68	916.26
Advertising	118.40	23.68	94.72	280.23	56.04	224.19	159.27	31.85	127.42
Truck Expense	236.24	-0-	236.24	482.26	-0-	482.26	193.57	-0-	193.57
Administrative and Selling Expense	1,227.43	843.55	383.88	781.26	415.34	365.92	663.71	429.36	234.35
TOTALS	25,279.45	13,066.22	12,213.23	28,834.31	14,518.57	14,315.74	31,535.35	17,906.43	13,628.92

*Source: Annual Audits of the Association, from 1946 through 1948, and estimates of the manager.

TABLE 23

EXPENSES OF THE WHEAT AND SIDELINE DEPARTMENTS FOR
THE FARMERS COOPERATIVE MILL AND ELEVATOR ASSOCIATION OF CARNEGIE, OKLAHOMA,
FROM 1946 THROUGH 1948*

	1946			1947			1948		
	Total	Wheat	Sideline	Total	Wheat	Sidelines	Total	Wheat	Sidelines
				(DOLLARS)					
Salaries and Wages	18,709.80	5,392.28	14,317.52	19,723.82	3,969.89	15,753.93	21,713.22	4,971.81	16,741.41
Depreciation	1,649.93	298.95	1,350.98	1,953.14	379.49	1,573.65	1,956.33	455.61	1,500.72
Insurance and Bonds	1,342.39	244.31	1,098.08	1,991.93	292.81	1,699.12	2,293.71	408.28	1,885.43
Interest	2,004.31	418.65	1,585.66	2,263.79	687.46	1,576.33	2,556.10	994.14	1,561.96
Taxes	899.29	162.55	736.74	1,425.75	361.05	1,064.70	1,330.97	343.64	987.33
Utilities	1,202.41	240.48	961.93	1,456.95	321.39	1,135.56	1,388.46	277.69	1,110.77
Telephone and Telegraph	229.41	139.94	89.47	190.65	116.30	74.35	286.66	175.00	111.66
Repairs	884.56	619.05	265.51	1,248.03	873.62	374.41	555.51	358.86	196.65
Supplies	1,455.62	145.56	1,310.06	3,366.84	336.68	3,030.16	1,007.47	100.75	906.72
Advertising	324.18	32.42	291.76	522.72	52.27	470.45	787.56	78.76	708.80
Truck Expense	2,532.21	-0-	2,532.21	2,456.44	-0-	2,456.44	1,413.63	-0-	1,413.63
Administrative and Selling Expense	1,749.92	551.46	1,198.46	1,102.42	611.99	490.43	6,214.02	1,507.48	4,706.54
TOTALS	**32,983.83**	**6,745.65**	**26,238.18**	**37,702.48**	**7,972.95**	**29,729.53**	**41,503.64**	**9,702.02**	**31,801.62**

*Source: The Annual Audits of the Association, from 1946 through 1948, and estimates of the Manager.

TABLE 24

AVERAGE SEASONAL VARIATION OF THE OPERATING EXPENSES FOR
THE FARMERS COOPERATIVE GRAIN AND SUPPLY COMPANY, INC. OF ROCKY, OKLAHOMA,
FROM 1946 THROUGH 1948*

Expense Items	January	February	March	April	May	June	July	August	September	October	November	December	Total
				(DOLLARS)				(DOLLARS)					
Salaries and Wages	555.83	538.90	514.12	531.70	546.65	2,119.36	678.05	566.00	561.96	559.66	562.96	568.61	8,303.80
Depreciation	160.20	181.08	183.14	183.14	178.49	220.70	220.70	220.70	220.70	222.37	223.30	223.42	2,[illegible]1.74
Insurance and Bonds	90.53	90.53	90.53	90.53	90.53	90.54	90.53	90.53	90.53	90.53	90.53	90.53	1,086.37
Interest	236.43	236.43	236.43	236.43	236.44	236.44	236.44	236.43	236.43	236.43	236.43	236.43	2,837.19
Taxes	96.69	96.81	95.80	96.49	97.[illegible]	160.44	102.29	98.74	97.70	97.64	97.76	98.02	1,235.44
Utilities	92.31	85.41	77.05	78.54	67.94	72.85	85.01	62.26	60.51	65.01	67.67	66.44	881.30
Telephone and Telegraph	9.96	11.35	7.12	11.30	10.93	22.48	13.92	9.69	12.00	7.94	9.20	11.50	137.39
Repairs	2.23	27.49	58.13	103.22	36.15	74.11	112.11	58.46	78.68	47.77	26.76	46.64	671.75
Supplies	19.95	13.79	26.92	4.01	64.87	42.37	10.10	53.97	30.96	16.11	2.22	4.71	310.04
Advertising	2.67	2.67	6.83	2.67	4.01	6.20	8.61	6.00	24.16	32.33	3.47	39.90	159.54
Truck Expense	6.23	26.97	7.21	11.12	37.47	19.93	17.73	7.29	7.25	13.19	14.70	14.43	18[illegible].52
Administrative and Selling Expense	46.58	182.70	85.93	47.96	186.27	198.13	186.05	120.72	71.74	43.10	48.95	136.09	1,352.22
TOTALS	1,299.61	1,496.13	1,387.21	1,397.11	1,556.31	3,26[illegible].55	1,761.[illegible]	1,[illegible]0.79	1,512.64	1,453.13	1,384.51	1,[illegible]37.72	19,802.80

TABLE 25

AVERAGE SEASONAL VARIATION OF THE OPERATING EXPENSES FOR THE FARMERS COOPERATIVE ASSOCIATION OF MOUNTAIN VIEW, OKLAHOMA, FROM 1946 THROUGH 1948*

Expense Items	January	February	March	April	May	June	July	August	September	October	November	December	Total
				(DOLLARS)					(DOLLARS)				
Salaries and Wages	1,054.48	1,093.35	1,280.84	979.90	958.65	2,294.45	1,076.53	1,048.46	1,107.38	893.42	1,207.42	1,005.20	14,001.08
Depreciation	146.84	147.44	148.01	148.01	148.01	180.61	181.99	181.99	182.33	183.65	188.48	201.70	2,039.06
Insurance and Bonds	131.05	131.05	131.05	131.05	131.05	131.05	131.05	131.05	131.05	131.05	131.05	131.03	1,572.58
Interest	391.06	391.06	391.06	391.06	391.06	391.06	391.06	391.06	391.06	391.06	391.06	391.12	4,692.78
Taxes	99.61	97.75	105.40	95.99	96.13	127.01	99.74	99.35	99.47	94.47	103.68	100.57	1,219.17
Utilities	74.19	86.05	86.17	72.52	67.92	70.74	86.26	108.30	68.43	65.44	71.86	69.81	927.69
Telephone and Telegraph	16.77	25.35	29.74	29.67	29.07	35.51	44.47	35.34	20.90	29.46	27.40	29.95	353.63
Repairs	71.17	41.64	39.54	121.74	273.70	94.87	259.10	22.00	35.04	139.92	66.84	105.26	1,270.82
Supplies	183.14	266.28	30.27	76.62	148.76	48.02	57.47	28.51	184.36	17.00	18.44	33.23	1,092.10
Advertising	11.17	5.80	28.56	33.85	6.43	18.83	4.83	7.50	14.67	14.67	28.19	11.47	185.97
Truck Expense	28.98	113.96	13.33	11.83	12.09	18.93	11.49	17.46	8.80	28.25	19.38	19.52	304.02
Administrative and Selling Expense	90.95	47.87	104.39	116.99	72.35	72.76	73.61	55.89	40.64	68.77	106.13	40.45	890.80
TOTALS	2,299.41	2,447.60	2,388.36	2,209.23	2,335.22	3,484.84	2,417.60	2,126.91	2,284.13	2,057.16	2,359.93	2,139.31	28,549.70

*Source: Expense Ledgers of the Association, from 1946 through 1948.

TABLE 26

AVERAGE SEASONAL VARIATION OF THE OPERATING EXPENSES FOR
THE FARMERS COOPERATIVE MILL AND ELEVATOR ASSOCIATION OF CARNEGIE, OKLAHOMA,
FROM 1946 THROUGH 1948*

Expense Items	January	February	March	April	May	June	July	August	September	October	November	December	Total
					(DOLLARS)				(DOLLARS)				
Salaries and Wages	1,465.43	1,506.88	1,610.41	1,516.14	1,801.22	2,393.23	1,980.11	1,635.73	1,594.92	1,469.60	1,612.14	1,463.13	20,048.94
Depreciation	152.13	153.45	153.45	154.50	151.73	152.34	149.53	153.38	155.29	162.63	162.63	152.02	1,853.13
Insurance and Bonds	156.33	156.33	156.33	156.34	156.34	156.34	156.34	156.34	156.33	156.33	156.33	156.33	1,876.01
Interest	189.56	189.56	189.56	189.56	189.56	189.57	189.56	189.56	189.56	189.56	189.56	189.56	2,274.73
Taxes	97.46	98.20	100.19	98.48	103.92	116.27	107.63	100.92	99.45	98.13	100.63	97.39	1,218.67
Utilities	141.30	133.81	109.89	95.48	88.33	109.56	104.09	92.37	92.40	120.31	147.94	113.79	1,349.27
Telephone and Telegraph	20.65	20.24	14.98	14.56	20.22	35.95	20.75	15.49	17.16	23.21	15.02	17.34	235.57
Repairs	40.94	86.46	37.22	60.38	45.89	51.96	25.48	52.79	109.01	89.69	208.88	87.27	895.97
Supplies	58.75	109.70	261.92	297.81	137.61	329.49	240.37	99.21	125.41	111.85	85.05	86.14	1,943.31
Advertising	87.93	26.58	29.00	40.88	82.57	32.12	65.85	30.95	37.91	19.67	38.05	53.31	544.82
Truck Expense	264.87	251.03	182.11	121.10	201.02	163.15	149.42	102.71	95.29	111.55	357.86	133.98	2,134.09
Administrative and Selling	262.17	224.42	259.14	215.15	307.60	236.40	250.00	233.97	275.60	239.27	243.08	275.32	3,022.12
TOTALS	2,937.57	2,956.66	3,104.20	2,960.38	3,286.01	3,966.38	3,439.13	2,863.42	2,948.33	2,791.80	3,317.17	2,825.59	37,396.63

*Source: Expense Ledgers of the Association, from 1946 through 1948.

TABLE 27

AVERAGE SEASONAL VARIATION OF THE OPERATING EXPENSES FOR
THE THREE SINGLE UNIT ASSOCIATIONS
FROM 1946 THROUGH 1948

Expense Items	January	February	March	April	May	June	July	August	September	October	November	December	Total
				(DOLLARS)				(DOLLARS)					
Salaries and Wages	3,055.74	3,139.14	3,405.56	3,027.75	3,306.51	6,309.05	3,734.70	3,270.18	3,264.27	2,922.69	3,382.53	3,056.90	42,353.82
Depreciation	459.21	481.98	484.59	485.64	478.23	553.65	552,21	553.08	558.33	561.95	574.92	560.14	6,333.93
Insurance and Bonds	377.91	377.91	377.91	377.91	377.91	377.95	377.91	377.91	377.91	377.91	377.91	377.91	4,534.96
Interest	817.06	817.06	817.06	817.06	817.06	817.06	817.06	817.05	817.05	817.06	817.06	817.06	9,804.70
Taxes	293.76	292.77	301.38	290.97	297.12	403.71	309.66	299.01	296.01	290.25	302.07	295.97	3,673.28
Utilities	307.80	305.28	273.12	246.54	224.19	253.14	275.37	262.92	221.34	251.55	237.46	250.05	3,158.76
Telephone and Telegraph	47.37	56.94	51.84	55.53	60.21	93.93	79.14	60.51	50.07	60.60	51.63	58.82	726.59
Repairs	114.33	155.58	134.88	285.33	355.74	220.95	396.69	133.26	222.72	277.38	302.49	239.19	2,838.54
Supplies	261.84	389.76	319.11	370.45	351.24	419.88	307.95	181.68	360.72	144.96	105.76	124.08	3,345.45
Advertising	101.76	35.04	64.38	77.40	93.00	57.15	79.29	44.46	76.77	86.67	69.72	104.69	890.33
Truck Expense	300.09	393.96	202.65	144.06	250.57	202.02	178.65	127.47	111.33	152.97	391.95	167.91	2,623.63
Administrative and Selling Expense	399.69	454.98	447.45	380.10	566.22	507.30	509.67	410.58	387.99	351.15	398.16	451.85	5,265.14
TOTALS	6,536.56	6,900.40	6,879.73	6,566.74	7,178.00	10,714.79	7,618.30	6,341.11	6,745.11	6,302.14	7,061.68	6,504.57	85,549.13

*Source: Expense Ledgers of the Associations, from 1946 through 1948.

TABLE 28

AVERAGE SEASONAL VARIATION OF THE OPERATING EXPENSES FOR
THE PROPOSED MULTIPLE UNIT ASSOCIATION,
FROM 1946 THROUGH 1948*

Expense Items	January	February	March	April	May	June	July	August	September	October	November	December	Total
					(DOLLAR)				(DOLLAR)				
Salaries and Wages	2,728.69	2,804.38	3,042.81	2,705.98	2,955.77	6,081.84	3,338.01	2,921.71	2,917.92	2,611.37	3,023.89	2,713.56	37,845.93
Depreciation	459.21	481.98	484.59	485.64	478.23	553.65	552.21	556.08	558.33	568.95	574.92	580.14	6,333.93
Insurance and Bonds	377.91	377.91	377.91	377.91	377.91	377.95	377.91	377.91	377.91	377.91	377.91	377.91	4,534.96
Interest	817.06	817.06	817.06	817.06	817.06	817.06	817.06	817.05	817.05	817.06	817.06	817.06	9,804.70
Taxes	286.10	287.99	293.95	285.53	291.77	369.82	301.31	290.91	290.82	283.17	293.47	285.72	3,560.56
Utilities	307.80	305.28	273.12	246.54	224.19	253.14	275.37	262.92	221.34	251.55	287.46	250.05	3,158.76
Telephone and Telegraph	41.18	49.67	45.17	48.40	52.52	81.91	68.99	52.77	43.65	52.83	45.04	51.37	633.50
Repairs	114.33	155.58	134.88	285.33	355.74	220.95	396.69	133.26	222.72	277.38	302.49	239.19	2,838.54
Supplies	225.66	335.76	274.94	325.96	302.16	361.69	265.43	156.49	310.68	124.79	91.07	106.94	2,882.02
Advertising	90.73	31.27	57.38	68.97	82.94	50.95	70.72	39.60	68.41	77.22	62.14	93.34	793.67
Truck Expense	300.09	393.96	202.65	144.06	250.57	202.02	178.65	127.47	111.33	152.97	391.95	167.91	2,623.63
Administrative and Selling Expense	323.54	385.43	380.18	312.62	457.01	429.12	438.40	343.65	308.65	286.53	332.63	358.96	4,356.72
TOTALS	6,072.30	6,426.27	6,384.64	6,104.00	6,646.32	9,800.10	7,080.75	6,079.82	6,248.81	5,881.73	6,600.03	6,042.15	79,366.92

*Source: Expense Ledgers of the Associations, from 1946 through 1948.

BIBLIOGRAPHY

Books

Bakken, Henry H. and Schaars, Marvin A. The Economics of Cooperative Marketing. New York: McGraw-Hill Book Company, Inc., 1937.

Clark, J. Maurice. Studies in the Economics of Overhead Costs. Chicago: University of Chicago Press, 1923.

Current Publications

Ballinger, Roy A. Financial Operations of a Group of Oklahoma Farmers' Elevators 1930-1932. Oklahoma Agricultural Experiment Station Bulletin No. 221. Stillwater, 1934.

Green, R. M. and Rucker, Vance M. Marketing Problems of Farmers' Elevators in Kansas. Kansas State College Extension Service, Circular No. 106. Manhatten, 1934.

Hedges, Harold. Operations of Cooperative Grain Elevators in Kansas and Oklahoma. Farm Credit Administration Bulletin No. 30. Washington, 1939.

Hedges, Harold. Organization Structure of Farmers' Elevators. Farm Credit Administration Circular No. C-115. Washington, 1939.

Larson, Adlowe L. "The Fixity Gradient: A Tool for Fixed and Variable Cost Analysis." Journal of Farm Economics, Vol. 28 (August 1946).

Primary Data

Annual Audits of the Farmers Cooperative Grain and Supply Company, Inc. of Rocky, Oklahoma from 1946 through 1948.

Annual Audits of the Farmers Cooperative Association of Mountain View, Oklahoma from 1946 through 1948.

Annual Audits of the Farmers Cooperative Mill and Elevator Association of Carnegie, Oklahoma from 1946 through 1948.

Expense Ledgers of the Farmers Cooperative Grain and Supply Company, Inc. of Rocky, Oklahoma from 1946 through 1948.

Expense Ledgers of the Farmers Cooperative Association of Mountain View, Oklahoma from 1946 through 1948.

Expense Ledgers of the Farmers Cooperative Mill and Elevator Association of Carnegie, Oklahoma from 1946 through 1948.

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