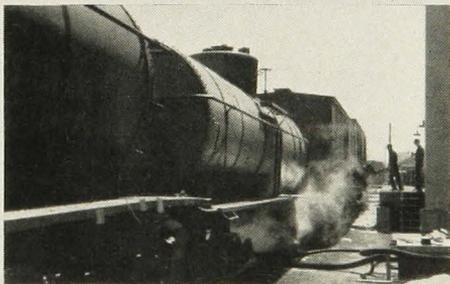




MINNESOTA COOPERATIVE OIL ASSOCIATIONS . . .



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Organization and Operation of Minnesota Cooperative Oil Associations¹

IN LESS than two decades the cooperative purchase of petroleum products has become one of Minnesota's leading cooperative industries. The rapidly increasing use of tractors and trucks in farm operation in the 1920's and 1930's gave rise to a greatly enlarged demand for gasoline, oil, and the related motor supplies. This fact, and the early realization that these products could be distributed at a substantial saving on a cooperative basis, encouraged rapid expansion in the number and volume of business of cooperative oil associations in the state. By 1940 Minnesota had about 190 of these associations with total sales of approximately \$13,500,000 annually. The proper organization and efficient operation of these associations are, consequently, very important to thousands of Minnesota farmers.

This study undertakes to provide information on the development, organization structure, financial condition, operating methods, and the related problems of cooperative oil associations in Minnesota. Considerable emphasis is placed on the analysis of the efficiency of operations of these cooperatives.

Information for this study was obtained from the annual audit reports of 92 cooperative oil associations operating in Minnesota. Interviews with officials of the cooperative wholesale companies, auditors, and others serving these associations provided other valuable data. This information was

supplemented with material from the periodic reports and publications of the cooperative wholesalers with which many of these companies are affiliated.

The 92 associations selected for more detailed analysis were taken from all parts of the state. Only associations whose principal patronage was from farmers were chosen for analysis; thus none of the organizations located in the larger metropolitan areas of the state was included. The associations were also chosen to include affiliates of the major cooperative wholesale organizations specializing in the handling of petroleum products. A group of associations not affiliated with any cooperative wholesale is also included.

To facilitate analysis of the data the associations were grouped according to size as shown in table 1. It will be noted that 40 per cent of the companies fall in Group II, the group in which annual sales in 1939 ranged from \$25,000 to \$50,000. The average sales volume of all the associations included in the analysis was \$69,627.

Table 1. Classification of 92 Minnesota Oil Associations According to Annual Volume of Sales, 1939

Group Number	Annual Sales in Dollars	Number of Associations	Per Cent of Associations
I	Less than \$25,000	9	9.8
II	\$25,000-\$49,999	37	40.2
III	50,000- 74,999	20	21.7
IV	75,000- 99,999	11	12.0
V	100,000-124,999	7	7.6
VI	125,000 and over	8	8.7
Total		92	100.0

¹ Accepted for publication, February 6, 1941.



FIG. 1. TRUCK DRIVER DELIVERING GASOLINE AT A MEMBER'S FARM

Oil Distribution in Minnesota

CONSUMPTION of gasoline and other petroleum products in Minnesota has increased tremendously in the past thirty years. The rapid increase in the use of autos and trucks, increased use of oil for heating purposes, and the greatly expanded use of tractors in farm operations have been the principal factors accounting for this increase. According to table 2 the total gallon inshipments of light oils, including gasoline, kerosene, and distillate, rose from an average of 38,820,364 gallons in the period, 1910-1914, to 781,484,165 gallons in 1939.² It will be observed from table 2 that the consumption of gasoline and distillate has expanded quite steadily except in the

² Outshipment of the light oils is insignificant in comparison with the inshipments; hence, the quantity brought into the state is a good indicator of the quantity consumed.

period, 1931-1934, when the volume of gasoline used declined for a time. The volume of kerosene consumed declined rather sharply in 1930 and 1931. The increasing use of gasoline, distillate, and other types of oil as tractor fuel has been an important factor in the greatly reduced use of kerosene.

A large number of private and cooperative oil companies are engaged in distributing this huge quantity of petroleum products to consumers in every part of the state. While the private companies including the widely-known major oil companies and a large number of independents, distribute the largest proportion of these products in the state, the proportion handled by cooperatives has in less than two decades grown from zero to nearly 11 per cent of the total.

Table 2. Inshipments of Light Oils into Minnesota, 1910-1939*

Year	Gasoline	Kerosene	Distillate	Total
	gallons	gallons	gallons	gallons
1910-14 average	21,257,786	17,562,578	.....	38,820,364
1915-19 average	64,754,415	31,277,515	.....	96,031,930
1920-24 average	160,951,000	40,697,248	2,466,208	204,114,456
1925-29 average	294,061,046	40,756,425	23,077,141	357,894,612
1930	401,441,670	37,858,631	46,059,211	485,359,512
1931	441,746,269	30,730,994	48,189,995	520,667,258
1932	401,080,799	31,694,748	69,540,495	502,316,042
1933	401,723,844	32,191,814	76,628,928	510,544,586
1934	431,545,341	30,215,127	86,643,452	548,403,920
1935	456,444,171	31,516,644	107,145,002	595,105,817
1936	493,642,184	33,436,073	136,453,408	663,531,665
1937	522,832,430	34,080,382	155,755,002	712,667,814
1938	544,858,956	30,169,445	157,566,003	732,594,404
1939	566,846,430	29,031,414	185,606,321†	781,484,165

* Data from annual reports of Minnesota Oil Inspection Division.

† The 1939 distillate total includes 5,512,692 gallons of low flash tractor fuel and 3,140,529 gallons of diesel fuel.

Cooperative Distribution

The quantity of light oils distributed by cooperatives in Minnesota amounted to 31,124,800 gallons in 1933 and had risen to 83,183,200 gallons in 1939. This was a more rapid rate of increase than shown by the private oil companies in the state whose volume of these products increased from 479,419,786 to 698,300,965 gallons during the same period. The 1933 light oil volume of the cooperatives represented 6.10 per cent of the state total and the 1939 business, 10.64 per cent. The proportion of all the light oils handled by cooperatives in Minnesota in 1939 is second only to that of Standard Oil of Indiana which handles about 17 per cent of the total.

The areas showing the highest proportion of light oils distributed by cooperatives in 1939 include the southwestern and west central counties of the state. In type-of-farming Area 3, which includes the 11 southwestern counties of the state,³ 21.8 per cent of

all the light oils were handled by cooperatives. In the metropolitan counties, Ramsey and Hennepin, slightly less than 2 per cent of the light oils were handled on a cooperative basis.

Table 3 includes a list of the 20 individual counties in the state showing the largest proportions of light oils handled by cooperatives. Kanabec County leads with 69.2 per cent distributed cooperatively, and Clearwater County is second with 49.9 per cent.

The first cooperative oil association in Minnesota was organized at Cottonwood in the southwestern part of the state on July 7, 1921. In the following year the farmers in the Owatonna community started the second association in the state. No new associations were organized in 1923, but as shown by figure 2 the number of associations increased rapidly from this time on. By 1940 there were 189 active associations in the state. This number does

³ See figure 14, page 41, for a map of the types-of-farming areas in Minnesota.

Table 3. Proportion of Light Oil Inshipments by Cooperative Associations in 20 Leading Counties, 1939

County	Inshipments by Cooperatives	County	Inshipments by Cooperatives
	per cent		per cent
Kanabec	69.2	Lyon	31.8
Clearwater	49.9	Carlton	31.5
Roseau	40.9	Norman	30.7
Grant	39.6	Murray	29.5
Nobles	38.5	Houston	29.5
Nicollet	37.1	Freeborn	29.5
Red Lake	33.7	Dodge	29.4
Isanti	33.4	Steele	29.1
Brown	33.2	Rock	29.1
Yellow Medicine	31.8	Lac qui Parle	28.8

not include other cooperative associations such as creameries, elevators, and stores which sell some petroleum products but which do not handle a sufficient volume to warrant the use of bulk station facilities.

The location of cooperative oil associations and their branch bulk plants

in the state is shown in figure 3. It will be noted that the largest number of associations are located in the southern and western counties of the state, areas in which tractor farming has assumed considerable importance. It will also be noted that some counties have only one association while other

NUMBER OF ASSOCIATIONS

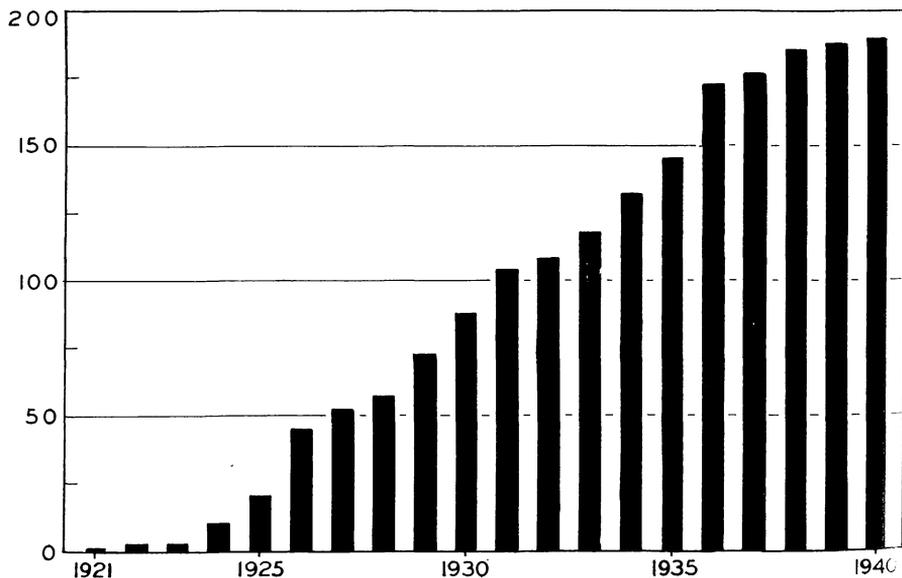


FIG. 2. NUMBER OF COOPERATIVE OIL ASSOCIATIONS IN MINNESOTA, 1921-1940

The number of cooperative oil associations in operation in Minnesota increased steadily in the two decades from 1921 to 1940. By 1940 there were 189 active associations in the state.

counties have several of these organizations. In the former group of counties the cooperative oil association may operate on a county-wide basis including members from several communities and who may be served from several

branch bulk plants or service stations. Other oil associations have been organized to serve only a single community and may serve farmers in an 8- to 12-mile radius. The volume of business of the large county-wide associa-

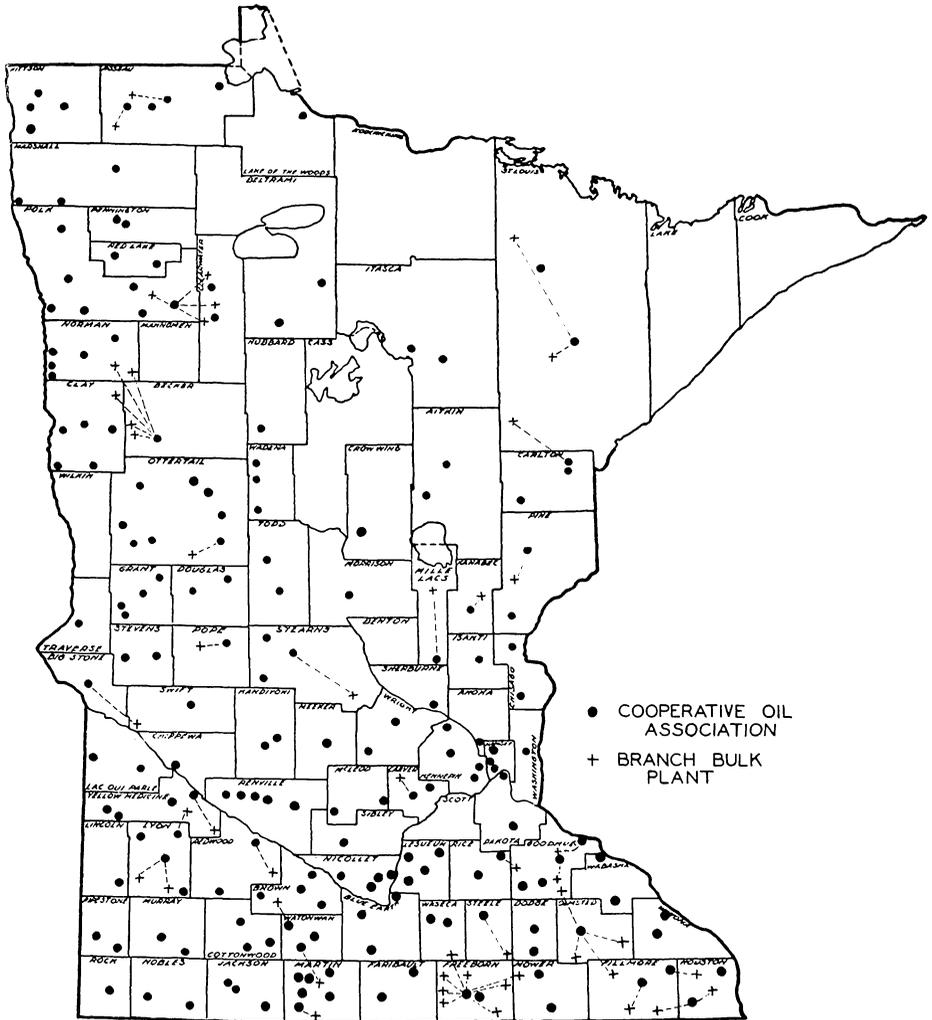


FIG. 3. LOCATION OF COOPERATIVE OIL ASSOCIATIONS AND BRANCH BULK PLANTS IN MINNESOTA, 1940

The largest number of cooperative oil associations are located in the southern and western counties of the state. Some associations serve an entire county or larger area by means of conveniently located branch bulk plants and service stations.

Table 4. Light Oils Distributed by Minnesota Cooperative Oil Associations Classified According to Affiliation, 1937-1939

Affiliation	1937		1938		1939	
	Gallons	Per Cent	Gallons	Per Cent	Gallons	Per Cent
Midland	30,141,772	41.2	32,640,737	41.3	33,529,600	40.3
Farmers Union	6,458,071	8.8	6,839,765	8.7	6,974,400	8.4
Central Cooperative	3,944,272	5.4	4,159,555	5.3	4,427,200	5.3
Farm Bureau	2,660,055	3.6	3,477,389	4.4	3,616,000	4.4
All Affiliated	43,204,170	59.0	47,117,446	59.7	48,547,200	58.4
Unaffiliated	29,992,645	41.0	31,782,879	40.3	34,636,000	41.6
Total All Associations	73,196,815	100.0	78,900,325	100.0	83,183,200	100.0

tions is generally much larger than that of the single community type, and in several cases their annual sales approach the \$500,000 mark.

While the number of cooperative oil associations in operation in the state has grown substantially in the past two decades, the average volume of light oils distributed per association has also increased significantly. For instance, in 1933 the average amount of light oils distributed per association was 263,769 gallons. By 1939 the average distribution of these products was 442,464 gallons per association. This increase in the average volume of business per association is a very important factor in the more efficient operation of these organizations.

Volume Handled by Affiliations

Local cooperative oil associations in the state may be classified into two groups on the basis of their principal purchasing arrangement; namely, (1) those affiliated with cooperative wholesale organizations,⁴ and (2) those which

obtain their supplies of light oils from the major and independent oil companies.⁵

Associations connected with cooperative wholesales handled 58.4 per cent of the total light oils distributed by cooperatives in the state in 1939 (Table 4). The largest group of these associations, namely, those affiliated with Midland Cooperative Wholesale of Minneapolis, handled 33,529,600 gallons or 40.3 per cent of the cooperatively distributed oil in Minnesota. The oil associations not affiliated with any of the four cooperative wholesales in the state accounted for 41.6 per cent of the light oil volume.

It will also be observed from table 4 that the gallonage of light oils handled by the cooperatives of all affiliations increased steadily in the period, 1937-1939. The proportion of the total handled by each of the various groups has undergone very little change in this period. The largest relative increase in volume in this period is shown by the Farm Bureau Service Company associations.

⁵ Associations not affiliated with a cooperative wholesale purchase their petroleum products from private oil companies such as Phillips, Sinclair, Socony, Globe, Barber, and others.

⁴ The organization and operation of these concerns are considered in detail on pages 43 to 54 of this study.

Organization Structure and Cooperative Characteristics of Oil Associations

ORGANIZATION structure and cooperative characteristics of associations of the type considered in this study are determined by various factors such as the state cooperative law under which these organizations operate, specifications for cooperatives set up by federal statutes and the regulation of federal administrative agencies, guidance in cooperative organization provided by directors and officers, and the experience and education of the membership in the cooperative way of doing business.

Requirements of State Cooperative Law

Owing to the fact that cooperative oil associations are relatively young organizations they have had the advantage of organizing under the newer cooperative laws of Minnesota. In consequence they can comply with the provisions of these laws with less difficulty than older cooperatives such as creameries and elevators which were organized under earlier cooperative laws or general corporation laws. Nearly all of the cooperative oil associations in the state have been formed under the provisions of Chapter 326, Laws of 1923. This act provides that a cooperative association may be organized by five or more incorporators either with or without capital stock. The act includes among other provisions a statement of the purposes for which a cooperative may be established, the procedure to be followed in organizing a cooperative, the regulation of administrative officers in co-

operatives, and a statement of the plan of organization and business practices to be followed by a Minnesota cooperative association.

The plan of organization and business practices to be included in the association's articles of incorporation and by-laws must provide that:

- (1) The ownership of capital stock by any individual stockholder shall not exceed the par value of \$1,000.00.
- (2) Individual stockholders shall be restricted to only one vote in the affairs of the association, regardless of the amount of stock held. Proxy voting is prohibited.
- (3) Shares of stock are transferable only with the approval of the governing board of the association.
- (4) Dividends on stock shall not exceed 8 per cent. (An amendment to the law in 1933 changed this to 6 per cent.)
- (5) The net income of the association, except certain amounts required for reserves or permanent surplus or set aside by vote of the stockholders, shall be distributed on the basis of patronage.

Federal Cooperative Specifications

The organization structure and cooperative characteristics of oil associations have been shaped to some extent by federal laws with which these associations endeavor to comply in order to obtain various advantages such as exemption from federal income taxes and Farm Credit Administration loans at relatively low rates of interest. Among the more important of these federal laws is the Capper-Volstead Act of 1922 and the Farm Credit Act of 1933.

The Capper-Volstead Act sets up a legal definition of agricultural cooperative associations which is generally

used by federal agencies in their dealings with these organizations. This act provides that cooperative associations must be operated for the mutual benefit of the members as agricultural producers, and to conform to one or both of the following requirements:

- First: That no member of the association is allowed more than one vote because of the amount of stock or membership capital he may own therein; or,
- Second: That the association does not pay dividends on stock or membership capital in excess of 8 per cent per annum; and in any case to the following:
- Third: That the association shall not deal in the products of nonmembers to an amount greater in value than such as are handled by it for members.

Oil associations organized and operating in accordance with the provisions of the Minnesota cooperative law have no difficulty in complying with both the first and second provisions of the Capper-Volstead Act. All the available evidence indicates that oil associations in the state nearly universally conform to these provisions. Certain types of cooperative associations have some difficulty in living up to the third provision of the Act requiring that business done with nonmembers shall not exceed that done with members. However, oil associations generally facilitate the ownership of stock by requiring nonmember patrons to apply patronage dividends to the purchase price of stock. In this way the nonmember list of patrons is gradually reduced and the member list gradually augmented.

In order to conform to the general provision of the Capper-Volstead Act that these shall be associations of agricultural producers, most of the rural oil associations include a statement in their by-laws limiting the membership

to producers of agricultural products. A more difficult problem in confining membership to farmers is that of members who give up farming or move from the association's territory and thus become nonproducer members of the association. To avoid this problem the associations are also stipulating in their by-laws that the stock held by such members may be repurchased by the association, or nonvoting stock or nonvoting certificates issued for it. In the interpretation of this provision of the Act federal agencies have held that "substantially all" of the voting stock of the association must be held by producers who patronize the association. Thus, under certain conditions, the association is allowed some tolerance for nonagricultural members.

Income Tax Laws

Properly organized and operated cooperative oil associations have also been given special consideration by federal and state revenue laws. Eligible cooperatives may obtain exemption from the payment of federal and state income taxes. Most rural oil associations have endeavored to organize and operate so that they may qualify for the advantages conferred by these laws.

To obtain exemption from the payment of federal income and capital stock taxes, an association must comply with the conditions described below:⁹

1. The association must be both organized and operated on a cooperative basis for the purpose of marketing products and returning the proceeds, less necessary expenses, to the producers on the basis of either quantity or value of the product marketed, or for the purpose of distributing supplies to farmers at cost

⁹ See Knapp, J. G., and Lister, J. H., "Cooperative Purchasing of Farm Supplies," Farm Credit Administration, Cooperative Division, Bul. 1, 1935, p. 89.

plus necessary expenses. Of course, one association may engage in both activities.

2. Substantially all of the stock (except nonvoting preferred stock, entitled only to fixed dividends and to redemption at the price for which issued) or of the voting memberships in nonstock corporations, must be owned by producers who patronize the association.

3. In regard to an association's marketing business, producers who are members and producers who are nonmembers must be "treated alike" with reference to patronage dividends. In regard to purchasing activities, all persons who buy supplies from or through the association, whether members or nonmembers, must be treated alike as to patronage dividends.

4. Associations organized with capital stock must not pay dividends on such stock, directly or indirectly, in excess of the legal rate of interest in the State of incorporation, or in excess of 8 per cent per year, whichever is greater, on the amount paid for the stock when it was issued.

5. At least 50 per cent in value of both the marketing and the purchasing business of the association must be done with members, and not more than 15 per cent of the purchasing business may be done with persons who are neither producers nor members.

6. Any reserves or surpluses set up by the association must be required by State law, or must be reasonable reserves for necessary purposes of the cooperative business.

To obtain exemption from the payment of taxes under the Minnesota Income Tax Act the association must be organized and operated on a cooperative basis. The conditions for exemption under this Act are in most respects similar to those of the federal government which have been listed immediately above.⁷ The Minnesota tax authorities, however, have been more liberal than the federal authorities in interpreting the provision that "substantially all" the members must be agricultural producers. They have allowed cooperative associations a toler-

Table 5. Income Tax Status of 92 Minnesota Oil Associations, 1940

Status	Number of Associations	Per Cent of Associations
Exempt from state and federal tax	36	39.1
Exempt from state tax only.....	33	35.9
Exempt from federal tax only	2	2.2
Not exempt from state or federal tax	21	22.8
Total	92	100.0

ance of 35 per cent for members who are not agricultural producers.

Some indication as to how successful these associations have been in conforming to the cooperative standards set up under the federal and state laws and regulations is shown by the number of associations which have been able to qualify for exemption from federal and state income taxes. Table 5, which provides a summary of the income tax status of the 92 associations included in this study, shows that 36 associations, or 39 per cent, were exempt from the payment of both the federal and state income taxes. Twenty-one associations, about 23 per cent, were unable to qualify for either the federal or state exemption. Some of the nonexempt associations, however, paid little or no income tax either because they had no net income or because all or nearly all the net income had been distributed in the form of patronage dividends. Both the federal and state tax statutes exempt income distributed in this manner from this tax.

Information obtained on the cooperative status of the associations not exempt from income taxes shows that some of these organizations could qualify for exemption by making a few relatively simple adjustments in their organization or operation.

⁷ See Minnesota Income Tax Act Article II, Section 5(g).

Financial Condition

IN ORDER to obtain a cross section view of the financial condition of cooperative oil associations in Minnesota the audited financial reports of 92 companies were analyzed. The analysis includes a study of (1) the capital requirements, (2) sources of capital, and (3) the relationships between capital requirements and sources of capital of these organizations.

Capital Requirements

Cooperative oil companies require varying amounts of capital to finance physical facilities including storage tanks, buildings, delivery trucks, and other equipment. Considerable capital is also needed for current operating purposes such as to carry inventories, receivables, and similar items.

As shown in table 8 the total net assets of these associations averaged \$26,031 per association. The total net assets of individual companies varied from a low of \$3,300 in one association to a high of \$206,000 in another. In about 70 per cent of the cases total assets ranged from \$10,000 to \$30,000

(Table 6). Five associations showed total assets in excess of \$50,000.

Among the factors influencing the amount of capital required by an oil company are its operating methods including purchasing, delivery arrangements, credit policies, and the like. The volume of business is one of the more important factors affecting the amount of capital required. For instance, companies with less than \$25,000 of sales a year had an average of \$9,790 of assets as compared with an average of \$97,932 for associations with an annual sales volume in excess of \$125,000.

Operating Capital.—The operating capital (current assets) of these associations, including cash, receivables, and inventories, represents 56.4 per cent of the total capital requirements, or \$14,679 per association (Table 8).

The average cash of these associations amounted to \$3,132, or 12 per cent of the total assets (Fig. 4). Careful financial management requires that this account be kept sufficiently high to permit prompt payment of bills so that maximum cash discounts may be realized and interest avoided on time purchases.

Nearly one fourth of the total assets of these associations are represented by accounts and notes receivable. Accounts receivable averaged \$6,027 per association and notes receivable \$301. As may be observed from table 7 the proportion of total assets tied up in notes and accounts receivable is highly variable. It is significant that in 34 associations from 30 to 70 per cent of the total assets are represented by these receivables.

Table 6. Distribution of 92 Minnesota Oil Associations According to Amount of Total Assets, 1939

Total Assets	Number of Associations	Per Cent of Total Associations
Less than \$10,000	9	9.8
\$10,000-\$19,999	48	52.2
20,000- 29,999	16	17.4
30,000- 39,999	6	6.5
40,000- 49,999	8	8.7
50,000 and over	5	5.4
Total	92	100.0

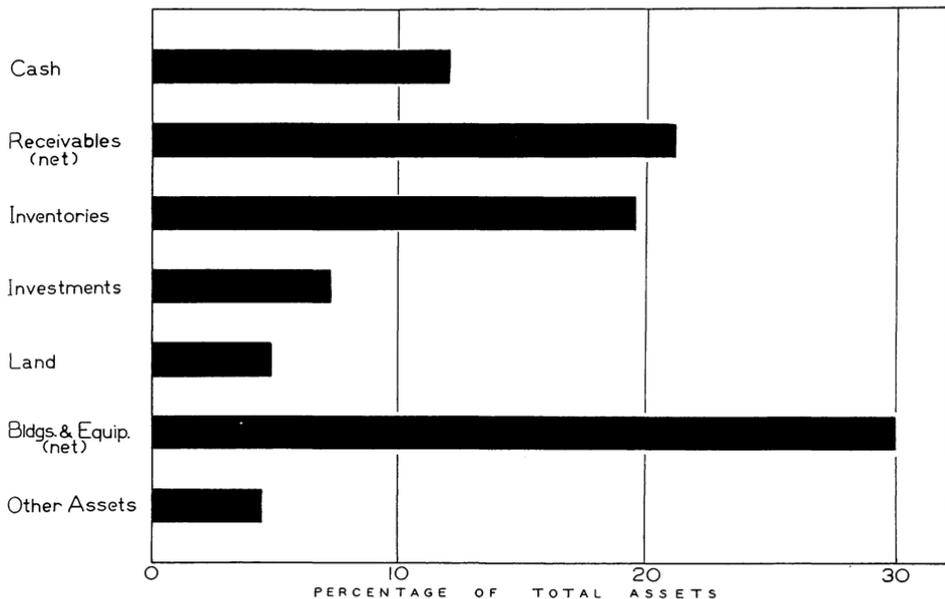


FIG. 4. PERCENTAGE DISTRIBUTION OF THE ASSETS OF 92 MINNESOTA OIL ASSOCIATIONS, 1939

Buildings and equipment at their net or depreciated value constitute about 30 per cent of the total assets of these associations. The proportion of the total assets in receivables is also large.

A large number of associations are undoubtedly carrying receivables at values in excess of reasonable realization values. A considerable volume of old accounts is carried on the books of some associations and will involve considerable loss as collection is pressed (see page 26). Considering

the volume of old accounts, the reserves for doubtful accounts including drivers' commissions held as reserves against outstanding accounts are inadequate in many instances. On the average the reserve for this purpose amounted to \$556 per association, or 8.8 per cent of the outstanding receivables.⁸

Table 7. Accounts and Notes Receivable as Percentage of Total Assets in 92 Minnesota Oil Associations, 1939

Per Cent Receivables Are of Total Assets	Number of Associations	Per Cent of Associations
0-9	10	10.9
10-19	19	20.7
20-29	29	31.5
30-39	17	18.5
40-49	13	14.1
50-69	4	4.3
Total	92	100.0

Inventories representing the commodities held for sale to patrons involved an average capital requirement of \$5,166 per association, or 19.8 per cent of total assets. The amount of inventory held by an association varies considerably, depending upon such factors as the volume of sales, the number of bulk and service stations, purchas-

⁸ A more detailed discussion of the credit problems of these associations is presented in a later section (page 26).

Table 8. Average Balance Sheet of 92 Minnesota Oil Associations, 1939

Item	Average per Association	Per Cent of Total Assets
Assets		
Current assets:		
Cash	\$ 3,132	12.0
Accounts receivable	6,027	23.2
Notes receivable	301	1.2
Less reserve for bad debts	(556)	(2.1)
Inventories	5,166	19.8
Prepaid expense	499	1.9
Other current assets	110	.4
Total current assets	\$14,679	56.4
Investments:		
Stock in wholesales	\$ 1,562	6.0
Other investments	294	1.1
Total investments	\$ 1,856	7.1
Fixed assets:		
Land	\$ 1,257	4.8
Buildings and equipment	12,363	47.5
Less reserve for depreciation	(4,641)	(17.8)
Total fixed assets	\$ 8,979	34.5
Other assets	517	2.0
Total assets	\$26,031	100.0
Liabilities		
Current liabilities:		
Notes and trade acceptances	\$ 1,570	6.0
Contracts payable	177	.7
Accounts payable	2,345	9.0
Accrued expenses	1,994	7.7
Patronage refunds payable	1,855	7.1
Other current liabilities	54	.2
Total current liabilities	\$ 7,995	30.7
Noncurrent liabilities	\$ 2,770	10.6
Net Worth		
Capital stock outstanding	\$ 7,314	28.1
Capital stock credits	2,016	7.7
Patron equity reserve	1,447	5.6
Other reserves	151	.6
Surplus	2,290	8.8
Undistributed net income	2,048	7.9
Total net worth	\$15,266	58.7
Total liabilities and net worth	\$26,031	100.0

ing policies, and seasonal demand.

Fixed Assets.—Fixed assets consisting of real estate, storage tanks, delivery trucks, and other equipment involved an average gross investment of \$13,620, of which \$1,257 was land

and the remainder facilities. Buildings and equipment originally valued at \$12,363 were carried on the books at a depreciated value of \$7,722, which is 29.7 per cent of the total assets (Table 8).

The amount of capital required to finance fixed assets depends upon various factors such as the type of association, volume of business, and type of facilities. Associations operating service stations in addition to bulk plants generally have a larger than average investment in fixed assets.

Investments.—Slightly over 7 per cent of the total assets of these companies consisted of investment in other organizations. The largest part of this investment consisted of common stock or other member equity in the cooperative wholesale organizations with which the local associations were affiliated. Many associations held stock or membership interest in other local cooperatives or other local enterprises. In a few cases associations with surplus funds held securities of a purely investment character.

Sources of Capital

Of the total capital of these associations, \$10,765, or 41.3 per cent, was provided by creditors and \$15,266, or 58.7 per cent, by the members (Table 8). Of the liabilities \$7,995, or 30.7 per cent of the total capital provided, represented current liabilities; and \$2,770, or 10.6 per cent of the total capital, represented noncurrent debts.

Current Liabilities.—The current liabilities include debts payable in a year or less such as short-term notes, trade acceptances payable, contracts payable, accounts payable, accrued expenses, and patronage refunds payable.

Accounts payable of these associations average \$2,345 per association, or 9 per cent of total capital (Fig. 5). This account represents capital provided by the cooperative wholesales or other

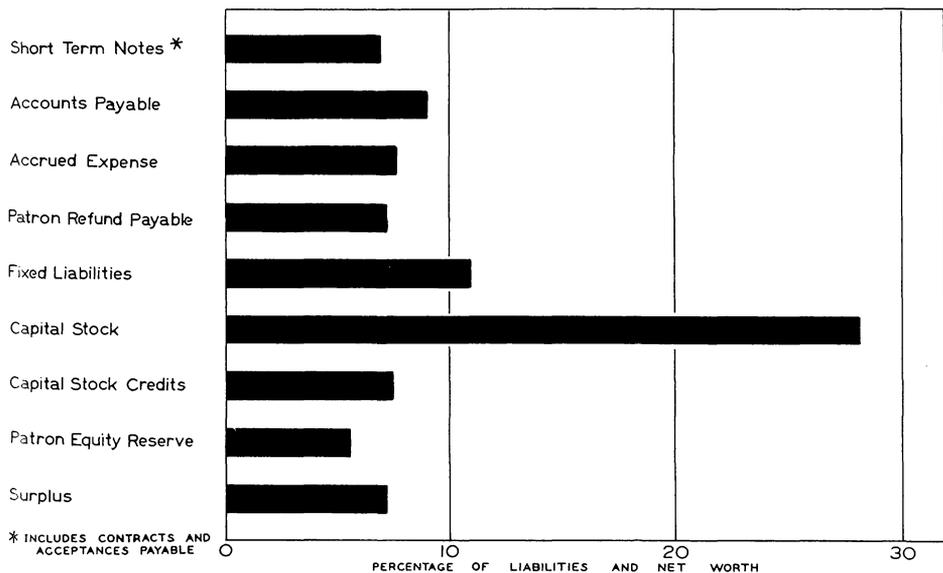


FIG. 5. PERCENTAGE DISTRIBUTION OF THE LIABILITIES AND NET WORTH OF 92 MINNESOTA OIL ASSOCIATIONS, 1939

About 41 per cent of the capital of these associations was provided by creditors and about 59 per cent by the members. Most of the member capital has been obtained from earnings retained in the business.

supply companies on a book credit basis. A large proportion of accounts payable indicates a weak financial condition and results in additional costs such as interest on overdue accounts and reduced income due to loss of discounts. These cooperatives had average accrued expenses of \$1,994 including accrued gasoline taxes, accrued property taxes, accrued wages, accrued interest payable, and similar items. Patronage refunds payable represent dividends declared by the association in the current year but not paid in cash or allocated to patron accounts by the end of the fiscal year.

Written promises to pay including short-term notes, trade acceptances payable, and contracts payable provided 6.7 per cent of the total capital (Table 8). Table 9 shows that 57 out of 92 associations borrowed a total of \$160,764 on this basis. Trade acceptances generally were given to the cooperative wholesales or other suppliers for purchases of tank cars of light oils on a 60- or 90-day basis. The whole-

sale organizations have willingly accepted this paper from the local associations since it can be readily discounted with their banks if they need the cash. The rate of interest on these obligations ranged from 4 to 8 per cent. Contracts payable generally arise from the purchase of bulk or service station equipment on a time basis. This paper is as a rule also held by the suppliers of this equipment. Short-term notes are given for various purposes to finance merchandise and equipment.

According to table 9 about 41 per cent of the short term loans of all types were financed by the wholesale firms with which the associations transacted business. Local banks were also an important source of this type of credit.

Noncurrent Liabilities.—The long-term debts of these companies consisted principally of long-term notes and mortgages given to finance the purchase or construction of buildings, storage tanks, trucks, and other physical facilities. Table 9 shows that 60 of

Table 9. Source of Borrowed Funds of 77 Minnesota Oil Associations, 1939

Source of Funds Borrowed	Number of Associations Borrowing	Amount Borrowed		
		Total Amount	Per Cent of Total	Average per Association
Short-Term Loans:				
Wholesale firm	40	\$ 66,450	41.3	\$1,661
Local bank	13	45,018	28.0	3,463
Private party	14	25,816	16.1	1,844
Other	13	23,480	14.6	1,806
All short-term loans	57*	\$160,764	100.0	\$2,820
Long-Term Loans:				
Wholesale firm	8	\$ 16,867	11.0	\$2,108
Local bank	5	15,696	10.2	3,139
Private party	6	8,394	5.5	1,399
Bank for Cooperatives	42	86,712	56.5	2,065
Other	8	25,674	16.8	3,209
All long-term loans	60*	\$153,343	100.0	\$2,556
Total from all sources	77*	\$314,107		\$4,079

* This total is not an addition of the preceding parts because some associations borrow from two or more sources.

92 associations owed \$153,343 on this basis. Of this amount \$86,712, or 56.5 per cent, was loaned by the St. Paul Bank for Cooperatives.

A large proportion of the long-term loans, particularly those financed by the Bank for Cooperatives, included provisions for serial repayments, that is, a certain amount per month or other periodic payment time. A common plan was to pay on these debts at the rate of $\frac{1}{2}$ cent per gallon of the light oils sold or a certain percentage of the dollar sales for the period such as 2 or $2\frac{1}{2}$ per cent. Such repayment plans are advisable since they result in a more systematic retirement of debts than ordinarily occurs under lump sum repayment plans.

Capital Provided by Members.—Figure 5 shows clearly that members have furnished the largest proportion of the capital of these associations through the purchase of capital stock and the accumulation of surplus and net worth reserves. According to table 8 these items which comprise the total net worth amount to more than \$15,000 per association. The net worth of individual associations varied from a high of \$175,473 to a net deficit of \$231.

Slightly over 28 per cent of the total capital, or \$7,314 per association, was obtained from the sale of capital stock. In 80 per cent of the associations the outstanding capital stock averages less than \$10,000. Nearly all associations require that all producer patrons own a share of stock in the organization. In case the stock is not purchased outright, patronage dividends earned by the patron are credited to his stock account until the share is paid in full. As a result of this practice these associations have an average of \$2,016 in the stock credit account.

The second largest source of capital

provided by members is from earnings retained in the business. These earnings may be included in any of several net worth accounts, the most important of which is the permanent surplus account averaging \$2,290 per association. Under Minnesota cooperative law these associations must place 10 per cent of the annual net income into permanent surplus until an amount at least equal to 50 per cent of the paid-in capital is accumulated.⁹ If the by-laws so provide, the surplus account may be increased to 100 per cent of paid-in capital. It is usually advisable to increase surplus to the larger amount in order to meet future contingencies and to provide for future expansion from a source requiring no interest payments.

Seventeen of the 92 associations studied used the patron equity reserve account instead of the surplus account to show earnings retained in the business. In 25 more associations both accounts are used. Many associations consider the use of the patron equity reserve preferable to the use of the free surplus account since the earnings are definitely allocated to individual patron accounts. This has the merit of being an equitable and cooperative procedure. Net income retained in the regular surplus account legally belongs to the stockholders of the association rather than to the patrons who provided the business from which the net income was derived.

Financial Ratios

A strong financial condition requires that certain minimum relationships be maintained between the various bal-

⁹ See "Laws of Minnesota Relating to Cooperative Associations" a bulletin prepared by Department of Agriculture, Dairy and Food (1936), page 11.

Table 10. Classification of 92 Minnesota Oil Associations According to the Size of Specified Financial Ratios, 1939

Size of Ratio	Current Assets* to Current Liabilities	Net Worth† to Total Liabilities	Net Worth‡ to Fixed Assets	Net Worth§ to Capital Stock
		Number of Associations		
Less than .50‡		15	7	2
.50-.99	14	26	19	2
1.00-1.49	25	17	22	22
1.50-1.99	25	17	22	38
2.00-2.49	8	3	9	21
2.50-2.99	7	1	5	4
3.00-3.49	3	5	4	2
3.50 and over	10	8	4	1
Total	92	92	92	92

* Each financial ratio is calculated by dividing the value of the first item in the indicated ratio by the second. Thus \$10,000 of current assets divided by \$5,000 of current liabilities results in a 2.00 to 1 relationship.

† In calculating these ratios the "undistributed net income" of the current year has been eliminated from net worth, since this account is relatively temporary.

‡ Only the first figure of the ratio is given in each case, thus 1.00 means a ratio of 1.00 to 1, 1.99 means 1.99 to 1, etc.

ance sheet items. These relationships are generally expressed as financial ratios, four of the more important of which are included in table 10.

The most widely used ratio of financial condition is that of current assets to current liabilities. This ratio is a measure of the current solvency, that is, current debt paying ability of the business enterprise. To be solvent an association should have current assets at least equal to current liabilities. Because all current assets may not be completely collectible on short notice and because current assets are needed to continue normal operations in the event all current debts are paid, a current ratio of 2 to 1 is usually recommended. It will be observed from table 10 that 14 associations did not have sufficient liquid assets to meet current creditor claims in full. Sixty-four associations, about 70 per cent, showed a current ratio below the desired 2 to 1 level. In contrast, 10 companies showed ratios in excess of 3.50 to 1. The weighted average current

ratio of the 92 associations combined was 1.84 to 1, which is below the level necessary for most effective operations. A weak current position is a handicap in effective purchasing and in providing patrons with supplies and services on the most efficient basis.

The ratio of net worth to total liabilities indicates to what extent the association is financed by owner capital and to what extent by borrowed capital. A high ratio reveals a favorable financial condition in that the association is financed primarily by the members and the debt burden is low in consequence. A high ratio also indicates that financial control of the organization is in the hands of the members, rather than in the hands of creditors who may take more and more authority as the ratio declines below the minimum 1 to 1 standard. Table 10 shows that in 41 out of 92 associations this ratio was below the 1 to 1 level, indicating that their debts exceeded the amount of capital provided by their members. Organizations

in this position find it more difficult to obtain credit on favorable terms and are, in consequence, likely to have higher operating costs. For all the associations combined this ratio averaged 1.37 to 1, indicating that \$1.37 of owner capital (net worth) was provided to each \$1.00 of creditor capital (liabilities).

A common rule of sound finance for this type of business is that fixed assets including buildings and equipment should be financed by owner capital. To ascertain if this desirable relationship is being maintained, the ratio of net worth to fixed assets is used. The ratio should at least be on a 1 to 1 basis. Table 10 reveals that 26 out of 92 associations failed to finance all their fixed assets from capital stock and permanent reserves. The net worth of all associations combined exceeded the amount of fixed assets by a satisfactory margin, there being \$1.47 of net worth to every \$1.00 of fixed assets.

The fourth ratio in table 10 shows the relationship between net worth and capital stock. This ratio shows the book value of each dollar invested

in the capital stock of the association. The amount by which the ratio exceeds a 1 to 1 relationship indicates the amount of earnings retained in the business to meet future contingencies and to provide for expansion. Hence a large ratio indicates ample protection of the member's investment and also added security for the creditors. The state cooperative law provides that the association's ratio of net worth to capital stock be increased to a minimum of 1.5 to 1 by the retention of 10 per cent of the annual earnings. According to table 10 there were 26 in 92 companies which have not attained the minimum 1.5 to 1 standard. Some associations in this group are relatively young and have not had an opportunity to increase their net worth to the desired level. An unusually large ratio may represent a violation of cooperative principle, especially if retained earnings are not allocated to individual patron accounts. Income tax authorities may challenge the cooperative status of an association whose unallocated surplus and reserves appear to be excessive.



Methods of Operation

OPERATION methods of rural cooperative oil associations are in many respects similar to those of the private oil companies distributing petroleum products in rural areas, the main difference being in the cooperative character of the operations. In this section the following aspects of the operations of these organizations are discussed: (1) the line of supplies handled; (2) purchasing methods; (3) price policies; (4) selling and service methods; (5) inventory control and shrinkage; (6) credit management; and (7) accounting methods.

Supplies Handled

The earliest cooperative oil associations organized in Minnesota confined

their operations mainly to the handling of a few basic commodities. Through their bulk plant these associations sold only the major petroleum products, such as gasoline, kerosene, lubricating oils, and grease. Some associations operate along similarly simple lines today, but the number is steadily dwindling.

Most associations have been extending the line of supplies carried in one or all of several ways. Some associations in addition to handling the basic group of petroleum products have added related automobile and tractor supplies including tires, tubes, batteries, anti-freeze, and other accessories. Other associations have entered into the handling of a line of general farm supplies including paints, hard-

FIG. 6. LOADING A TANK TRUCK AT A COOPERATIVE BULK STATION





FIG. 7. SERVICING A CAR AT A COOPERATIVE STATION

ware, steel and wire, twine, feed, fertilizer, farm machinery, coal, and electrical appliances. Nearly all cooperative oil associations in Minnesota have added ordinary and super-service stations as a further accommodation to their patrons.

In expanding their line of supplies and services these associations have generally added related products most in demand among their patrons and which are frequently supplied by competitors. A large number of associations try to add only those items on which considerable savings may be made.

However, many associations are handling certain supplies on which little or no saving is made. The addition of products producing no direct returns may be justified if they satisfy the needs of most of the patrons. A service benefiting only part of the members becomes a cost to all if not self-supporting.

Another factor adding to the quantity of supplies carried by the local

associations is that different qualities and brands of a given product are frequently stocked. More and more associations are concentrating on Co-op labeled and approved products as they are being made available by their cooperative wholesales and such national "super" bargaining associations as National Cooperatives, Inc., with headquarters in Chicago.

Purchasing Methods

Local cooperative oil associations in Minnesota purchase their petroleum and merchandise requirements from various sources including the cooperative wholesales serving this area, private oil companies, and other private suppliers of automotive and farm supplies. One hundred twenty-eight of the 189 oil associations in the state, or 67.7 per cent, are affiliated with one or the other of the cooperative wholesales and purchase the most important part of their oils and other products from these organizations. The 61 associa-



FIG. 8. GREASING AND LUBRICATION SERVICES ARE PROVIDED BY MANY COOPERATIVE OIL ASSOCIATIONS

tions not affiliated with the cooperative wholesales purchase their petroleum products from the major and independent oil companies. Relatively few associations buy all their products including the oils, auto accessories, and other farm supplies from one source.

Purchases of light oils including gasoline, kerosene, and tractor fuels are usually made in tank car quantities. In most instances, the shipment is made directly from the refinery to the local association. The lubricating oils are usually purchased in 50-, 30-, or 15-gallon drums of the required grades.

Generally the local associations obtain the customary cash and quantity discounts on their purchases. According to the credit terms of one of the large cooperative wholesales the local purchasing unit is allowed a one per cent discount for cash paid in 10 days on most types of merchandise. The full invoice price is to be paid within 30 days. On all invoices over 30 days

a 6 per cent interest charge is added. Under certain conditions the local organization may give trade acceptances to cover petroleum product purchases. The local associations are allowed 3 per cent on average monthly balances kept with the wholesale organization. The credit terms of other wholesales vary only slightly from the credit conditions set up by this organization.

Price Policies

Cooperative oil associations have adopted the policy of following the retail and bulk prices in their trade territory. Any net income or savings resulting from this price policy may be retained in the surplus or reserve accounts of the association or distributed to the patrons (members and nonmembers alike) in the form of a patronage dividend.

On this basis of pricing there is no incentive for the cooperative to sell at lower prices than its competitors, and disastrous price wars may consequently be avoided. In the event of price wars the local association may follow competitive prices in order to hold established patrons. Some associations have advised their patrons to buy the cut-price items temporarily from the private companies so as to avoid financial loss to the cooperative. Some associations have temporarily closed stations affected by unusually severe price wars.

Tank wagon prices on gasoline are commonly set two cents per gallon lower than prices at service stations. The lower tank wagon prices have been justified on the ground that the per unit cost of handling the larger quantity of sales per order is lower.

Some associations allow special discounts on quantity purchases of an unusual size. Among the few Minne-

sota associations which follow this practice a discount of one cent per gallon is given on purchases which exceed 200 to 300 gallons of light oils per order.

Selling and Service Methods

Minnesota oil associations generally distribute their supplies through both bulk plants and service station outlets. A limited number of associations in the state operate only bulk plants while others maintain only service station outlets. As shown in table 11 two of the 92 associations included in this study operated only bulk station facilities. The largest number of associations, 63 in all, operate with a combination of facilities including one bulk plant and one service station. Other associations have various combinations of bulk and service station outlets, the largest number of outlets being that of a southern Minnesota association with nine bulk stations and six retail service stations. Regardless of the number of station outlets, deliveries of gasoline, kerosene, and tractor fuels are also made in quantity lots by tank trucks direct to farmers. At times other supplies may be delivered direct to the farm.

Associations operating more than one truck generally assign a definite territory to each truck salesman in

which he delivers all orders for petroleum products and other supplies. Since deliveries are usually made only after a call from the patron the greatest efficiency in transportation is not attained. Under such a system of deliveries frequent repetition of mileage may occur, owing to the fact that all the orders from a given neighborhood may not come in at the same time. Frequently orders are made for relatively small quantities necessitating another trip to a given farm in a few days. In order to eliminate the added expense of such wasteful selling and service methods, some associations are arranging regular routes for their drivers and these routes are to be covered one to three times a week depending upon the season of the year. Orders which must be filled on other than the scheduled delivery days carry a special delivery charge. Other important problems encountered in tank truck sales operations are the training of efficient, aggressive, and dependable driver salesmen; control of credit extension to farmer-patrons; and meeting the competition of other petroleum companies in the field.

The service stations operated by cooperative oil associations offer automobile drivers the usual line of supplies and services provided by the private oil companies. Much remains to be done in improving the type of service

Table 11. Bulk Plants and Service Station Outlets of 92 Minnesota Oil Associations, 1939

Combination of Outlets	Number of Associations	Per Cent of Associations
1 bulk station and no service station	2	2.2
1 bulk station and 1 service station	63	68.4
1 bulk station and 2 or more service stations	11	11.9
2 bulk stations and 1 service station	3	3.3
2 bulk stations and 2 or more service stations	9	9.8
3 bulk stations and 2 or more service stations	1	1.1
4 or more bulk stations and 2 or more service stations	3	3.3
	92	100.0

offered by these service stations. Various observers suggest that more attention might be given (1) to providing alert and helpful service to patrons; (2) to carrying complete lines of high-quality supplies properly arranged and displayed; and (3) to provide clean, attractive, and conveniently located station buildings in the areas served. Associations which have improved their service station operations along the lines suggested have increased their volume of business considerably with the result that per unit operating costs were reduced and the ultimate savings to patrons increased.

Inventory Control and Shrinkage

One of the more important operating problems of cooperative oil associations is that of providing a stock of supplies which will adequately meet the needs of members, yet which is not so large that it represents a wasteful investment of operating capital. There are no hard and fast rules to determine how large an inventory an association should carry. The amount varies with the type of commodities sold, the number of bulk and service stations operated, the number of items handled, and various other factors.

The best measure of the inventory position of a given organization is the rate of inventory turnover.¹⁰ The rate of inventory turnover measures the rapidity with which the stock of merchandise is sold out and replenished. The more rapidly the inventory is turned over the less will be the per unit expense in the way of interest on operating capital tied up in inventory;

¹⁰To find the rate of inventory turnover divide the cost of sales for the year by the average monthly inventory of merchandise. In this study monthly inventory figures were not available so an average of the inventory on hand at the beginning and end of the year was used.

insurance; taxes; storage on merchandise; and losses due to obsolescence, shrinkage, or other causes. Some disadvantages accompany a too rapid turnover of inventory. It may indicate costly "hand to mouth" buying in small quantities and at higher prices, or it may mean the cooperative is out of merchandise it should have and may lose sales in consequence.

The inventory turnover of this type of organization should be at least 12 times a year. According to table 12, 40 out of 92 associations had an inventory turnover equal to or better than this standard. Six associations showed a turnover of less than six times a year, suggesting none too careful inventory control. The 1939 rate of inventory turnover for 92 associations was 10.3 times. A prerequisite for more efficient inventory control is the use of a carefully kept stock-record system which will enable the management to maintain a strict accounting of supplies purchased and sold.

Shrinkage.—An important part of the inventory problem of these associations is that of stock losses or shrinkages. These losses may be due to evaporation, leakage, spillage, overmeasure, carelessness in keeping quantity records, or dishonesty. Losses from these sources represent an addition to

Table 12. Annual Rate of Inventory Turnover of 92 Minnesota Oil Associations, 1939

Rate of Inventory Turnover	Number of Associations Reporting	Per Cent of Associations
Number times		
3.0- 5.0	6	6.5
6.0- 8.0	17	18.5
9.0-11.0	29	31.6
12.0-14.0	22	23.9
15.0-17.0	10	10.9
18.0-20.0	4	4.3
21.0 and over	4	4.3
Total	92	100.0

Table 13. Shrinkage or Overage on Principal Petroleum Products Handled by 90 Minnesota Oil Associations, 1939

Shrinkage or Overage	Gasoline	Kerosene and Distillate	Lubricating Oils	Grease
	Number of Associations			
Overage	0	9	13	31
Shrinkage (per cent)				
0.00-0.99	2	26	19	17
1.00-1.99	28	30	21	7
2.00-2.99	40	9	11	6
3.00-3.99	12	10	9	4
4.00-4.99	2	2	9	5
5.00-5.99	3	1	3	2
6.00 and over	3	3	5	18
Total	90	90	90	90
	per cent			
Weighted average shrinkage for 90 associations	2.21	1.48	1.50	2.27

the cost of sales and therefore require careful attention if net income is to be raised to a maximum.

The average annual shrinkage rate on gasoline in 90 associations providing data on this point was 2.21 per cent in 1939.¹¹ Average shrinkage rates on gasoline for the individual companies ranged from a low of 0.78 per cent to a high of 7.11 per cent (Fig. 9). Table 13 shows that 60 out of 90 associations, or two thirds of the cases, had a gasoline shrinkage exceeding 2 per cent. According to widely accepted standards of efficiency, shrinkage on gasoline should not exceed 2 per cent. To curb these losses some of the co-operatives have adopted the policy of charging the manager for shrinkage losses which exceed the 2 per cent level. Some of the private oil companies hold their managers responsible for any gasoline shrinkage in excess of one half of one per cent.

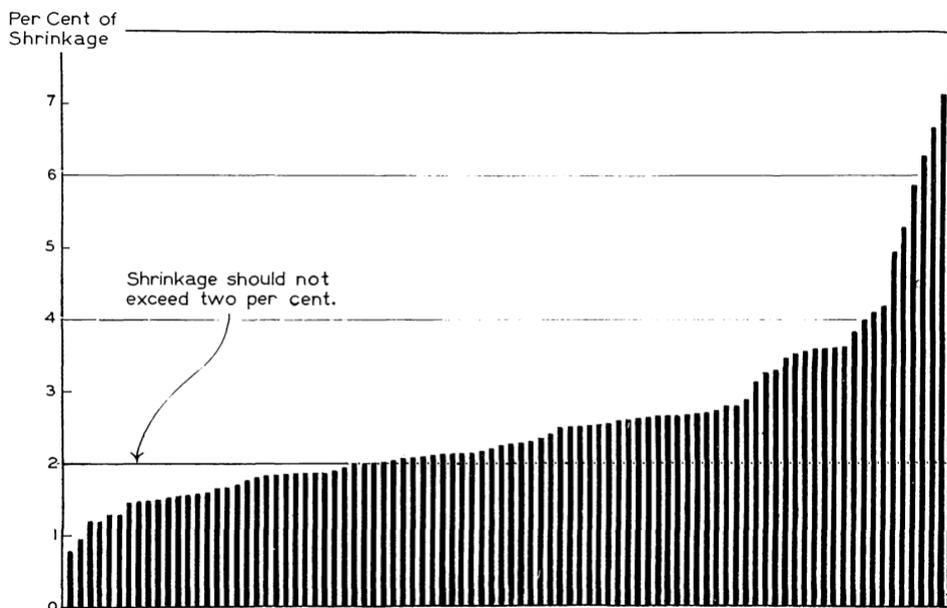
¹¹ Shrinkage is the difference in gallons between the inventory of the commodity as shown on the books and the actual physical inventory. For these associations the rate of shrinkage was calculated as a per cent of the quantity of the commodity "to be accounted for," that is, of the beginning inventory plus purchases minus ending inventory in gallons.

The less volatile oils, kerosene and distillate, show a relatively low percentage of shrinkage as may be observed in table 13. The average shrinkage of this group of oils amounted to 1.48 per cent in the 90 associations. Nine associations showed overages in the handling of these products.

Shrinkages on lubricating oils and greases averaged 1.50 and 2.27 per cent, respectively. Even larger numbers of associations showed an overage in handling these commodities.

The financial loss due to shrinkage is not fully realized by the members of most oil associations, but for this group of 90 companies the total net loss¹² in 1939 consisted of 555,790 gallons of gasoline; 179,733 gallons of kerosene, distillate, and tractor fuel; 8,847 gallons of lubricating oil; and 10,988 pounds of grease. At average 1939 unit prices this loss amounted to \$116,377, or \$1,293 per association. This loss reduced the net income of these cooperatives by 2.13 per cent of their net sales on the average.

¹² In calculating net shrinkage, overages were used to offset and reduce shrinkage.



* Each vertical bar represents one association.

FIG. 9. SHRINKAGE OF GASOLINE HANDLED BY 90 MINNESOTA OIL ASSOCIATIONS, 1939

Shrinkage of gasoline should not exceed 2 per cent and preferably should be held considerably below this level. In two thirds of the associations shrinkage of gasoline exceeded 2 per cent.

Credit Management

While selling for cash is an accepted principle of cooperative business, most cooperative oil associations have found it necessary to allow some credit. The method of distributing petroleum supplies directly to farm patrons often necessitates credit extension since it may be inconvenient to collect at the time of delivery. Competition from other oil companies has also increased the volume of credit sales, since some of these competitors have offered easy credit and other special inducements to attract business.

The number of days of sales outstanding in receivables in this group of 92 oil associations is shown in table 14. This table indicates that 43 associations, or nearly half of the total, had 30 or more days of sales tied up

in receivables. Eleven associations had less than ten days of sales in receivables. This group of associations is practically on a cash basis except for occasional accounts including village,

Table 14. Number of Days Sales Outstanding in Receivables in 92 Minnesota Oil Associations, 1939

Days of Sales*	Number of Associations Reporting	Per Cent of Associations
Less than 10.0	11	12.0
10.0-19.9	22	23.9
20.0-29.9	16	17.4
30.0-39.9	22	23.9
40.0-49.9	12	13.1
50.0-59.9	5	5.4
60.0 or more	4	4.3
Total	92	100.0

* Days of sales outstanding in receivables is calculated (1) by dividing total sales by 300 to get average daily sales in 300 business days a year. (2) Receivables, including accounts and notes receivable, are then divided by the average daily sales.

county, or other governmental accounts. The average days of sales out in receivables for all associations combined was 27 days. Local associations should aim not to allow more than 15 days of sales to be out in receivables. Only 20 of these 92 companies showed their ability to confine their receivables to this standard.

The larger associations appear to have effected better control of their receivables than small companies. For instance, Group I associations with sales below \$25,000 annually had 42 days of sales out in receivables as compared with 33 days in Group II, 28 days in Group III, 24 days in Group IV, 29 days in Group V, and 22 days in Group VI companies having sales in excess of \$125,000 annually.

The first step in the more effective control of credit granted by these cooperatives is that of educating the members, employees, and officers to the cost involved. A detailed analysis of the cost of granting credit in these associations was not undertaken in this study. It must be realized, however, that the cost includes not only the loss involved in the failure of patrons to pay their bills, but also the cost of keeping credit records, interest on funds invested in receivables, additional office supplies and postage, collection expense, and other expense. In addition to these measurable credit costs, there are "hidden costs" in the way of lessened patronage support on the part of those heavily indebted to the association, and the efficiency of the association may be reduced in other directions.

According to a recent study of the cost of granting credit in 24 petroleum associations made by the Farm Credit Administration it "amounted to \$2.00 for every \$100 of total sales and \$3.80

for every \$100 of credit sales. For every \$100 in credit sales there was a cost of \$1.40 for administrative and office salaries directly attributable to credit operations; 60 cents for office supplies, postage, legal, and other special credit expenses; 80 cents for bad debts; and \$1 for interest costs."¹³

On the basis which credit is administered in most oil associations the cost is borne not only by those members who charge their purchases but also by those who pay cash. The potential patronage dividend of those who pay for their merchandise in cash is often used in financing credit customers. This situation is likely to create dissatisfaction among the members unless credit is carefully safeguarded.

As the credit situation has become acute, more and more associations have taken steps to apply controls. Most of the associations affiliated with one of the large cooperative wholesale organizations operating in Minnesota hold the manager responsible for credit granted either by himself or any other employee of the company. To protect the association against loss arising from the extension of credit, the manager is required to make a cash deposit with the association. The cash deposit required for this purpose is \$500 or the amount of the accounts receivable outstanding for which the manager is responsible, whichever is greater. By agreement with the board of directors the cash deposit may be paid in installments the amount of which is an agreed percentage of the manager's commissions. Under this arrangement each dollar of accounts receivable on the association's books is secured by an equivalent amount of cash deposits or reserves provided by

¹³ "News for Farmers Cooperatives" (published monthly by Farm Credit Administration) January 1939, page 9.



FIG. 10. ADEQUATE ACCOUNTING RECORDS ARE ESSENTIAL FOR EFFICIENT OPERATION

the manager. The associations following this plan of credit control believe that under these conditions the manager and employees will exercise greater care in making credit sales. A disadvantage associated with this method of credit control is that it may result in shortages since employees deprived of their regular income may resort to dishonest means in order to obtain a livelihood.

Another large group of associations has ruled that in the event any portion of previous credit sales remains unpaid for 30 days positively no further supplies are sold to the patron on credit until the oldest account has been paid. Still other associations require that any prior delivery of supplies must be paid in full before another sale will be made on a credit basis. An increasing number of associations are requiring that customers buying on credit definitely agree on repayment terms at the time a delivery of oil is made.

Oil associations in some mid-western states have attempted to limit the amount of credit to patrons by giving discounts for cash or by charging interest on overdue accounts. Some associations have also required that the patronage dividend which a patron may have earned must be applied toward the reduction of his debt to the association before any cash payments will be made.

Another approach to the credit problem has been to educate patrons to the advantage of obtaining their credit from specialized financial institutions rather than their purchasing cooperatives. In the case of at least 18 Minnesota oil associations, credit unions have been organized among the members and patrons. Then those in need of credit may obtain it from this organization and the oil association may in consequence discontinue its community loan business. Acquainting patrons with the cooperative credit facilities of production credit associations may also relieve the local cooperative of

some of the burden of financing its patrons.

In attempting to effect a sounder credit policy some associations are finding that their directors, officers, and employees often owe large sums to the organization. Officers and employees in this position are often loathe to enforce a strict credit policy and to insist on prompt collections. In a group of 69 associations in which this problem was investigated the average size of the accounts receivable of officers and employees was \$67.03 per individual having an account as compared with average accounts receivable of \$18.19 per person for other members of the association having accounts. Since some associations require that the manager or other employees assume responsibility for any credit granted, the average size of the accounts receivable of officers and employees is raised by including this group. However, if all manager and employee accounts are excluded and the director and other officer accounts are averaged by themselves, they amount to \$44.02 per individual having such accounts which is still more than double the average credit extended to other members and patrons of the association. The associations showing the highest average officer and employee accounts also showed higher than average amounts outstanding on the general accounts.

Accounting Methods

Most Minnesota oil associations use systems of accounts and records recommended by the cooperative wholesale associations with which they are affiliated or recommended by the auditors who periodically check their records. The basic records used generally

consist of several journals and ledgers. The journals are usually special columnar journals including Cash Receipts, Cash Disbursement, Sales, and Purchase Journals. In most associations a General Ledger is used and in some instances this is supplemented with subsidiary ledgers such as Capital Stock, Patronage Refund, Accounts Receivable, and Accounts Payable ledgers.

Various auxiliary records are used to supplement the journals and ledgers. The more important of these are the Driver's Daily Sale and Collection Report, Inventory Sheets, and report forms covering other phases of the operations.

In the larger associations the accounts are usually kept by regular bookkeepers. In the smaller associations this work is done by the manager or some other qualified employee. Some associations whose volume of business is too small to warrant employing a full-time bookkeeper have joined with other associations to employ a bookkeeper who may serve a small group of companies.

Most associations have recognized the advantage of regular audits by professional accountants. In Minnesota most cooperative oil association audits are made by cooperative auditing organizations. Some of the audits are made by an auditing division in the State Department of Agriculture and by private auditors. In addition to the regular audit reports the cooperative auditing agencies have supplied their clients with valuable analytical comparisons of their operations with that of others. These have included comparisons of the income and expense statements in per cent of sales, comparisons of important financial ratios, shrinkage comparisons, and the like.

Analysis of Operating Efficiency

OPERATING efficiency of the 92 oil associations included in this study can be ascertained quite successfully by an analysis of their income and expense statements (operating statements). The average operating statements of this group of associations for 1938 and 1939 are presented in table 15. Operating results of these associations will be considered in the order of major items of the statements.

Sales

According to table 15 the average sales of these associations during 1939 were \$69,627, or virtually the same as in the preceding year. The sales of individual associations included in this study ranged from a low of \$13,331 to a high of \$453,863. As shown in table 1, about three fourths of the associations are represented in the groups having \$25,000 to \$100,000 of sales annually.

Sales of petroleum products such as gasoline, kerosene, distillate, lubricating oil, and grease make up the largest

proportion of the total. Analysis of the 1939 sales of 91 of the associations included in this study shows that on the average 90.9 per cent consist of these products (Table 16). Nonpetroleum supplies including tires, tubes, batteries, and other farm supplies and equipment constitute 9.1 per cent of all sales. Comparisons with sales of previous years show that the sales of nonpetroleum supplies have increased more rapidly than those of petroleum supplies. This change may be explained in part by the desire to effect savings for patrons in handling these supplies on a cooperative basis, the desire to offer a more complete line of services, and the work of the cooperative wholesale organizations in encouraging expansion along new lines.

Cost of Sales

The cost of goods sold includes the purchase cost of commodities sold, freight and drayage charges on goods received, and taxes and inspection fees

Table 15. Average Operating Statements of 92 Minnesota Oil Associations, 1938 and 1939

Item	1938		1939	
	Average of 92 Associations	Per Cent of Sales	Average of 92 Associations	Per Cent of Sales
Sales	\$69,785	100.00	\$69,627	100.00
Cost of Sales	53,758	77.03	53,648	77.05
Gross Margin	\$16,027	22.97	\$15,979	22.95
Operating Expense	11,575	16.59	12,311	17.68
Net Operating Income	\$ 4,452	6.38	\$ 3,668	5.27
Other Income	685	.98	794	1.14
Total	\$ 5,137	7.36	\$ 4,462	6.41
Other Expense	122	.18	13	.02
Net Income	\$ 5,015	7.18	\$ 4,449	6.39

Table 16. Sales of Principal Commodities of 91 Minnesota Oil Associations, 1939

Commodities	Volume Handled	Value of Sales	Per Cent of Total Sales Value
	gallons		
Petroleum Supplies:			
Gasoline	24,894,681	\$4,105,260	68.20
Kerosene	1,644,036	184,580	3.07
Distillate and tractor fuel	8,892,017	760,196	12.63
Lubricating oil	596,888	366,744	6.09
Grease	62,070*	55,933	.93
Total Petroleum Supplies	36,089,692	\$5,472,713	90.92
Nonpetroleum Supplies:			
Tires and tubes		\$ 140,286	2.33
Batteries		17,578	.29
Alcohol and anti-freeze		38,748	.64
Insecticide		5,942	.10
Paint		15,709	.26
Electric appliances		25,776	.43
Farm machinery		51,222	.85
Accessories		177,014	2.94
Other		74,401	1.24
Total Nonpetroleum Supplies		\$ 546,676	9.08
Total all sales	36,089,692	\$6,019,389	100.00

* Calculated on the basis of 8 pounds to the gallon.

on these goods. For the years 1938 and 1939 this cost represented about 77 per cent of sales (Table 15).

Cost of sales varies considerably from association to association. Differences in the prices of products purchased from refineries and wholesale organizations account for some of the variation. The proportions in which products of widely varying costs are handled and the quantities purchased in a given purchase affect the average cost of sales. Differences in freight rates for associations located in different parts of the state also give rise to variations. The percentage cost of sales figures is also influenced by local price conditions, price wars resulting in a higher percentage cost and smaller gross margin. The amount of shrinkage is still another factor accounting for variations in the cost of sales.

Gross Margin

The gross margin, or the difference between net sales and the cost of sales, averaged \$15,979 per association in 1939, or 22.95 per cent of sales. It will be observed from table 15 that the per cent of gross margin in these associations was practically the same during 1938 and 1939.

Analysis of the average gross margins of individual associations shows significant variations from a low of 12.8 per cent in one association to a high of 37.2 per cent in another during 1939. However, about three fourths of the associations had average gross margins ranging from 18 to 24 per cent of sales.

Gross margins also varied widely on the various types of supplies handled. The average margin on all petroleum

Table 17. Average Gross Margins on Principal Commodities Handled
by 91 Minnesota Oil Associations, 1939

Commodity	Average Margin	Commodity	Average Margin
	per cent		per cent
Gasoline	21.2	Tires and tubes	15.5
Kerosene	24.7	Batteries	18.0
Distillate and tractor fuel	22.8	Alcohol and anti-freezes	28.2
Lubricating oils	41.1	Insecticide	25.1
Grease	37.6	Paint	13.5
All petroleum combined	23.0	Electrical appliances	13.8
		Farm machinery	14.9
		Accessories	24.7
		All nonpetroleum items combined	21.5

products combined was 23.0 per cent, while nonpetroleum products showed an average of 21.5 per cent. Typical margins on important petroleum items are shown in table 17. The highest gross margins on this group of items are derived from the sale of lubricating oils showing an average gross of 41.1 per cent. In contrast, the average gross on gasoline was 21.2 per cent and that of distillate and tractor fuels was 22.8 per cent. Among the nonpetroleum items the widest margin was obtained in the sale of anti-freezes.

The average gross margins also varied with size of associations. Group I associations showed an average gross of 20.5 per cent; Group II, 20.7 per cent; Group III, 21.1; Group IV, 22.1; Group V, 22.4; and Group VI, 27.4 per cent.

Associations with service stations generally obtained higher gross margins on this phase of their business than on bulk sales. However, operating expenses associated with service station activities are also correspondingly higher, and in consequence the net income from this source may not be larger.

Operating Expenses

One of the principal operating problems of cooperative oil associations is

that of rendering adequate services to its patrons at a low cost. Although a great deal of attention has been given to this problem, the opportunities for more economical operations are large in nearly all associations.

The operating expenses of 92 associations in 1939 averaged \$12,311, and represented 17.68 per cent of sales (Table 15). It will be noted that the operating costs of this identical group of associations were only 16.59 per cent of sales in the previous year. In half of the associations operating expenses in 1939 ranged from 16 to 20 per cent of sales. One association succeeded in holding these expenses to 10.48 per cent of sales while in another they represented 25.30 per cent of sales.

A number of factors account for these variations in operating expense. Some of the variation is explained by differences in services rendered and differences in methods of operation. For instance, the cost of providing a wide range of services such as are offered by modern service stations is far greater than operating only a bulk plant handling a few major items. Costs also vary with the amount of credit and delivery service granted.

Volume of business is another factor influencing cost. Average operating expenses per dollar of sales tend to be smaller as sales volume is increased.

For instance, the operating expense of associations with sales of less than \$25,000 a year averaged 19.94 per cent, while in associations having \$100,000 to \$125,000 sales annually these expenses averaged 15.31 per cent. It must be noted, however, that this relationship is not perfect, for some large associations have very high operating expenses due in part to a wider range of services offered, while some small associations have low costs due to unusual management or other favorable conditions.

Salaries and Commissions.—The distribution of operating expenses of 92 oil associations is shown in table 18. Labor outlays, including all salaries and commissions paid employees with the exception of payments to office employees and directors, average \$6,945 per association and represent 56 per cent of all operating expense or about 10 per cent of the sales dollar. Because of the widely varying conditions under

which these associations operate, the labor outlay of individual associations varied from a low of 5.2 per cent of sales in one association to a high of 17.5 per cent of sales in another.

Differences in methods of compensating employees account for some variations in labor costs. Various combinations of the salary and commission method are used in paying for the services of association employees. Some associations pay all employees on a fixed salary basis, some pay all on a commission basis, and even a larger number pay part of their employees on a salary basis while other employees in the association are paid on a commission basis. Although the commission method of paying truck drivers has prevailed up to the present time, a considerable number of cooperative associations have shifted to a salary basis recently.

The average compensation, including salaries and commissions, of associa-

Table 18. Operating Expense of 92 Minnesota Oil Associations, 1939

Item	Average of 92 Associations	Per Cent of Sales	Per Cent of Total Operating Expense
Salaries and commissions	\$ 6,945	9.98	56.41
Social security taxes	238	.34	1.93
Truck expense	883	1.27	7.17
Plant and station supplies	206	.30	1.67
Fuel, light, power, water	362	.52	2.94
Repairs	126	.18	1.02
Rent	165	.24	1.34
Local taxes	351	.50	2.85
Depreciation	690	.99	5.61
Insurance and bonds	356	.51	2.89
Advertising	156	.22	1.27
Directors fees and expense	178	.26	1.45
Office salaries	498	.71	4.05
Office supplies	181	.26	1.47
Telephone and telegraph	112	.16	.91
Auditing	129	.19	1.05
Meetings and education	64	.09	.52
Bank charges	32	.05	.26
Bad debts expense	128	.18	1.04
Interest expense	241	.35	1.96
Miscellaneous	270	.38	2.19
	<u>\$12,311</u>	<u>17.68</u>	<u>100.00</u>



FIG. 11. AN ATTRACTIVE COOPERATIVE SERVICE STATION

tion managers was \$1,857 annually. Variations from this average are largely due to such factors as degree of responsibility assumed by the manager, the volume of business handled, experience, and other less measurable factors.

The wages and commissions paid truck drivers averaged \$1,237 a year. Commissions paid drivers on deliveries of gasoline and kerosene to farm patrons are generally one and one-half to two cents a gallon. Distillate and tractor fuel deliveries are usually compensated with a lower commission of one cent a gallon. In most of the associations commissions on greases, lubricating oil, and other farm supplies are paid on a basis of a percentage of their value, usually at a rate of 5 to 10 per cent.

Increased sales volume did not give rise to lower and lower salaries and commission expense per dollar of sales. The labor outlay in the case of associations with less than \$25,000 of sales was 8.76 per cent of sales and was 11.72 per cent in the case of associations with sales over \$125,000 annually.

Factors which counteract the tendency toward reduced labor cost with increased volume in oil associations are the prevalent commission method of payment and the tendency of larger associations to increase their services especially through service stations.

Truck Expense.—Truck expense including supplies, repairs, licenses, insurance, and depreciation of delivery equipment is the largest item of expense after salaries and commissions. Not all associations own their delivery equipment, hence this item does not appear on the books of all associations. Generally, commission drivers own the truck chassis, the truck tank being provided by the association. Associations employing drivers on a salary basis generally own and maintain trucks used by the association. Truck expense also varies due to differences in road conditions in the areas served, variations in delivery practices, and care exercised in handling equipment.

Building and Equipment Expense.—Building and equipment expenses, including repairs, rent, local taxes, depreciation, and insurance, amounted to

2.42 per cent of the sales dollar. Depreciation, as shown in table 18, is the largest of these costs, amounting to \$690 per association, or about one per cent of the sales dollar. The provision for depreciation varied quite considerably from association to association. In the largest proportion of cases service stations and other buildings were depreciated at the rate of 5 per cent a year, although the range in the charge-off of these facilities was from 2½ to 10 per cent. Bulk tanks, truck tanks, and service station equipment were usually depreciated at an average rate of 10 per cent annually. On trucks the depreciation charge was generally 25 per cent, although the rates ranged from 10 to 33½ per cent.

Local taxes, including real estate and personal property taxes but not federal and state gasoline taxes, averaged \$351 per association, or 0.5 per cent of sales (Table 18). Among individual associations taxes varied from a low of 0.1 per cent of sales to a high of 1.8 per cent. Some of the variation is due to differences in the value of the facilities owned by the associations and some because of differences in local rates of taxation. Taxes as a per cent of sales showed a tendency to

decline as the volume of business increased. However, the largest associations, those with sales over \$125,000 a year, showed a larger tax expense due to their more elaborate service facilities.

Insurance expense averaged \$356 per association. These associations carried various forms of insurance including fire, tornado, public liability, misdelivery of supplies, burglary, theft, and truck insurances. Variations in insurance expense from association to association arise from differences in the completeness of coverage, the value of facilities, and differences in companies with which insured.

Office and Administrative Expense.— This group of expenses, consisting of directors fees, office salaries, office supplies, telephone, and auditing, amounted to \$1,098 per association, or 1.58 per cent of sales. Office salaries, amounting to \$498 per association, are the largest of these items. These consisted mainly of payments to the bookkeepers or other officials for their services in keeping the accounts and records of the association. Compared with other types of cooperative organizations, oil associations devote more attention to keeping adequate accounting records.

FIG. 12. TYPICAL BULK PLANT FACILITIES OF A MINNESOTA OIL ASSOCIATION



This is also indicated by the fact that all of these associations have at least one annual audit by a professional auditor, which is not the case among many cooperatives in other lines.

Financial Management Expenses.—

Interest expense, bad debts expense, and bank charges average \$401 per association or .58 per cent of sales. Interest expense is the largest of these items averaging \$241 per association (Table 18). Only the interest on borrowed capital is included in this account; the dividends on capital stock are included in the distribution of net income. Interest expense as a per cent of sales declined steadily as volume increased. In associations with sales less than \$25,000 this cost was .86 per cent while in associations with sales in excess of \$125,000 it was only .15 per cent.

The average bad debts expense of these associations is small, amounting to only .18 per cent of sales. The low average is accounted for by the fact that in 18 of these associations the truck salesmen are held responsible for the credit they extend to patrons and reserves are provided out of their commissions for this purpose. Still another group of associations, 30 in all, made no provision for bad debts in 1939. Among 44 associations which made a direct provision for this purpose, the average bad debts expense was .38 per cent of sales and 1.42 per cent in the association making the largest provision.

Other Income

Income received from nonoperating sources averaged \$794 per association, or 1.14 per cent of sales (see Table 15). Patronage refunds received from cooperative wholesale organizations, which amounted to \$348 on the average, made up the bulk of this category of income.

The remainder of the nonoperating income consisted of cash discounts on purchases averaging \$171, interest income of \$68, and \$207 from various other nonoperating sources.

Net Income

A valuable indicator of the general efficiency of cooperative oil associations is the amount of net income for each dollar of sales. Although oil associations should not attempt to build their net income at the expense of quality and service standards, a large net income is important since it represents the amount of savings available to patrons for patronage dividends or to augment the association's reserves and surplus.

The net income of these 92 associations averaged \$4,449 per association and was equivalent to 6.39 cents on each dollar of net sales (Table 15). It will be observed that this is considerably lower than the net return of 7.18 per cent for these identical associations in the preceding year. An examination of table 15 indicates that the change is accounted for by the adverse movement in operating expenses for the year.

The net income of individual associations varied from a high of 13.89

Table 19. Classification of 92 Minnesota Oil Associations According to Net Income as a Per Cent of Sales, 1939

Net Income as Per Cent of Sales	Number of Associations	Per Cent of Associations
Net loss	5	5.43
0.0-1.9	10	10.87
2.0-3.9	25	27.17
4.0-5.9	22	23.92
6.0-7.9	16	17.39
8.0-9.9	7	7.61
10.0 or more	7	7.61
Total	92	100.00

Table 20. Relationship between Volume of Sales and Net Income in 92 Minnesota Oil Associations, 1939

Volume of Sales	Number of Associations	Net Income as Per Cent of Sales
Less than \$25,000	9	1.83
\$25,000-\$49,999	37	4.16
50,000- 74,999	20	5.06
75,000- 99,999	11	6.08
100,000-124,999	7	8.04
125,000 and over	8	8.84
Total and average	92	6.39

per cent of sales to a net loss of 4.14 per cent in one association. The classi-

fication of the 92 associations according to net income as a per cent of sales is shown in table 19. It should be noted that while seven associations showed savings in excess of 10 per cent of sales, five associations were operated at a loss.

Net income per dollar of sales varied significantly with sales volume (Fig. 13). Nine associations with less than \$25,000 of sales for the year had only 1.83 per cent of net income per dollar of sales as compared with 8.84 per cent in eight associations each having sales over \$125,000 (Table 20).

Net Income As Per Cent Of Sales

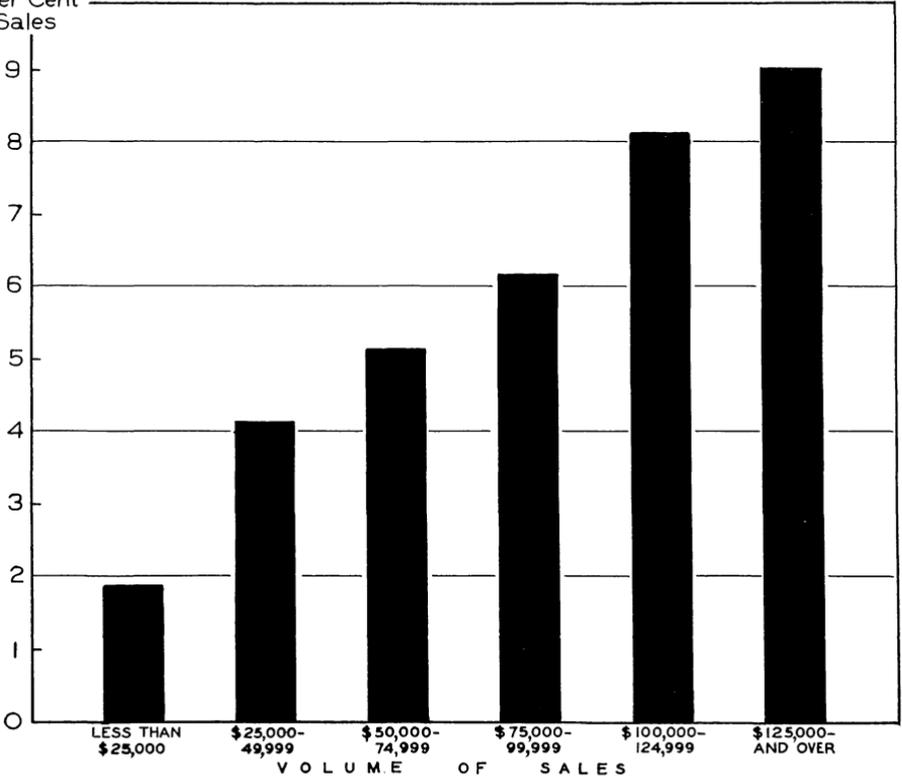


FIG. 13. RELATIONSHIP BETWEEN VOLUME OF SALES AND NET INCOME OF 92 MINNESOTA OIL ASSOCIATIONS, 1939

Net income per dollar of sales tends to rise as the volume of sales increases. Eight associations with sales exceeding \$125,000 annually showed an average net income of 8.84 per cent.

Table 21. Distribution of Net Income of 64 Minnesota Oil Associations, 1939

Distributed as:	Average Amount	Per Cent of Net Income	Per Cent of Net Sales
Dividends on capital stock	\$ 333	8.25	.53
Patronage dividends (paid or declared)	3,091	76.65	4.90
Retained in surplus	179	4.45	.28
Retained in patron equity reserve	248	6.15	.39
Other*	181	4.50	.29
Total	\$4,032	100.00	6.39

* Includes educational reserves, contingency reserves, allowances for income taxes, etc.

Distribution of Net Income

The net income of these associations was generally distributed in the following ways: As (1) dividends on capital stock, (2) patronage dividends, (3) additions to surplus, (4) additions to net worth reserves, and (5) other dispositions. Net income distribution for a group of 64 associations having net income and from which this information was available is shown in table 21.

Dividends on Capital Stock.—For 1939 the 64 associations included in table 21 paid dividends on capital stock which averaged \$333 or 8.25 per cent of net income. The usual rate of dividend payment was 6 per cent of the par value of the common stock, which is in accord with the maximum permitted under present Minnesota cooperative laws.

Patronage Dividends.—The average patronage dividend declared by these associations was \$3,091, which is equivalent to about 5 per cent of the net sales. This average does not include all patronage distributions since some associations do not pay these dividends in cash but credit them to the patron's equity reserve account. This is done in the instances in which the association desires to supplement its owner

capital (net worth) by retaining earnings rather than from the sale of more capital stock.

Most of these associations paid a flat rate of patronage dividend on all supplies, that is, 5, 8, or 10 per cent on all sales to a given patron. Other associations paid varying rates according to kinds of supplies or groups of supplies.

Additions to Surplus and Reserves.—As shown in table 21, about 4.5 per cent of the net income was retained in the surplus account in 1939. Most associations follow the Minnesota cooperative law which directs cooperatives to set aside 10 per cent of their net income annually into permanent surplus until this account equals 50 per cent of the paid-in capital, or 100 per cent of the paid-in capital if by-law provisions have been set up to that effect. The average addition to surplus in these associations is less than 10 per cent of net income because a number of associations have raised their surplus accounts to the desired level and need make no further provision for that purpose. Some associations use other reserve accounts such as the patron equity reserve to show earnings retained in the business. On the average 6.15 per cent of the net income of the 64 associations, showing their income distribution, was retained in the patron equity reserve account.

Comparisons of Operating Efficiency

Comparison of High and Low Return Associations

AVERAGE operating statements of the 20 highest return and 20 lowest return associations out of the 92 associations included in this study are shown in Table 22.¹⁴ These average statements are presented as an aid to individual associations in comparing the operating results of their organization with those of associations which are distinctly above or below the average.

Comparisons of the operating results of individual associations with these averages should, however, be made with care. Individual associations may find that their results vary widely from the average due to differences in size and age, differences in local competition, differences in proportions of various commodities handled, service differences, or other reasons. When these qualifications are kept in mind, individual associations seeking to improve their operating efficiency will find comparison of their records with these averages of value.

It will be observed that the average annual sales of the 20 high return associations are \$119,508 as compared with \$38,743 for the 20 low return associations, and \$69,627 for the average of all. This further illustrates that an adequate volume of business is an important factor in efficient operation.

The average gross margin of the 20 high return associations is distinctly

higher than that of the low return group, being 26.11 per cent of sales as compared with 19.30 per cent. The difference may be explained in part by the various factors which offset the cost of sales and which have been described on page 31.

The high return associations also had an advantage in operating expenses since these were only 17.17 cents per dollar of sales as compared with 19.59 cents in the low return companies. A detailed examination of the operating expenses shows that truck expense, rent, depreciation, insurance, office salaries, and interest tended to be considerably lower for the high return associations than in the low return group. Per unit expenses of this type tend to decline with an increase in the volume of sales.

The average net income for the 20 high return companies was 10 per cent of sales while that of the low return companies was only 1.02 per cent.

Comparisons According to Location

Comparisons of the operating statements of these 92 associations are made according to location in the state in table 23. The areas according to which the associations have been grouped are shown in figure 14. The areas used are the type-of-farming areas in the state. Although the results show considerable variation by area the differences may be due to factors other than the type of farming. The figures, however, are presented to enable associations to make comparisons

¹⁴ The associations in the lowest and highest return groups have been selected on the basis of net income per dollar of sales, or their ability to effect savings for patrons.

Table 22. Comparative Operating Statements of 20 High Return and 20 Low Return Oil Associations, 1939

Item	92 Associations	20 Highest Return Associations	20 Lowest Return Associations
		per cent of net sales	
Net sales	100.00	100.00	100.00
Cost of sales	77.05	73.89	80.70
Gross margin	22.95	26.11	19.30
Operating expenses:			
Salaries and commissions	9.98	10.41	10.51
Social security taxes .....	.34	.36	.37
Truck expense	1.27	1.17	1.45
Plant and station supplies .....	.30	.38	.22
Fuel, light, power, water .....	.52	.52	.49
Repairs .....	.18	.18	.19
Rent .....	.24	.16	.39
Local taxes .....	.50	.51	.48
Depreciation .....	.99	.84	1.05
Insurance and bonds .....	.51	.41	.66
Advertising .....	.22	.23	.23
Director's fees and expense .....	.26	.19	.28
Office salaries .....	.71	.68	.81
Office supplies .....	.26	.26	.26
Telephone and telegraph .....	.16	.14	.21
Auditing .....	.19	.12	.23
Meetings and education .....	.09	.10	.13
Bank charges .....	.05	.04	.06
Bad debts expense .....	.18	.12	.18
Interest expense .....	.35	.11	.72
Miscellaneous .....	.38	.24	.67
Total operating expense	17.68	17.17	19.59
Net operating income	5.27	8.94	(-.29)
Other income	1.14	1.07	1.31
Other deductions .....	.02	.01	.....
Total net income	6.39	10.00	1.02
Average net sales per association	\$69,627	\$119,508	\$38,743

with organizations in their own territory.

It will be observed that the average sales of the 13 associations in Area 1 are the largest for any area, amounting to \$125,140 annually. Associations in Area 5 rank second in average sales volume. It is of interest that the gross margin in these areas is also the largest, averaging 26.8 and 24.8 per cent of sales, respectively. The advantage of a large gross margin is also reflected in the large net incomes of these areas. Area 5 ranks first in net income with an average of 8.2 per cent of sales, and

Area 1 ranks second with a net of 7.5 per cent. The 12 associations in Area 4 showed highly efficient operations by holding operating expense to 14.9 per cent of sales and ending the year with net income of 6.4 per cent.

Comparison with Other Periods

Various studies have been made of the operations of large groups of Minnesota cooperative oil associations over a period of time beginning with 1925. Some of the results of these studies are summarized in table 24.

One of the significant changes revealed by these analyses has been the tendency for net income to decline over time. While the net income of a group of 12 associations in 1925 was 11.9 per cent of sales, the 1939 net income of a group of 92 associations was only 6.4 per cent of sales.

A variety of factors have accounted for this change, but among the more important of these has been the increased competition among oil companies seeking to maintain their position in the various local markets. Price wars have not been uncommon. Furthermore, as retail prices on the important petroleum items have gradually been pushed lower in the competitive process, refinery prices and particularly freight rates have not declined proportionately. Gross margins, consequently, have been increasingly subject to pressure as is shown in table 24. From 1925 to 1933 a slight rise in gross

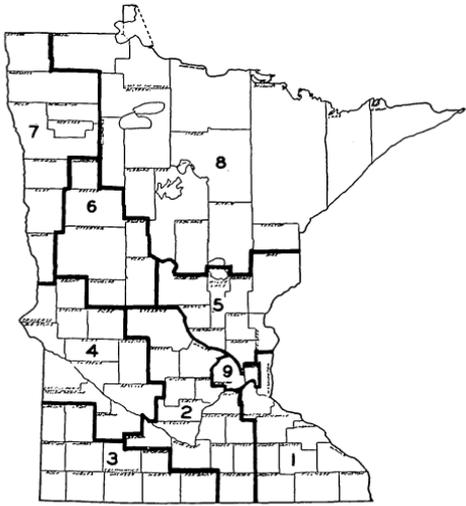


FIG. 14. TYPE-OF-FARMING AREAS IN MINNESOTA

In this map the type-of-farming areas used by the Division of Agricultural Economics of the University of Minnesota have been slightly modified. The data in this study were recorded by counties and mapped accordingly, while the regular type-of-farming areas cut across county lines.

Table 23. Comparative Operating Statements of 92 Minnesota Oil Associations According to Location, 1939

Item	Type-of-Farming Area							
	1	2	3	4	5	6	7	8*
	per cent of net sales							
Sales	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cost of sales	73.2	78.8	79.2	80.1	75.2	77.7	79.1	78.3
Gross margin	26.8	21.2	20.8	19.9	24.8	22.3	20.9	21.7
Operating expense	20.5	17.7	18.2	14.9	18.1	16.9	15.5	17.2
Net operating income	6.3	3.5	2.6	5.0	6.7	5.4	5.4	4.5
Other income	1.2	.8	1.1	1.5	1.5	1.0	.9	1.1
Total	7.5	4.3	3.7	6.5	8.2	6.4	6.3	5.6
Other expense	†	†	†	.1	†	†	†	†
Net income	7.5	4.3	3.7	6.4	8.2	6.4	6.3	5.6
Average net sales	\$125,140	\$59,480	\$37,421	\$83,602	\$110,286	\$65,758	\$42,598	\$47,332
No. associations studied	13	15	10	12	7	9	18	8

* Since only three associations were located in Area 9 they were not classified separately but were included in either Area 1 or 2.
 † Less than .1 of one per cent.

Table 24. Comparison of Important Operating Items of Minnesota Oil Associations in Selected Years*

Year	Number of Associations	Gross Margin	Operating Expense	Net Income	Average Annual Sales
		per cent of sales			
1925	12	26.3	14.4	11.9	.....
1927	40	27.4	17.1	10.3	.....
1933	45	28.2	17.3	10.8	\$53,987
1938	92	23.0	16.6	7.2	69,785
1939	92	22.9	17.7	6.4	69,627

* Source: 1925 and 1927 data from Froker and Price "Organization and Management Problems of Cooperative Oil Associations in Minnesota," U.S.D.A. Cir. 80, Nov. 1929; 1933 data from "Business Analysis of Cooperative Oil Associations in Minnesota" by W. R. Graham (unpublished); 1938 and 1939 data from studies of 92 identical associations by the Division of Agricultural Economics, University of Minnesota.

margins may be observed, but since 1933 a decline from 28.2 to 22.9 per cent of sales has occurred. While it is recognized that some of the change is due to more associations selling larger proportions of low margin farm supplies, the change is largely attributable to lower margins on the important petroleum items. Private oil companies have experienced similar decreases in their gross margins in recent years.

Operating expense has shown a slight tendency to rise from 14.4 per cent in 1925 to 17.7 per cent in 1939. This does not necessarily indicate that the efficiency of operations in this field of cooperation has declined. In fact, the effects of more efficient management and the advantages of a larger volume of business have to some degree been offset by the added cost of the gradual expansion in services offered by these organizations.



Cooperative Wholesale Associations in Minnesota

FOUR COOPERATIVE wholesale associations are engaged in the handling of petroleum and related products in Minnesota. This section is devoted to a brief description of some of the more important phases of the organization structure and operations of these organizations.

Midland Cooperative Wholesale

The largest of these wholesale organizations from the standpoint of the volume of business done in Minnesota is the Midland Cooperative Wholesale, with headquarters in Minneapolis. This organization was originally incorporated in 1926 as the Minnesota Cooperative Oil Company to provide petroleum products for local cooperatives. It was the first cooperative wholesale in the United States to engage primarily in the distribution of petroleum products.

At present (1940) Midland Cooperative Wholesale serves as the wholesale organization for 168 member associations which handle oil and of which 97 are located in Minnesota, 67 in Wisconsin, 2 in Iowa, and one in each of the Dakotas. In 1939 Midland added a grocery distribution program which has resulted in the affiliation of 19 cooperative stores with the organization. Warehouses, blending plants, and distribution facilities are located at the Minneapolis headquarters and at the Milwaukee branch which was opened in 1936 to serve eastern and southern Wisconsin. The major commodities which Midland handles for its mem-

bers are a full line of petroleum products; a complete line of auto supplies and accessories, including tires, tubes, and batteries; electrical supplies and appliances; steel and wire; hardware items; paints; twine; coal; feeds; fertilizers; and miscellaneous items used on the farm. Through separate agencies Midland has helped to supply its members with various services including financing, auditing, and different types of insurance. In a recently published brochure Midland has indicated as one of its purposes: "to provide as fast as practicable all goods and services needed by farm and home."

Midland Cooperative Wholesale is organized on a capital stock basis. The capitalization plan as amended in June 1940 provides for \$1,000,000 of capital stock divided into 7,000 shares of \$100 par value common stock and 3,000 shares of \$100 par value preferred stock. The par value of the outstanding stock of both types amounted to \$332,800 on December 31, 1939.

The articles of incorporation of Midland provide that the common stock shall be held only by cooperative associations approved by the board of directors. Shares may be paid for in cash or by the application of patronage dividends. All but \$1,000 of Midland's \$211,500 of common stock outstanding was paid for by the use of patronage dividends. The member associations must own one share of common stock for each 50 members or major portion thereof, and the minimum held by any association regardless of membership shall be five shares.



FIG. 15. DRUMS OF LUBRICATING OIL BEING PREPARED FOR SHIPMENT IN THE OIL BLENDING PLANT OF A COOPERATIVE WHOLESALE ASSOCIATION

However, irrespective of the amount of stock a member association may hold, its voting power is limited to one vote and an additional vote for each \$50,000 of business or fraction thereof in excess of a basic minimum of \$25,000 transacted with the wholesale in the preceding fiscal year. The annual dividends paid on common stock may not exceed 5 per cent.

Midland's preferred stock is held by cooperative associations and by individuals. Much of the outstanding preferred has been issued as the result of a five-year revolving plan of financing adopted in 1936. Under this plan, after the member cooperative had accumulated its quota of common stock described above, the patronage dividend due to the local association was accumulated in preferred stock for five years. After the five-year interval the preferred stock issued during the first year was retired by cash payment. Thereafter, each year's patronage divi-

dend was to be paid in preferred stock and the shares issued five years earlier paid in cash.

As the result of action taken in June 1940 the revolving plan adopted in 1936 was discontinued. Under the new plan of financing, patronage dividends due to member associations are to be paid in common stock until the wholesale organization has sufficient working capital. Then the board of directors may call in and repay in cash the oldest outstanding stock. The advantage of these plans of financing lies in the fact that the member associations must participate in proportion to the volume of business they do with the wholesale. The plan adopted in June 1940 has the further merit that the difficulties which may at times be encountered in meeting regular repayments of principal are avoided. Furthermore, on its common stock the wholesale may vary the rate of dividends if limited net income should

make such action necessary.

The balance sheet position of Midland as of December 31, 1939 is shown in table 25. According to this statement the company's net worth amounted to \$517,223 and consisted of the \$332,800 of stock described above, \$13,397 of stock credits, about \$72,000 of net worth reserves, and \$98,551 of surplus. Net worth accounts for 70 per cent of

the total capital and indicates a very satisfactory financial position. The long-term debt consists of \$20,000 of first mortgage notes. Current debts total \$202,487.

Current assets are \$548,294 or 74.1 per cent of Midland's total assets of \$739,710. Inventories amounting to approximately a quarter million dollars represent the largest asset item. The

Table 25. Comparative Balance Sheets of Four Cooperative Wholesale Associations in Minnesota as of December 31, 1939

Balance Sheet Items	Midland Cooperative Wholesale	Farmers Union	Central Cooperative Wholesale	Farm Bureau
Assets				
Current assets:				
Cash	\$ 57,546	\$290,458	\$ 75,135	\$ 4,902
Current receivables	238,048*	329,808	83,772	30,017
Less: Reserve for doubtful accounts	(8,178)	(120,899)	(18,770)	(4,163)
Inventories	249,515	234,137	252,354	47,186
Prepaid expenses	11,363	.....	4,064	502
Total current assets	\$548,294	\$733,504	\$396,555	\$ 78,444
Investments	\$ 33,208	\$ 49,211	\$ 22,645	\$ 195
Long-term assets:				
Long-term receivables	69,370	.....	.....	.....
Land, buildings, equipment	121,472	168,877	260,652	10,083
Less: Reserve for depreciation	(36,787)	(50,277)	(71,140)	(3,562)
Total long-term assets	\$154,055	\$118,600	\$189,512	\$ 6,521
Other assets	4,153	.....	1,458	.....
Total assets	\$739,710	\$901,315	\$610,170	\$ 85,160
Liabilities				
Current liabilities				
Notes and acceptances payable	\$ 47,416	\$ 9,000	\$109,433	\$ 9,000
Customer credit balances	20,187	128,900	19,838	.....
Accounts payable	88,917	84,229	3,028	11,956
Accrued payables and other	45,967	86,574	21,695	4,196
Total current liabilities	\$202,487	\$308,703	\$153,994	\$ 25,152
Noncurrent liabilities	20,000	45,985	62,054	.....
Total liabilities	\$222,487	\$354,688	\$216,048	\$ 25,152
Net Worth				
Capital stock outstanding†	\$346,196	\$395,223	\$247,127	\$ 48,090
Reserves	72,476	24,524	65,847	5,783
Surplus‡	98,551	126,880	81,148	6,135
Total net worth	\$517,223	\$546,627	\$394,122	\$ 60,008
Total liabilities and net worth	\$739,710	\$901,315	\$610,170	\$ 85,160

* \$109,167 of rediscounted notes and acceptances have been eliminated from this total.

† Includes common and preferred stock and the related stock credits.

‡ Includes net income for the current year.

receivables which total \$238,048 are large and present a major credit problem to which the wholesale has devoted increasing attention in recent years. The reserve provided for probable losses on such a large volume of receivables is small compared with that set up by the other wholesales included in table 25. Midland's physical facilities are not large and are carried on the books at a net value of \$84,685.

Some of the operating results of Midland Cooperative Wholesale in the period 1927-39 are shown in table 26. In this period the dollar value of sales increased in all years but one and reached a total of \$3,760,150 in 1939. Net income as a per cent of sales expanded to a high of 3.44 per cent in 1931 and has fallen off in recent years. The decline in the per cent of net income is the result of a rapid advance in the per cent of operating expenses which exceeded the rate of gain in gross margins in recent years. Patronage refunds rose to a high of \$65,757

in 1938 but were reduced decidedly in the following year owing to the adverse change in net income.

The value of the major commodities distributed by Midland in 1935 and 1939 is shown in table 27. Sales of the light oils, lubricating oils, and greases represent about 80 per cent of the total sales, in 1939. The proportion of petroleum products in the total sales has shown a tendency to decline since 1935 while the sales of tires, tubes, batteries, and other supplies have grown.

Farmers Union Central Exchange

The Farmers Union Central Exchange with headquarters in South St. Paul was organized in 1927. The first organization was known as the Farmers Union Exchange and was set up as a subsidiary of the Farmers Union Terminal Association, a regional cooperative grain marketing association serving the Northwest. Today the Farmers Union Central Exchange serves as the wholesale purchasing or-

Table 26. Sales, Net Income, Patronage Refunds, and Number of Member Associations of Midland Cooperative Wholesale, 1927-39

Year	Total Sales*	Net Income	Net Income as Per Cent of Sales	Patronage Refunds	Member Associations
					number
1927	\$ 269,863	\$ 3,473	1.29	\$ 3,473	37
1928	417,956	3,926	.94	1,963	38
1929	448,013	7,797	1.74	4,798	40
1930	598,751	14,803	2.47	12,204	62
1931	615,388	21,163	3.44	19,000	77
1932	883,736	26,906	3.05	21,906	92
1933	1,073,567	27,466	2.56	18,000	103
1934	1,751,007	45,626	2.61	18,500	120
1935	2,423,107	66,761	2.75	27,000	137
1936	3,033,080	71,574	2.36	53,601	148
1937	3,696,743	64,601	1.75	58,673	170
1938	3,610,592†	84,701	2.35	65,757	170
1939	3,760,150†	61,316	1.63	38,140	168

* Sales of the grocery department are not included in these totals.

† In 1938 and 1939 the amount of the Federal Tax on light oils, i.e., one cent a gallon, was excluded from the sales total. This would add about \$500,000 to the total in each of these years.

Table 27. Value of Sales of Midland Cooperative Wholesale by Commodity Types, 1935 and 1939

Commodity	1935		1939	
	Value of Sales	Per Cent of Total Value	Value of Sales	Per Cent of Total Value
Gasoline, kerosene, distillate	\$1,841,272	76.1	\$2,714,232	72.2
Lubricating oil and grease	245,581	10.2	309,467	8.2
Oil equipment	81,077	3.3	48,899	1.3
Tires and tubes	48,562	2.0	196,057	5.2
Batteries	15,172	.6	43,037	1.1
Electrical appliances .....	.....	.0	133,393	3.6
Steel and wire .....	.....	.0	42,456	1.1
Paints	5,758	.2	44,429	1.2
Coal	32,531	1.3	53,058	1.4
Miscellaneous*	153,154	6.3	175,122	4.7
Total	\$2,423,107	100.0	\$3,760,150	100.0

* Includes auto accessories, insecticides, hardware, twine, office supplies, feed, fertilizers, etc. Grocery sales are not included in this table.

ganization for 249 local oil associations, of which 31 are located in Minnesota, 100 in North Dakota, 86 in Montana, and 32 in Wisconsin. The principal supplies distributed by this wholesale include petroleum products of all kinds, auto and tractor supplies, farm machinery, flour and feed, twine, electrical appliances, and other types of merchandise used in farming.

The capital plan of the Farmers Union Central Exchange provides for two classes of capital stock including 16,000 shares of common stock and 4,000 shares of preferred. Both types of shares have a par value of \$25, and dividends on both are restricted to 4 per cent and are noncumulative. By December 31, 1939 the value of the outstanding stock, including part payments, totalled \$395,223.

The sale of common stock, which is also the only type of stock bearing voting privileges, is limited to (a) Farmers Union cooperative associations or corporations; (b) members in good standing, and subscribers eligible to membership in the Farmers Educational and Cooperative Union of America; and (c) to cooperative asso-

ciations recognized and approved by a majority of the stockholders present at the annual meeting of the Farmers Union Central Exchange. All affiliated associations are to own stock in the Central Exchange up to 20 per cent of their paid-in capital. Cooperative associations holding common stock are entitled to one vote for each 100 members. Individual owners of common stock are grouped for voting purposes and are entitled to one vote for every 100 shareholders.

Nearly all of the capital stock in the Central Exchange has been paid for by applying the savings made in the handling of merchandise toward the purchase of shares. Only \$500 was paid in cash by local associations and \$25,025 was invested by the Farmers Union Terminal Association.

According to the December 31, 1939 balance sheet, the total net worth of the Farmers Union Central Exchange amounted to \$546,627 or 60.6 per cent of the total capital from all sources (Table 25). Beside the outstanding capital stock described above, the wholesale had \$151,404 in permanent surplus and reserves. The long-term

debt of the Central Exchange is small. It includes a balance of \$3,500 owing to the St. Paul Bank for Cooperatives which is offset by an equal amount of stock in this bank carried as an asset on the balance sheet. Besides this, \$42,485 is owed to the Farmers Union Terminal Association. The total of the current liabilities is \$308,703, but it is significant that \$128,900 of this amount consists of customer credit balances, that is, advance payments on merchandise by the affiliated local associations.

The net assets of the Central Exchange total \$901,315 of which \$733,504, or 81.4 per cent, are current assets. The cash position is excellent since cash alone is nearly as large as all the current debts. Accounts receivable amount to \$329,808, but a large reserve for possible losses amounting to 36.7 per cent of this value has been provided. Physical facilities are carried at a net value of \$118,600. The largest item in this group is the main building in South St. Paul which houses the wholesale's offices and oil blending plant and booked at an original cost of \$73,764 and a net value of \$59,223.

The growth of the Farmers Union Central Exchange in the period 1931-39 is shown in table 28. In this period the annual sales of the wholesale rose from

\$906,000 to more than \$5,000,000, while net income as a percentage of sales showed a similarly favorable trend advancing from 0.55 per cent of sales in 1931 to 2.73 per cent of sales in 1939. The only major interruption to the growth trend occurred in 1936 when as a result of the severe drouth throughout the Central Exchange's territory the sales volume declined and with an adverse effect on net income. In this period the number of member associations served grew from 91 to 249.

The value of the principal commodities sold by the Farmers Union Central Exchange in 1935 and 1939 is shown in table 29. Petroleum products sales in this period rose from \$3,262,883 to \$3,900,244. However, the 1939 petroleum sales represented a smaller proportion of the total sales since several of the other items sold showed a greater relative gain in this five-year interval. Outside of the petroleum products the 1939 sales of tires, tubes, and batteries ranked second in value and made up about 8 per cent of the sales total as compared with 4.7 per cent in 1935. This wholesale differs from the others in its very considerable emphasis on farm machinery sales, the sales of these items having risen to \$245,514 in less than five years. In

**Table 28. Sales, Net Income, and Number of Member Associations of
Farmers Union Central Exchange, 1931-1939**

Year	Total Sales	Net Income	Net Income as Per Cent of Sales	Member Associations number
1931	\$ 906,272	\$ 4,959	0.55	91
1932	1,678,346	24,014	1.43	156
1933	1,549,228	22,066	1.42	172
1934	2,615,519	55,468	2.12	211
1935	4,028,086	101,309	2.52	227
1936	3,783,992	66,699	1.76	223
1937	4,439,612	84,541	1.90	228
1938	4,434,524	112,535	2.54	243
1939	5,057,384	138,288	2.73	249

Table 29. Value of Sales of Farmers Union Central Exchange by Commodity Types, 1935 and 1939

Commodity	1935		1939	
	Value of Sales	Per Cent of Total Value	Value of Sales	Per Cent of Total Value
Gasoline, kerosene, distillate	\$2,703,407	67.1	\$3,257,103	64.4
Lubricating oil and grease	559,476	13.9	643,141	12.7
Oil Equipment	113,738	2.8	35,923	.7
Tires, tubes, batteries	187,419	4.7	398,610	7.9
Farm machinery	None	None	245,514	4.8
Flour and feed	234,274	5.8	144,765	2.9
Twine	174,772	4.3	65,591	1.3
Electrical appliances	None	None	100,324	2.0
Miscellaneous	55,000	1.4	166,413	3.3
Total	\$4,028,086	100.0	\$5,057,384	100.0

recent years the Exchange has placed considerable emphasis on the distribution of its line of Co-op tractors.

The Minnesota Farm Bureau Service Company

The youngest of the cooperative wholesales to engage in the distribution of farm supplies and petroleum products in the state is the Minnesota Farm Bureau Service Company (St. Paul) which was organized in October, 1928. In its early history this organization handled principally feeds and fertilizers, but in June, 1935 it expanded into the distribution of petroleum products of all types, and various auto accessories.

At present (1940) the Farm Bureau Service Company provides wholesale services for 16 cooperative oil associations in Minnesota, most of which have been organized to serve a county-wide area. The nonpetroleum products of the company are distributed through local cooperative creameries, elevators, and other dealers most of which are not stockholders in the central organization.

The articles of incorporation (of the cooperative) provide for two classes of capital stock totaling \$205,000. This includes 500 shares of common stock with a par of \$10 each and 20,000 shares of preferred stock also with a \$10 par. Only the common stock carries voting privileges and may be issued only to cooperative associations whose members are agricultural producers. On December 31, 1939 the company had \$390 of common and \$47,700 of preferred stock outstanding. It will be noted that the amount of preferred stock is relatively large and involves a considerable annual outlay since a 6 per cent return must be paid on these shares before dividends may be paid on common stock or on patronage. This wholesale has not followed the practice of retaining patronage dividends in the organization for purposes of expansion. These dividends have always been distributed to its patrons in cash.

The total net worth of the Service Company, including the stock described above, amounts to \$60,008 or 70 per cent of the total capital from all sources (Table 25). The debts of the company are confined to current liabilities total-

ing \$25,152. These debts include \$9,000 of notes payable held by the Minnesota Farm Bureau Federation, about \$12,000 of accounts payable, and minor miscellaneous items.

Total assets used in the operation of this wholesale are only \$85,160; but it should be remembered that the range of commodities handled and the number of member associations is small compared with the other cooperative wholesales considered in this section. About 92 per cent of the total assets are current. The original cost of land, buildings, and equipment is \$10,083 and is carried at a net of \$6,521.

The annual volume of sales of this organization has grown rapidly since the oil department was added in 1935. As shown in table 30 total sales rose from \$277,619 in 1935 to \$502,722 in 1939. In recent years the net income of the company has not kept pace with the expansion of sales. Net income represented 2.22 per cent of sales in 1935 as compared with 1.35 per cent in 1939.

Analysis of the sales of the Farm Bureau by commodity types in 1935 and 1939 shows the growing importance of the petroleum division. Where gasoline, lubricating oils, and grease represented 2.3 per cent of the sales volume in 1935, by 1939 these prod-

ucts constituted more than 50 per cent of the total (Table 31). Growth of the oil division of this wholesale in recent years is also indicated by the increase in gallons of light oils handled from 1,288,908 gallons in 1936 to 3,616,000 gallons in 1939.

Central Cooperative Wholesale

Another of the cooperative wholesales distributing petroleum products in Minnesota is the Central Cooperative Wholesale of Superior Wisconsin. Since its organization in 1917 this wholesale has concentrated its attention on supplying cooperative associations in Minnesota, Wisconsin, and upper Michigan with staple groceries, general merchandise, and other supplies used on the farm and in the home. It was not until July, 1934, that this organization undertook the distribution of petroleum products.

In 1939 Central Cooperative Wholesale provided wholesale services for 116 member associations and 59 non-member groups. Central's petroleum accounts in Minnesota are located in the northeastern counties of the state and a large proportion of these are with cooperative store associations. Although only a few of the Minnesota associations affiliated with this wholesale have bulk tanks and receive oil

Table 30. Sales, Net Income, and Number of Member Associations of Minnesota Farm Bureau Service Company, 1935-1939

Year	Total Sales	Net Income	Net Income as Per Cent of Sales	Member Associations	
				Oil	Other
				number	
1935	\$277,619	\$6,177	2.22	0	9
1936*	397,232	9,328	2.35	0	9
1937	546,321	8,815	1.61	9	9
1938	453,256	2,806	.62	13	10
1939	502,722	6,777	1.35	16	12

* The 1936 figures cover an 11-month fiscal period, while those for 1937 represent 13 months.

Table 31. Value of Sales of the Minnesota Farm Bureau Service Company by Commodity Types, 1935 and 1939

Commodity	1935		1939	
	Value of Sales	Per Cent of Total Value	Value of Sales	Per Cent of Total Value
Gasoline, kerosene, distillate	\$ 2,254	.8	\$221,676	44.1
Lubricating oils and grease	4,177	1.5	35,580	7.1
Tires and tubes	4,782	1.7	11,293	2.2
Accessories	649	.3	4,448	.9
Miscellaneous*	265,757	95.7	229,725	45.7
Total	\$277,619	100.0	\$502,722	100.0

* The principal commodities in this class are feeds and fertilizers.

shipments, a rather wide distribution is effected since some of these associations truck oil products to stores in their area which do not have bulk plants. Many of the member cooperative stores affiliated with Central Cooperative Wholesale in this area have one or more gasoline pumps and also sell other motor supplies.

Any bona fide cooperative organization may be admitted to membership in this wholesale upon the purchase of a share of stock. Member associations are required to apply their share in the patronage refunds of the wholesale toward purchases of additional stock until their investment is equal to \$10.00 for each of their members. After this minimum investment has been made, future patronage refunds are paid 50 per cent in shares and 50 per cent in cash. The authorized capital stock of this wholesale is \$400,000 of common stock divided into 4,000 shares of \$100 each. As of December 31, 1939 the outstanding shares amounted to \$237,200 and partly paid shares totaled another \$9,927. The by-laws of this cooperative provide that any net income retained in the business and included in the permanent reserve accounts shall be allocated on a patronage basis. Thus, in the event of dis-

solution such reserves may be returned to the patrons who have contributed the same.

The balance sheet of Central Cooperative Wholesale for December 31, 1939, shows the total net worth to be \$394,122, or 65 per cent of the total capital obtained from all sources (Table 25). A considerable part of the capital has been obtained by borrowing. The noncurrent liabilities include \$35,000 of bonds payable, \$5,000 of mortgages payable, \$2,602 of certificates of indebtedness, and \$19,451 of trade rebates payable. The current liabilities of \$153,994 include \$109,433 of notes payable.

The total net assets of Central Cooperative Wholesale amount to \$610,170. Of this total \$396,555, or 65 per cent, are current assets. The receivables total \$83,772 which is a smaller proportion of total assets than in the other wholesales and indicates a more effective credit policy. This organization has a larger volume of its assets in land, buildings, and equipment than the other firms compared in table 25. These facilities are carried at a net value of \$189,512. The relatively large proportion of fixed assets may be explained by the fact that this organization has a considerable investment in

Table 32. Sales, Net Income, and Number of Member Associations of Central Cooperative Wholesale, 1934-1939

Year	Total Sales	Net Income	Net Income as Per Cent of Sales	Member Associations number
1934	\$1,787,556	\$31,696	1.77	97
1935	2,185,245	37,027	1.69	99
1936	2,845,741	56,710	1.99	107
1937	3,356,551	76,910	2.29	110
1938	3,045,513	65,210	2.14	118
1939	3,410,968	85,983	2.52	116

manufacturing and processing facilities in addition to the investment in the distribution of petroleum products.

Some of the operating results of Central Cooperative since 1934, when petroleum distribution was undertaken, are shown in table 32. In this period total sales have nearly doubled, reaching an all-time peak of \$3,410,968 in 1939. Net income has also improved in this period, having increased from 1.77 per cent of sales in 1934 to 2.52 per cent in 1939.

Analysis of Central Cooperative sales by commodity types shows that in 1935 the value of petroleum products sold amounted to \$202,704, or 9.3 per cent of total sales. Although the sales of these products had risen to \$313,779 in 1939, the proportion that this represents in the total sales is nearly the same as it was five years earlier. The largest proportion of the sales of this cooperative consists of general merchandise and grocery items.

Financial and Operating Analysis of Wholesales

To provide further information concerning the operating and financial condition of the four cooperative wholesales serving local oil associations in Minnesota, a number of their more important financial and operat-

ing ratios are presented in table 33. It is of interest that in most instances the respective ratios do not vary widely, indicating quite similar financial conditions in these organizations.

The relationship of current assets per dollar of current liabilities, which indicates the current debt paying ability of these wholesales in each case, exceeds \$2 of current assets for each dollar of current liabilities which is generally considered satisfactory. The highest current ratio among these wholesales is that of the Farm Bureau Service Company which showed \$3.12 of current assets for each dollar of current debt (Table 33).

As shown by the ratio of net worth per dollar of total liabilities the financial position of these organizations is also sound, since in each instance the net worth or capital provided by the members exceeds that provided by the creditors by a substantial margin. This relationship indicates that these companies are no longer heavily dependent on outside capital, and in consequence the cost of financing does not involve a major burden. The lowest ratio of the group is that of the Farmers Union with \$1.54 of net worth to each dollar of debt; but even this ratio is better than it appears, since in this case about one third of the debt arises from advance payments on merchandise by the member associations.

Table 33. Selected Financial and Operating Ratios of the Four Cooperative Wholesale Associations Serving Local Oil Associations in Minnesota, 1939

Ratio	Midland Cooperative Wholesale	Farmers Union Central Exchange	Minnesota Farm Bureau Service Company	Central Cooperative Wholesale
Current assets per dollar of current liabilities	\$2.71	\$2.38	\$3.12	\$2.58
Net worth per dollar of total liabilities.....	2.32	1.54	2.39	1.82
Net worth per dollar of total assets.....	.70	.61	.70	.65
Net worth per dollar of fixed assets.....	3.36	4.61	9.20	2.07
Sales per dollar of total assets.....	5.76*	5.61	5.90	5.59
Receivables per dollar of sales.....	.06*	.07	.06	.02
Number days sales outstanding in receivables	17*	20	18	7

* To improve the comparability of the Midland ratios with those of the other wholesale associations, sales have been adjusted to include the Federal tax on light oils.

A further indication of the strong net worth position of these associations is the ratio of net worth to total assets. The ratios of Midland Cooperative Wholesale and the Farm Bureau Service Company show that \$.70 of every dollar of assets was provided by the owners which is a very satisfactory position for such relatively young organizations. The other wholesales had ratios nearly as high as may be seen in table 33.

The plant and facilities of organizations of this type should be financed from capital provided by members, that is, for each dollar of fixed assets

there should be at least a dollar of net worth. Each of this group of wholesales showed net worth exceeding the value of fixed assets by a large amount. For instance, the Farm Bureau Service Company with a very modest investment in facilities showed \$9.20 of net worth for every dollar in fixed assets. Central Cooperative Wholesale, which has a large investment in manufacturing facilities beside the facilities needed in merchandising, showed the lowest ratio with \$2.07 of member capital for each dollar in fixed assets.

Sales per dollar of assets in these associations ranged from \$5.59 to \$5.90.

FIG. 16. CHECKING TIRE STOCKS
IN THE WAREHOUSE OF A
COOPERATIVE WHOLESALE
ASSOCIATION



This ratio is of value in showing the intensity of use of capital invested in the organization. High ratios indicate a more efficient use of capital by the association.

An important aspect of the operation of these cooperative wholesales is their credit management since slow collections are reflected in higher operating costs and smaller savings. A valuable indicator of the effectiveness of the credit practices of these organizations is the amount of the annual sales still tied up in receivables at the end of the fiscal year. Three of the wholesales had 6 and 7 cents of receivables at the end of 1939 for every dollar of merchandise sold during the year. Central Cooperative Wholesale showed the

most effective credit control with only 2 cents of receivables outstanding for every dollar of sales during the year. The effectiveness of credit practices may also be measured, as in the case of the local associations, by the number of days of sales outstanding in receivables. Table 33 shows that from 7 to 20 days of sales are represented by receivables. The slower collections of the Farmers Union organization are in large part due to receivables arising from machinery sales which normally run for a longer period of time. Midland's outstanding receivables represent 17 days of sales, but if the rediscounted notes and acceptances are included the total receivables would equal 24 days of sales.



Summary, Suggestions, and Conclusions

COOPERATIVE distribution of petroleum products in Minnesota has advanced at a rapid rate. From only one association in 1921 the number of these organizations has increased to 189 in 1940. The total gallonage of light oils handled by cooperatives rose to more than 83 million gallons in 1939, which was about 10.6 per cent of the total volume handled by all companies in the state.

This study is based on data obtained from 92 cooperative oil associations selected from all parts of the state and includes organizations operating under a wide range of conditions. The organization structure, financial condition, operating methods, and the related problems of these associations have been studied in some detail. Particular emphasis has been given to an analysis of the operating efficiency of these cooperatives.

The financial condition of these associations, on the whole, was quite satisfactory. Total net assets averaged \$26,031 per association. Of this capital about 41 per cent was provided by creditors and about 59 per cent by the members. The ratio of current assets to current liabilities averaged \$1.84 to \$1.00, which is somewhat below the amount needed for the most efficient operations.

The sales of these cooperatives averaged \$69,627 in 1939 and ranged from a low of \$13,331 to a high of \$453,863. On the average about 91 per cent of the sales consisted of petroleum products while other auto, tractor, and farm supplies made up the remainder of the sales total.

The net income of these associations averaged \$4,449 per association and was equivalent to 6.39 cents on each dollar of net sales. Net income of individual associations varied from a high of 13.89 per cent of net sales to a net loss of 4.14 per cent. Net income per dollar of sales tended to vary with sales volume. Nine associations with less than \$25,000 of sales had a net income of 1.83 per cent as compared with 8.84 per cent in eight associations in which the annual sales volume exceeded \$125,000.

About 77 per cent of the net income of these associations was set aside for the payment of patronage dividends, about 8 per cent was used for the payment of dividends on common stock, and the remainder was retained in surplus and reserve accounts.

A comparison of the average operating statements of the 20 highest return and 20 lowest return associations showed that those with the highest return had (1) larger annual sales, (2) higher gross margins, and (3) lower operating expenses per dollar of sales than either the lowest return or average associations. This comparison should be of value to individual associations seeking standards for measuring their own operating efficiency.

Analysis of the operating results of cooperative oil associations over a period of time beginning with 1925 shows that gross margins as a per cent of sales have gradually declined while operating expenses have shown a tendency to rise. As a result of these movements net income has gradually declined.

The largest proportion of Minnesota's cooperative oil associations are affiliated with one of the four cooperative wholesale associations serving this area. These wholesale organizations have experienced a rapid increase in their volume of business and in most respects are in a good financial condition.

Suggestions and Conclusions

On the basis of the findings in this study what appear to be the major needs of these associations may be indicated.

Operating Efficiency.—A nearly universal need confronting these associations is that of improving their efficiency of operation. In recent years association operating costs have increased. A first step in the solution of this problem is that of obtaining more information on the operations of the association. More adequate accounting records are needed in many of these organizations. Besides the basic journals and ledgers more associations should have additional auxiliary records such as daily inventory records, more complete sales records, detailed shrinkage reports, more frequent summaries of accounts receivable, and records of a similar nature. Periodic audits are indispensable. However, they should be supplemented by annual and, if possible, monthly statistical comparisons of such information as per unit or percentage costs, sales, gross margins, net income, shrinkage data, and similar information. Some of the auditing concerns and the cooperative wholesales are at present providing statistical comparisons of large groups of associations, but their use should be extended. The wholesales should consider establishing a

regular business advisory service to assist the local associations in using the information to the best advantage. Adoption of a budget system should be helpful to associations seeking to operate more efficiently.

Equally as important as more information about the operations is the selection of a well-qualified manager and other personnel. Directors should recognize the vital importance of selecting and adequately compensating a competent manager. The manager should be an individual possessing leadership qualities and he should be thoroughly familiar with the techniques of successful business management. Incentives should be provided to enlist the full cooperation of employees in improving efficiency.

By increasing the volume of business the per unit costs of operation may be reduced in most cases. Volume of business may be increased (1) by avoiding the service duplications arising from the establishment and operation of more than one cooperative oil association in a given area, and (2) by more effective merchandising methods. The latter objective may be attained (a) by more intensive sales coverage of a given territory, (b) by improving the sales personnel, (c) by the use of more attractive merchandise displays and better service arrangements, (d) by adding new supplies within limits, and (e) by coordinated sales programs developed under the leadership of the respective cooperative wholesales.

If costs are to be kept at a low level, overbuilding and the overaccumulation of facilities must be avoided. Carefully planned, well-located, but modest service and bulk stations show the best results. Facilities which are too elaborate involve the association in unnecessary costs which may reduce its effectiveness.

Trucking arrangements in most associations have not been planned. Small deliveries, repeated trips, and poor routing are wasteful and give rise to increased costs.

Credit Arrangements.—Although much thought has been given to the credit problem it is still the foremost concern of many associations. Several methods of control have been suggested in this study. Most associations have been aware of the methods of control, but for one reason or another many have lacked the courage to act. Various studies have shown that firmness in dealing with this problem has invariably resulted in success, while indecision and half-way methods have resulted in larger losses and have been an important factor in the failure of some organizations.

Shrinkage.—Losses due to shrinkage have been unusually high for the associations included in this study. Associations with shrinkages above the standards and averages stated in this study should give special attention to the installation of loss-reducing equipment and repairs where needed. Other associations may reduce these losses by greater care in handling the various commodities and insistence upon a strict system of merchandise records.

Financing.—While the financial condition of a large proportion of these associations is sound, some room for improvement exists. Quite a number of associations are confronted with a shortage of operating capital. Some of this difficulty is the outgrowth of unprofitable operations. The newer associations face the problem of small investment in capital by the members and the difficulty of putting operations on a paying basis until an adequate volume of business is obtained. In some cases the operating capital shortage is associated with the problem of

uncollectible accounts receivable and will be solved when that situation is corrected.

Many associations are short of capital provided by the members, with the result that the organization is burdened with a heavy debt load and interest charges and must in consequence limit the service it can render. Member capital can be increased gradually by retaining earnings in the business. This may have to be done by limiting patronage dividends to a low rate for the time being, but such action is essential if the financial soundness and permanence of the association is to be assured.

Gross Margins.—Gross margins which represent the differences between sales and cost of goods sold in these associations have gradually declined. On one hand highly competitive conditions in the retail division of the industry have depressed retail prices. On the other, cost of goods sold has not declined in a like degree due to relatively fixed transportation charges and other factors. To the local cooperative oil association this trend presents a serious problem, since unlike certain other highly integrated distributors it has not been able to offset its disadvantages in the retailing phase of the business with gains from the operation of an oil transportation business, refineries, or other oil business. In recent months the cooperative wholesales have undertaken steps to obtain some of the gains to be derived from better transportation arrangements for their members. Large trailer tank trucks have been purchased to transport petroleum products from pipeline or barge terminals to the local associations. Steps are also being undertaken to transport these products by barge from the refineries. Elsewhere in the United States some cooperative whole-

sales have purchased their own refinery and pipeline facilities, and at least one cooperative wholesale has recently purchased an interest in oil well properties to supply its refinery.

These steps toward a greater integration of the industry under cooperative control will undoubtedly yield further savings for the patrons of local oil associations. However, progress in this direction may be slow because large amounts of capital will be required to purchase the facilities needed in handling petroleum from the well to the local association on a cooperative basis. The local associations will undoubtedly have to provide much of this capital if these gains are to be obtained. The difficulties to be confronted in doing this are obvious. It is likely that a greater degree of cooperation will have to be effected between the cooperative wholesales in this area to obtain the capital and the volume of business necessary to support such an undertaking. It will also be necessary to enlist the support of local oil associations at present not affiliated with the cooperative whole-

sales. Needless to say, careful planning and the assurance of sound management will be imperative if these divergent groups in the industry are to be welded into a cooperative unit for this large task.

General Appraisal.—It may be concluded that the cooperative oil associations which have been established in Minnesota have, with few exceptions, developed into highly effective business units. Through these organizations the farmers of the state have succeeded in purchasing their petroleum and other farm supplies on an efficient basis and at large savings. While significant progress has been made in the relatively short history of these organizations, there are numerous ways in which their business methods and operating policies may be improved. The future success of the cooperative oil movement is largely dependent on the ability of the component organizations in making prompt adjustments in the direction of greater efficiency of operation and greater service to their patrons.