MINNESOTA
farm business NOTES

NO. 412 ST. PAUL CAMPUS, UNIVERSITY OF MINNESOTA December 1959

CREAMERY INDUSTRY ADJUSTMENT PROBLEMS

Victor F. Amann and E. Fred Koller

The structure and organization of the creamery industry are changing. As in many other industries, there is a trend toward fewer and larger plants. The adjustment in creamery numbers has been extensive over the past two decades. A number of plants going out of business have merged, but most of them have closed their doors.

Statewide data for Minnesota show that many plants ceased making butter during this period. Creamery numbers decreased from 874 in 1938 to 460 in 1959. This was a loss of 414 or 47 percent of the plants (Table 1).

As the number of plants decreased, the average butterfat volume processed in each plant increased. Average annual plant volume more than doubled from 319,000 pounds of butterfat in 1938 to 683,000 pounds in 1959.

The number of creameries with various volumes of receipts are shown in Table 1. The number of plants receiving less than 400,000 pounds of butterfat annually fell sharply. They decreased 70 percent from 1938 to 1959. Plants handling three quarters of a million pounds or more almost trebled.

Various factors account for the change in plant numbers. New technologies had the most significant effect. They were generally more advantageous to large volume plants. The improvement in transportation equipment and road facilities made it easier and less costly to pick up milk and cream on the farm and transport it longer distances to processing plants. This reduced the need for a creamery to be located in each town.

New equipment was introduced which was designed to handle large volumes of butterfat. Plant managers found that large volume equipment, fully utilized, reduced the per unit cost of output. Reduced costs increased the competitive advantage of larger creameries.

The shift from farm-separated cream to milk receipts in creameries required more equipment and larger investments. The management of many plants decided to close because they felt that they could not afford the extra investment, or that they would have difficulty in raising the extra capital.

Sanitation requirements were increased over a period of time. Many plants were closed because of the change. In many cases the board of directors felt that they could not afford the costs required to bring the plants up to the new standards.

In some areas of the state, farmers shifted from dairying to other types of agricultural production. With decreased butterfat receipts, some plants found successful operation no longer possible.

A relatively new factor in competition is the bulk tank method of handling milk. The number of bulk tanks in Minnesota has increased from 2,000 in 1955 to 7,200 in 1958. Most of the bulk milk is used for fluid consumption, but in 1958, 9 percent of the state's bulk. The cost of handling milk in bulk is lower than in cans, consequently, a plant can profitably increase its supply area.

When the full impact of the bulk tank is felt, plants which cannot afford to change to bulk receiving will be at a competitive disadvantage and may be forced to close.

Characteristics of the Closed Plants

Questions which are frequently raised are: What are the economic characteristics of the creameries which have closed? What weaknesses were revealed in their operations prior to closing? Many plants remaining in business have similar characteristics and problems. They may find it useful to study these and consequently may be able to make prompt adjustments which may minimize the losses to their patrons.

For purposes of this study, the records of 41 creameries which have closed their doors in recent years were made available to the Department of Agricultural Economics at the University of Minnesota. These 41 plants were part of a representative sample of 175 Minnesota creameries from which economic data were obtained since 1935.

A predominant characteristic of the 41 closed plants was their small volume of business. Annual butterfat receipts during the last year of operation averaged 126,870 pounds. The average plant volume for the state in 1955 was 566,860 pounds or nearly 4½ times the average volume of the closed plants. Studies of the costs and returns of plants with annual butterfat volume under 500,000 pounds indicate that many of these plants will find it continually more difficult to maintain their competitive position.

High plant-operating costs were another characteristic of these 41 plants. During their last year of operation the plants which closed since 1950 had an average processing cost of 9.71 cents per pound of butterfat. The range in costs was from 7.70 cents to 16.30 cents. Average costs of a large sample of creameries operating in 1954 were 7.30 cents per pound of butterfat, or 2.41 cents below the cost of the closed plants.

Another characteristic of the closed creameries was their declining patronage. During the last year of operation

Table 1. Number of creameries by size in Minnesota, 1938-1959

Annual butterfat receipts	Number of creameries 1938	1959	Change 1938 to 1959
(1000 lbs.)			percent
Under 100	105	24	— 77.1
100-199	270	55	— 79.6
200-299	185	61	— 67.0
300-399	142	59	— 58.5
400-499	64	52	— 18.8
500-749	66	87	+ 31.8
750-999	14	50	+257.1
1,000 and over	28	72	+157.1
Total	874	460	— 47.4

(Continued on page 2)

Creamery Problems

(Continued from page 1)

the average number of patrons was 52 per plant. This was less than the average of 128 in their best year of operation and much less than the state average of 291 patrons per plant in 1950.

Thirty of the 41 plants received only farm-separated cream when they closed. Only 11 had shifted to receiving whole milk. This is an indication of the failure of management in these plants to keep abreast of technological developments. When the shift from cream to milk was occurring, management was often too slow in adapting to the change. Usually the larger volume patrons who wished to sell milk shifted to larger plants which had adopted the new technology. The small cream-receiving plants soon found that they had lost volume and that their finances were deteriorating, so they could not afford to change to milk receiving.

Financial Condition

Most of the plants were in a poor financial condition at the time of closing. The working capital position was generally very poor. Often buildings and equipment were run down and in serious need of repair.

The final average balance sheet showed total assets of $30,760. Current assets (cash, receivables, inventories, and other assets easily converted to cash) were $8,182 or 26 percent of the total. Fixed assets were land, buildings, and equipment valued at $16,142. The remaining assets were investments in regional cooperatives. Total assets were about one-third as large as the 1950 state average of $87,374. Current debt at the time of closing was $10,082 or 72 percent of the total debt, which was $13,297.

The working capital position was very poor during the last year of operation; this is characteristic of many plants operating today. The average current ratio during the last year was .81 to 1, or 81 cents of current assets to cover $1 of current debt.

MINNESOTA

farm business

NOTES

Prepared by the Department of Agricultural Economics and Agricultural Extension Service.

Published by the University of Minnesota Agricultural Extension Service, Institute of Agriculture, St. Paul 1, Minnesota.

The average net worth to debt ratio, or ownership ratio, was fair. Net worth averaged $16,384 and total liabilities averaged $13,927, giving a worth to debt ratio of 1.21 to 1, or $1.21 of net worth for each $1 of debt. As with the current ratio, a 2 to 1 ratio is considered a desirable minimum.

The poor financial structure which was evident in the final balance sheet indicates that it would have been difficult for these plants to borrow money for improvements or expansion.

Liquidation of the Closed Plants

Questions frequently arise as to how creditors, stockholders, and patrons fare in the liquidation of a creamery which closes. The largest problem was that of selling the fixed assets—buildings and equipment—on favorable terms. The average return from the sale of all fixed assets was $8,724 or 54 percent of the total book value which was $16,142.

Returns from the sale of buildings were usually far below book value because they were located where there was limited demand for commercial space. Eighteen plants were located at inland points away from towns and 14 were in towns of less than 500 people.

Most equipment brought returns closer to book value because it was movable and often was sold to other creameries and dairy equipment companies.

Thirty-four of the 39 liquidated plants were able to pay all commercial creditors in full, while five defaulted in part.

Sixteen plants were able to repay all equity claimants in full, including preferred and common stock holders and holders of patron equity reserves (book credits). Four of these were able to do so because they became part of a consolidation and all debts were absorbed into the new organization and new equities were issued for the outstanding old equities. Four plants paid all debts and equity claims in full and had funds remaining; these were distributed on the basis of patronage.

Preferred stock was used in financing four of the closed plants. The par value was repaid in full in three plants and in one no repayment was made.

Four plants repaid between 50 and 99 cents on each dollar of common stock and five plants repaid between one and 49 cents on a dollar of outstanding common stock (Table 2).

Patron equity reserves were repaid at a rate of 50 to 99 cents on a dollar in three plants, and one to 49 cents on a dollar in six plants. Equity claimants received no repayment in 14 plants.

Table 2. Liquidation payments to creditors and equity claimants, 39 closed creameries*

Type of claimant	Number of creameries
Commercial creditors:	
Repaid in full	34
Repaid less than 100%	5
	39
Equity claimants:	
Preferred stock:	
Repaid in full	3
No repayment	1
No preferred issued	35
	39
Common stock:	
Repaid in full	16
Repaid 50-99%	4
Repaid 1-49%	5
No repayment	14
	39
Patron equity reserves	
Repaid in full	16
Repaid 50-99%	3
Repaid 1-49%	6
No repayment	14
	39

* Two out of the 41 plants studied had not completed liquidations.

Alternatives for Failing Creameries

Minnesota has a large number of creameries which are facing financial problems and are having major competitive adjustments due to loss of patrons and volume. What can they do to prevent extensive financial losses to patrons?

Several courses of action are open to them. (1) They can improve their operations and attract added volume. (2) They can consolidate with other plants and build a large organization which has large volume and lower costs. This will help the patrons of the consolidated plant to upgrade their returns. (3) They can dissolve the organization and sell the assets.

Before any course of action is chosen a hard-headed analysis of the facts for each creamery should be made. Many plants with high processing costs will find it difficult to attract added volume; their best alternative in many cases would be to try to consolidate with another plant. If consolidation is not practicable, then the best alternative is to close the plant and sell the assets. The decision to close a plant should be made without sentiment and the goal should always be to close before economic losses are incurred by creditors, equity holders, or patrons.

Minnesota Grade A Milk Developments

Richard J. Goodman and E. Fred Koller

In recent years Minnesota dairy farmers have become increasingly interested in market developments and opportunities for Grade A milk. Many producers have qualified for Grade A production and many others have been weighing the merits of doing so.

Dairy farmers would like to shift their milk from the lower return manufacturing uses to the higher return fluid milk or bottling outlets; however, shifting to Grade A quality production does not automatically bring a higher price to the dairy farmer. The higher price is available only if there is a market which will pay a premium for assured quality milk for fluid use.

To provide more information on Grade A milk market developments in the state, the University of Minnesota Department of Agricultural Economics surveyed the situation in the fall of 1959. All Grade A milk plants in Minnesota were contacted. The study was directed toward determining the trends in Grade A milk production in the state, the location of these supplies, types of plants and handlers, utilization of the milk supplies, market outlets, prices received, and other information. Only some of the findings are discussed in this brief preliminary report.

Supplies and Location

In 1958 nearly 1.6 billion pounds of Grade A milk were received from over 7,000 farmers by 139 Minnesota dairy plants.[1] This was about 20 percent of all whole milk receipts in the state, and about 16 percent of all receipts, including farm-separated cream. From 1951 through 1958 Grade A milk receipts increased by 64 percent while the total of all milk receipts increased by less than 28 percent.

It was found that Minnesota Grade A milk supplies are heavily concentrated in the eastern half of the state. For instance, over 850 million pounds, or about 54 percent of the state's total Grade A milk, was received by plants serving the Twin Cities market. Plants in the southeastern section of Minnesota, including the Twin Cities, received nearly 1.2 billion pounds of Grade A milk, or about 75 percent of the state's total supplies. Northeastern Minnesota plants which serve Duluth and the Iron Range markets handled about 15 percent of the state's total grade A supplies. Only 10 percent was received by plants in the western half of the state.

Much of Minnesota's Grade A milk which was not needed for local bottling was also located in the eastern half of the state. Nearly 70 percent of the Grade A milk diverted to manufacturing uses was located in southeastern Minnesota plants, and an additional 20 percent in northeastern plants. Thus, most of the Grade A milk available for shipment to out-of-state markets is concentrated in the areas of the state closest to markets in the eastern and southern United States.

Grade A Handlers

During 1958 there was a total of 181 Grade A milk plants in Minnesota. Of these 139 received all or part of their receipts directly from farmers. The remaining 42 bought all of their milk from other Grade A plants.

The great majority of the Grade A plants bottled all or part of their milk receipts. One hundred and seven of the 181 Grade A plants were specialized bottling plants and engaged in no other dairy-processing activity (table 1). In another 46 plants Grade A milk was bottled in combination with some other dairy-manufacturing activity. For instance, in 24 plants milk bottling was a departmental activity in a plant with butter, dried milk, or cheese operations. In 28 plants Grade A receipts were not bottled, but were sold in the form of bulk whole milk or cream to other dairy plants. In all cases plants in this group also engaged in the manufacture of dairy products.

Utilization

Minnesota Grade A plants bottled or packaged over 1 billion pounds of milk, or about 65 percent of the Grade A milk received in 1958. 25 million pounds, (1.6 percent), were sold in bulk form for bottling or other Grade A uses in out-of-state markets. The remaining 33.4 percent, or a little better than 530 million pounds, was diverted into manufactured dairy products (table 2).

Grade A milk diverted into manufactured dairy products for the most part is considered surplus to local Grade A needs. Surpluses have the effect of depressing profit margins from Grade A production due to diversion to lower value manufacturing uses. Since about one-third of Minnesota Grade A milk is in excess of local bottle milk needs, it would appear that there are large quantities available for out-of-state sales. However, it must be recognized that much of the surplus is available only on a seasonal basis.

Because of the seasonal pattern of production most of the surplus Grade A milk in Minnesota is available in the period of heavy production in the spring when the demand for milk from out-of-state markets is small or nonexistent. During the late summer and fall considerably less surplus milk is available for out-of-state sales. Thus, even though Minnesota presently has over 500 million pounds of surplus Grade A milk, only a limited proportion of this is available for shipment to other markets on a year-around basis.

The future for significant increases in Grade A fluid milk production depends greatly on increasing out-of-state sales. Some increases in local outlets will take place due to population increases in Minnesota; and although this may be steady, it will not be large from year to year.

There is a vast potential supply of Grade A milk in Minnesota presently produced as manufacturing grade milk for butter and dried milk plants. Cost differences in producing the two kinds of milk have significantly narrowed due to higher quality standards on manufacturing grade milk and general technological developments. In the future it will be increasingly easier to shift from manufacturing to Grade A milk quality. But such shifts must increase late summer and fall supplies more than spring supplies if larger out-of-state outlets are to be developed.

Table 1. Grade A milk plants by type of processing, Minnesota, 1958

Bottle only		107
Bottle and manufacturing:		
Ice cream, cottage cheese	17	
Butter, dry milk, cheese	24	
General mixed	5	46
Bulk sales and manufacturing:		
Ice cream, cottage cheese	4	
Butter, dry milk, cheese	21	
General mixed	3	28
Total plants		181

Table 2. Utilization of grade A milk, Minnesota, 1958

	Million pounds	Percent
Bottled or packaged	1,033.6	65.0
Bulk sales out-of-state*	24.9	1.6
Ice cream, cottage cheese	101.4	6.4
Butter, dry milk, cheese	429.4	27.0
Total	1,589.3	100.0

* In addition, approximately 33 million lbs. of bottled or packaged milk was shipped out-of-state in 1958.

[1] Includes 10 plants located in Wisconsin, but which are regularly associated with the Twin Cities and Duluth Federal Order Milk Markets.

THE OUTLOOK CORNER

Geographic Shifts in Dairying

The pattern of dairy production has changed in the United States. This affects both farmers and processors.

The number of dairy cows increased from the late 1920's to 1934, fell until 1938, and rose to an all-time high in 1944. Since 1944 there has been a substantial decline (see Table 1).

Table 1. Number of milk cows on farms, U. S., by regions

	1924-29	1944	1958
		thousands	
N. Atlantic	2,980	3,207	2,980
S. Atlantic	1,592	1,949	1,806
E. N. Central	5,222	6,358	5,010
W. N. Central	5,906	6,585	4,436
S. Central	3,752	5,184	3,566
West	1,925	2,314	1,986
U. S.	21,327	25,597	19,784

With increased production per cow, total milk production has increased by 7 percent since 1944.

In the North and South Atlantic States the drop in number of cows since 1944 has been quite small. On the other hand, the decline in the West North Central and South Central States has been fairly large.

The number of dairy cows in Minnesota and in most of the surrounding states has fallen during this period (see Table 2).

Table 2. Number of milk cows on farms, Minnesota and surrounding states

	1924-29	1944	1958
		thousands	
Minnesota	1,470	1,730	1,333
N. Dakota	484	530	324
S. Dakota	507	475	289
Iowa	1,277	1,410	954
Nebraska	618	625	380
Illinois	980	1,123	719
Wisconsin	1,905	2,360	2,230

The change in the number of cows in Minnesota by counties is shown in the accompanying map (see Figure 1). The number of dairy cows on January 1, 1959 is compared with the average for the period 1930-39.

There was either no material change or an increase in the number of dairy cows in 31 counties. In all other counties there was a decrease. In 10 counties, the number of cows fell by at least half since the 1930's.

Several factors account for these changes in cow numbers. The decrease in Anoka, Hennepin, and Ramsey counties most likely was due to urbanization.

The decline in northeastern Minnesota was associated with the decline in the number of farms. The number of farms in that area has fallen by more than 50 percent during the same period.

The sharp decreases along the western and south central parts of the state were due to several factors: (1) alternative farming opportunities—such as hogs, beef feeding, and crop farming were favorable; (2) in the northwest there has been a strong trend toward larger farms specializing in crop production; (3) most milk in these areas was sold for manufactured products; consequently, prices were lower than in other areas where fluid markets were available; (4) improved knowledge of crop management and of the use of commercial fertilizer has made it possible to reduce the proportion of land in hay and pasture; this in turn has reduced the advantage of roughage-consuming animals.

The number of dairy cows has stayed fairly steady or has increased in the area extending from the extreme southeastern corner to west central Minnesota. Several factors have influenced this increase: (1) this area has had comparatively good markets for higher-valued fluid milk and manufactured products; (2) high concentration of milk production has made it possible to utilize processing facilities efficiently, thus keeping marketing costs down; (3) small farms with comparatively large labor supplies have tended to encourage an intensive type of farming such as dairying; (4) the dangers of erosion in southeastern Minnesota have made it highly desirable to maintain a high proportion of the land in grasses and legumes; this has provided an economical feed for dairy cows; (5) in the central part of the state, corn yields have not been as high as further south, consequently, forages have had a comparative advantage. Also, the topography does not lend itself to large scale operation as in the northwest.

The future trend in the concentration and location of milk production will depend upon many factors.

It seems probable that forces at work in the past are still at work.

Stronger dairy prices relative to other prices would tend to slow down the trend away from dairying in the western and southern parts of the state. But, on the other hand, continued improvements in crop technology probably will tend to speed up or maintain present trends.

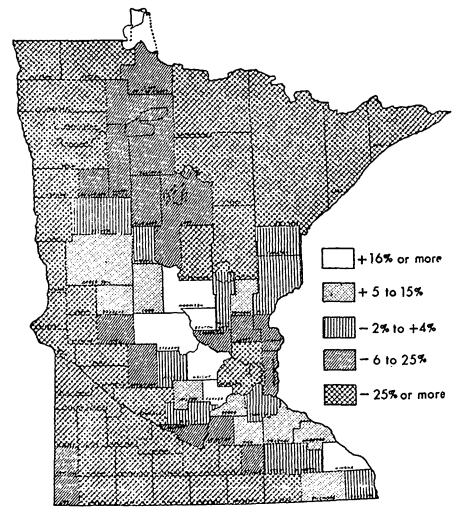

Fig. 1. Percentage change in milk cows and heifers 2 years old and older from average period 1930-39 compared with 1959.

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Service and United States Department of Agriculture Cooperating, Skuli Rutford, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

UNIVERSITY OF MINNESOTA
Institute of Agriculture
Agricultural Extension
St. Paul 1, Minn.

SKULI RUTFORD, Director

Minn. 7—12-59—3600
Permit No. 1201

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300

Cooperative Agricultural Extension Work, Acts of May 8 and June 30, 1914