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IN SCOTT AND CARVER COUNTIES
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A SURVEY OF COOPERATIVE CREAMERIES IN SCOTT AND CARVER COUNTIES

Wm. H. Dankers and E. Baughman

INTRODUCTION

A cooperative creamery is a voluntary business association established for the purpose of collective marketing of dairy products. It is owned and operated by member patrons for their direct benefit. Its immediate purpose is to obtain for its members the highest price for butterfat and milk; its ultimate aim is to elevate the plane of living on farms. Cooperation in marketing dairy products is a business undertaking subject to the economic forces which affect private enterprises. The responsibility for success rests directly upon the shoulders of the Board of Directors and the manager.

In conducting the survey of 10 cooperative creameries in Scott and Carver counties, it was the purpose to determine what adjustments have been made to new trends and developments in the dairy industry. Particular emphasis was placed on an analysis of factors affecting operating efficiency and marketing results. The survey should provide information of value to the managers, officials, members and patrons of the creameries covered in the survey. Also, it should be of value to those associated with other creameries having similar problems, particularly in the surrounding territory.

Scott and Carver Counties' Dairy Industry

The dairy enterprise in Scott and Carver counties is of more than average importance. These two counties have from 2.8 to 2.9 per cent of the total number of cows, which is more than the average for two counties in the state. They have from 3.1 to 3.3 per cent of the total milk production, indicating the higher than average production per cow. Trends in dairy cow numbers and the amount of milk produced are given in Table I.

Table I. Dairy Cows and Milk Production in Scott and Carver Counties

Year	<u>Dairy Cows</u>		<u>Milk Produced</u>	
	Number of Cows and Heifers Milked	Per cent of State Total	Gallons	Per cent of State Total
1929	41,845	2.87	27,341,111	3.31
1934	47,871	2.79	23,171,680	3.08
1939	45,204	2.91	27,384,809	3.16

There has been a decided shift away from the sale of cream by farmers to the sale of whole milk. The trend is indicated in Table II.

Table II. Per Cent of Total Milk Produced Sold as Whole Milk

Year	<u>Carver County</u>			<u>Scott County</u>		
	Milk Produced (Gallons)	Whole Milk Sold (Gallons)	% Sold As Whole Milk	Milk Produced (Gallons)	Whole Milk Sold (Gallons)	% Sold As Whole Milk
1929	16,759,518	4,192,097	25.0	10,581,593	4,095,535	38.7
1939	17,070,810	6,765,864	39.6	10,313,999	5,257,650	51.0

The major and earlier reason for the shift to the sale of whole milk was due to the expansion of the purchases of milk by the Twin City Milk Producers' Association. A further and later reason for the shift was the establishment of milk drying plants in the area and direct sales of liquid milk and cream in the Twin Cities.

The amounts of butter manufactured in these counties from 1921-1940 are given in Table III.

Table III. Pounds of Butter Manufactured and Per cent of Total in Minnesota

Year	Scott County (000)	Carver County (000)	Scott and Carver Counties (000)	Minnesota (000)	Per cent of Total in Minnesota
1921	1,423	3,876	5,299	169,948	3.12
1922	1,576	4,304	5,880	193,907	3.03
1923	1,699	4,701	6,400	217,955	2.94
1924	1,740	5,341	7,081	250,646	2.83
1925	2,008	5,748	7,756	260,639	2.98
1926	1,867	5,655	7,522	258,209	2.80
1927	1,939	5,499	7,438	275,387	2.70
1928	1,789	5,810	7,599	273,397	2.78
1929	1,833	6,158	7,991	286,613	2.79
1930	1,750	3,063	4,813	283,240	1.70
1931	2,730	3,191	5,921	285,109	2.08
1932	2,631	3,300	5,931	289,659	2.05
1933	2,902	2,910	5,812	299,283	1.94
1934	2,639	2,160	4,799	273,838	1.75
1935	2,634	1,718	4,352	273,360	1.59
1936	2,722	2,459	5,181	290,474	1.78
1937	2,795	2,481	5,276	276,573	1.91
1938	2,940	2,612	5,552	301,772	1.84
1939	2,921	3,193	6,114	297,325	2.06
1940	3,060	3,798	6,858	311,153	2.20

From Table III it can be observed that the proportion of butter produced in Scott and Carver counties has decreased over a period of time. This is in line with indications in Table II that a higher percentage of the milk produced is sold as whole milk, and also indicates that more whole milk is going into channels other than buttermaking. It may be noted that in the drouth of 1934 and 1936 the light soil area around the Twin Cities, including parts of Scott and Carver counties, was more adversely affected than the heavier soil areas. A lack of feed and reduced numbers of cows following 1934 resulted in lower production of milk. Demand for fluid milk on the other hand is comparatively inelastic. To meet this demand, supplies were assembled from a larger area surrounding the Twin Cities, and more milk was diverted in Scott and Carver counties from the manufacture of butter to other milk products, particularly market milk. This accounts for the unusually low percentage of butter manufactured during the period 1934 to 1938. Variations in the returns derived from various dairy products may occur, even within a year, because of seasonality in production and variations in supplies. This makes it especially necessary for members of boards of directors and managers to study carefully the various market outlets. Creamery operations can then be adjusted accordingly.

ORGANIZATION, STRUCTURE AND COOPERATIVE CHARACTER OF CREAMERIES

The cooperative creamery business in Scott and Carver counties is relatively old compared to other areas of the state. However, of the 10 creameries studied, only one was organized before 1900. Four were organized between 1904-1909 and the remaining were organized between 1911-1918. Organization of the Twin City Milk Producers' Association in 1916 and a relatively better market for whole milk is no doubt the reason why no more cooperative creameries were organized since 1918.

The amount of outstanding capital stock in these creameries varied widely from a low of \$153 to a high of \$16,000. Three had less than \$300, five had between \$2000-\$6000 and two had over \$10,000. The three creameries having less than \$300 of total stock outstanding had \$1 shares, five had \$25 shares (most common), one had \$30 shares and one had \$50 shares. Nine creameries sold new shares only to producers but one sold shares to anyone who wished to buy them. The latter policy complicates an already serious problem that will be discussed later.

Nine out of the 10 creameries sold shares for cash. The one not selling for cash and six others allowed patrons to pay for a share from butterfat deductions. Only two of the creameries have paid patronage dividends, and only for the last two years. In 1940 one paid $\frac{1}{2}\phi$ and the other 1 ϕ per pound of butterfat. None of the creameries have made arrangements for applying patronage dividends on shares of stock at the end of the year. This is quite different from West Central Minnesota where 19 out of 29 cooperative creameries studied followed this policy⁽¹⁾.

The method of applying patronage dividends on a share of stock might well receive consideration by more cooperative creameries in Minnesota so as to keep the ownership of the cooperative in the hands of the people patronizing it and to comply with federal and state requirements for income tax exemption.

To be legally classified as a cooperative association it is necessary to comply with certain state and federal laws. Briefly the requirements are:

1. One vote per member - proxy voting prohibited.
2. Dividends on stock not to exceed eight per cent - in 1933 this was changed to six per cent, so that all organizations incorporated in Minnesota since that date or having renewed their charters under the cooperative laws of 1923 - Chap. 326 (now Chap. 308) - are limited to the lower figure.
3. Shares of stock to be transferable only with approval of the governing board of the association.
4. Net income, not set aside as a reserve fund or permanent surplus, to be distributed on the basis of patronage.
5. Stockholders or members to consist of agricultural producers - associations with as many as 10 per cent non-producers are considered as not being in compliance with the federal law.

(1) Wm. H. Dankers and E. Baughman, "A Survey of Cooperative Creameries in West Central Minnesota" - Mimeographed Pamphlet No. 70 - Agricultural Extension Division, University of Minnesota.

6. Business transacted with non-members shall not be greater in value than that handled by it for members.

(For further details, see Pamphlet No. 61⁽¹⁾.)

Under the federal and state laws cooperatives are exempt from the corporation income tax, only when they fully comply with these requirements. The Bank for Cooperatives likewise allows loans only to associations conforming to these provisions. The cooperative creameries in Scott and Carver counties are experiencing difficulty in complying with some of these requirements.

Only two out of 10 indicated that they had too many shares of stock in the hands of non-producers. However, upon examination of the records, three others were found that did not qualify for exemption from income taxation for the same reason. In some cases this situation might be remedied by reducing the par value of stock. Further, it might be remedied by paying patronage dividends and applying them on shares of stock. Part of the problem lies in the failure of associations to retire stock when a shareholder becomes a non-producer, either because the organization is in financial difficulty or because it has not adopted a strict policy regarding stock retirement. Eight of the 10 studied were ready to retire shares for non-producers, one left it to the board of directors, and one had not re-purchased shares for a number of years. In most cases there was no special provision to call in non-producer shares, which in a number of cases has resulted in retention of shares by local businessmen. The problem is further complicated by the payment of high rates of dividend on stock, which is an incentive for non-producer stockholders to hold their shares as an investment. Two extreme policies were followed. Six paid no dividends on stock, but one paid five per cent and three paid six per cent. Three out of the four paying high dividends on stock had too many non-producer shareholders. A lower rate makes it easier to get the ownership into the hands of producers.

One creamery obtained only 35 per cent of its total product from members, another 45, and a third about 50 per cent. Two others bought less than 60 per cent of their volume from members. Thus, in this respect two of the creameries had a non-exempt income tax status and three others were in the danger zone.

Only one of the 10 creameries paid an income tax in 1940 and in 1939. This outlay could have been avoided, and costs reduced, if the organization had been brought in line with federal and state requirements for cooperatives. Several others were subject to income tax but had no earnings in 1940. As indicated by the percentage of non-producer shareholders, by the high percentage of non-member business done, and in some cases by a large surplus which has not been allocated to patrons, a large number of the cooperative creameries in this area are not organized so as to be exempt from federal or state income tax. A number of the creameries were not assessed a tax because they had been exempted a few years ago and had not been reviewed since. Proof for exemption rests with the cooperative. The need for action in bringing these cooperatives into compliance with state and federal requirements for cooperatives is very evident.

Management

Five of the 10 cooperatives have five directors, one has eight, three have seven, and one has six. An uneven number seems preferable and the number of five or seven is by far the most common in the state as a whole. In six associations the directors are elected for three years, in two for two years, and in two for one year

(1) Wm. H. Dankers, "Some Legal Requirements of Cooperative Organization" - Pamphlet No. 61 - Agricultural Extension Division, University of Minnesota.

only. If elections are staggered, the longer period is generally preferred so that some experienced men remain on the board with those newly elected. Elections are also simplified in this manner since only two, or three directors at the most, need be elected at any regular annual meeting. The average period of service given by directors was over eight and one-half years excluding the secretary, or about nine years for all directors. Experience in directing cooperatives cannot be overlooked; however, the question might be raised as to the desirability of rotating the directorship more frequently with an aim of developing new interest and having more members share responsibility in the cooperative. The desirable practice of having officers selected by the board of directors rather than by the stockholders was followed by seven out of the 10 creameries. Such procedure again simplifies elections at stockholders' meetings because the required number of directors can be elected without designation.

The secretary is a voting member of the board of directors in nine out of 10 creameries studied. In one creamery both the president and secretary take an active part in board meetings but have no voting rights. The average period of service given by the secretaries now in office (including the non-voting secretary) averages approximately eleven years. Experience and long service are of considerable value in the case of an able farmer secretary. In organizations where the main creamery records are kept by a special bookkeeper the question may well be raised as with other directors, regarding the advisability of rotating the secretary's responsibility more frequently.

All organizations provided their patrons with a printed or mimeographed annual report. This is an indispensable tool in keeping the membership informed and might well be supplemented by other information concerning the association. Only half of the creameries used outside speakers or discussion group leaders at their annual meeting. If assistance is carefully selected and the topics are directed to the problems of the association, there is further opportunity for informing the members and patrons about their business. The Agricultural Extension Service thru its marketing specialists is prepared to give assistance of this kind to local cooperatives.

FINANCING

Capital Requirements

Two of the 10 creameries studied did not have sufficiently complete balance sheets so that comparisons with other creameries could be made.

According to Table IV the average amount of capital used by eight plants studied in this area was approximately \$47,000. This is considerably above the average capital requirements for 143 creameries in Minnesota from which records are available and considerably above that of creameries in other areas of Minnesota previously surveyed (West Central Minnesota and Houston and Watonwan counties). The total assets of individual plants varied from the lowest of about \$21,000 to the highest of nearly \$92,000.

Of the total assets of these creameries 56 per cent were invested in fixed assets in the form of land, buildings and equipment. Buildings at their net value constituted 29 per cent of all assets. The most highly valued creamery buildings in the area studied were carried on the books at a net value of nearly \$49,000. Some creameries are overbuilt with the consequent result of poor plant utilization and higher operating costs.

The net value of the equipment in these plants constituted 24 per cent of the total capital. Five of the eight plants have roller milk driers which in part

accounts for a larger than average investment in equipment. It will be observed that the machinery and equipment are carried at less than half of their original value, which indicates a relatively high degree of depreciation. Most of the equipment is in good operating condition.

The operating capital of these creameries including cash, receivables and inventories represented 43 per cent of the total capital or \$20,130 per creamery. Cash constituted 12 per cent of all assets. Shipping accounts and non-patron local accounts receivable constituted 22 per cent and patron accounts receivable constituted less than one per cent.

Table IV. Asset Values of Eight Scott and Carver Counties' Cooperative Creameries as of December 31, 1940.

	Scott and Carver Counties' Creameries		Your Creamery	
	Average Value	% of Total Value	Average value	% of Total Value
<u>Current Assets:</u>				
Cash	\$ 5582.69	11.90	_____	_____
Accounts Receivable - Shipping & General	10280.25	21.90	_____	_____
Accounts Receivable - Patrons	378.92	.81	_____	_____
Butter Inventory	2418.33	5.15	_____	_____
Other Products Inventory	286.01	.61	_____	_____
Supplies Inventory	1119.83	2.39	_____	_____
Prepaid Expenses	63.87	.14	_____	_____
Total Current Assets	\$20129.90	42.90	_____	_____
<u>Investment Assets:</u>				
Certificates of Indebtedness, etc.	\$ 49.56	.11	_____	_____
Stocks, Bonds, etc.	636.44	1.35	_____	_____
Total Investment Assets	\$ 686.00	1.46	_____	_____
<u>Fixed Assets:</u>				
Land	\$ 1304.04	2.78	_____	_____
Buildings	\$24059.12			
Res. for Deprec. - Bldgs.	<u>10657.24</u>			
Buildings (Net)	13401.88	28.56	_____	_____
Machinery & Equipment	\$27162.49			
Res. for Deprec. - M. & E.	<u>15923.57</u>			
Mach. & Equip. (Net)	11238.92	23.96	_____	_____
Office Equipment	\$ 594.54			
Res. for Deprec. - O. E.	<u>452.01</u>			
Office Equip. (Net)	142.53	.30	_____	_____
Total Fixed Assets	\$26087.37	55.60	_____	_____
<u>Other Assets:</u>	\$ 18.93	.04	_____	_____
<u>Total All Assets:</u>	<u>\$46922.20</u>	<u>100.00</u>	_____	_____

Table V. Liability and Net Worth Values of Eight Scott and Carver Counties' Creameries as of December 31, 1940

	<u>Scott and Carver Counties' Creameries</u>		<u>Your Creamery</u>	
	<u>Average Value</u>	<u>% of Total Value</u>	<u>Average Value</u>	<u>% of Total Value</u>
<u>Current Liabilities:</u>				
Accounts Payable - Patrons	\$16157.05	34.43	_____	_____
Accounts Payable - General	2403.88	5.12	_____	_____
Short-Term Notes Payable	1612.50	3.44	_____	_____
Accrued Expenses	896.56	1.91	_____	_____
Total Current Liabilities	\$21069.98	44.90	_____	_____
<u>Fixed Liabilities:</u>				
Mortgages, Bonds and Long-Term Notes Payable	\$ 3075.00	6.56	_____	_____
Total Liabilities	\$24144.98	51.46	_____	_____
<u>Net Worth:</u>				
Capital Stock Outstanding	\$ 4666.00	9.94	_____	_____
Stock Credits	188.63	.40	_____	_____
Surplus and Reserves	17922.58	38.20	_____	_____
Total Net Worth	\$22777.21	48.54	_____	_____
<u>Total Liabilities and Net Worth:</u>	<u>\$46922.20</u>	<u>100.00</u>	_____	_____

Sources of Capital

Of the total capital of these creameries \$22,777 per plant or 48.5 per cent was provided by the members of the associations (see Table V). However, of the remaining capital amounting to \$24,145 or 51.5 per cent the relatively large share of \$16,157 or 34.4 per cent of the total was due patrons on account. This brings the amount of member and patron contributions to capital to \$38,934 per creamery or 83.0 per cent of the total capital, leaving a net of \$7,988 or 17 per cent of total capital furnished by non-patron creditors.

The average amount of capital provided by creditors for the eight creameries on the basis of short-term notes is \$1,612. The total of short-term notes was given by four out of the eight so that the average amount actually exceeds \$3,200. In three out of the four having short-time notes, no long-time notes are outstanding, but the annual notes are renewed each year as long as the organization needs the credit. Only two out of the eight had long-time notes or mortgages, the amounts being \$15,600 and \$9,000 respectively. Three out of the eight organizations were entirely out of debt, while the indebtedness of the others ranged from \$2,000 to \$15,600.

Capital Provided by Members and from Surplus

Less than 10 per cent of the total capital or an average of \$4,666 per association was obtained from the sale of stock. Stock credits arising out of the application of patronage refunds on shares of stock are not very common in this area and were shown in only two cases.

Relative to the amount of capital stock outstanding, the capital provided from surplus and reserves in these creameries is extremely large, amounting to \$17,923 per creamery, or 38 per cent of the total capital. This amount has been largely provided thru earnings from the business. In only three cases have the earnings been allocated to the patrons in a "patron's equity reserve" account. This method should be followed by the other creameries in the area. Such procedure will leave the necessary capital with the organization and will assist in lowering the undivided surplus account, necessary to comply with federal and state requirements. The Minnesota Cooperative law provides that the surplus may be 50 per cent of the outstanding capital stock, and if so provided in the bylaws of the association, may be equal to the outstanding stock. The five creameries that have not allocated their surplus have an average surplus of \$10,208 and outstanding capital stock of \$4,175. The resulting ratio of 2.4 is too high. This problem needs the immediate attention of a considerable number of the creameries in the area.

Financial Ratios

The "current ratio" which is the ratio of current assets to current liabilities and which is an indicator of the current financial condition of a business is not favorable for this group of creameries. A cooperative creamery should have current assets at least equal to current liabilities and a current ratio of two to one is recommended. The average ratio of current assets to liabilities for the eight creameries is only .96 to 1.00. In five cases the ratio was slightly above 1 to 1. In two cases the ratio was only .56 to 1. The low current ratio is the result of a highly competitive situation, and due in general to poor financial direction. Such a situation should be corrected since it is costly and unsound.

PATRONAGE AND VOLUME OF BUSINESS

The efficiency of a creamery is highly dependent upon its volume of business. It is a well-known principle that as the volume of production is increased to the point of maximum capacity of plant, labor and management, the per unit costs of operation decline.

Factors Making for a Change in Supply

The supply of butterfat available for a particular creamery depends on two conditions:

1. The amount of butterfat produced in the territory. In Scott and Carver counties, better breeding, feeding and management would increase production per cow considerably and hence the total amount available in the territory.
2. The patronage that a creamery can get from that territory. This depends on the interest of producers in the cooperative creamery, competing butterfat buyers, assembly methods, butterfat buying policies, sidelines and special services, location of the main trading center and most important the prices paid for butterfat.

Butterfat Purchases

The peak in the total amount of butterfat purchased by the 10 creameries during the last eight years came in 1940 with nearly 5 million pounds. The low point was in the drouth years 1934-35 when purchases were less than 4 million pounds. Variations in the amount of butterfat purchased by individual plants, by all plants, average per plant and the index of production are shown in Table VI.

Table VI. Butterfat Purchased⁽¹⁾ by 10 Creameries in Scott and Carver Counties, 1931-1940

C R E A M E R I E S

Year	C R E A M E R I E S										Total of 10 Plants	Average per Plant	Index of Annual Purchases (1933-1940) 8 yr. ave. = 100 (426,033#)
	Number 1	Number 2	Number 3	Number 4	Number 5	Number 6	Number 7	Number 8	Number 9	Number 10			
1931	381,463	1,005,650	424,969	285,585	(4)	292,489	332,576	(4)	346,581	(4)	--	--	--
1932	332,015	838,194	457,414	302,571	(4)	(4)	346,962	(4)	354,999	(4)	--	--	--
1933	477,628	800,280	578,672	372,502	325,542	321,391	380,359	(2)(4)	391,259	(3)(4)	4,347,633	434,763	102.0
1934	478,559	736,598	455,099	362,556	302,187	284,773	333,239	(2)(4)	328,102	355,379	3,961,492	396,149	93.0
1935	470,753	636,005	455,472	389,185	203,322	261,319	336,084	(2)(4)	310,542	346,487	3,734,169	373,417	87.6
1936	487,853	702,341	504,467	463,387	215,587	297,706	385,447	311,871	416,951	361,087	4,146,697	414,670	97.3
1937	494,199	688,541	500,767	469,197	211,529	281,809	352,383	349,218	451,181	349,924	4,148,748	414,875	97.4
1938	495,166	673,173	566,106	476,322	213,066	277,867	355,556	396,428	477,437	427,659	4,358,780	435,878	102.3
1939	488,044	645,414	561,692	468,834	227,126	300,045	316,365	436,972	541,714	550,231	4,536,437	453,644	106.5
1940	519,554	708,427	605,783	460,872	176,365	393,856	277,425	512,430	584,531	609,409	4,848,652	484,865	113.8

(1) The amount of butterfat for Scott county creameries was calculated by multiplying the pounds of butter manufactured by .8. Most of the butterfat in this county is manufactured into butter so that the method used gives a close approximation. However, the "calculated" figures for butterfat purchased will vary slightly from the actual amounts.

(2) 325,000 pounds estimated as average annual purchases from 1933-1935, for use in the 8-year average.

(3) 375,000 pounds estimated as 1933 purchases, for use in the 8-year average.

(4) Not available.

On a butter equivalent basis (484,865 pounds of butterfat x 1.235) the average volume per plant handled by these creameries was 598,808 pounds. This is considerably above the volume per cooperative creamery for the state as a whole which in 1940 was 363,640 pounds⁽¹⁾.

A number of these plants have gained volume almost continuously during the last eight years and during the same time others have lost volume. Important operating gains and lower costs per unit could be obtained if the volume per plant could be increased. An over-investment in plant facilities for the counties as a whole does not allow maximum volume for all plants, with the result of severe competition for milk and cream in some areas.

Patronage Relationships

In 1940 the average number of patrons per plant for the 10 creameries was 210. This is considerably above the average for the state and reflects the large volume handled per plant. The range in patronage was from 68 to 430 patrons. The average distance that patrons live from their creamery was reported to be less than 4 miles. This reflects large milk production per producer. In West Central Minnesota the volume handled per plant is much smaller, yet the average distance that patrons live from their creamery is six miles.

Assembly Methods and Competition

Butterfat deliveries to creameries are made more frequently in this area than in most areas of the state. In large part this results from the sale of milk. In Carver county practically all milk and cream are delivered daily in the summer, and all milk is delivered daily in the winter but in some plants cream is delivered three or four times a week. In Scott county (quite largely cream-receiving creameries) milk is delivered daily and cream is usually delivered four times a week in summer and three times a week in winter. Two creameries reported receiving cream as infrequently as three times a week in summer and two times a week in winter.

Of the total amount of cream received by the 10 creameries, 49 per cent was delivered by patrons themselves (36 per cent by individual patrons and 13 per cent by patrons hauling in a group). The volume delivered on privately owned trucks amounted to 51 per cent. None of the creameries own their trucks, which might be desirable for some of the larger plants.

The variation in private truck routes is indicated by the range in total mileage per route from 8 to 60 miles, and in the number of truck routes per creamery ranging from 1 to 14. The average number of routes per creamery is about 5 and the average length per route is 32 miles. In these counties the hauling of milk and cream on trucks has not been a new development, but is a practice of long standing. During the years this method of collecting milk and cream has been accompanied by patron delivery. There is some indication that a larger proportion of the supply is now coming in by truck than was collected in earlier years.

The rates paid haulers varied greatly between creameries. Scott county creameries largely paid on a butterfat basis and allowed haulers two cents per pound. Two creameries in Carver county operating on a similar basis allowed one and one-half cents. Most hauling in Carver county was paid for on a per hundred weight of milk, with rates ranging from 8 to 15 cents.

(1) Department of Agriculture, Dairy and Food, St. Paul, Minnesota: "Minnesota Bulletin of Information - 1941".

In all but one creamery payment to the hauler was made by the creamery and the exact amount of each patron's hauling costs was deducted from his milk or cream receipt. This is a simple and an equitable way of handling the milk and cream procurement account.

Competition

Only two creameries in Scott and Carver counties had competition in the local town. The four closest competitors, not including those in the local town, are on the average only six and one-half miles away. This average for Scott county is $7\frac{3}{4}$ miles compared to $5\frac{1}{2}$ in Carver county. With improvement in roads and better methods of procurement, it is evident that there are more plants than can be efficiently maintained in some sections of this area.

It appears that in some parts of this area cream truck competition is fully as keen as in other areas of Minnesota. When it is observed that a number of organizations follow the same road with their trucks and in some cases backtrack on that same road, the wastes and high procurement costs of such a system become evident. Since the producers' price is the consumers' price minus marketing costs, such expensive methods eventually result in lower butterfat returns to the producer. The only way to avoid such duplication of services and outside competition is to develop greater efficiency in the marketing system within these sections. Adjustments that will allow for large-volume production, full utilization and plant capacity, and lowered costs are needed. A failure to make intelligent and well-planned readjustments in this direction may result in further competition between creameries, further expansion of truck routes and further overlapping, further reduction in volume manufactured by some plants operating in the area, a further jeopardizing of efficiency in these plants and finally result in a lower net price to many of the butterfat producers in the area.

Butterfat-Buying Policies

Only one creamery buys cream for cash. For pool settlements the monthly pool is the most common and is used by eight creameries. The other two use a bimonthly pool. Of the eight on a monthly basis all made settlement on either the nineteenth or twentieth of the month for the previous month's pool. The two on a bimonthly basis paid on the fifth for the previous month's 1-15 pool, and on the twentieth for the 16-end of month pool.

Settlement on a pool basis with no cash advances is the most cooperative procedure. Only one creamery found it possible to operate in this manner. Seven out of the nine making cash advances allowed "up to 100 per cent of what patrons have coming". Cash advances made too liberally will eventually jeopardize the effective operation of a cooperative organization. The general opinion seemed to be that cash advances were burdensome because of the extra clerical cost involved, and the necessity of having a larger amount of operating capital. However, the opinion was that such procedures are necessary in order to meet competition of other buyers offering more immediate settlement. This problem should raise the question to those organizations on a monthly pool basis as to whether more frequent settlement might not aid in limiting the requests for cash advances, and to all organizations the questions as to the possibility of making settlement earlier following the close of the pool period.

A big problem is that of equitably distributing the cost of operations to the product handled in a pool period. The allocation of taxes, insurance, management, and depreciation makes this especially difficult. In most cases these creameries followed the correct procedure of distributing expenses more or less over the period during which the materials and equipment were used. However, there is some lack of

uniformity in the methods used. Three out of the 10 made a flat rate deduction per pound, based on previous operating costs. The other seven took the gross income, deducted from it the specific items of cost for the month, plus an amount for "non-specific" items (taxes, insurance, etc.). For the "non-specific" items the total expense of the previous year was divided by 12. The two methods give a different result. By the first method, when a flat rate per pound is deducted the "non-specific" expenses are prorated on a volume basis. By the latter method, the "non-specific" expenses are prorated on a monthly basis which results in a heavier deduction for expenses during the season of low production. Two creameries did not include depreciation as a "non-specific" expense and a third followed no uniform policy. A failure to allow for depreciation results in paying out the capital of the organization to the patrons of the creamery, and cannot be a continuous policy.

Quality standards for milk and cream are higher in this area than in many other areas of the state. Milk purchased by the Carver county creameries must be "sweet and of good flavor". All other milk is returned to the farmer.

There is wide variation in the price difference between sweet and No. 1 cream purchased in Carver county. Two creameries refuse to buy No. 1 cream, two have a five cent price difference, one a two cent and one only a one cent difference. None of the creameries buy No. 2 cream. In Scott county where purchases are largely cream, two creameries have a price difference between sweet and No. 1 of two cents and two of one cent. Three also buy No. 2 cream, with two having a two cent price difference and one a one cent price difference between No. 1 and No. 2. Three creameries churn the sweet and No. 1 cream together. In one case the No. 2 cream is also mixed in, so that the quality of the cream varies from sweet cream to No. 2. To the extent that the quality of butter is reduced by such procedure, and net returns lowered, the producer of a higher quality product does not receive full compensation for his efforts.

MEASUREMENT OF CREAMERY EFFICIENCY

Patrons of a cooperative creamery usually measure the general economic efficiency of their organization by the price which it pays for butterfat. These payments are not always a reliable measure, however, because some creameries pay their patrons more than is warranted by their annual receipts, while others retain considerable amounts for capital expansion. The measure of general economic efficiency used in this study, therefore, is the net return available for the payment of each pound of butterfat handled. This figure is obtained by taking the actual payments made to farmers for butterfat, adding to these payments any cream-hauling charges absorbed by the creamery, and then adding the net gain (or subtracting the net loss) for the year. The resulting figure is what the creamery could have paid per pound of butterfat delivered at the plant without affecting its financial condition in either direction.

What a creamery can pay for butterfat is determined mainly by the efficiency of its (a) manufacturing and (b) marketing operations. The most satisfactory measure of manufacturing efficiency is the cost per pound of butter. In Scott, and particularly in Carver county, some of the butterfat is sold in cream and whole milk. For that reason cost comparisons were made on the basis of butter equivalents (the pounds of butter that could have been made if all butterfat had been churned). The efficiency of marketing operations of a creamery is reflected in the net price received per unit of product sold.

MANUFACTURING OPERATIONS

Labor and Management

Total operating costs were 2.633 cents per pound of butter for Scott and Carver counties in 1940. Labor and management costs constitute an important item in manufacturing efficiency. In the Scott and Carver counties' creameries it represented 32.6 per cent of all operating costs in 1940. Labor costs should be lower in the plants selling a considerable portion of their butterfat in cream and whole milk. The average labor cost of these creameries was .859 cents. (Table VII). Considerable variation existed in the labor costs of individual creameries. In the nine plants studied, per unit labor costs ranged from a low of 0.704 cents to a high of 1.372 cents per pound of butter.

Some of the more important factors responsible for these labor cost variations are:

1. Differences in the volume of output.
2. Differences in the amount of labor employed and efficiency in utilization.
3. Differences in the rate of wages.

There is a tendency for plants of small volume to have a higher per unit labor cost. The two plants with highest per unit labor costs had an average volume of 280, 216 pounds of butter. The two plants reporting the lowest per unit labor costs averaged 737,258 pounds.

Wages paid operators ranged from a low of \$1,440 to a high of over four times that amount. Variations in capabilities of operators and amount of responsibility assumed by them justify a large part of the variation in wages paid them. Monthly wages of first helpers ranged from \$85 to \$125 per month. This range is in large part the result of variations in work done and responsibility assumed by first helpers in different plants.

Creamery operators in the area are paid according to three principal methods:

1. Straight salary.
2. A salary, with a commission based on output.
3. Commission based on output.

Five operators were paid on straight salary basis.

Three operators were employed on a salary and commission, and two worked on commission only. In four plants the operator was furnished free butter, in five free cream, in five free milk and in two with a rent-free house.

Creamery Manufacturing Expense

Manufacturing expenses, other than labor, account for a large proportion of the variation in total per unit operating costs of creameries in Scott and Carver counties. These expenses include packing and general supplies, fuel, salt, power, light, water, refrigeration, social security taxes, local taxes, insurance, repairs, and depreciation on buildings, machinery and equipment. The average manufacturing expense was 1.52 cents per pound of butter (Table VII) or 57.8 per cent of total operating costs. For individual creameries it ranged from a low of 0.70 cents to a high of 3.32 cents, a spread of 2.62 cents. The average manufacturing expense per unit, in this area, is slightly higher than the average figure, 1.32 cents, for 168 creameries from all parts of the state.

Table VII. Operating Costs of Scott and Carver Counties' Creameries, Compared with 168 Creameries Selected from All Parts of the State - 1940

Items	Your Creamery	Scott and Carver Counties' Creameries			Average of 168 Creameries
		Average of 9 Plants	Highest Cost	Lowest Cost	
Volume (lbs. butter equiv.)	_____	669,587	885,236	217,811	418,125
Operating cost items:					
Manufacturing expense:		(cents per pound of butter equivalents)			
Packing supplies	_____	0.337	0.570	0.111	0.330
General supplies	_____	.164	.304	.126	.164
Fuel	_____	.301	.863	.167	.175
Salt	_____	.015	.030	.016	.032
Power, light, water, refrig.	_____	.209	.559	.148	.139
Social security taxes	_____	.027	.060	.007	.028
Taxes	_____	.068	.153	.023	.095
Insurance	_____	.029	.062	.013	.038
Repairs	_____	.075	.180	.039	.084
Depreciation, building	_____	.087	.226	.013	.083
Depreciation, equipment	_____	.168	.698	.084	.151
Miscellaneous	_____	.041	.107	--	.001
Manufacturing expense total	_____	1.521	3.318	.702	1.320
Labor and Mgt. expense	_____	.859	1.372	.704	.850
General and Adm. expense	_____	.227	.381	.151	.304
Interest on loans	_____	.026	.137	--	.017
Total operating cost	_____	2.633	4.817	1.717	2.491

An important factor accounting for the variation in manufacturing expense is the difference in volume of output. The four plants with the highest volume had below average manufacturing costs. The two plants with the lowest volume of butter had manufacturing costs considerably above average. By examining the various elements of manufacturing expense, some of the factors contributing to these variations may be pointed out.

Supplies. The per unit outlay for packing supplies varied from 0.11 cents to 0.57 cents per pound (Table VII). The kind of container used in shipping butter explains some of the variations in packing expense. Three creameries used tubs and four used boxes for shipped sales. The per unit package cost of those shipping in fiber boxes averaged considerably less than those shipping in tubs. One creamery had its boxes furnished by the buyer without cost. Two creameries sold largely local (to Minneapolis and St. Paul) and used cartons and jars supplied by the buyer without cost.

Some of the creameries were apparently able to effect better purchasing arrangements than others, thereby keeping their supply expenses at a low level. Some creameries obtained supplies at lower prices because they purchased in quantities meriting discounts. Some received further discounts because they bought for cash. Five creameries purchased some or all of their supplies thru the cooperative supply department of Land O' Lakes.

Fuel, Power, Light, Water, and Refrigeration. In the use of fuel, power, and refrigeration, the larger volume plants have an advantage over the smaller plants. The power and light rates varied greatly between creameries. (See Table VIII.) The reduction in rates with increased usage of electrical power reflects the advantage of a large volume plant. This item of cost should be carefully analyzed and held at a minimum.

Six creameries used coal for fuel, one used wood, one used oil and two used natural gas. Prices paid for coal varied between creameries from \$6.50 to \$11.33 per ton (at the creamery). Some of these creameries should carefully investigate their purchasing arrangements on coal.

The two creameries using natural gas are some of the larger creameries in the study. Their per unit fuel cost is not excessive but is as high as for several other creameries using coal or wood. The average fuel cost was 0.30 cents per pound of butter. This is considerably higher than the fuel cost (.18 cents per pound) for 168 creameries in Minnesota.

Building and Equipment Expense. Building and equipment expense, including taxes, insurance, repairs, and depreciation, represented 16.2 per cent of operating costs in this area. (Table VII). These items vary greatly because of differences in volume, cost rates, location, size of facilities, and utilization. Such costs are relatively fixed, hence the cost per unit decreases rather significantly as volume increases.

The annual taxes (exclusive of social security taxes) ranged from \$93 to \$1355. The average tax per plant was \$452. The per unit outlay for taxes varied from 0.02 to 0.15. Per unit personal property and real estate taxes in the area are considerably below the average for the state.

The annual cost of insurance averaged \$197 per plant. In per unit terms, insurance expense amounted to 0.03 cents and ranged from 0.01 cents to 0.06 cents.

All the cooperative creameries in the study were making a provision for the depreciation of their facilities. In several instances the depreciation charge was not adequate to cover actual wear and tear on facilities. Creameries are often tempted to neglect this "intangible" expense when pressed by other costs, which results in an overstatement of the amount earned on each pound of butterfat handled. Creameries should recognize that such a policy amounts to paying out a part of the capital to the patrons in higher butterfat prices, which is not desirable for the organization and may temporarily serve as an unfair competitive device. In order to keep the costs of all plants on a comparable basis in this analysis, an average rate of depreciation was taken on the fixed assets of the creamery which had not provided for this item in its operating statement.

The total capacity of the 10 plants was indicated by the operators to be 9.9 million pounds as compared to 6.5 million pounds that would have been manufactured if all butterfat purchased in 1940 had been sold in the form of butter. The ratio of plant capacity to plant use (if all butterfat had been made into butter) would be slightly over 1.5 which indicates a burdensome unused plant capacity. In some plants where the problem is particularly serious more than twice as much volume could be handled.

The ratio of pounds of butter to investment in fixed assets is another measure of plant utilization. The average ratio for 168 creameries in all parts of the state was approximately 18 pounds of butter per dollar invested in fixed assets⁽¹⁾. The ratios of plants in this area ranged from 13.2 to 44.0 with an average of 28.9. Three of the creameries were below the state average of 18 pounds and five were more than twice as high. A low ratio indicates overinvestment in plant facilities relative to the volume handled. It is generally accompanied by high per unit building and equipment cost.

General and Administrative Expense

General and administrative expense consisting of director's fees, office salaries, telephone, auditing, advertising and donations amounted to 0.23 cents per pound (Table VII) or 8.9 per cent of all operating costs. General and administrative expense varied from 0.15 cents per pound to 0.38 cents. The average outlay for this purpose was \$1517 per creamery.

Office salaries, amounting to \$630 per creamery, represent the largest item in this group of expenses. The outlay varied from \$360 to \$900. These salaries consisted mainly of payments to the operator, the bookkeeper, or other association officials for their services in keeping the accounts and records of the association. In five creameries the bookkeeping was done by a farmer-secretary, in one by a bookkeeper-manager, and in four by a special bookkeeper hired for that purpose. The outlay for bookkeeping varied with the number of patrons served, the market outlets used, and the detail with which the fundamental accounting records were kept.

Only a few creameries in this area are keeping adequate records. In most cases a definite improvement in the accounting system is necessary if the records are to serve as an effective tool in increasing the efficiency of operation and the net return to farmers. All except one of the creameries were using a double entry system but in several instances the records were not adequate to present a complete picture of operations.

(1) Koller and Jesness, "Minnesota Cooperative Creameries", Agricultural Experiment Station Bulletin No. 333 - Division of Agricultural Economics, University of Minnesota.

Table VIII(a). Variations in Power Rates - Reported by 10 Creameries

Power - Rate per Kilowatt-Hour, Per Month										
	7¢	6¢	5½¢	5¢	4½¢	4¢	3½¢	3¢	2½¢	Special Provisions
A				First 500					Excess	
B			First 200		Next 300			Next 1500	Next 2500 2¼¢ Excess	5% penalty for late payment of bill
C ¹	First 100	Next 200		Next 300		Next 400		Next 1000	Excess	
D ²		First 100		Next 200		Next 300	Next 400	Next 1000	Excess	10% penalty if payment is not made within 10 days after date of bill
E		First 200		Next 300		Next 500	Next 1000		Excess	10% discount for payment before 10th of the month
F		First 200		Next 300		Next 500		Next 1000	Excess	5% discount for cash

Total Monthly Costs at the Above Rates and Average Cost Per Unit

	Total Cost			Average Cost per Kilowatt-Hour		
	2000 K.W.H.	3000 K.W.H.	4000 K.W.H.	2000 K.W.H.	3000 K.W.H.	4000 K.W.H.
A	\$62.50	\$87.50	\$112.50	3.13¢	2.92¢	2.81¢
B	69.50	94.50	119.50	3.48¢	3.15¢	2.99¢
C	80.00	105.00	130.00	4.00¢	3.50¢	3.25¢
D	72.00	97.00	122.00	3.60¢	3.23¢	3.05¢
E	73.80	96.30	118.80	3.69¢	3.21¢	2.97¢
F	73.15	96.90	120.65	3.66¢	3.23¢	3.02¢

Footnotes: (1) Rates effective in four creameries.
 (2) Rates effective in two creameries.

Table VIII(b). Variations in Light Rates - Same Creameries

		Light - Rate Per Kilowatt-Hour - Per Month											Special	
Minimum Chg.		10¢	8½¢	8¢	7¢	6½¢	6¢	5½¢	5¢	4½¢	4¢	3½¢	3¢	Prov.
A					First 50				Next 100				Excess	
B	First 10 or less=\$1.00			Next 30				Next 110		Next 350			(Next 1000=3 Next 1000=2 Excess=1½)	(a)
C ¹	First 25 or less=\$2.75			Next 40									Excess	
D	First 14 or less=\$1.00					Next 86		Next 200		Next 200	Next 500		Excess	(b)
E				Next 50			Next 100		Excess 5					(c)
F		First 50	Next 100		Next 100				Excess 5					(d)
G	First 10 or less=\$1.00				Next 90			Next 200		Next 200	Next 500		Excess	

Footnotes: (1) Rates effective in 4 creameries. (a) 5% penalty for late payment of bill.
 (b) 10% penalty if payment is not made within 10 days after date of bill.
 (c) 10% discount if payment is made before 10th of the month. (d) 5% discount for cash.

Total Monthly Costs at the Above Rates and Average Cost Per Unit

	Total Cost			Average Cost Per Kilowatt-Hour		
	25 K.W.H.	40 K.W.H.	60 K.W.H.	25 K.W.H.	40 K.W.H.	60 K.W.H.
A	\$1.75	\$2.80	\$4.00	7.0¢	7.0¢	6.7¢
B	2.20	3.40	4.50	8.8¢	8.5¢	7.5¢
C	2.75	3.95	5.55	11.0¢	9.9¢	9.3¢
D	1.72	2.69	3.99	6.9¢	6.7¢	6.7¢
E	1.80	2.88	4.14	7.2¢	7.2¢	6.9¢
F	2.38	3.80	5.56	9.5¢	9.5¢	9.3¢
G	2.05	3.10	4.50	8.2¢	7.8¢	7.5¢

Three plants have their books audited annually, four semi-annually, and one quarterly. Two have no audit made. The average cost of this service in 1940 was \$140 and ranged from \$60 to \$225. The outlay for a reliable audit is generally considered as an investment paying large dividends, in any line of business. An audit is not merely a check on the honesty of creamery officials; its most important value is the aid it gives to those responsible for the management of the business. Some auditing concerns offer an excellent analytical service with their audits which creamery officials in various parts of the state indicate has saved their associations hundreds of dollars. The cost of audits varies with the condition of the records at the time the audit is made, completeness of the audit, the firm doing the work, time elapsed since the last previous audit, and the size of the business.

Interest on Loans

Interest costs varied widely, ranging from zero in plants having no debts to 0.14 cents per pound. The average for nine plants was 0.03 per pound of butter or 1.0 per cent of total operating costs.

Total Costs

The total operating costs in this group of plants is 2.63 cents a pound (Table VII). The range is from a low of 1.72 to a high of 4.82 cents. The average is slightly above the average cost of 2.49 cents for 168 creameries selected from all parts of the state. The creameries in this area should have a volume advantage. If all butterfat had been sold in butter the average volume of nine plants would have been 669,587 pounds compared with the average of 418,125 pounds of butter manufactured by 168 plants in Minnesota.

MARKETING OPERATIONS

The efficiency with which creameries market their butter is reflected in the net price received. Some of the more important factors giving rise to variations in the average annual price received for butter are: Differences in (1) the volume of output; (2) markets in which butter is sold; (3) transportation costs; (4) sales outlets used; (5) methods of packaging; (6) kind of butter; (7) quality of butter; and (8) seasonal variations in production.

Effect of Volume on Price

For the state as a whole larger volume plants tend to receive higher prices for butter sold. This tendency prevails in Scott and Carver counties, although the limited number of plants studied does not allow a direct comparison. Factors favorable to large volume sales that contribute to this variation in price are differences in cost of transportation, quality of butter, costs of handling by the buyer, etc.

Effect of Quality on Price

The quality of butter sold in Scott and Carver counties is superior to that in West Central and some other areas of Minnesota. The very limited amount of No. 2 cream received is sold directly and not churned in the creamery. Some patrons deliver both milk and cream which results in more frequent delivery than in other areas of the state. In one case, the cream received is mixed with the whole milk and is reskimmed, hence all cream is expected to be sweet and any No. 1 cream is refused. There is still room for improving the quality of cream and butter in some Scott and Carver county plants.

In a number of cases the buyer buys all butter at 92 or 93 score. This in effect is an "ungraded" system. Some operators and directors operating under such a contract take pride in not having had complaints from the buyer. Variation in prices paid by individual buyers indicates that buyers frequently adjust for differences in quality when a new contract is made with the organization rather than to make complaints about quality while the contract is in effect. In this way quality still plays a very significant part even in an "ungraded" system of selling. Creameries should make comparisons with other creameries selling to the same buyer to determine their net results.

Effect of Seasonality of Production on Price

The proportion of total butterfat produced in the spring and summer months as compared with the proportion produced in the fall and winter months will materially influence the average price received for dairy products during the year. An extensive study was made of this in Scott and Carver counties, not only in the cooperative creameries surveyed but of a large number of milk producers in Scott county selling to the Twin City Milk Producers' Association. Information on monthly milk deliveries and butterfat tests was obtained from 132 producers (Table IX).

Table IX. Milk and Butterfat Delivered in 1940 and Price Received - Average of 132 Scott County Producers

Month	Milk Delivered - Average Per Patron (pounds)	Butter-fat Test (per cent)	Butterfat Delivered - Average Per Patron (pounds)	Price Received Per Cwt. of Milk ⁽¹⁾	Index of Production and Price (Monthly average = 100)		
					Milk	Butter-fat	Milk Price
January	8248	3.75	309.1	1.81	108.2	108.8	111.7
February	8155	3.64	297.2	1.69	107.0	104.6	104.3
March	8726	3.69	322.1	1.57	114.5	113.4	96.9
April	8372	3.68	308.4	1.48	109.8	108.6	91.4
May	9377	3.73	349.4	1.51	123.0	123.0	93.2
June	9101	3.57	325.3	1.52	119.4	114.5	93.8
July	7551	3.67	276.8	1.55	99.1	97.5	95.7
August	6359	3.74	238.0	1.54	83.4	83.8	95.1
September	5748	3.89	223.7	1.59	75.4	78.8	98.1
October	5990	3.87	232.0	1.63	78.6	81.7	100.6
November	6098	3.87	236.1	1.73	80.0	83.1	106.8
December	7748	3.74	289.9	1.83	101.6	102.1	113.0
Monthly Average	7623	3.73	284.0	1.62	100.0	100.0	100.0

(1) From the Twin City Milk Producers' Association's Monthly Bulletins. Prices for 3.5% milk.

Variations in the price received for milk must be compared with variations in the cost of production for different seasons, to determine what seasonal pattern will give the largest net return for a producer.

A leveling out in production would aid materially in minimizing manufacturing and distributing problems. In a fluid milk area with heavy seasonal surpluses, considerable equipment is required for flush seasons, that remains idle during seasons of small supply.

The variation in seasonality of output between creameries in Scott and Carver counties reflects the seasonality in production of a second group of producers in the same general area. (Table X). Production was at the peak in May, 22.5 per cent above the monthly average for the year. In September it was 35.6 per cent below the average. Prices were at the all-year low of 26.3 cents in May (when production was the heaviest) and reached the peak of 32.3 cents in December. The price spread of six cents from May to December is significant. If a greater proportion of the butterfat could be produced during the months of higher prices, without materially increasing costs of production, a greater net return could be realized. Production could be leveled out by better pastures during the summer months, by earlier fall freshening and by better feeding and management during the winter months. Dairymen in Scott and Carver counties have gone farther in this respect than dairymen in West Central Minnesota (Table IX) and some of the other areas of the state. When production is leveled out, farmers receive a higher average price for their product. The problem of efficiently utilizing labor and equipment in dairy plants is also greatly simplified.

Effect of Market Outlets on Price

Some variations in price received for butter may be explained by differences in the markets in which it is sold. These creameries sold 4.5 per cent of the butter equivalents to their patrons, 31.3 per cent to other local customers (including Twin City sales), 55.5 per cent to distant wholesale dealers, and 8.7 per cent in the form of cream and milk thru local outlets.

Butter Sold Locally. Creameries generally have a considerable price advantage in selling butter locally. By selling locally, freight and other selling charges involved in shipping butter may be avoided. There are additional expenses which must be taken into consideration on local sales (printing and packaging costs). The average monthly price received by each creamery for butter sold locally during 1940 is shown in Appendix A.

The proportion of butter sold to local customers other than patrons varied greatly in this area. Three of the creameries sold their butter in the Twin Cities which was not recorded separately from other local non-patron sales. One of the three reported 97.1 per cent sold locally, another 37.0 per cent and the third 34.5 per cent. Creameries in this area averaged three-fourths cent more per pound on local non-patron sales than on shipped sales (Table XI).

There was an average advantage of 2.18 cents per pound in selling butter to patrons compared with shipped sales (Table XI). The creameries received a higher average return for patron butter sales than for local non-patron sales.

Shipped Sales. Even though a considerable amount of butter is sold in the Twin Cities and a significant amount of butter equivalents are sold in the form of cream and milk, over half of the butter equivalents (55.5 per cent) are sold in more distant markets. A variation in the net price received on shipped sales is a major

Table X. Index of Monthly Variations in Butter
Equivalents and Monthly Wholesale Prices

Month	Your Monthly Production 1940	10 Scott & Carver Co. Creameries-1940 (Average monthly production (45209#) = 100)	29 West Central Minnesota Creameries 1939 ⁽¹⁾	Average Price of New York Extra Butter 1936-40
January	_____	118.5	106.1	31.1
February	_____	111.9	102.7	30.7
March	_____	118.3	120.5	29.4
April	_____	112.3	109.0	27.4
May	_____	122.5	135.4	26.3
June	_____	111.9	132.2	26.8
July	_____	89.8	114.0	27.8
August	_____	71.3	86.9	28.6
September	_____	64.4	67.6	29.7
October	_____	76.3	63.8	30.0
November	_____	88.8	72.0	31.6
December	_____	113.9	89.9	32.3

(1) 1940 figures for West Central Minnesota were not obtained. There is some difference in seasonality within an area from one year to another, due to weather conditions, feed supplies, etc.

Table XI. Sales of 9 Scott and Carver Counties' Creameries 1940

<u>Item</u>	<u>Your Creamery</u>	<u>Average of 9 Plants</u>	<u>High Plant</u>	<u>Low Plant</u>
Butter sales:				
Volume of butter sales (lbs.)	_____	697,961	1,374,549	227,659
Shipped sales	_____	387,435	776,600	12,331
Local non-patron sales	_____	218,297	1,334,585	4,636
Local patron sales	_____	31,404	49,471	9,455
Cream and milk sales (butter equiv.)	_____	60,825	341,855	none
Price received (cents per lb.)				
Shipped sales	_____	28.39	29.60	27.21
Local non-patron sales	_____	29.14	31.94	28.14
Local patron sales	_____	30.57	33.19	29.71
Cream and milk sales (butter equiv.)	_____	28.60	31.60	25.60
All butter sales	_____	28.74	29.49	28.48
Other product sales:				
Skim milk - powdered	_____	2436.16	8381.23	none
Skim milk - liquid	_____	4964.94	18395.66	297.19
Buttermilk - powdered	_____	2428.04	6814.22	none
Buttermilk - liquid	_____	180.60	1404.30	none
Total - all skim milk and buttermilk	_____	10,009.74	18,395.66	2,865.89

influence on the net price received on all butter sold. Average net receipts from butter shipped by these creameries during 1940 ranged from 27.2 cents to 29.6 cents with an average of 28.4 cents per pound for the nine plants (Table XI). This variation of 2.4 cents per pound on receipts from shipped sales is a very important item influencing the average price that can be paid for butterfat. Several factors may affect returns from butter shipped such as: (1) outlet used for shipped sales; (2) quality of butter sold; (3) proportion of butter sold at different seasons of the

year; (4) transportation and other charges; and (5) whether or not packages are furnished by the buyer.

Three creameries that sold a considerable portion of their product as liquid milk and cream made shipped sales of butter to Land O' Lakes. Two others shipped to the Atlantic and Pacific Tea Company, one to Zenith-Godley, one to First National Stores, one to American Stores and one to the Brooklyn Hotel Supply Company.

The gross price quoted for butter is not a good indication of the desirability of a particular butter market. Careful calculations should be made in arriving at a net butter price, taking into consideration the type of container required and whether or not it is furnished by the buyer, freight and other charges made, shrink allowance required, and the rapidity with which payment is made. The variations in butter-buying policies are indicated in Table XII.

The average monthly prices received for butter shipped during 1940 are shown in Appendix B.

Cream and Milk Sales. In terms of butter equivalents, cream and milk sales accounted for 8.7 per cent of total sales. The major portion of these sales were made in the Twin Cities by Carver county creameries, either directly or thru some other creamery. One creamery sold 18.0 per cent, another 32.7 per cent, and a third sold 45.8 per cent of its butter equivalents in this form. Two others sold a smaller but significant amount in this way. Most of the cream and milk sales are made during the late summer season of lower milk production, when the Twin City markets need to reach out farther for liquid cream and milk supplies (Table XIII). The creameries responding to this seasonable demand, and shifting to various market outlets during the year, have an extremely complicated marketing job. Alertness to market comparisons, keen observation and consideration of the many details involved should result in a relatively higher net return for the products.

The average monthly price received for the sale of all butter during 1940 is shown in Appendix C.

By-Product Sales

The significance of the income derived in this area from the sale of skim milk and buttermilk by-products is indicated by the average return per creamery of \$10,010. Approximately half of this income was from liquid skim milk, one fourth from powdered skim milk, and the other one fourth from powdered buttermilk. Only a very small amount of liquid buttermilk was sold. The total income per year from this source ranged from \$2866 to \$18,396 (Table XI). All four Scott county creameries but only one of the six Carver county creameries have milk driers. The difference in market outlets used for butterfat (sale of more liquid milk and cream in Carver county) is no doubt the reason for a limited number of driers in Carver county. Carver county creameries have good outlets for any liquid skim milk or buttermilk that is available. Several Scott county creameries reported the sale of liquid buttermilk during certain seasons of the year.

Sideline Enterprises

Sideline sales by creameries are of little importance in Scott and Carver counties. In most cases sidelines were limited to the sale of cheese, salt and dairy supplies. In three creameries such items as feed, seed, twine and flour were also handled. In no case did the volume of sideline sales reach \$4000.

Table XII. Variations in Butter-Buying Policies of 8 Buyers, in Effect with 10 Creameries in Scott & Carver Counties

Cry.	Basis for Butter Payment	Containers Furnished by Buyers	Containers Used	Freight Charges	Lake-rail Freight Deduction	Other Charges Made by the Buyer	Net Pkg. Wt.	Required Shrink Allow.
A	$\frac{1}{2}\phi$ under N.Y. extras	Cartons furnished. Parchment not furnished.	Prints	None	None	None	--	--
B	$\frac{1}{2}\phi$ above N.Y. extras for 93 score (all butter considered 93)	All containers furnished.	Boxes	\$1.15 per cwt.-truck 1.16 per cwt.-lake-rail	None	8¢ per cwt.-cartage (only on lake-rail shipments)	60#	4 oz.
C	N.Y. extras for 92 & 93 score, plus 35¢ per cwt. for wrapping and trucking	All containers furnished.	Jars and Prints	None	--	None	--	--
D		None.	Tubs	\$1.28 per cwt.	None	17¢ per cwt.-dues 17¢ per cwt.-hdlg. chg.	64#	8 oz.
E	$\frac{3}{8}\phi$ over N.Y. extras for all butter-no grade	None.	Boxes	\$1.17 per cwt.	None	None	54#	3 oz.
F		None.	Tubs	\$1.00 per cwt.	No summer shipments	17¢ per cwt.-dues 17¢ per cwt.-hdlg. chg.	64#	8 oz.
G	$\frac{1}{8}\phi$ over N.Y. extras for 92 score in boxes. $\frac{1}{4}\phi$ over for 92 $\frac{1}{2}$ score. (Nothing graded lower than 92 score.)	None.	Boxes	\$1.15 per cwt.	17¢ per cwt.	7¢ per cwt.-icing	60#	4 oz.
H	1¢ over N.Y. extras for 93 score in tubs. $\frac{3}{4}\phi$ over for 93 score in boxes.	None.	Tubs-88% Boxes-12%	\$1.24 per cwt.-truck .91 per cwt.-lake-rail	33¢ per cwt.	4¢ per cwt.-icing	64# 70#	4 oz. 4 oz.
I	4¢ below N.Y. extras for 93 score in $\frac{1}{4}\phi$ prints	Pound cartons furnished. Boxes not furnished.	Boxes	None	--	None	65#	4 oz.
J	N.Y. extras for 92 score. (All butter goes on 92.)	None.	Boxes	\$1.09 per cwt.	17¢ per cwt.	4¢ per cwt.-icing 8¢ per cwt.-misc.	66#	8 oz.

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Separate Accounts Should Be Kept on Sidelines. Unless accounts are kept on each one and costs of handling are properly allocated to it, there is no way of determining the actual contribution it has made to the creamery business. Also, when a creamery has sizeable earnings on sidelines and uses such earnings to pay higher prices for butterfat, it is placed in a relatively strong competitive position. Such a policy can be seriously questioned from the cooperative angle and may cause the organization to lose its federal income tax exemption.

Creameries having space and equipment which are not being utilized in regular creamery operations should seriously consider the possibilities of bringing such facilities into productive use, and thereby reduce overhead costs. A sideline may be the answer. On the other hand, it is possible to spread the management of a plant over so many enterprises that efficiency declines, and costs mount. Sidelines requiring additional buildings and equipment should be carefully analyzed before the investment is made. The primary job of a creamery is to market dairy products as effectively as possible. In so far as they facilitate this objective, sidelines should be given consideration.

Table XIII. Seasonal Variation in the Per Cent of Total Butterfat Sold in Liquid Cream and Milk - 5 Carver County Creameries

Month	Creameries					Average of 5 Creameries
	A	B	C	D	E	
January	7.0%	.5%	.1%	8.8%	37.1%	12.1%
February	.5	.3	.2	10.8	33.5	11.0
March	2.9	.2	.1	10.5	36.7	12.0
April	3.1	.3	.1	14.0	42.8	14.3
May	.8	.4	.2	26.4	42.9	17.4
June	1.7	.4	.3	65.3	50.3	26.4
July	44.9	15.3	20.3	94.8	51.1	42.7
August	69.5	10.5	54.8	90.8	52.3	52.6
September	87.2	50.6	32.7	64.5	66.0	53.0
October	50.6	20.8	20.5	44.8	54.5	37.1
November	24.0	.8	12.2	28.3	55.6	25.4
December	8.5	.3	.1	17.5	49.7	16.5
Year - 1940	19.0	5.2	7.0	34.9	45.9	23.0

RETURNS AVAILABLE ON BUTTERFAT HANDLED

Variations in the efficiency with which these creameries have conducted their manufacturing and marketing operations are reflected in the net returns available to the producers on each pound of butterfat handled. "Net returns available" represents the price the creamery could have paid per pound for butterfat (average for 1940) without altering its financial position. One of the creameries had net earnings from its 1940 business of nearly \$6300 compared to a net loss of nearly \$2400 in another plant. This illustrates that the "net returns available" may be considerably different from the price paid for butterfat. The average net return for this group of creameries in 1940 was 32.8 cents per pound of butterfat handled. Two plants had net returns available of less than 32 cents and three had more than 33.5 cents per pound. Individual creameries ranged from 1.94 cents below to 1.18 cents above the average, a total variation of 3.12 cents per pound. This shows wide variations in the competitive strength of different creameries and indicates that the management and members of individual plants should critically analyze their own situation, and consider all factors influencing the net returns available to the producer for his butterfat.

CONCLUSIONS AND SUGGESTIONS

Dairying is one of the major enterprises on Scott and Carver counties' farms. There is considerable room for improving methods of production and marketing in this area that would result in increased returns to the producers. In the creameries there is opportunity to make adjustments in manufacturing and marketing operations, and to improve membership relations.

Manufacturing Operations

The variation in operating efficiency of these plants suggests that much can be gained thru improving plant operations. The principal obstacle to lower per unit costs is that the volume of output in some cases is insufficient for the most effective use of plant facilities. The only permanent solution to this problem is a smaller number of larger cooperative plants. Certainly no small plants should be replaced or large expenditures made for equipment without first giving careful consideration to the advisability of consolidating with a neighboring cooperative. With more efficient plant operations, plant costs would be lower and the competitive position of cooperative creameries in the area would be strengthened.

A large share of the success of a creamery depends upon the efficiency of the operator-manager. Rapidly changing technological developments in the industry and increasingly complex business problems demand that cooperative boards employ only men of superior ability and training to manage their plants. Operators and other employees should periodically be required to supplement their training in order that the organization may benefit from the adoption of latest developments in the industry.

Reliable accounting and statistical information is indispensable in efficient plant management. Most of the plants in this area could make improvements in accounting procedure and statistical data for recording and analyzing plant operations.

Marketing Operations

The fact that some of the creameries are netting less than the average plant in the area on their products, suggests the need for improvement in this direction. Each step in the marketing process should receive careful analysis with the aim of correcting defects. Sales outlets should be carefully analyzed in an effort to

determine the best outlet for the butterfat produced. Creameries that shift from the sale of one dairy product to another (butter, liquid milk and cream) and hence from one market to another must be particularly alert to the real market differences. By leveling out production a larger proportion of the butterfat could be sold at a higher price, and at the same time operations within the creamery could be more efficiently organized.

Membership Relations

With the improvement in highways and transportation facilities, butterfat producers have had opened to them several alternative outlets for their products. For this and other reasons the study shows that some of the creameries in this area confront difficult membership problems.

Patrons who become stockholders in their cooperative tend to take a greater interest in the welfare of the organization. Cooperative associations should make and follow definite plans to keep the ownership of stock or membership as nearly as possible in the hands of patrons. Membership should be made reasonably easy to acquire.

The understanding and support of members and creamery officials are necessary if cooperative creameries are going to operate successfully and keep up with ever-changing conditions. It is of increasing importance that officers and members alike are kept informed concerning the economic problems facing the industry and the specific business operations of their association. A sound educational program including more effective annual meetings, informational literature, periodic accounting reports and statistical comparisons are a vital necessity to successful cooperative marketing.

In the long run cooperative creameries that have alert management, that adapt their business to new developments, that put forth constant effort for greater plant efficiency, and seek the best markets, serve the farmers' best interests. Such organizations deserve and will continue to enjoy the farmers' patronage and support.

APPENDIX A - Prices Received for Local Butter - Scott and Carver Counties - 1940

<u>Creameries</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
No. 1	32.33	29.70	29.01	28.50	28.13	26.80	27.41	28.15	28.75	30.28	32.83	34.67
No. 2	30.00	29.40	28.47	28.00	27.42	26.81	27.00	27.31	29.00	30.20	33.37	34.68
No. 3	32.17	30.30	28.96	28.43	27.69	27.06	27.46	27.91	28.92	31.21	34.06	35.29
No. 4	32.95	31.39	30.31	29.77	28.73	29.20	29.60	29.53	30.74	31.90	36.74	34.72
No. 5	32.48	29.60	28.36	28.52	28.87	26.73	26.61		28.33	30.11	32.49	36.41
No. 6		33.00	32.00	31.00	30.40	30.30	30.30	31.00	32.60	34.20	38.00	38.00
No. 7	32.40	29.70	29.20	29.00	29.00	27.64	27.62	27.90	27.50	30.20	35.60	35.37
No. 8	31.35	29.11	28.05	27.39	27.05	26.37	26.57	27.22	28.13	29.83	32.50	34.40
No. 9	31.97	30.53	29.02	28.04	27.95	27.00	27.50	28.00	28.90	30.80	32.90	35.00
No. 10	32.05	29.97	29.11	27.93	27.66	27.12	27.31	27.95	28.42	30.14	33.00	34.42

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APPENDIX B - Prices Received for Butter Shipped - Scott and Carver Counties - 1940

<u>Creameries</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
No. 1	29.80	27.58	27.22	26.50	25.50	25.99	26.28	26.44	28.10	29.63	33.75	32.07
No. 2	31.02	28.10	27.78	26.78	26.32	26.03	26.10	26.53	27.80	30.13	33.57	33.06
No. 3	32.37	28.84	28.19	27.19	26.84	27.30	26.48	27.02	28.43	30.23	33.94	33.83
No. 4	30.56	27.84	27.62	26.66	26.01	25.91	25.98	26.82	28.63	30.06	33.86	31.84
No. 5	29.82	27.02	26.78	26.15	25.70	25.65	-	-	-	-	33.04	33.47
No. 6	29.90	27.02	26.90	26.11	25.70	25.90	-	-	27.50	29.00	32.25	31.96
No. 7	30.45	28.50	-	-	-	-	-	-	-	-	-	-
No. 8	30.84	27.74	27.08	26.10	25.79	25.73	25.60	26.50	27.70	32.00	33.03	32.60
No. 9	29.14	26.65	26.40	25.75	25.00	25.00	-	-	-	-	-	31.34

APPENDIX C - Prices Received for All Butter - Scott and Carver Counties - 1940

<u>Creameries</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
No. 1	30.09	27.75	27.45	26.97	25.75	26.16	26.45	26.95	28.48	29.90	33.89	32.46
No. 2	31.06	28.15	27.86	26.91	26.21	26.10	26.21	26.70	28.22	30.20	33.67	32.41
No. 3	31.97	28.78	28.23	27.43	26.80	27.18	26.73	27.34	28.86	31.09	34.44	33.31
No. 4	30.41	28.02	27.57	27.03	26.08	26.22	26.45	27.39	29.34	30.99	34.61	31.19
No. 5	30.97	27.46	27.32	26.96	26.82	26.05	26.55	26.94	30.64	30.68	33.00	33.42
No. 6	32.84	28.90	27.92	27.14	26.47	26.21	26.67	27.43	29.55	30.62	33.55	33.04
No. 7	30.10	27.27	27.18	26.38	24.81	26.47	27.62	27.87	27.57	29.44	32.94	32.33
No. 8	32.70	29.03	28.79	28.58	27.44	27.14	28.90	29.11		29.82	36.69	35.11
No. 9	30.70	27.21	27.14	26.40	25.66	25.84	25.72	26.94	28.37	30.31	33.56	32.32
No. 10	30.50	28.04	27.73	27.12	26.65	26.59	27.41	28.45	28.52	30.21	33.30	33.82

APPENDIX D - Prices Paid for Sweet Cream Butterfat - Scott and Carver Counties - 1940

No. 1	35.50	31.00	31.00	30.00	30.00	30.00	31.00	31.00	33.00	35.00	39.00	39.00
No. 2	35.50	31.50	31.00	30.50	29.50	29.50	29.00	29.87	31.47	33.76	37.91	37.45
No. 3	35.45	32.45	31.43	30.83	29.20	29.05	29.28	30.03	32.03	34.79	38.94	37.80
No. 4	34.99	32.50	31.53	30.38	29.37	29.08	30.02	30.15	31.72	33.96	39.34	36.30
No. 5	35.00	32.00	31.00	30.00	30.00	28.99	29.96	29.97	30.98	33.00	37.00	38.00
No. 6	35.00	31.00	31.00	30.00	-	-	-	-	-	-	-	38.00
No. 7	37.00	32.77	31.83	30.80	29.85	29.64	30.33	31.14	33.07	34.46	39.25	40.50
No. 8	36.00	32.00	32.00	31.00	30.00	30.00	31.00	32.00	34.00	36.00	40.00	39.00

APPENDIX E - Prices Paid for All Butterfat - Scott and Carver Counties - 1940

No. 1	35.49	31.00	30.99	29.93	29.99	29.99	30.99	30.98	32.99	34.99	38.99	38.99
No. 2	36.68	32.47	31.80	31.01	29.93	29.72	29.88	31.13	32.48	34.98	38.67	38.00
No. 3	36.51	33.15	31.88	31.15	29.44	29.23	29.45	30.25	32.30	35.02	39.17	38.06
No. 4	38.05	34.52	33.18	31.83	30.59	30.36	31.27	31.78	33.43	35.44	40.55	37.54
No. 5	34.99	32.00	31.00	30.00	30.00	28.99	29.99	29.99	30.99	33.00	37.00	38.00
No. 6	34.99	31.00	31.00	30.00	29.00	30.00	30.00	30.00	30.00	33.00	35.99	37.99
No. 7	36.79	32.89	31.90	30.88	29.90	29.76	30.54	31.45	33.41	34.65	39.49	40.67
No. 8	36.00	32.00	32.00	31.00	30.00	30.00	31.00	32.00	34.00	36.00	40.00	39.00
No. 9	35.00	32.00	32.00	30.00	30.00	30.00	30.00	31.00	32.00	34.00	38.00	40.00

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