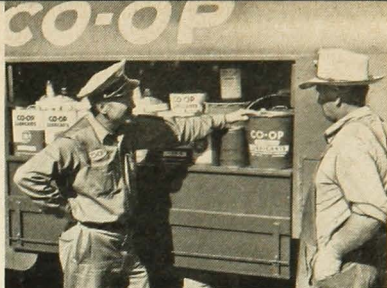


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MINNESOTA FARM SUPPLY ASSOCIATIONS

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Agricultural Experiment Station
UNIVERSITY OF MINNESOTA

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A few words about the pictures on the front cover (reading from the top down): (1) A farmer looks over a line of farm supplies displayed by the tank truck driver. This is the final step as petroleum is moved cooperatively from the oil well to the farm. (2) River barges are used to transport many fertilizer ingredients at low bulk rates. (3) Filling sacks at a cooperative feed plant. (4) The hardware section of a rural cooperative store.

Minnesota Farm Supply Associations

T. W. Manning and E. Fred Koller¹

IMPROVING services and efficiency are two of the principal problems which Minnesota farm supply associations are facing. While the economic position of many associations has remained healthy or has improved, some associations face a precarious future. This analysis of the organizational, financial, and operational characteristics of farm supply associations is designed to supply helpful information to those concerned with the associations' operations.

Three hundred farm supply associations in Minnesota did \$70,079,734 of supply, marketing, and service business for Minnesota patrons in 1949. When the supply business of marketing and service type cooperatives also is included, the total value of supplies handled for Minnesota patrons was \$111,385,617.

Supply associations were first organized in Minnesota before 1900. One hundred twenty cooperative stores were reported in 1913 and 189 in 1921.² The

first petroleum association was organized in 1921. The number of petroleum associations increased rapidly from 1920 to 1940. The number of other types of supply associations slowly decreased during the same period. The result was a steady increase in the total number of supply associations.

Average business volumes increased many times since 1913. Average sales of cooperative stores were \$42,518 in 1913, \$65,043 in 1921, and \$165,890 in 1949.³ Average sales of 92 petroleum associations studied in 1939 were \$69,-627.⁴ Sales averaged \$244,175 for the 162 local petroleum associations in 1949.

¹ The excellent cooperation of the managers and other officials of the farm supply cooperatives who supplied the data used in this study is acknowledged with appreciation. The assistance of H. Harlow Thompson, formerly with the Department of Agricultural Economics, University of Minnesota, who worked on various phases of this study, is gratefully acknowledged.

² H. Bruce Price, *Farmers' Cooperation in Minnesota, 1917-1922*, Univ. of Minn. Agr. Exp. Sta. Bul. 202, January, 1923, p. 40.

³ E. Dana Durand and Frank Robotka, *Cooperative Stores in Minnesota 1914*, Univ. of Minn. Agr. Exp. Sta. Bul. 171, October, 1917, p. 8, and H. Bruce Price, *Op. cit.*, p. 43.

⁴ E. Fred Koller and O. B. Jesness, *Minnesota Cooperative Oil Associations*, Univ. of Minn. Agr. Exp. Sta. Bul. 351, April, 1941, p. 30.

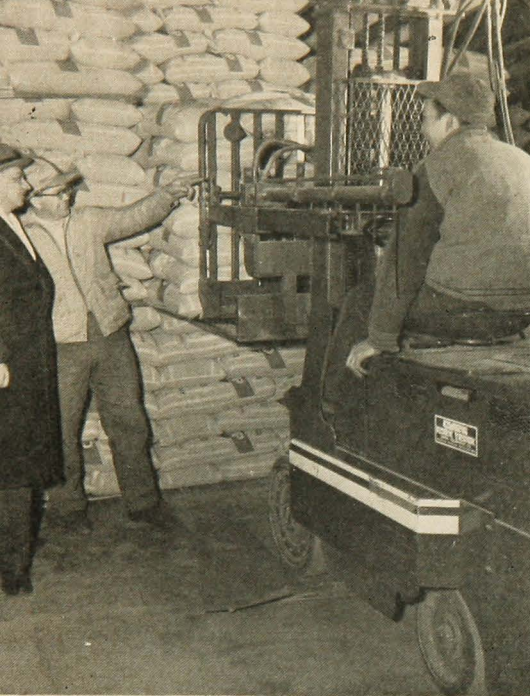


Fig. 1. Fork-lift trucks and other modern materials handling equipment help in the efficient handling of feed.

The principal reason for the expansion of cooperative purchasing of farm supplies was the technological change in Minnesota agriculture—such as the shift from animal to mechanical power after 1920. Modern farming methods require large amounts of machinery, petroleum products, feed, seed, fertilizer, and insecticides, all of which can be purchased cooperatively to some advantage. Other reasons for cooperative expansion included the farm depressions of the 1920's and 1930's, government encouragement through the federal farm credit system, and improved business methods made possible through education, regional federations, and state and federal agencies.

Another development in cooperative purchasing was the organization and growth of regional wholesale federations. Two of these large-scale cooperatives were organized in the 1920's, two in the 1930's, and two in the 1940's. Working together with other regionals,

these associations produce and manufacture many of the products they supply to local associations. Central associations, their affiliates, and subsidiaries also provide some management and financial services for local associations that require them.

SOURCE OF DATA AND SCOPE OF STUDY

A survey of 1,341 farmers' marketing, supply, and service cooperatives in Minnesota was made by the Department of Agricultural Economics in 1950.⁵ Farm supplies were handled by nearly 1,100 associations and comprised the major line of business for 300 of them.

Farm supply associations were classified on the basis of products handled into three major groups—petroleum, general merchandise, and production supply.⁶ In most cases the group of commodities ranking first in value was used as the basis of classification, provided that it amounted to at least 40 per cent of the total receipts. Associations which were too diversified for such classification were classified as "mixed supply." In difficult cases some weight was given to previous years' operations, and gross margins as well as total receipts.

The 300 farm supply associations included 164 petroleum, 86 general merchandise, 44 production supply, and 6 mixed supply associations. Six were large-scale regional associations, and 294 were local associations. Most of

⁵ The results of this survey were presented in detail in *Statistics of Farmers' Cooperatives in Minnesota, 1950*, by E. Fred Koller, T. W. Manning, and O. B. Jesness, Univ. of Minn. Agr. Exp. Sta. Bul. 412, June, 1952.

⁶ The petroleum group included all petroleum products and automotive supplies. General merchandise consisted of groceries, dry goods, coal, and other consumer-type goods. Production supplies included such products as feed, seed, fertilizer, hardware, lumber, and machinery.

this report deals only with local associations. The section on commodity analysis of business includes all of the supply associations. A section is devoted to regional associations.

Farm supply associations were located in all but two of the 87 counties in Minnesota, and these two were well serviced by associations in surrounding counties (figure 2). St. Louis county led

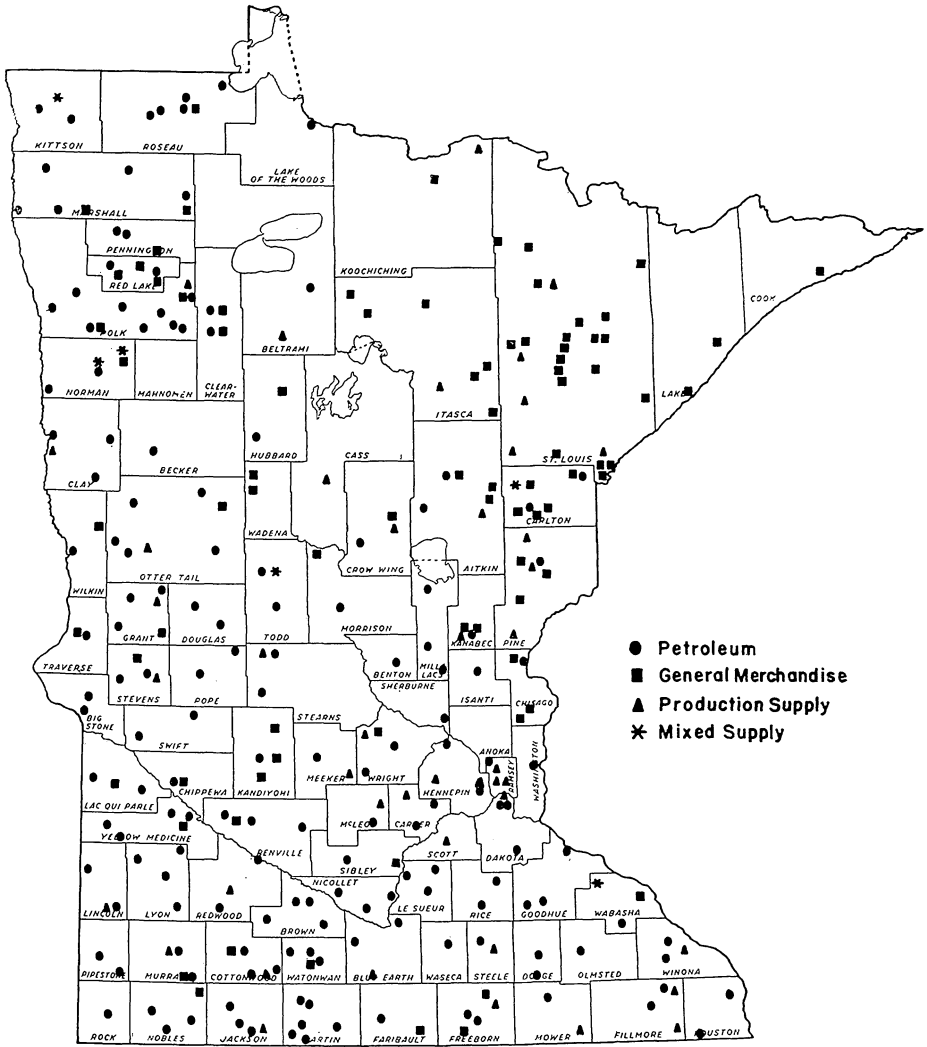


Fig. 2. Location of Minnesota farm supply associations by commodity type, 1949-50.

in number of supply cooperatives with 26, and Polk county was second with 12. General merchandise associations were heavily concentrated in northeast

Minnesota. Petroleum associations were most numerous in the southern and western areas, and production supply associations were found in all areas.

Organizational Characteristics

Most of the 294 local farm supply associations active in 1949 observed such principles as equal treatment of members and nonmembers, democratic control, and limited returns to capital. Cooperative character was generally related to organization. The associations which had recently organized or reincorporated under the latest cooperative laws also had the highest cooperative characters.

ORGANIZATION

Original organization—The organization of farm supply cooperatives received its first great impetus during the 1920's. However, more of the existing associations were organized in the 1930's than in the 1920's (table 1). Less than 15 per cent were organized since 1940. General merchandise associations led in average age, with production supply second, and petroleum associa-

tions the youngest. Only two of the present petroleum associations were organized prior to 1920 (although not as petroleum associations), as compared with 28 general merchandise, 11 production supply, and four mixed supply associations.

The first strictly petroleum cooperative was organized at Cottonwood, Minnesota, in 1921—the first of its type in the United States. The development of this type of association closely paralleled the increase in numbers of farm trucks and tractors.

Latest incorporations—All but two of the supply associations had been incorporated or reincorporated since 1920 (table 1). The usual purposes for reincorporation were to amend articles and by-laws in accordance with the newest cooperative laws and to renew the period of corporate existence. Forty per cent of them had reincorporated since 1940, most of which adopted new amendments to improve their cooperative character.

Legal status—All of the supply associations were legally incorporated, with more than 90 per cent of them incorporated under the General Cooperative Act of 1923 (chapter 326). This law has been kept up-to-date by frequent amendments. In 1953 it specifies the following major cooperative characteristics:

1. Each member shall be restricted to one vote in the affairs of the association.
2. Members shall not be permitted to vote by proxy, but voting by mail is permissible.

Table 1. Minnesota Farm Supply Associations by Periods of Original Organization and Latest Incorporation, 1949-50.

Period	Original organization		Latest incorporation*	
	number	per cent	number	per cent
1890-1899	3	1.0	0	0.0
1900-1909	12	4.1	1	0.3
1910-1919	31	10.5	1	0.3
1920-1929	81	27.6	35	12.1
1930-1939	126	42.9	94	32.4
1940-1949	41	13.9	159	54.9
Total	294	100.0	290	100.0

* Data were not available for four associations.

3. Shares of stock shall be transferable only with the consent of the board of directors.
4. Dividends on capital stock shall not exceed 6 per cent annually and shall not be cumulative.
5. Net income in excess of dividends on stock and additions to reserves and surplus shall be distributed on the basis of patronage, and the records of the association may show the interest of patrons, stockholders, and members in the reserves and surplus.

In addition to meeting the requirements of Minnesota cooperative acts, many of the supply associations met the specifications of federal laws and regulations. Such federal acts included the Bureau of Internal Revenue regulations for income tax exemption and the Farm Credit Act of 1933 specifications for eligibility to borrow from the Banks for Cooperatives.

COOPERATIVE CHARACTERISTICS

The democratic voting principle was almost universal among the supply associations (table 2). All but one of

Table 2. Minnesota Farm Supply Associations by Conformity to Selected Cooperative Specifications, 1949-50

Cooperative specification	Number of associations conforming	Percentage of associations conforming*
Voting based on membership (one-man one-vote)	290	99.7
Equal treatment of members and nonmembers	288	98.3
Exempt from paying federal income taxes	105	35.7
Exempt from paying state income taxes	107	36.4
Articles and by-laws require that all net margins be allocated (except dividends on stock)	122	42.1

* Percentages were based on number of associations reporting in each case.

the local associations observed the one-man one-vote principle. Supply associations also had a good record for equal treatment of patrons. Only one association discriminated between members and nonmembers in prices charged for supplies, and four discriminated in the allocation of patronage refunds.

Income tax exemption—Both federal and Minnesota specifications for income tax exemption required a strict observance of many cooperative principles. Slightly more than one-third of the supply associations were exempt from paying income taxes (table 2). However, many nonexempt associations also met most or all requirements for exemption. Most of these associations had small taxable incomes, and an exempt status was of little importance. Cooperative characteristics specified by the income tax regulations included: (1) operation on a cooperative basis, (2) membership held largely by farmer patrons, (3) members and nonmembers treated equally with respect to patronage refunds, (4) reserves reasonable and in conformity with state law, and (5) dividends on stock limited to 8 per cent or as specified by state law. In addition, it was generally required that all net margins in excess of dividends on stock be allocated on the basis of patronage.

Dividends on stock—The most popular dividend limit on capital stock was 6 per cent (table 3.) The articles and by-laws of nearly half of the capital stock associations limited dividend payments to less than 6 per cent, and only 24 permitted as much as 8 per cent. The most frequent rate paid in 1949 was 4 per cent; however, almost as many paid no dividends that year. Four associations paid 8 per cent, and the others paid 6 per cent or less.

Patronage refunds—One of the recent cooperative trends in Minnesota has been the adoption of amendments to

Table 3. Minnesota Farm Supply Associations by Maximum Dividend Rate Permitted and Dividend Rate Paid on Common Stock, Fiscal Year Ended 1949-50

Dividend rate	Maximum dividend rate permitted		Dividend rate paid in 1949	
	number	per cent	number	per cent
None	13	4.6	74	26.2
1 per cent	0	0.0	2	0.7
2 per cent	3	1.1	21	7.4
3 per cent	26	9.2	56	19.8
4 per cent	70	24.7	82	29.0
5 per cent	15	5.3	19	6.7
6 per cent	127	44.9	25	8.8
8 per cent	24	8.5	4	1.4
Unknown	5	1.7	0	0.0
Total	283	100.0	283	100.0
Nonstock	11	.....	11	.....
Grand total	294	.....	294	.....

articles and by-laws requiring that all net margins in excess of dividends on stock be allocated on a patronage basis. One hundred and twenty-two of the supply associations had such a requirement in 1949 (table 2). While most associations made provisions for patronage refunds, many did not limit the amounts which could be added to unallocated reserves or surplus.

Nearly three-fourths of the supply associations made patronage refund distributions yearly from 1945 through 1949 (table 4). Only twenty-three associations made no such distributions during this period. Petroleum and mixed supply associations made dis-

tributions most frequently. Of the 269 associations which made at least one distribution, 39 failed to notify patrons as to the amount allocated to them. Such notification is required under a 1951 tax law if the amount is to be excluded from taxation.

MEMBERSHIP AND PATRONAGE

Membership of the 294 local supply associations totaled 183,355 in 1949 (table 5). The total number of patrons was 246,941. Petroleum associations had the highest average membership with 754 and the highest average patronage with 1,015. They also led in average number of members who were not patrons and patrons who were not members. General merchandise associations had the lowest percentage of active members, and production supply cooperatives had the lowest percentage of patrons who were members.

Requirements for membership—Both the requirements for attaining membership and the action taken when a member ceases to qualify are important in keeping membership in the hands of current patrons. About 72 per cent of

Table 4. Minnesota Farm Supply Associations by Number of Patronage Refund Distributions Made during the Five-Year Period 1945-46 to 1949-50

Number of patronage refund distributions	Associations	
	number	per cent
None	23	7.8
1	8	2.7
2	7	2.4
3	19	6.5
4	25	8.5
5	210	71.4
Unknown	2	0.7
Total	294	100.0

Table 5. Membership and Patronage of Minnesota Farm Supply Associations by Commodity Type, 1949-50

Commodity type	Number of associations	Total			Average per association					Proportion of members who were patrons	Proportion of patrons who were members
		Members	Member-patrons	Patrons	Members	Member-patrons	Member-nonpatrons	Patrons	Patron-nonmembers		
Petroleum	162	122,109	105,312	164,354	754	650	104	1,015	365	86.2	64.1
General merchandise	86	38,348	30,303	49,122	446	352	94	571	219	79.0	61.5
Production supply	40	20,695	17,245	30,290	517	431	86	757	326	83.3	56.9
Mixed supply	6	2,203	2,068	3,175	367	345	22	529	184	93.9	65.1
Total	294	183,355	154,928	246,941	624	527	97	840	313	84.5	62.7

the supply associations had financial requirements for membership of \$10 or less (table 6). Nine associations had requirements of more than \$25. Thirty-eight per cent of the associations also had nonfinancial membership requirements. In most of these cases membership was restricted to farmers or current patrons.

Although the by-laws of most associations provided for the termination of inactive members' voting privileges, this was not generally enforced. Over 85 per cent of the supply associations failed to take any immediate action (within six months) after a member quit farming or patronizing the association (table 7). In order to retain as much capital in the business as possible, most associations permitted retired farmers to retain their voting stock. Frequently this resulted in a situation where the association could be controlled by persons who had no interest in operating the business for the benefit of the patrons.

Table 6. Minnesota Farm Supply Associations by Financial Requirements for Membership, 1949-50

Financial requirement for membership	Number of associations	Percentage of grand total
Capital stock		
\$ 1.00	23	7.8
5.00	33	11.2
10.00	145	49.3
12.50	9	3.1
15.00	7	2.4
20.00	7	2.4
25.00	51	17.3
50.00	4	1.4
100.00	5	1.7
Total	284	96.6
Membership fees		
\$ 1.00	4	1.4
2.00	2	0.7
10.00	3	1.0
Total	9	3.1
No financial requirement	1	0.3
Grand total	294	100.0

Farmers made up 90 per cent or more of the membership in only 62 per cent of the farm supply cooperatives (table 8). In comparison, 88 per cent of the marketing cooperatives in Minnesota had farmer membership of 90 per cent or more.⁷ Thirteen of the supply associations had farmer membership of less than 50 per cent.

Proportion of business with members—Less than one-fourth of the supply associations did as much as 90 per cent of their business with members, and about one-fifth did less than 70 per cent of their business with members (table 9). This was often due to poor mem-

Table 7. Minnesota Farm Supply Associations by Action Taken When Members Quit Farming or Patronizing the Association, 1949-50

Action taken when members quit farming or patronizing the association	Number of associations	Percentage of total
Retire stock or membership promptly	33	11.2
Convert stock to nonvoting equities promptly	1	0.3
Terminate voting rights promptly	5	1.7
No prompt action taken	251	85.4
Unknown	4	1.4
Total	294	100.0

Table 8. Minnesota Farm Supply Associations by Percentage of Members Who Were Farmers, 1949-50

Percentage of members who were farmers	Number of associations	Percentage of total
Less than 50	13	4.4
50- 59	6	2.0
60- 69	9	3.1
70- 79	25	8.5
80- 89	54	18.4
90-100	183	62.2
Unknown	4	1.4
Total	294	100.0

⁷ E. Fred Koller, T. W. Manning, and O. B. Jesness, *Statistics of Farmers' Cooperatives in Minnesota, 1950*, Univ. of Minn. Agr. Exp. Sta. Bul. 412, June, 1952, p. 32.

bership policies. About one-half did 90 per cent or more of their business with farmers. Few did less than 50 per cent, and all but one of these were general merchandise cooperatives. Thirty-five associations did more than 15 per cent of their supply and service business with persons who were neither members nor farmers. Thus, they exceeded the limit established by the Internal Revenue Code for tax exemption. A comparison of these figures indicates that much of the nonmember business was with farmers who should have been eligible for membership.

Table 9. Minnesota Farm Supply Associations by Percentage of Total Business with Members, Fiscal Year Ended 1949-50

Percentage of total business with members	Number of associations	Percentage of total
Less than 50	22	7.5
50- 59	14	4.8
60- 69	25	8.5
70- 79	73	24.8
80- 89	90	30.6
90-100	67	22.8
Unknown	3	1.0
Total	294	100.0

Financing

USES OF CAPITAL

Assets of the 294 local supply associations totaled \$24.9 million, an average of \$84,847 per association (table 10). Nearly one-half of that amount was in current assets (figure 3). Inventories were the largest of the current assets. Cash and receivables each comprised about one-tenth of the total assets. Investments in other coopera-

tives, mostly in central wholesaling associations, amounted to one-fifth of total assets. The net fixed assets were slightly more than one-fourth of the total.

Asset sizes among the supply associations varied from a few thousand to more than one-half million dollars with about two-fifths less than \$50,000 (table 11). A larger proportion of the petroleum associations was in the higher asset groups than any other type. Nearly one-half of the general merchandise associations had assets less than \$30,000, but only eight petroleum associations were that small.

A study of 92 petroleum associations in 1939 showed only 5 per cent had assets of \$50,000 or more.⁵ Nearly three-fourths of the petroleum associations had assets of \$50,000 or more at the close of the 1949-50 fiscal year. Average assets of petroleum associations in 1949-50 were \$99,796, nearly four times as large as in 1939. Investments in other cooperatives increased nearly 12 times in this period, and fixed assets, inventories, and cash increased substantially.

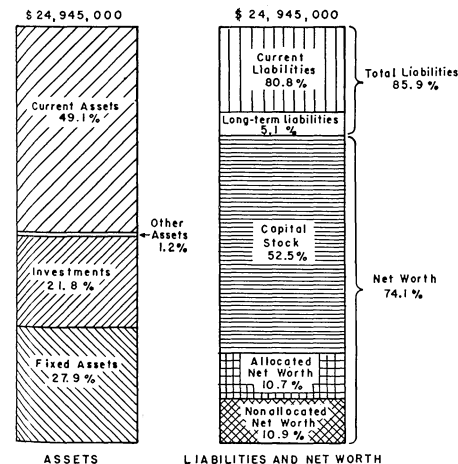


Fig. 3. Financial status of 294 Minnesota farm supply associations at the close of the fiscal year 1949-50.

⁵ E. Fred Koller and O. B. Jesness, *Minnesota Cooperative Oil Associations*, Univ. of Minn. Agr. Exp. Sta. Bul. No. 351, p. 12.

Table 10. Average Assets of Minnesota Farm Supply Associations by Commodity Type, Fiscal Year Ended 1949-50

	Commodity type									
	All associations		Petroleum		General merchandise		Production supply		Mixed supply	
	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent
<i>Current assets</i>										
Cash	8,640	10.2	11,194	11.2	3,760	6.0	8,572	11.6	10,133	14.9
Government bonds	639	0.8	518	0.5	1,021	1.6	378	0.5	250	0.4
Receivables										
Notes receivable	561	0.7	557	0.6	635	1.0	462	0.6	367	0.5
Accounts receivable—general	1,180	1.4	1,967	1.9	87	0.1	450	0.6	383	0.6
Accounts receivable—patrons	7,986	9.3	10,860	10.9	3,047	4.9	7,058	9.5	7,433	11.0
Less: Reserve for bad debts	880	1.0	1,121	1.1	541	0.9	688	0.9	617	0.9
Net receivables	8,847	10.4	12,263	12.3	3,228	5.1	7,282	9.8	7,566	11.2
Inventories	23,255	27.4	22,999	23.1	22,120	35.2	26,685	36.1	23,450	34.6
Other current assets	306	0.3	407	0.4	90	0.1	383	0.5	167	0.2
TOTAL CURRENT ASSETS	41,687	49.1	47,381	47.5	30,219	48.0	43,300	58.5	41,566	61.3
<i>Investments</i>										
Investments in other cooperatives	18,384	21.7	23,595	23.6	13,158	20.9	9,802	13.2	9,817	14.5
Other investments	140	0.1	174	0.2	12	0.0	283	0.4	0	0.0
TOTAL INVESTMENTS	18,524	21.8	23,769	23.8	13,170	20.9	10,085	13.6	9,817	14.5
<i>Fixed assets</i>										
Land	1,891	2.2	2,478	2.5	1,142	1.8	1,180	1.6	1,467	2.1
Depreciable assets										
Buildings and equipment	35,895	42.3	39,910	40.0	32,888	52.3	26,973	36.4	30,100	44.4
Less: Reserve for depreciation	14,119	16.6	15,002	15.0	15,123	24.0	8,015	10.8	16,617	24.5
Net depreciable assets	21,776	25.7	24,908	25.0	17,765	28.3	18,958	25.6	13,483	19.9
TOTAL FIXED ASSETS	23,667	27.9	27,386	27.5	18,907	30.1	20,138	27.2	14,950	22.0
<i>Other assets</i>										
Prepaid expenses	806	1.0	1,014	1.0	580	0.9	352	0.5	1,500	2.2
Miscellaneous assets	163	0.2	246	0.2	29	0.1	143	0.2	0	0.0
TOTAL OTHER ASSETS	969	1.2	1,260	1.2	609	1.0	495	0.7	1,500	2.2
TOTAL ASSETS	84,847	100.0	99,796	100.0	62,905	100.0	74,018	100.0	67,833	100.0
Number of associations	294		162		86		40		6	

Table 11. Minnesota Farm Supply Associations by Total Assets and Commodity Type, Fiscal Year Ended 1949-50

Total assets	Total	Commodity type			
		Petroleum	General merchandise	Production supply	Mixed supply
dollars					
		number of associations			
Less than 10,000	11	0	5	6	0
10,000- 29,999	49	8	35	4	2
30,000- 49,999	60	34	17	9	0
50,000- 69,999	43	28	10	4	1
70,000- 99,999	58	43	7	7	1
100,000-149,999	37	24	5	6	2
150,000 and over	36	25	7	4	0
Total	294	162	86	40	6

Since approximately one-half of the increase was due to inflation, the actual increase in average asset size was about 100 per cent for the ten-year period.

Current Assets

Current assets averaged \$41,687 for the 294 supply associations (table 10). The percentage of current to total assets was highest for mixed and production supply associations. However, it was only slightly below 50 per cent for petroleum and general merchandise associations.

Inventories — Inventories accounted for more than one-half of current assets for all associations and for each type except petroleum. The average amount invested in inventories was about the same for all types, varying from \$22,120 for general merchandise to \$26,685 for production supply associations.

Receivables — Patrons' accounts receivable were the most important of the receivables. They averaged \$7,986 for all associations and \$10,860 for petroleum associations alone. Reserves for bad debts averaged nearly 10 per cent of total accounts receivable, with only general merchandise associations averaging above 10 per cent. Most of the individual associations made some provision for uncollectible accounts.

Liquid assets—Cash and government bonds accounted for 11 per cent of total assets, or more than one-fifth of the current assets. Average cash assets were largest for petroleum associations with \$11,194 and lowest for general merchandise with \$3,760. However, petroleum was the only group in which cash averaged less than net receivables.

Investments in Other Cooperatives

More than one-fifth of the total assets of the local supply associations was invested in other cooperatives (figure 3). Petroleum associations led with an average of \$23,595, nearly double the average of any other type. These investments were largely the result of patronage refunds distributed by the regional wholesale federations. Most of the investments consisted of capital stock with some in other forms of equity, such as book credits in reserves. Growth in production caused the rapid increase in investments in production and wholesaling facilities of the large regional federations from 1939 to 1949.

Fixed Assets

Average net fixed assets of the 294 associations was \$23,667, of which \$1,891 was invested in land, and the

remainder represented the net value of buildings and equipment (table 10). The average original value of buildings and equipment was \$35,895, and the depreciated value was \$21,776, or 60.7 per cent of the original value. Petroleum associations led in fixed assets, and production supply associations had the least. The ratio of fixed assets to total assets was about the same for all types except mixed supply.

SOURCES OF CAPITAL

Net worth was the primary source of capital used by the local supply associations. The average net worth was \$62,905, or 74.1 per cent of total capital (table 12 and figure 3). Liabilities averaged \$21,942, or 25.9 per cent of the total. The ratio of net worth to liabilities was approximately three to one for all types except mixed supply, which was somewhat higher.

Net worth was represented by capital supplied by members, patrons, and others on an investment basis. Liabilities, on the other hand, were distinguished by either formal or informal obligations of payment within a certain length of time. They consisted of capital supplied by creditors, accrued expenses, and delayed payments for goods, services, and refunds to patrons.

Liabilities

Current liabilities (amounts payable within one year) averaged \$17,609, approximately four-fifths of the total liabilities, or one-fifth of the total capital (table 12). Long-term liabilities averaged \$4,333, substantially all in formal indebtedness, such as notes and bonds. The value of current debt varied considerably, but the ratio to total capital was about the same for all except mixed supply.

Accounts payable—Accounts payable averaged \$4,139 for all supply associa-

tions and consisted primarily of amounts due suppliers for merchandise. In relation to average inventories, accounts payable were comparatively small. None of the groups had accounts payable in excess of accounts receivable.

Patronage refunds and accruals—Current patronage refunds payable varied from an average of \$6,225 for petroleum to \$33 for mixed supply associations. These refunds included amounts being retired from patrons' equities withheld in prior years as well as cash refunds declared for the year just ended.

Other current liabilities averaged \$3,541 and consisted primarily of accrued wages, taxes, and utilities.

Borrowed capital—Notes and bonds payable averaged \$10,181 for the 294 associations (table 12). Fifty-eight per cent of the total was currently payable, and the remainder consisted primarily of long-term mortgage notes.

One hundred eighty-four supply associations had a total of 477 loans outstanding in the fiscal year 1949-50 (table 13). The average amount of loan capital used was \$20,443, of which \$4,402 was paid off during the year, leaving a year-end balance of \$16,041. Petroleum associations led in the use of borrowed capital with \$22,484 per association borrowing.

The principal sources of loans for the 184 associations in the order of importance were individuals, commercial banks, the St. Paul Bank for Cooperatives, and the regional supply federations. These sources supplied 87 per cent of the amount borrowed, and individuals alone supplied 32 per cent. The largest average sizes of loans were provided by insurance companies and the Bank for Cooperatives.

Most of the 477 loans were made for terms of one year or less. Approximately one-third were for three years or more. The number of operating capital loans exceeded the number of facil-

Table 12. Average Liabilities and Net Worth of Minnesota Farm Supply Associations by Commodity Type, Fiscal Year Ended 1949-50

	Commodity type									
	All associations		Petroleum		General merchandise		Production supply		Mixed supply	
	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent
Liabilities										
Current liabilities										
Accounts payable—general	3,704	4.4	4,192	4.2	2,726	4.3	3,962	5.4	2,917	4.3
Accounts payable—patrons	435	0.5	199	0.2	867	1.4	508	0.7	267	0.4
Notes payable	5,878	6.9	6,077	6.1	5,816	9.3	5,660	7.6	2,717	4.0
Patronage refunds	4,051	4.8	6,225	6.2	758	1.2	2,895	3.9	33	0.1
Other current liabilities	3,541	4.2	4,479	4.5	2,270	3.6	2,738	3.7	1,833	2.7
Total current liabilities	17,609	20.8	21,172	21.2	12,437	19.8	15,763	21.3	7,767	11.5
Long-term liabilities										
Notes, bonds, mortgages payable	4,303	5.1	5,227	5.2	3,307	5.2	3,345	4.5	0	0.0
Other long-term liabilities	30	0.0	54	0.1	6	0.0	0	0.0	0	0.0
Total long-term liabilities	4,333	5.1	5,281	5.3	3,313	5.2	3,345	4.5	0	0.0
TOTAL LIABILITIES	21,942	25.9	26,453	26.5	15,750	25.0	19,108	25.8	7,767	11.5
Net worth										
Capital stock										
Common stock	31,741	37.4	36,302	36.4	29,996	47.7	19,073	25.8	17,950	26.5
Preferred stock	4,820	5.7	6,683	6.7	408	0.7	7,352	9.9	750	1.1
Stock credits	7,997	9.4	9,904	9.9	5,487	8.7	6,355	8.6	3,566	5.2
Total stock	44,558	52.5	52,889	53.0	35,891	57.1	32,780	44.3	22,266	32.8
Reserves and other										
Certificates of equity, etc.	187	0.2	227	0.2	209	0.3	0	0.0	0	0.0
Patrons' equity reserves	8,888	10.5	12,147	12.2	1,969	3.1	8,245	11.1	24,467	36.1
General reserves and surplus	9,252	10.9	7,883	7.9	9,579	15.2	13,470	18.2	13,333	19.6
Undistributed net margins	(-102)	(-0.1)	153	0.2	(-596)	(-0.9)	(-80)	(-0.1)	0	0.0
Other net worth	122	0.1	44	0.0	103	0.2	495	0.7	0	0.0
Total reserves and other	18,347	21.6	20,454	20.5	11,264	17.9	22,130	29.9	37,800	55.7
TOTAL NET WORTH	62,905	74.1	73,454	73.5	47,155	75.0	54,910	74.2	60,666	88.5
TOTAL LIABILITIES AND NET WORTH	84,847	100.0	99,796	100.0	62,905	100.0	74,018	100.0	67,833	100.0
Number of associations	294		162		86		40		6	

Table 13. Average Borrowing of Minnesota Farm Supply Associations by Commodity Type, Fiscal Year Ended 1949-50

Commodity type	Total number of associations	Number of associations borrowing	Number of loans*	Average maximum size of loan†	Average borrowing per association		
					Maximum amount‡	Year-end balance	Amount paid off during year
					dollars		
Petroleum	162	108	290	8,373	22,484	16,688	5,796
General merchandise	86	53	135	6,641	16,916	14,640	2,276
Production supply	40	21	50	8,374	19,938	17,005	2,933
Mixed supply	6	2	2	9,000	9,000	8,150	850
Total	294	184	477	7,886	20,443	16,041	4,402

* In most cases each note was considered a separate loan. However, several associations had large numbers of small notes, mostly from individuals, which were identical in all respects except amount. Such notes were combined and tabulated as a single loan.

† The maximum size of loan was the face amount for loans made in 1949 and the amount outstanding at the beginning of the year for loans made prior to 1949.

ity loans. The majority of them were unsecured, and the secured loans were almost evenly divided between chattel and real estate mortgages. Interest rates varied from zero to 8 per cent, with 4 per cent the most common.

Net Worth

An average of \$62,905 per association was supplied by members, patrons, and other investors (table 12). Substantially all of the net worth, excepting some of the preferred stock, represented members' and patrons' equities. Petroleum associations led in net worth with an average of \$73,454, and general merchandise associations were lowest with \$47,155. Net worth sources supplied approximately three-fourths of the total capital. Only mixed supply varied significantly from this average.

Capital stock—More than one-half of the total capital and two-thirds of the net worth were in the form of capital stock. The 294 supply associations had an average of \$44,558 in common shares, preferred shares, and stock credits outstanding (table 12). By far the greatest proportion consisted of common stock. Only 111 associations had preferred stock outstanding with an average of \$12,766, as compared with

283 associations having common stock with an average of \$32,975. Production supply and petroleum associations led in the use of preferred stock financing.

A large proportion of capital stock was issued out of retained net margins. This was accomplished by allocating patronage refunds in the form of stock credits and issuing shares after sufficient credits had accumulated. Some associations, in order to preserve their status as farmers' cooperatives, issued common stock only to farmers and preferred stock to nonfarmers. This permitted these associations to keep control in the hands of farmers, thus enabling the organization to meet one of the requirements for income tax exemption and borrowing from the Bank for Cooperatives.

Patrons' equities—Most of the supply associations allocated retained net margins on a patronage basis. A few issued certificates of equity to evidence each patron's share of such retains. The majority of associations placed retained margins in reserves and indicated each patron's equity by means of book credits to individual patron's accounts. These patrons' equity reserves averaged \$8,888 for all local supply associations, ranging from \$1,969 for general merchandise to \$24,467 for mixed sup-

ply associations. Petroleum and mixed supply associations had greater amounts in patrons' equities than in unallocated reserves, but the opposite was true for general merchandise and production supply associations.

Prior to 1949, it was generally believed that statutory reserve requirements of the Minnesota cooperative laws could be met only by unallocated reserves (or surplus). This misinterpretation was corrected in a statement by the Minnesota Attorney General in 1949. According to his interpretation ". . . the records of an association may show the interest of the patrons in the reserves and surplus, [and] it is immaterial as to what name the association may give thereto."⁹ Associations can no longer claim income tax exemption on additions to reserves unless they are allocated on the basis of patronage.

Unallocated capital—Many associations had relatively large amounts in unallocated general reserves and surplus in 1949. The average was \$9,252 for all associations, slightly exceeding the average amount in patrons' equity reserves (table 12). The highest ratio of general reserves and surplus to patrons' reserves was found in the general merchandise associations. In most cases unallocated reserves were built up in the early years of the associations' operations. Few associations added to their unallocated reserves in 1949. Several associations which had losses in 1949 placed them in an undistributed net margin account, leaving a net deficit in this account at the end of the year.

Revolving Capital Financing

Nearly one-half of the local supply associations used the revolving capital

plan of financing in 1949. This plan consisted of retaining all or part of the patronage refunds each year and, after the revolving account had reached the desired level, paying out the amounts retained in the earliest years. Since this was a relatively new plan of financing, only about one-half of the 130 associations using revolving plans had reached the stage of retiring the older retains. The average length of revolving period for those which had begun to revolve was about five years. The revolving capital plan seems to be the best solution for the problem of financing the business by current patrons. In some instances patrons have lost faith in the plan because of the length of the revolving period. The plan must compromise between maintaining the necessary amount of capital and keeping patrons' faith in the plan by revolving regularly and rapidly.

There was some relationship between size of the association as measured by total assets and the use of revolving plans. Less than one-third of the associations with assets under \$30,000 had revolving plans as compared to more than one-half of those with assets of \$70,000 and over (table 14).

The average amount in revolving accounts was \$51,538 at the end of the 1949-50 fiscal year (table 15). The average amount added for the year was \$7,923, and the amount retired was \$2,185. Production supply associations led in the size of the year-end balance, but petroleum associations led in amount added. Mixed supply associations led in amount retired. Most of the associations added several times as much as they retired.

The 130 associations had 136 revolving accounts, of which 84 were common stock, 39 patrons' equity reserves, and 13 preferred stock. More than one-half of the associations' revolving capital stock paid dividends on stock in 1949.

⁹ Letter from J. A. A. Burnquist, Attorney General of Minnesota, to R. J. Godin, Chief Auditor, Division of Cooperative Accounting, Department of Agriculture, Dairy and Food, dated October 26, 1949.

Table 14. Minnesota Farm Supply Associations Using Revolving Accounts by Total Assets, Fiscal Year Ended 1949-50

Total assets	Total number of associations	Number of associations using revolving accounts	Percentage of associations using revolving accounts
dollars			
Less than 10,000	11	0	0.0
10,000- 29,999	49	16	32.7
30,000- 49,999	60	27	45.0
50,000- 69,999	43	20	46.5
70,000- 99,999	58	31	53.4
100,000-149,999	37	18	48.6
150,000-and over	36	18	50.0
Total	294	130	44.2

Table 15. Additions, Retirements, and Year-End Balances in Revolving Accounts of Minnesota Farm Supply Associations, by Commodity Type, Fiscal Year Ended 1949-50

Commodity type	Number of associations using revolving accounts	Number of capital accounts revolved	Average amount per association		
			Added in 1949-50	Retired in 1949-50	Year-end balance
Petroleum	76	80	10,855	dollars 2,908	52,658
General merchandise	42	43	2,714	1,095	45,976
Production supply	9	10	8,111	889	66,111
Mixed supply	3	3	5,967	3,000	57,500
Total	130	136	7,923	2,185	51,538

FINANCIAL RATIOS

Ratios of current assets to current liabilities, net worth to net fixed assets plus investments, and net worth to total assets were selected for this study as the best measures of financial strength of supply associations.

Current ratio—The average ratio of current assets to current liabilities was

2.37 to 1 for the supply associations as a whole (table 16). It varied from 2.24 for petroleum to 5.30 for mixed supply associations. This ratio measures the ability of the association to meet current obligations. A 2 to 1 ratio is desirable in order to allow for unforeseen emergencies. Twenty-one associations had ratios less than 1 to 1, reflecting conditions approaching insolvency (table

Table 16. Average Financial Ratios of Minnesota Farm Supply Associations, by Commodity Type, Fiscal Year Ended 1949-50

Commodity type	Number of associations	Current assets to current liabilities	Net worth to net fixed assets plus investments	Net worth to total assets
Petroleum	162	2.24	1.43	per cent 73.5
General merchandise	86	2.43	1.47	75.0
Production supply	40	2.75	1.82	74.2
Mixed supply	6	5.30	2.42	88.4
Total	294	2.37	1.49	74.1

Table 17. Minnesota Farm Supply Associations by Commodity Type and Current Assets to Current Liabilities' Ratio, Fiscal Year Ended 1949-50

Commodity type	Total	Current assets to current liabilities' ratio						No current liabilities
		Less than 1.00	1.00-1.99	2.00-2.99	3.00-4.99	5.00-9.99	10.00 and over	
		number of associations						
Petroleum	162	10	44	34	29	32	13	0
General merchandise	86	10	16	14	20	12	14	0
Production supply	40	1	10	9	6	7	5	2
Mixed supply	6	0	1	1	0	1	3	0
Total	294	21	71	58	55	52	35	2

17). There were 71 associations with current ratios between 1 to 1 and 2 to 1. Some associations had high ratios, 52 were between 5 to 1 and 10 to 1, and 35 were 10 to 1 or more.

Net worth to fixed assets and investments—Most financially strong associations finance their fixed assets and investments with net worth capital. This permits a financial stability which is not possible when a large amount of borrowed capital is used for this purpose. The supply associations had an average of \$1.49 net worth for each dollar invested in fixed assets and investments (table 16).

Net worth to total assets—For each dollar of total assets the supply associa-

tions had an average of 74.1 cents of net worth capital (table 16), which was well above the accepted standard of 67 cents net worth per dollar of assets. An association with less than 50 per cent net worth equity usually has a risky financial structure.

Two-thirds of the supply associations had good net worth to total assets' ratios, ranging from 70 to 100 per cent. Another one-fifth had fair ratios, ranging from 50 to 70 per cent. Thirty-four associations had generally unsatisfactory ratios of less than 50 per cent, and two of these had no net worth at all. Nearly one-half of the associations with the lowest ratios were of the general merchandise type.

Operations

Sales and service receipts totaled \$64,102,000 for the 294 local supply associations in 1949. Cost of sales represented 82 per cent of this total, operating expenses 14 per cent, and net operating margins the remaining 4 per cent. Adjustments for other income and expenses added another 2 per cent, giving a net margin of 6 per cent.

VOLUME OF BUSINESS

The average business volume was \$218,034 for the supply associations in

1949, ranging from less than one hundred to more than one million dollars. One-fourth of the associations had business volumes less than \$100,000 (table 19), and more than one-half of these were general merchandise associations. Four-fifths of the general merchandise associations had less than \$200,000 of business each, as compared to two-thirds of the production supply, and one-half of the petroleum associations. Eleven per cent of the supply associations had \$400,000 or more total business.

Table 18. Average Operating Statement of Minnesota Farm Supply Associations by Commodity Type, Fiscal Year Ended 1949-50

	Commodity type									
	All associations		Petroleum		General merchandise		Production supply		Mixed supply	
	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent	dollars	per cent
Net sales	215,490	100.0	244,175	100.0	165,890	100.0	185,330	100.0	353,083	100.0
Cost of sales										
Purchases from patrons	11,568	5.4	2,469	1.0	14,352	8.7	18,990	10.2	167,817	47.5
Other purchases and net inventories	167,939	77.9	197,347	80.8	126,518	76.2	139,885	75.5	154,733	43.8
Total cost of sales	179,507	83.3	199,816	81.8	140,870	84.9	158,875	85.7	322,550	91.3
GROSS MARGIN ON SALES	35,983	16.7	44,359	18.2	25,020	15.1	26,455	14.3	30,533	8.7
Service income	2,544	1.2	3,300	1.3	1,239	0.7	2,323	1.3	2,184	0.6
TOTAL GROSS MARGIN	38,527	17.9	47,659	19.5	26,259	15.8	28,778	15.6	32,717	9.3
Operating expenses										
Wages and salaries										
Plant and sales	12,820	5.9	15,791	6.5	10,000	6.0	7,468	4.0	8,633	2.4
Management	4,214	2.0	4,702	1.9	3,584	2.2	3,372	1.8	5,617	1.6
Office	1,660	0.8	2,041	0.8	891	0.5	1,772	1.0	1,617	0.5
Total wages and salaries	18,694	8.7	22,534	9.2	14,475	8.7	12,612	6.8	15,867	4.5
Taxes										
Real estate and personal property	1,068	0.5	1,202	0.5	859	0.5	988	0.5	1,067	0.3
Social security	340	0.2	341	0.1	365	0.2	282	0.2	300	0.1
Total taxes	1,480	0.7	1,543	0.6	1,224	0.7	1,270	0.7	1,367	0.4
Other operating expenses	9,986	4.6	12,024	5.0	7,729	4.7	6,811	3.7	8,583	2.4
Total operating expenses	30,088	14.0	36,101	14.8	23,428	14.1	20,693	11.2	25,817	7.3
NET OPERATING MARGIN	8,439	3.9	11,558	4.7	2,831	1.7	8,085	4.4	6,900	2.0
Other income (less other expenses)	4,503	2.1	6,712	2.8	1,276	0.8	2,953	1.6	1,550	0.4
NET MARGIN	12,942	6.0	18,270	7.5	4,107	2.5	11,038	6.0	8,450	2.4
Number of associations	294		162		86		40		6	

Table 19. Minnesota Farm Supply Associations by Commodity Type and Volume of Business, Fiscal Year Ended 1949-50

Volume of business dollars	Total	Commodity type			
		Petroleum	General merchandise	Production supply	Mixed supply
		number of associations			
Less than 100,000	83	24	45	12	2
100,000-199,999	101	61	24	15	1
200,000-299,999	56	42	7	7	0
300,000-399,999	21	15	3	3	0
400,000-499,999	11	7	2	1	1
500,000-999,999	17	10	4	1	2
1,000,000 and over	5	3	1	1	0
Total	294	162	86	40	6

Net sales—Net sales averaged \$244,175 for the petroleum associations (table 18), the most highly specialized of the supply associations. Petroleum products and auto supplies accounted for 87 per cent of petroleum association net sales (figure 4). Sixty-eight of the 162 petroleum associations handled only petroleum products and auto supplies, and 106 did 90 per cent or more of their business in that line. Production supplies were handled by 89, general merchandise by 33, and farm products by six petroleum associations.

General merchandise associations had average net sales of \$165,890. Two-thirds of their sales were in their major line, and one-fifth was in production supplies. Twenty associations handled nothing but general merchandise. The remaining 66 were diversified, with 53 handling production supplies, 28 petroleum products, and 21 farm products.

Average net sales were \$185,330 for the production supply associations. Seventy per cent of this was production supplies, 12 per cent general merchandise, 11 per cent farm products, and 7 per cent petroleum products. Thirteen of the 40 associations dealt exclusively in production supplies, 22 also handled general merchandise, 11 petroleum products, and seven farm products.

Mixed supply associations led in average sales with \$353,083. They also

led in degree of diversification. The total value of farm products marketed by these associations exceeded their supply business in 1949. However, this was a temporary situation because their major operations were with farm supplies. Livestock and eggs marketed on a commission basis accounted for a large part of the value of products marketed. All six of these associations handled farm products, production supplies, and general merchandise, and five of them handled petroleum products.

Cost of sales—The cost of goods sold averaged \$179,507 for the supply associations in 1949 (table 18). This included

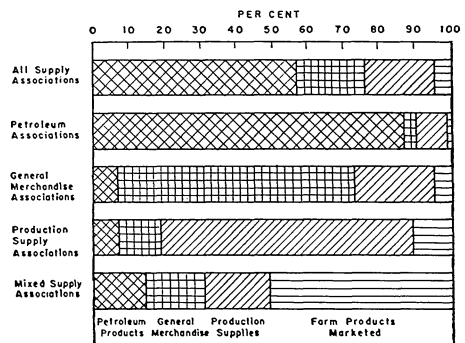


Fig. 4. Source of sales income of Minnesota farm supply associations by commodity type, fiscal year ended 1949-50.

returns to patrons for products marketed, cost of farm supplies purchased, freight-in on products, and adjustments for inventory changes. Cost of sales averaged 83.3 per cent of net sales for all supply associations. Only the mixed supply type differed significantly from the average, due to the large proportion of marketing by those associations.

Gross margins—Total gross margins averaged \$38,527, 17.9 per cent of sales for 1949. This included gross margins on sales and service income. Gross margins varied from 9.3 per cent of sales for mixed supply to 19.5 per cent of sales for petroleum associations. Farm products marketed was the primary factor affecting these variations. Income from services was not significantly large, averaging \$2,544 for all supply associations.

OPERATING EXPENSES

The local supply associations had average operating expenses of \$30,088 in 1949 (table 18). Operating expenses relative to net sales varied widely among the different types, again depending upon the proportion of marketing business. No difference was apparent in the costs of handling different types of supplies.

Wages and salaries—Labor and management costs averaged \$18,694, more than three-fifths of the total operating expenses. This proportion was about the same for all types of associations.

Costs of plant and sales labor averaged \$12,820, management \$4,214, and office labor \$1,660. The average number of employees was 7.3 on a full-time equivalent basis. However, two or three employees were more common than other numbers. Petroleum associations led in average number of employees with 8.2, and production supply was lowest with 5.4.

Costs of management varied from an average of \$3,372 for production supply to \$5,617 for mixed supply associations. Payments to both managers and assistants were included in these figures. Compensation to individual managers varied from less than \$1,000 to more than \$10,000. The most common rate was \$3,000 to \$4,000 (table 20). Few associations paid less than \$2,000 or more than \$5,000. Petroleum associations led in compensation of managers with an average of \$3,889, while mixed supply was lowest with \$2,874 per manager. Petroleum was the only type making extensive use of commissions and other incentive bases of payment.

Taxes—Real estate and personal property taxes averaged \$1,068 in 1949 (table 18), and social security taxes averaged \$340. Both types of taxes were closely related to net sales for the different types of associations. Income taxes were not considered an operating expense and were reported under the distribution of net margins.

Other operating expenses—These expenses included depreciation, insur-

Table 20. Minnesota Farm Supply Associations by Commodity Type and Total Compensation of Manager, Fiscal Year Ended 1949-50

Commodity type	Total	Total compensation of manager					Unknown
		Less than \$2,000	\$2,000-2,999	\$3,000-3,999	\$4,000-4,999	\$5,000 and over	
		number of associations					
Petroleum	162	9	22	73	28	29	1
General merchandise	86	2	32	42	10	0	0
Production supply	40	7	11	14	4	4	0
Mixed supply	6	0	3	1	1	0	1
Total	294	18	68	130	43	33	2

ance, repairs, and general administrative expenses, averaging \$9,986 per association in 1949. They represented about one-third of total operating expenses for all types of associations. However, they were a larger proportion of net sales for petroleum associations than for other types.

NET MARGINS

An important measure of operating success in supply associations is the relative size of the net margins. Net margins averaged \$12,942, 6.0 per cent of net sales in 1949 (table 18). The average percentage varied from 7.5 for petroleum to 2.4 for mixed supply associations.

Most supply associations distributed their net margins among only two or three accounts. However, as a group they employed a large number of ac-

counts. Many of the accounts which were minor for the average association were used to an important extent by a few associations.

Patronage refunds—Most supply associations allocated all or part of their net margins on a patronage basis. An average of 88.4 per cent of the net margin was allocated as some form of patronage refund (table 21). Petroleum and mixed supply associations averaged more than 90 per cent, while general merchandise and production supply associations averaged slightly less than 80 per cent in patronage refunds. Stock and stock credits, cash, and patrons' equity reserves, in order of relative importance, accounted for nearly all of the patronage refunds.

Dividend on stock — Payments to stockholders for the use of invested capital averaged \$986, 7.6 per cent of the total net margins. About two-thirds

Table 21. Average Net Margin Statement for 294 Minnesota Farm Supply Associations, Fiscal Year Ended 1949-50

	Dollars	Per cent
Patronage refunds		
Cash or currently payable	3,833	29.6
Payable as a long-term liability	24	0.2
Stock and stock credits	4,929	38.1
Certificates of interest, etc.	75	0.6
Patrons' equity reserves	2,452	18.9
Patrons' group insurance	126	1.0
Total allocated to patrons	11,439	88.4
Dividends on capital stock	986	7.6
Unallocated reserves		
General reserves and surplus	143	1.1
Educational reserve	41	0.3
Undistributed net margins	(-106)	(-0.8)
Total unallocated	78	0.6
Income taxes		
Federal income tax	354	2.7
State income tax	71	0.6
Total income tax	425	3.3
Adjustments*	14	0.1
TOTAL NET MARGIN	12,942	100.0

* Operating statements covering periods of less than one year were adjusted to a 12-month basis. This figure represents the difference between actual and adjusted net margins. Other items on net margin statements were not adjusted.

of the associations declared an average dividend of \$1,388 for 1949. The most common rates paid were 3 and 4 per cent on the par value of outstanding stock (table 3).

Unallocated reserves—The average amount placed in unallocated reserves was only \$78 (table 21). Most associations having losses for the year charged them to general reserves and surplus or left them in an undistributed account for future disposition.

Income taxes—An average of \$425 for all associations was paid for income taxes in 1949. Of this amount, \$354 was for federal and \$71 for state income taxes. Federal income taxes were paid by 148 associations, and the average amount paid was \$706. More than one-

half of these associations paid less than \$500 each. The highest amount paid was almost \$13,000.

Methods of allocating patronage refunds—Only 42 associations made no patronage allocation in 1949 (table 22). Most of the associations used a flat percentage of the value of supplies purchased in determining the refunds. Thirteen associations included the value of products marketed in determining refunds. Five associations paid refunds on a per unit basis on all or part of their patronage business. Most of the associations used a single refund rate on all commodities. A few associations attempted to adjust for differences in handling margins and costs by using different rates for different products.

Table 22. Minnesota Farm Supply Associations by Commodity Type and Method of Allocating Patronage Refunds, Fiscal Year Ended 1949-50

Commodity type	Total	Method of allocating patronage refunds				No patronage refunds allocated
		Percentage of value of supplies handled	Percentage of value of supplies handled and products marketed	Per unit and percentage of value	Unknown	
Petroleum	162	143	number of associations		6	10
General merchandise	86	43	1	2	14	23
Production supply	40	23	6	0	3	8
Mixed supply	6	1	3	3	1	1
			3	0	—	—
Total	294	210	13	5	24	42

Operating Efficiency

Operating efficiency in farm supply associations is reflected ultimately in the net costs to patrons for the supplies and services provided by the associations. This is not the most practical measure, however, because of differences among associations in amount of services provided with a given product.

Operating costs and net margins expressed as percentages of total receipts were selected as measures of operating

efficiency in this study. Actual net costs of products to patrons were not available. However, since most supply associations followed the practices of competitive pricing, costs and margins were rough indicators of efficiency. Figures for individual products could not be obtained because separate cost records were not maintained by associations. Therefore, per unit costs and margins were not available for comparisons.

The mixed supply group was omitted from the analysis because of its small number and diverse operations.

OPERATING EXPENSES

Most associations had expense to receipts' ratios between 10 and 20 per cent (table 23). Most of the expense ratios for petroleum associations ranged from 10 to 18 per cent, with some concentration around 15 per cent. For general merchandise associations most expense ratios fell in the range from 10 to 16, with most concentration around 13 per cent. Most production supply associations had expense ratios less than 14 per cent, and one-third of them were less than 10 per cent.

Volume of business—The effect of business volume on expense ratios was

not apparent because of other factors involved. Petroleum associations showed the strongest relationship, but the effect of business volume did not appear consistent. More than one-half the petroleum associations with business volume from \$300,000 to \$500,000 had expense ratios less than 14 per cent (table 23). Both smaller and larger associations had higher proportions of high cost ratios. Most of the general merchandise and production supply associations had business volumes less than \$200,000. There was not enough variation in business volumes to observe the effects on their expense ratios.

Volume of business is often associated with efficiency because of the importance of fixed costs. Large volume with given fixed costs means low per unit costs. However, many large-scale associations handled a wider range of

Table 23. Minnesota Farm Supply Associations by Commodity Type, Volume of Business, and Operating Expenses to Total Receipts' Ratio, Fiscal Year Ended 1949-50

Commodity type and volume of business	Total	Operating expenses to total receipts' ratio (per cent)						
		Less than 10.0	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0 and over
dollars		number of associations						
Petroleum								
Less than 100,000	24	1	3	3	11	4	1	1
100,000-199,999	61	3	9	12	19	9	4	5
200,000-299,999	42	5	9	7	10	10	0	1
300,000-399,999	15	2	4	3	4	0	2	0
400,000-499,999	7	0	2	2	1	1	0	1
500,000 and over	13	1	3	1	3	3	1	1
Total	162	12	30	28	48	27	8	9
General merchandise								
Less than 100,000	45	0	10	18	7	2	3	5
100,000-199,999	24	5	6	6	4	1	1	1
200,000-299,999	7	1	0	3	2	0	1	0
300,000-399,999	3	0	0	0	3	0	0	0
400,000-499,999	2	0	0	0	1	0	1	0
500,000 and over	5	0	2	1	1	1	0	0
Total	86	6	18	28	18	4	6	6
Production supply								
Less than 100,000	12	4	2	3	0	0	0	3
100,000-199,000	15	5	2	3	3	1	1	0
200,000-299,999	7	2	3	0	1	0	1	0
300,000-399,999	3	1	1	0	0	1	0	0
400,000-499,000	1	1	0	0	0	0	0	0
500,000 and over	2	1	0	1	0	0	0	0
Total	40	14	8	7	4	2	2	3

products and supplied more services with their products. The result was higher costs.

Gross fixed assets' turnover ratio—Fixed costs per dollar of receipts were directly related to the ratio of total receipts to gross fixed assets because of the close relationship between total fixed costs and gross fixed assets. Fixed assets' turnover had a strong influence on the operating expense ratio because fixed costs were an important part of operating expenses.

As fixed asset turnovers increased from less than 4 to 20 or more for the petroleum associations, the most common expense ratios decreased from about 17 to less than 10 per cent (table 24). The same strong relationship existed for both general merchandise

and production supply associations. The importance of large business volume relative to investments in fixed assets was revealed by these figures.

Inventory turnover ratio—The cost of maintaining large inventories was an important element of operating expenses. Associations which turned their inventories rapidly were able to spread this cost over a large volume of sales. The most common inventory turnovers for petroleum associations were 5 to 10 times annually (table 25). There was a strong relationship between inventory turnovers and expense ratios among these associations. Two-thirds of the associations with turnover ratios less than 10 had expense ratios of 14 per cent or more. More than one-half the associations with turnover ratios of 15

Table 24. Minnesota Farm Supply Associations by Commodity Type, Gross Fixed Assets' Turnover Ratio, and Operating Expenses to Total Receipts' Ratio, Fiscal Year Ended 1949-50

Commodity type and gross fixed assets' turnover ratio	Operating expenses to total receipts' ratio (per cent)							
	Total	Less than 10.0	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9	18.0-19.9	20.0 and over
		number of associations						
Petroleum								
Less than 4.0	28	1	4	1	5	10	1	6
4.0- 5.9	44	0	5	9	11	12	5	2
6.0- 7.9	37	2	7	7	16	4	1	0
8.0- 9.9	26	1	8	7	9	0	1	0
10.0-19.9	20	5	6	4	5	0	0	0
20.0 and over	7	3	0	0	2	1	0	1
Total	162	12	30	28	48	27	8	9
General merchandise								
Less than 4.0	13	0	1	2	2	0	4	4
4.0- 5.9	21	0	3	5	11	2	0	0
6.0- 7.9	25	3	7	9	2	2	1	1
8.0- 9.9	13	1	3	5	2	0	1	1
10.0-19.9	9	0	3	6	0	0	0	0
20.0 and over	5	2	1	1	1	0	0	0
Total	86	6	18	28	18	4	6	6
Production supply								
Less than 4.0	7	0	0	3	2	0	1	1
4.0- 5.9	9	2	0	3	1	1	1	1
6.0- 7.9	7	3	4	0	0	0	0	0
8.0- 9.9	1	0	0	0	0	1	0	0
10.0-19.9	5	1	3	0	1	0	0	0
20.0 and over	11	8	1	1	0	0	0	1
Total	40	14	8	7	4	2	2	3

Table 25. Minnesota Petroleum Associations by Inventory Turnover Ratio and Operating Expenses to Total Receipts' Ratio, Fiscal Year Ended 1949-50

Inventory turnover ratio	Operating expenses to total receipts' ratio (per cent)							
	Total	Less than 10.0	10.0-11.9	12.0-13.9	14.0-15.9	16.0-17.9 *	18.0-19.9	20.0 and over
Petroleum	number of associations							
Less than 5.0	17	0	1	2	7	4	1	2
5.0-9.9	72	1	6	13	24	18	6	4
10.0-14.9	47	6	13	7	13	5	1	2
15.0-19.9	20	2	10	4	3	0	0	1
20.0 and over	6	3	0	2	1	0	0	0
Total	162	12	30	28	48	27	8	9

or more had expense ratios less than 12 per cent.

General merchandise and production supply associations showed no relationship between inventory turnover and expenses. Most of these associations had low inventory turnovers as compared with petroleum associations.

Total receipts per employee — The ratio of total receipts to number of employees was one of the most important ratios affecting operating expenses. This ratio was a rough measure of the efficiency of labor use, but it also reflected differences in amount of services provided. Since labor costs were the largest share of total operating expenses, labor utilization was particularly important.

Receipts per employee from \$20,000 to \$30,000 were most common for petroleum and general merchandise associations (table 26). The most common group was \$30,000 to \$40,000 for production supply associations. General merchandise showed the least variation, and production supply had the widest range.

Expense ratios were strongly influenced by receipts per employee for all types of supply associations. Two-thirds of the petroleum associations with \$10,000 to \$20,000 receipts per employee had expense ratios of 18 per cent or more. Four-fifths of those with \$50,000 or more receipts per employee had expense ratios less than 12 per cent. Production supply associations revealed an

Fig. 5. Cooperatives of this area own and have an interest in a number of petroleum refineries which supply their needs.



Table 26. Minnesota Farm Supply Associations by Commodity Type, Total Receipts per Employee, and Operating Expenses to Total Receipts' Ratio, Fiscal Year Ended 1949-50

Commodity type and total receipts per employee	Operating expenses to total receipts' ratio (per cent)							
	Total	Less than 10.0	10.0- 11.9	12.0- 13.9	14.0- 15.9	16.0- 17.9	18.0- 19.9	20.0 and over
dollars	number of associations							
Petroleum								
10,000-19,999	13	0	0	0	2	2	5	4
20,000-29,999	70	1	1	11	27	22	3	5
30,000-39,999	46	2	15	9	18	2	0	0
40,000-49,999	17	4	6	6	0	1	0	0
50,000 and over	16	5	8	2	1	0	0	0
Total	162	12	30	28	48	27	8	9
General merchandise								
10,000-19,999	6	0	1	0	0	0	1	4
20,000-29,999	58	2	12	20	14	4	4	2
30,000-39,999	20	3	5	7	4	0	1	0
40,000-49,999	2	1	0	1	0	0	0	0
Total	86	6	18	28	18	4	6	6
Production supply								
Less than 20,000	5	0	0	1	0	1	0	3
20,000-29,999	9	1	1	3	2	1	1	0
30,000-39,999	13	3	4	3	2	0	1	0
40,000-49,999	6	3	3	0	0	0	0	0
50,000 and over	7	7	0	0	0	0	0	0
Total	40	14	8	7	4	2	2	3

even stronger relationship. Three-fifths of the lowest group had expense ratios of 20 per cent or more, while all of the highest group had expense ratios of 10 per cent or less.

Days' sales in receivables—The number of days' sales outstanding in receivables¹⁰ is a measure of an association's success in controlling patrons' accounts receivable and has an effect on costs. A large accumulation of unpaid accounts often is an indication of poor collection practices and frequently results in heavy credit losses. A large volume of accounts receivable generally involves additional costs in keeping credit records, interest on funds tied up in the accounts, additional office supplies and postage, collection expense,

and legal expense. In this study no clear-cut relationship was found between days' sales in receivables and total operating expense. The effect of added credit costs apparently was hidden by the influence of variation in other factors.

Collection of receivables by the petroleum associations was slower than for the general merchandise and production supply associations. Eighty-three of the petroleum associations, a little over half, had an average of 15 or more days' sales in receivables (table 27). A desirable standard among oil associations is not to allow more than 15 days of sales to be out in receivables.

NET MARGINS

¹⁰ Days' sales outstanding in receivables was calculated by dividing patrons' accounts receivable by average daily sales. Average daily sales were determined by dividing the annual sales by 300, which represents the approximate number of business days a year.

Net margins relative to total sales and service receipts varied from a gain of 20.8 to a loss of 8.3 per cent. Petroleum associations led in net margin

ratios, and general merchandise associations were the lowest. More than one-half of the net losses were incurred by general merchandise associations (table 28). Two-thirds of petroleum associations had net gain ratios of 6 or more. None of the general merchandise associations had net gains as high as 7 per cent, and less than one-third had

net gains of 3 per cent or more. One-half of the production supply associations had net gains of 5 per cent or more.

Net margins were affected by all of the factors influencing operating expenses, but to a lesser extent. Gross margins had an important effect on net margins. Other income, particularly

Table 27. Minnesota Farm Supply Associations by Commodity Type and Days' Sales Outstanding in Receivables, Fiscal Year Ended 1949-50

Commodity type	Total	Days' sales outstanding in receivables						
		Less than 5	5-9	10-14	15-19	20-24	25-29	30 and over
		number of associations						
Petroleum	162	20	27	32	32	23	14	14
General merchandise	86	36	25	15	7	1	0	2
Production supply	40	12	7	9	2	5	2	3
Total	288	68	59	56	41	29	16	19

Table 28. Minnesota Farm Supply Associations by Commodity Type, Volume of Business, and Net Margin to Total Receipts' Ratio, Fiscal Year Ended 1949-50

Commodity type and volume of business	Total	Net margin to total receipts' ratio (per cent)						
		Loss	Gain					
			Less than 2.0	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.9	10.0 and over
		number of associations						
dollars								
Petroleum								
Less than 100,000	24	2	0	6	7	5	1	3
100,000-199,999	61	0	3	7	8	14	13	16
200,000-299,999	42	2	2	2	8	7	10	11
300,000-399,999	15	0	0	1	1	9	3	1
400,000-499,999	7	1	0	1	0	2	2	1
500,000 and over	13	1	1	0	3	3	3	2
Total	162	6	6	17	27	40	32	34
General merchandise								
Less than 100,000	45	9	15	12	8	1	0	0
100,000-199,999	24	3	5	11	5	0	0	0
200,000-299,999	7	0	1	4	2	0	0	0
300,000-399,999	3	0	2	0	1	0	0	0
400,000-499,999	2	1	0	1	0	0	0	0
500,000 and over	5	0	1	2	1	1	0	0
Total	86	13	24	30	17	2	0	0
Production supply								
Less than 100,000	12	1	4	3	0	0	2	2
100,000-199,999	15	2	0	3	4	4	2	0
200,000-299,999	7	1	2	0	0	1	2	1
300,000-399,999	3	0	1	0	1	0	1	0
400,000-499,999	1	0	0	0	0	0	0	1
500,000 and over	2	0	0	0	1	1	0	0
Total	40	4	7	6	6	6	7	4

patronage refunds from wholesale co-operatives, was an important source of net margins. Net margins provided an indication of operating efficiency when taken together with operating expenses. But net margins, considered separately, offered a poor measure of efficiency.

Volume of business — Net margin ratios were not significantly affected by business volumes. Associations with business volumes less than \$100,000 usually had lower ratios than larger

volume associations (table 28), but there was little difference in net margin ratios among associations with \$100,000 or more business.

None of the ratios which were closely related to operating expenses showed any relation to net margins. The effects of those ratios were apparently counteracted by other factors. There appeared to be no single factor which accounted for a significant part of the variations in net margins.

Commodity Analysis

The following statistics on commodities and services include the business of the six regional associations as well as the 294 local supply cooperatives. The two regional petroleum associations included were the Farmers Union Central Exchange and the Midland Co-operative Wholesale. The four remaining regionals, all of which handle principally production supplies, were the Farmers Cooperative Elevator Service Association, Great Plains Supply Company, Minnesota Farm Bureau Service Company, and Northwest Cooperative Mills.

SUMMARY OF BUSINESS

The 300 Minnesota farm supply associations had a total business volume of \$144,648,827 for the fiscal year 1949-50 (table 29). More than 97 per cent was farm supplies, 1.9 per cent farm products, and 0.8 per cent farm business services. The six regional associations accounted for 56 per cent of the total. Interassociation transactions and business done in other states amounted to \$74,569,093, leaving a net of \$70,079,734 for Minnesota patrons.

Petroleum associations led with 71 per cent of the total business and 59

per cent of net Minnesota business. Production supply associations ranked second in total business but followed general merchandise in net Minnesota business. Three-fifths of the total for petroleum and one-half of the total for production supply associations consisted of interassociation sales and out-of-state business.

FARM SUPPLIES

Farm supplies were classified into three groups: (1) petroleum products and automotive supplies, (2) production supplies, and (3) general merchandise. The various items of supplies included in each category are shown in table 30. There was no complete separation of production and consumption items among the three categories since many supply associations handled supplies of more than one type.

Total supply business—Farm supplies were sold in substantial quantities by marketing and service cooperatives as well as supply associations. The total value of supplies handled by Minnesota cooperatives was \$195,715,308, of which the net value for Minnesota patrons was \$111,385,617 (table 31). Supply asso-

Table 29. Summary of Business of 300 Minnesota Farm Supply Associations by Commodity Type, Fiscal Year Ended 1949-50

Commodity type and type of business	Number of associations	Total business	Interassociation transactions and business done in other states	Net Minnesota business
			dollars	
Petroleum				
Farm supplies sold	164	101,434,131	61,120,746	40,313,385
Farm products marketed	6	227,291	163,169	64,122
Services performed	120	858,346	129,568	728,778
Total	164	102,519,768	61,413,483	41,106,285
General merchandise				
Farm supplies sold	86	13,640,507	0	13,640,507
Farm products marketed	21	626,453	82,859	543,594
Services performed	28	106,101	0	106,101
Total	86	14,373,061	82,859	14,290,202
Production supply				
Farm supplies sold	44	24,615,176	12,643,701	11,971,475
Farm products marketed	7	783,329	0	783,329
Services performed	23	225,797	111,696	114,101
Total	44	25,624,302	12,755,397	12,868,905
Mixed supply				
Farm supplies sold	6	1,041,707	0	1,041,707
Farm products marketed	6	1,076,824	317,354	759,470
Services performed	3	13,165	0	13,165
Total	6	2,131,696	317,354	1,814,342
All supply				
Farm supplies sold	300	140,731,521	73,764,447	66,967,074
Farm products marketed	40	2,713,897	563,382	2,150,515
Services performed	174	1,203,409	241,264	962,145
Total	300	144,648,827	74,569,093	70,079,734

ciations handled 72 per cent of the total and 60 per cent of the net value. Both dairy and grain associations handled large amounts, particularly production supplies.

Petroleum products and automotive supplies—The total value of petroleum products and automotive supplies handled by the supply associations in the 1949-50 fiscal year was \$80,654,080, of which only 47 per cent was net Minnesota business (table 30). About two-thirds of this was gasoline and one-fifth other refined fuels. Approximately 105 million gallons of gasoline and 56 million gallons of kerosene and fuel oils were handled for Minnesota patrons—12 per cent of the gasoline and

more than 12 per cent of the kerosene and fuel oils shipped into Minnesota in 1949 (table 32).

Production supplies—The total value handled of this group of supplies was \$43,671,386, and the net value for Minnesota patrons was \$16,781,315. The leading products were feed, fertilizer, building materials, machinery, and equipment. On a net value basis, supply associations handled 19 per cent of the feed, 8 per cent of the seeds, and 57 per cent of the fertilizer handled by all Minnesota farmers' cooperatives. One-third of the feed and nearly one-half of the fertilizer (on a quantity basis) bought by Minnesota farmers in 1949 was purchased cooperatively.

Table 30. Farm Supplies Sold by 300 Minnesota Farm Supply Associations.
Fiscal Year Ended 1949-50

Supplies sold	Number of associations handling	Total units handled*	Total value of supplies handled	Interassociation transactions and business done in other states	Net Minnesota business
				dollars	
Petroleum products and auto supplies					
Gasoline	214	318,534,786 gal.	53,891,314	29,062,327	24,828,987
Kerosene and fuel oil	194	166,979,539 gal.	16,035,571	8,154,308	7,881,263
Lubricating oil	203	5,242,642 gal.	2,989,984	1,560,773	1,429,211
Grease	188	.....	699,679	366,705	332,974
Tires and tubes	165	.....	2,987,200	1,984,631	1,002,569
Accessories and parts	156	.....	2,469,314	920,003	1,549,311
Other auto supplies	133	.....	1,581,018	1,006,947	574,070
TOTAL	214	.....	80,654,080	43,055,694	37,598,386
Production supplies					
Feed	104	3,145,660 cwt.	11,507,218	7,049,587	4,457,631
Seeds	68	99,620 cwt.	3,647,428	3,232,915	414,513
Fertilizer	70	156,250 ton	7,484,637	4,257,455	3,227,182
Other crop supplies	49	.....	768,560	596,144	172,416
Machinery and implements	108	.....	7,228,306	4,331,423	2,896,883
Hardware	112	.....	4,676,365	1,887,059	2,789,306
Dairy supplies	7	.....	62,030	52,031	9,999
Building materials	67	.....	7,315,793	5,362,571	1,953,222
Miscellaneous production supplies	91	.....	723,527	120,886	602,641
Automobiles and trucks	6	.....	257,522	0	257,522
TOTAL	211	.....	43,671,386	26,890,071	16,781,315
General merchandise					
Coal	28	.....	1,757,437	1,056,326	701,111
Groceries	125	.....	10,803,481	1,005,653	9,797,828
Electrical appliances	52	.....	1,734,499	1,084,992	649,507
Dry goods and clothing	63	.....	1,423,920	0	1,423,920
Other general merchandise	10	.....	686,718	671,711	15,007
TOTAL	159	.....	16,406,055	3,818,682	12,587,373
GRAND TOTAL	300	.....	140,731,521	73,764,447	66,967,074

* Total includes interassociation transactions and business done in other states.

General merchandise—Farm supply associations handled \$16,406,481 of general merchandise in 1949-50, of which three-fourths was net Minnesota business (table 30). Groceries alone accounted for nearly four-fifths of the net value. Dry goods, clothing, coal, and appliances were important items for some associations. Supply associations accounted for 71 per cent of all the general merchandise handled by Minnesota farmers' cooperatives. Since general merchandise consisted almost exclusively of home consumption items, a

higher proportion was sold to non-farmers than was the case for other types of supplies.

FARM PRODUCTS MARKETED

A small number of supply cooperatives marketed farm products, amounting to \$2,713,897 in the 1949-50 fiscal year (table 33). The most important products marketed were grain and eggs, with thirty associations engaged in

**Table 31. Farm Supplies Sold by All Minnesota Farmers' Cooperatives,
Fiscal Year Ended 1949-50**

Type of supplies	Value of supplies		Proportion handled by supply associations	
	Total	Net Minnesota	Total	Net Minnesota
	dollars		per cent	
Petroleum products and auto supplies	84,167,075	40,667,665	95.8	92.5
Production supplies	88,413,484	52,212,979	49.4	32.1
General merchandise	23,134,749	18,504,973	70.9	68.0
Total	195,715,308	111,385,617	71.9	60.1

**Table 32. Proportions of Selected Farm Supplies Handled by Minnesota Farmers' Cooperatives,
Fiscal Year Ended 1949-50**

Supplies	Unit	Net quantity handled for Minnesota patrons by		Total Minnesota consumption*	Proportion of total handled by	
		Supply cooperatives	All farmers' cooperatives		Supply cooperatives	All farmers' cooperatives
					per cent	
Gasoline	gal.	105,181,870	114,494,910	885,890,543	11.9	12.9
Other fuel oils	gal.	55,975,514	60,976,336	451,888,796	12.4	13.5
Lubricating oil	gal.	1,657,726	1,827,823	.....	.....	.....
Feed	cwt.	994,757	5,456,411	16,101,620	6.2	33.4
Seed	cwt.	18,088	234,112	.....	.....	.....
Fertilizer	ton	55,889	114,347	250,503	22.3	45.6

* Figures on petroleum products represent inshipments into Minnesota, taken from the 1949 annual report of the Petroleum Division of the Minnesota Department of Taxation. Figures on feed and fertilizer represent Minnesota farm consumption, obtained from the Feed and Fertilizer Division of the Minnesota Department of Agriculture, Dairy and Food.

**Table 33. Farm Products Marketed by 40 Minnesota Farm Supply Associations,
Fiscal Year Ended 1949-50**

Products marketed	Total business	Interassociation transactions and business done in other states	Net Minnesota business
Dairy products	204,415	163,278	41,137
Potatoes	1,413	0	1,413
Grain	1,126,242	118,194	1,008,048
Livestock	358,577	184,184	174,393
Poultry and eggs	960,655	97,726	862,929
Seeds	49,475	0	49,475
Forest products	13,120	0	13,120
Total	2,713,897	563,382	2,150,515

marketing eggs and seven in grain. About two-fifths of the marketing was by mixed supply associations. Petroleum associations did little marketing.

FARM BUSINESS SERVICES

Business services were performed by 174 supply associations, although the total value of the services amounted to only \$1,203,409 (table 34). Rentals, station services, trucking, and repairs were the most important. Station services, such as greasing, washing, and minor repairs on cars and trucks, were performed by over two-fifths of the associations. Petroleum associations led in number performing services as well as total value of services.

Table 34. Farm Business Services Performed by 174 Minnesota Farm Supply Associations, Fiscal Year Ended 1949-50

Services performed	Number of associations	Amount of business
		dollars
Locker rentals	8	29,210
Slaughtering	*	9,999
Cut, wrap, and freeze	6	23,634
Grind, cure, and smoke	*	1,435
Total locker services	8	64,278
Trucking	20	192,122
Warehousing	5	13,813
Grain cleaning	5	14,978
Feed grinding	14	38,384
Auto repairs	21	110,996
Station services	123	261,249
Commissions	13	12,073
Rentals and other	37	495,516
Grand total	174	1,203,409

* Less than three.

Regional Associations

Six large-scale regional supply associations in Minnesota operated on a statewide basis, and four served patrons in other states. All six associations operated on a wholesale basis, and some also performed manufacturing and retailing operations. Two were engaged primarily in the distribution of petroleum products, while the others handled primarily production supplies. One Wisconsin federation also served Minnesota patrons.

Farmers Union Central Exchange, Inc.—The largest farm supply association in Minnesota was the Farmers Union Central Exchange, with headquarters in South St. Paul. Since its organization in 1931, the Central Exchange has expanded its sales to \$45,708,050 and its total assets to \$30,565,769 in 1952 (tables 35 and 36).

About 650 local associations with 250,000 patrons in Minnesota, Wisconsin, North Dakota, South Dakota, Mon-

tana, and Wyoming were served by the Central Exchange in 1949.

Petroleum products were the main line of business, but substantial amounts of machinery, hardware, feed, fertilizer, and other supplies were handled. The Central Exchange wholly owned petroleum producing and refining facilities in Montana and Wyoming. Together with other regional cooperatives, it owned similar facilities in Kansas and Texas. It owned and participated in ownership of other farm supply manufacturing facilities in several states.

Midland Cooperative Wholesale—The supply association with the largest volume of Minnesota business was Midland Cooperative Wholesale, with headquarters in Minneapolis. Midland was organized in 1926—the oldest regional supply association in Minnesota. Sales were \$27,114,613 in 1949 and \$28,954,169 in 1952 (table 35). Total assets were

Table 35. Farm Supplies Sold by Two Regional Petroleum Associations, Minnesota,
Fiscal Years Ended 1949 and 1952

	Farmers Union Central Exchange		Midland Cooperative Wholesale	
	1949	1952	1949	1952
dollars				
Petroleum products and auto supplies				
Gasoline	16,939,001	18,232,481	12,324,569	10,893,911
Kerosene and fuel oil*	4,999,309	7,708,330	3,378,782	5,847,764
Lubricating oil and grease	1,298,160	1,596,852	640,148	732,811
Auto supplies†	2,690,207	4,531,876	1,239,808	1,480,840
Total	25,926,677	32,069,539	17,583,307	18,955,326
Production supplies				
Feed, seed, and fertilizer	3,033,506	4,749,734	4,912,501	5,320,524
Machinery and implements	2,827,727	4,258,357	1,527,150	1,686,010
Hardware and building materials	1,481,299	2,102,806	792,396	933,189
Miscellaneous	523,873	986,072	171,317	371,190
Total	7,866,405	12,096,969	7,403,364	8,310,913
General merchandise‡	1,196,526	1,541,542	2,127,942	1,687,930
Grand total	34,989,608	45,708,050	27,114,613	28,954,169

* Includes all light oils other than gasoline.

† Includes liquefied petroleum gas and crude oil.

‡ Includes oil and liquefied petroleum gas equipment.

Table 36. Condensed Balance Sheets of Two Regional Petroleum Associations, Minnesota,
Fiscal Years Ended 1949 and 1952

	Farmers Union Central Exchange		Midland Cooperative Wholesale	
	1949	1952	1949	1952
dollars				
Assets				
Current assets	8,257,672	12,402,269	6,038,593	7,165,965
Investments	7,879,352	9,631,458	6,006,074	6,771,154
Fixed assets (net)	2,850,787	8,381,445	3,899,145	3,878,946
Other assets	81,680	150,597	122,146	71,894
Total assets	19,069,491	30,565,769	16,065,958	17,887,959
Liabilities and net worth				
Current liabilities	3,260,158	5,457,425	4,972,010	4,675,221
Long-term liabilities	0	0	2,021,600	2,956,582
Total liabilities	3,260,158	5,457,425	6,993,610	7,631,803
Capital stock and credits	13,025,517	21,105,475	8,508,873	9,722,736
Reserves and other	2,783,816	4,002,869	563,475	533,420
Total net worth	15,809,333	25,108,344	9,072,348	10,256,156
Total liabilities and net worth	19,069,491	30,565,769	16,065,958	17,887,959

\$16,065,958 in 1949 and \$17,887,959 in 1952 (table 36).

Midland served 675 local cooperatives in 1949, of which 387 were members. Most of these associations were located in Minnesota, Wisconsin, and Iowa.

Slightly more than one-half of the supplies handled by Midland were

petroleum products. Feed, seed, fertilizer, farm machinery, and consumer merchandise were among the leading products handled. Midland owned petroleum production and refining facilities in Oklahoma and was a part-owner of large refineries in Kansas and Texas. It had large investments in feed, fer-

tilizer, and machinery plants in a number of states.

Great Plains Supply Company—This association, with headquarters in St. Paul, operated a chain of 108 lumber yards in six states. It was organized in 1943 and began with the purchase of facilities of a retail lumber chain. It handled \$6,857,329 of building materials and other supplies for about 65,000 patrons in 1949 (table 37).

The Great Plains Supply Company was serving patrons in Montana, North Dakota, South Dakota, Minnesota, Nebraska, and Iowa in 1949. The association performed wholesaling and retailing functions, but was not engaged in any manufacturing operations.

Northwest Cooperative Mills, Inc.—This manufacturing federation was organized by four regional wholesale cooperatives in 1945. Most of its \$5,810,949 output of feed, seed, and fertilizer in 1949 was purchased by the Farmers Union Central Exchange and Midland Cooperative Wholesale. A small part of its output went to Central Cooperative Wholesale of Superior, Wisconsin.

Northwest Cooperative Mills operates five plants for processing feeds, seeds, soybeans, and fertilizers in Minnesota and Wisconsin.

Minnesota Farm Bureau Service Company—This association, organized at St. Paul in 1928, was the second old-

est regional supply cooperative in Minnesota. Its membership included 80 county Farm Bureau service associations in 1949. These associations served as county headquarters for the activities of the Minnesota Farm Bureau Service Company. About 50 of the county associations handled farm supplies directly. Much of the sales of the company was made through its 400 agent buyers affiliated with the county associations. It sold \$4,784,454 of production supplies and petroleum products to some 30,000 patrons in 1949.

Farmers Cooperative Elevator Service Association—This association was organized at South St. Paul in 1936 as a wholesale federation to purchase feed and fertilizer for cooperative elevators in Minnesota. It handled \$532,313 of farm supplies for some 300 local associations in 1949.

Central Cooperative Wholesale—This federation, whose headquarters are located in Superior, Wisconsin, also serves many Minnesota patrons. Central Cooperative Wholesale was organized in 1917 to wholesale groceries and other supplies for local associations in northern Minnesota, Wisconsin, and upper Michigan. Sales totaled \$10,375,387 in 1949 and \$11,193,910 in 1952, of which nearly half was general merchandise and the remainder production supplies and petroleum products.

Table 37. Farm Supplies Sold by Four Regional Production Supply Associations, Minnesota, Fiscal Year Ended 1949

	Great Plains Supply Co.	Northwest Cooperative Mills, Inc.	Minnesota Farm Bureau Service Co.	Farmers Cooperative Elevator Service Associations
Petroleum products and auto supplies	0	0	850,635	0
Production supplies				
Feed, seed, and fertilizer	58,676	5,810,949	3,443,699	527,313
Machinery and implements	0	0	78,747	0
Hardware and building materials	5,866,953	0	192,969	5,000
Miscellaneous	0	0	218,404	0
Total	5,925,629	5,810,949	3,933,819	527,313
General merchandise	931,700	0	0	5,000
Grand total	6,857,329	5,810,949	4,784,454	532,313

Summary and Conclusions

There were 300 farm supply associations in Minnesota in 1949—164 petroleum associations, 86 general merchandise, 44 production supply, and 6 mixed supply. Farm supply associations were located in 85 of the 87 counties in Minnesota.

Only three of the supply associations were more than 50 years old in 1949, and 85 per cent were less than 30 years old. Many general merchandise and production supply associations operated prior to 1920. However, the first petroleum cooperative was organized in 1921 at Cottonwood, Minnesota. The period of most rapid growth in number of farm supply associations was the 1930's. The expansion in number of petroleum associations from 1920 to 1949 was partly offset by a decline in number of general merchandise associations.

Farm supply associations generally adhered more closely to cooperative principles and practices than did other types of associations. This was more true for petroleum associations than for the other supply associations. Petroleum associations had an outstand-

ing record for distribution of patronage refunds.

The local supply associations had an average of 624 members and 840 patrons. Nearly 85 per cent of the members were current patrons, but only 63 per cent of the current patrons were members. Although this was due partly to lax membership policies, many of the nonmember patrons were nonfarmers who were ineligible for membership in the associations they patronized.

The 294 local supply associations had average total assets of \$84,847. Petroleum associations led with an average of \$99,796. Nearly one-half of the general merchandise associations had assets less than \$30,000, but only 5 per cent of the petroleum associations were that small. Most of the larger associations, with \$100,000 or more in assets, were of the petroleum type.

Almost one-half of the assets of the supply associations were current, while current liabilities were about one-fifth of the total liabilities and net worth, an average current ratio of 2.37 to 1. More than two-thirds of the associa-

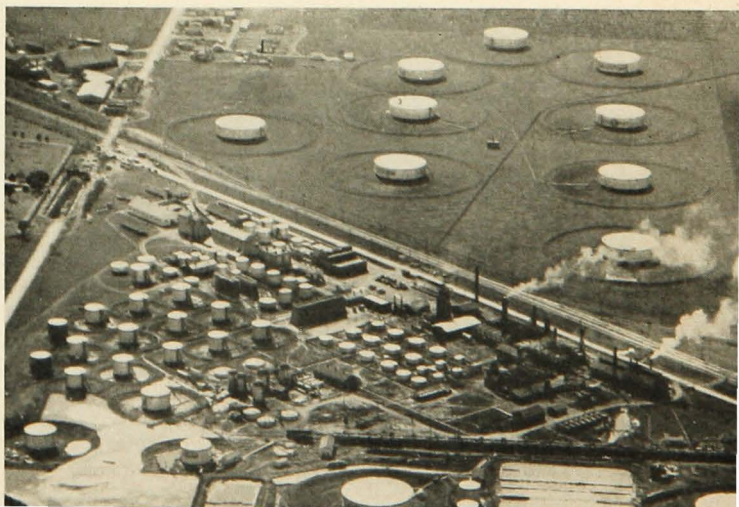


Fig. 6. Air view of a cooperatively - owned refinery and petroleum tank farm.

tions had satisfactory ratios of 2 to 1 or more.

Net worth capital averaged 74 per cent of the total, and 67 per cent was considered generally satisfactory. Two-thirds of the supply associations had net worth ratios of 70 per cent or more, and one-fifth had ratios from 50 to 70 per cent. In 34 associations, net worth was less than one-half of the total capital.

The revolving capital plan of financing was used by 130 associations, with five years as the average length of revolving period for those that had reached the revolving stage. The average balance in revolving accounts was \$51,538 at the end of the 1949-50 fiscal year. An average of \$7,923 was added and \$2,185 paid out during the year.

Borrowed capital was used by 184 local supply associations. The average amount of loan capital used was \$20,443, of which \$4,402 was paid off during the 1949-50 fiscal year, leaving a year-end balance of \$16,041. Leading sources of loans were individuals, commercial banks, and the St. Paul Bank for Co-operatives. A majority of the loans was for terms of one year or less. Operating capital loans were slightly more than one-half of the total number.

The average business volume was \$218,034 for the local supply associations in 1949. Four-fifths of the general merchandise associations had business volumes less than \$200,000, as compared to two-thirds of the production supply and one-half of the petroleum associations.

Operating expenses averaged 14 per cent of net sales and were highest for petroleum and lowest for mixed supply associations. Wages and salaries averaged \$18,694, more than three-fifths of the operating expenses. Depreciation, insurance, repairs, and general administrative expenses were important expense items.

Net margins averaged \$12,942, 6 per cent of net sales. The average percentage varied from 7.5 for petroleum to 2.4 for mixed supply associations. Nearly nine-tenths of the net margins were allocated on a patronage basis. Most of the patronage refunds were distributed in the form of capital stock, cash, and patrons' equity reserves. Dividends on stock averaged \$986, 7.6 per cent of the total net margins. Income taxes accounted for 3.3 per cent of the net margins in 1949-50.

Volume of business alone seemed to have little effect on expense ratios. The most important factors affecting operating expenses were gross fixed assets' turnover ratio, inventory turnover ratio, and total receipts per employee, each of which was a rough measure of some aspect of operating efficiency. The net margin to total receipts' ratio was not closely related to any of the foregoing factors, although it was affected to some extent by business volume. Net margins depended on management policies to a large extent.

Total business was \$144,648,827 for all supply associations including the six regional cooperatives. About 97 per cent was farm supplies, 1.9 per cent farm products marketed, and 0.8 per cent farm business services. The six regional associations accounted for 56 per cent of the total. Net business for Minnesota patrons was \$70,079,734, while the rest was business done in other states and interassociation transactions.

The total value of supplies handled by Minnesota cooperatives was \$195,715,308, and the net value for Minnesota patrons was \$111,385,617. Supply associations handled 72 per cent of the total and 60 per cent of the net value. Dairy and grain associations handled most of the remainder.

Sales of petroleum products and automotive supplies totaled \$80,654,080,

Fig. 7. Machinery is used to move the bulk ingredients in a large cooperative fertilizer plant.



of which 47 per cent was net Minnesota business. About 105,000,000 gallons of gasoline and 56,000,000 gallons of kerosene and other fuel oils were handled for Minnesota patrons.

The total value of production supplies was \$43,671,386, of which 38 per cent was net Minnesota business. Leading products were feed, fertilizer, building materials, machinery, and equipment. One-third of the feed and nearly one-half of the commercial fertilizer used by Minnesota farmers in 1949 were purchased cooperatively.

General merchandise sales were \$16,406,481, and three-fourths was net business for Minnesota patrons. Groceries accounted for almost 80 per cent of the net value, and other products included dry goods, coal, and appliances.

Rapid growth in the handling of petroleum products was the most outstanding development in the cooperative purchasing of farm supplies in Minnesota during the first half of the century. At the midcentury point petroleum associations were serving most of the farming areas of the state. Cooperative purchasing of commercial fertilizers also increased phenomenally in the last ten years.

The vertical integration of oil production, refining, wholesaling, and retail distribution was another highly important development. Minnesota farmers, through their local and regional associations, own oil wells, refineries,

pipe lines, and other necessary facilities for the production of the petroleum products they use. They are no longer wholly dependent on noncooperative sources for these supplies.

Much progress has been made in cooperative principles and practices by the supply associations. Most of this has occurred in the petroleum associations. They have been pacemakers in the trend toward eliminating unallocated reserves and surpluses. They have also led in adopting the revolving capital plan of financing. Some improvements remain to be made in membership policies and methods of allocating patronage refunds.

Although these cooperatives have made marked progress, many improvements are still possible. A nearly universal need of these associations is that of improving the efficiency of operations. Many associations need to increase their volume of business in order to reduce per unit costs. Some have over-expanded their facilities with adverse effects on costs and net margins. Greater attention needs to be given to effecting more rapid inventory turnover. Increasingly slower collections on accounts receivable call for better controls if losses are to be avoided. Better planning in the use of labor is needed. Continued effort to achieve better management is of prime importance if efficiency is to be improved.

General merchandise associations, particularly cooperative stores, face a precarious future. The increased competition of large super-market chain stores operating on small margins enables only the most efficient to survive. The efficiency of the large retail chains in buying and handling groceries and

other consumer goods may exceed the advantages of cooperation unless the cooperatives are also outstandingly efficient. Improvements in merchandising and operating methods are essential if cooperative stores are to survive and continue to render the services for which they were organized.