PB-301 416 FCRR-7 JUL 79

FUTURE STRUCTURE AND MANAGEMENT OF DAIRY COOPERATIVES.

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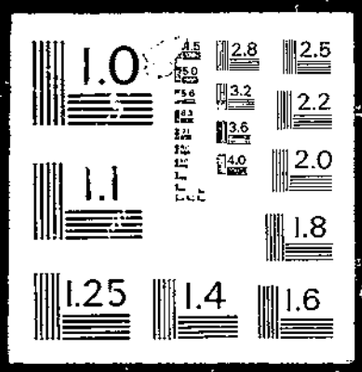
ECONOMICS, STATISTICS, AND COOPERATIVES SERVICE, WASHINGTON, DC.



U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-301 416

Future Structure and Management of Dairy Cooperatives

(U.S.) Economics, Statistics, and Cooperatives Service, Washington, DC

Jul 79

United States Department of Agriculture

Economics, Statistics, and Cooperatives Service

Farmer Cooperative Research Report 7

Future Structure and Management of Dairy Cooperatives

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. FCRR-7	2.	3. Recipient's Accession No. PB301416
4. Title and Subtitle: FUTURE STRUCTURE AND MANAGEMENT OF DAIRY COOPERATIVES			5. Report Date: July 1979 6.
7. Author(s): George C. Tucker, James B. Roof, and William J. Monroe			8. Performing Organization Rept. No. FCRR-7
9. Performing Organization Name and Address: Cooperative Management Division Economics, Statistics, and Cooperatives Service U.S. Department of Agriculture Washington, D.C. 20250			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address: Same as box 9			13. Type of Report & Period Covered 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

By 1985, 300 or fewer dairy cooperatives will market 80 percent of the Nation's milk, 46 percent sold raw and 34 percent bottled or manufactured. About half will be marketed by 15-25 full-service co-ops, one fifth by 50-80 manufacturing co-ops, and one-fourth by small bargaining associations and nonproducers. Organizational and operating options, such as federation or centralization, dairy specialization or diversified operations, need to be explored. Managers must become more cost conscious and improve reporting significant operating results to boards. Directors must become more knowledgeable at their cooperative's operations, milk marketing, and role of policy making. Increased equity capital of $0.6 billion to a needed total of $1.3 billion will require member investments of 13 cents a hundredweight, assuming a 10-year revolving plan.

17. Document Analysis a. Descriptors

Dairies
Management (financial)
Manufacturing
Milk
Services
Structural elements
Technological changes

b. Identifiers/Open-Ended Terms

Bulk assembly
Cooperatives
Dairy products
Technology

c. COSATI Field/Group 02-B, 06-H

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Available from: NATIONAL TECHNICAL INFORMATION SERVICE, 5285 Port Royal Road, Springfield, Virginia 55161		71
	20. Security Class (This Page)	22. Price A04-A01

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

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Highlights

Sweeping changes in the structure of the dairy industry have prompted dairy farmers to ask how they should organize, operate, and finance their cooperatives to maximize their farm income over the next 10 to 20 years. By 1985:

—The number of dairy cooperatives is expected to decline to 300 or less, a drop of 50 percent since 1973, and about the same rate of decline as existed between 1957 and 1973.

—Volume of milk marketed by cooperatives is expected to reach 98 billion pounds, about 80 percent of all milk sold to plants and dealers.

—The amount of milk bottled or manufactured by cooperatives is expected to increase to 41 billion pounds, almost 34 percent of all milk received by plants and dealers, up from 28 percent in 1973.

—Dairy cooperatives will continue to produce large volumes of dry milk products and butter with major growth in the production of natural cheese, fluid milk products, and fluid milk related items.

—Raw whole milk will continue to be the largest single dairy product marketed by cooperatives, and buyers will increasingly demand milk supplies tailored to a 4- or 5-day plant workweek.

—Buyers of processed and manufactured dairy products will largely be national or regional firms desiring large volumes for further processing or use in food industries. These may include food chains and other distributors buying products packaged for retail distribution and institutional trade, often under private labels.

—Many cooperatives will find it necessary to greatly increase their scale of operations and assume new marketing and processing functions to serve broad marketing areas and provide supply needs of large customers. To this end, many cooperatives will have consolidated or federated with others.

—Paralleling growth trends by non-cooperative dairy firms, about half of the Nation's milk will be marketed by 15 to 25 full-service cooperatives (full-service defined as those that primarily supply raw milk to customer handlers in truckload lots tailored to their plant needs, and then manufacture the remaining seasonal and weekend reserve supply).

—Regionally, the Northeast will reflect this trend with a sharp decline in the number of small raw milk sales cooperatives leading to greater use of large full-service cooperatives.

—The South will expand use of full-service cooperatives, with some integration into fluid milk packaging and distributing.

—Major changes in the upper Midwest will include a marked decline in number of small cooperatives, both those that primarily manufacture members' milk and those that primarily sell raw whole milk.

—In the West manufacturing cooperatives will continue their dominant position, but use of full-service cooperatives will expand.

—Nationally, about one-fifth of all milk is expected to be marketed by 50 to 80 manufacturing cooperatives (manufacturing defined as those that primarily use members' milk in manufacturing a variety of products).

—Milk marketed by small raw milk sales cooperatives and independent producers could stabilize in the range of 20 to 30 percent of total and have considerable impact on the marketing of grade A milk.

Operating Options

Federations have often been used for regional or interregional bargaining, joint finished product sales, operating specialized manufacturing plants, and pooling of reserve milk supplies. Centralized cooperatives are the dominant form of organization for marketing raw whole milk to customer plants and for operating farmer-owned milk processing and bottling plants. While it appears the centralized form of organization will be dominant in future cooperative growth, these cooperatives will need to place more emphasis on achieving greater efficiency to lower operating costs. An expanded use of federations should be considered for the advantages of coordinated marketing of finished products and regional or interregional bargaining for raw milk sales.

The choice between "open" and "closed" membership cooperatives depends on the marketing services performed, physical capacity of facilities, and the current marketing conditions. As cooperatives approach an optimum balance between milk supplies and plant facilities, they may choose to use a modified closed membership policy.

No trend is apparent toward wider use by dairy farmers of cooperatives diversified into nondairy marketing. Nevertheless, diversification offers some advantages such as ability to withstand economic problems with a product line, benefits from offering buyers a full line of products, and costs savings from wider spread of overhead. Potential benefits from using diversified cooperatives should be continually studied, particularly in marketing brand products. Methods need to be developed for more equitable distribution of returns from diversified commodity operations.

Cooperatives pursuing a price leadership role generally are the dominant cooperatives, providing a range of services to the fluid milk markets including milk manufacturing operations to assure alternative disposition of milk where handlers refuse to negotiate prices acceptable to the cooperatives. Nonmember producers and members of small raw milk sales associations are often able to obtain many of the marketing benefits provided by the dominant cooperatives without bearing an equitable share of the total marketing costs.

Recent growth of dairy cooperatives has been largely horizontal through mergers and acquisitions. Continued growth in size of cooperatives will occur, although their share of total milk marketed may be near the peak level. Vertical growth, on the other hand, offers new frontiers to many dairy cooperatives. More and more members will need to shift their cooperative from only raw milk sales to plant operating status, with its additional capital investments, increased marketing risk, and related problems. Vertical growth will come largely in marketing fluid milk and related products, and further processing and packaging of butter and cheese. A combination of vertical and horizontal growth may be needed for farmers to reach income and market security objectives.

Adjustments Needed

Technological changes have caused a sharp decline in number of milk manufacturing cooperatives and a restructuring of the survivors. Most surviving manufacturing cooperatives will become large-volume organizations operating modern multiproduct facilities to supply dairy products for commercial outlets. Some will consolidate with large full-service cooperatives. Some of the smaller manufacturing cooperatives may specialize in producing high quality products for selected buyers.

Expected changes in cooperative plant structure will include

a decline in number of bottling plants to 100, but with a doubling in volume per plant to average almost 100 million pounds a year, and a decline in number of manufacturing plants to less than 200 with the average volume per plant increasing to 150-200 million pounds a year.

With the trend toward large volume operations, bottling cooperatives are struggling with volume and capital problems aggravated by the shift in distribution to food chains. Some bottling cooperatives are consolidating with large full-service cooperatives; few of the small single-plant bottling cooperatives are expected to survive.

Many raw milk sales associations in the major fluid milk markets have yielded to the pressure of the changing industry and combined to form large full-service cooperatives operating in a multimarket area. Others, particularly smaller associations, have often avoided full-service marketing costs by selling their milk to handlers willing to continue providing supply related services. Some handlers have sponsored small raw milk sales associations and independent producers as an alternative supply to the dominant cooperative.

As the handlers' bottling plants become larger, their preference for tailored milk supplies will likely increase, leaving local raw milk sales cooperatives with a declining market.

With the decline in milk bottling firms, full-service cooperatives may find it desirable to expand into bottling to maintain market outlets and assure wide distribution at reasonable costs. In the process, bottling may become the principal activity. However, bottling operations should be kept separate to assure customer plants a fair competitive position.

Emerging Management Requirements

The role of directors in emerging, large, complex cooperatives is becoming more crucial and difficult. Successful cooperatives will increasingly require directors who thoroughly understand their cooperative and the dairy industry, understand their role of policymaking as opposed to policy implementation, communicate with both management staff and members, and practice statesmanship and teamwork in representing their own districts in policy formulation. Directors will be nominated and elected for their expected leadership and ability to accomplish the cooperative's objectives.

Cooperatives need to develop training programs both to increase directors' knowledge of operations and their duties and responsibilities. While operations training is an inhouse activity, training covering director functions can be beneficial when coordinated with other cooperatives and educational institutions.

Directors' time and talents must be used more wisely through better use of committees, meeting agendas, management staff, and outside consultants. While separation of director and staff responsibilities should be clear and distinct, communication must exist between boards and management staff.

Five common attributes of successful managers of dairy cooperatives are: (1) An ability to understand the unique nature of doing business cooperatively; (2) a highly developed sense of cost consciousness and cost control; (3) an excellent knowledge of financial needs and sources; (4) full knowledge of markets; and (5) the ability to accomplish objectives through delegated responsibility and authority.

Future staff training should emphasize teaching the cooperative nature of the business with more priority given to careful recruiting and training of field personnel and milk haulers. This can improve member loyalty in the emerging larger cooperatives.

Cooperatives should enlarge employees' opportunities for career growth and institute more frequent and broader ranged salary reviews for all salaried employees.

Emerging Financial Requirements

Without significant changes in financial planning, dairy cooperatives will face a difficult future because member equity is increasing about one-third the rate of increase in fixed assets. Total assets for all dairy cooperatives in 1976 exceeded $2 billion, an increase of 53 percent since 1970. Total liabilities were $1.3 billion, an increase of 76 percent. Member equity increased only 15 percent but reached $719 million. Total borrowed capital for all dairy cooperatives in 1976 was $513 million, up 81 percent from 1970. Some $333 million or 65 percent of the total was borrowed from the banks for cooperatives.

Implementation of changes in cooperative plant structure will require investments above the 1970-1976 rate necessitating $120 million additional capital during the 1976-1985 period.

If dairy cooperatives are going to fulfill the income and market security objectives for which they were organized, mem-

bers must make greater commitment of financial support than they have during the past several years. They will need $1.3 billion in equity capital, an increase of $591 million, by 1985 to improve financial conditions of their cooperatives and provide for developing modern facilities essential for effective milk marketing in the 1980's.

This financial need translates into 10-year revolving capital investments of 13 cents a hundredweight of milk marketed, an increase of about 5 cents a hundredweight. Where member investments are not revolved as in a base capital plan, each member's total investment on the average would need to approximate $1.34 a hundredweight on his annual milk sales.

Cooperatives must economically justify the increased level of off-farm member investments with improvement in their earning performance. This can be accomplished with charges that adequately and equitably cover costs for services provided members and customer handlers. They will also need to continually strive for increased returns, greater operating efficiency, and planned implementation of new technology.

Future Structure and Management of Dairy Cooperatives

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Senior Agricultural Economists

Sweeping changes in the structure of the dairy industry in the past 20 years have generated considerable comments.

Several major factors are responsible for these changes: (1) The number of commercial dairy farms is down nearly two-thirds and farms with dairy cows down 90 percent; (2) milk production is about the same and a larger population is consuming about the same quantity of dairy products; (3) the number of fluid bottling plants is down 78 percent, and plants manufacturing dairy products down two-thirds; (4) the number of dairy cooperatives is down more than 1,000 but the remaining 500 or more market a 17 percent larger share of the Nation's milk at the farm level; and (5) milk and dairy products are now sold predominately to consumers in chain-owned supermarkets.

Because changes like these may continue to buffet the industry, dairy farmers have asked several questions: "What size and shape of dairy cooperatives will best serve our interests 10 to 20 years from now? What should we do now to position our cooperatives in the industry to stay even with, or possibly move ahead of, industry changes? How should we organize, operate, and finance our cooperatives to maximize our farm income?"

Past and Projected Changes

Dairy cooperatives have followed an industry trend toward fewer and larger firms. Technological changes such as bulk milk assembly, continuous butter churns, automated cheesemaking systems, and high-speed and automated packaging and distributing systems, have increased dairy firms' capital requirements.

Consequently, dairy firms, both cooperative and non-cooperative have had to modernize plants and expand volume to gain operating efficiency, remain competitive, and maximize net margins.

Many firms, unwilling or unable to make needed changes, have disappeared. For example, in the fluid milk industry, firms with plants that primarily packaged fluid milk decreased from 4,030 in 1963 to 2,025 in 1972—a 50 percent decline. Even in the growing cheese industry, firms with plants that primarily made natural cheese decreased from 982 in 1963 to 739 in 1972—a 25 percent decline.

The change among dairy cooperatives has been even more dramatic.

Between 1957 and 1973 (the latest year for which data on dairy cooperatives' operations are available), the number of dairy marketing cooperatives declined almost 6 percent a year—from 1,557 to 592. Yet, the annual volume of milk received from farmers, including milk bargained for, increased about 2 percent a year—from 58 billion pounds to 82.5 billion pounds in 1973.

At the producer level, cooperatives market 75 percent of total milk sales, but their share of the total market decreases rapidly as milk flows through the various marketing channels. For example, at the first processing and manufacturing level, cooperatives' share in 1973 was 28 percent, with most of the products sold to other dairy firms and food chains for further processing and distribution.

Looking in more detail at changes among dairy cooperatives, the number operating milk processing and manufacturing plants declined from 856 in 1964 to 291 in 1973—a 66 percent drop. Some 301 or 51 percent of all dairy cooperatives in 1973 did not operate plants. Of these, 171 did not physically handle dairy products, and the other 130 operated only milk and cream reloading facilities.

Three-fourths of the cooperatives operating milk processing and manufacturing facilities in 1973 were headquartered in the North Central Region, also home to 83 percent of the cooperatives operating only milk and cream reloading facilities. Three-fifths of the cooperatives that did not physically handle milk were in the Middle Atlantic Region.

Dairy cooperatives owned 894 plants in which they handled just under one-half of the total volume marketed by cooperatives in 1973. They used 419 of these plants only as milk reloading stations. Cheesemaking was the most frequently performed

manufacturing activity, with 177 operations reported. Other major functions included making butter in 170 plants, drying milk in 105 plants, and packaging fluid milk products in 142 plants.

Some 207 cooperatives sold 605 million pounds of butter in 1973, 66 percent of U. S. production. Compared with 1964, the number of cooperatives selling butter declined 72 percent and the volume of butter sold declined 36 percent.

Sixty-two cooperatives sold 894 million pounds of dry milk products, 85 percent of 1973 U. S. production. Yet, the number selling dry milk products declined 71 percent from 1964 and volume sold declined 48 percent.

In the growing natural cheese industry, 187 cooperatives sold 926 million pounds, 35 percent of U. S. production. Compared with 1964, the number of cooperatives selling natural cheese declined 36 percent and volume sold increased 153 percent, while U. S. volume increased 55 percent.

Sales of packaged fluid milk by cooperatives grew from 4.8 billion to 6.7 billion pounds of milk, an increase from 9 to 12 percent of U. S. milk bottling. For cottage cheese and ice cream, sales as a percent of national production continued to be low—13 percent and 5 percent, respectively. Mix for ice cream and other frozen products was marketed primarily by cooperatives—73 percent of U. S. production. Dry whey sales in 1973 accounted for 56 percent of U. S. production.

While most dairy cooperatives remain relatively small businesses, an increasing amount of dairy products is sold through cooperatives of a more economical size. For example, in 1973, cooperatives of the following size groups marketed these percentages of the total cooperative volume of selected products: butter, 5 million pounds and above, 84 percent; dry milk products, 10 million pounds and above, 85 percent; natural cheese, 5 million pounds and above, 82 percent; packaged fluid milk, 40 million quarts and above, 77 percent; cottage cheese, 5 million pounds and above, 64 percent; and ice cream, 2 million gallons and above, 71 percent.

Dairy cooperatives sold 63 percent of their total milk receipts to other plants and dealers as raw whole milk. Nearly all of the dairy products that they distributed were sold to wholesale outlets.

Cooperatives generally have distributed more products under private labels than under their cooperative labels. However,

records, and assured producer payments. Many of these activities formerly were performed by customer handlers.

During the late 1960's and early 1970's dairymen formed five large, centralized, full-service cooperatives that presently market about 30 percent of the Nation's milk supply. This trend toward more integrated marketing operations has gained considerable support from farmers and acceptability from milk buyers. By 1973, a large majority of cooperatives' grade A milk receipts and processed product sales were made through the 20 largest cooperatives (table 1). This concentration continues to occur. Inevitably, half or more of total milk will be marketed through a small number of large cooperatives.

In the Upper Midwest farmers have developed some large successful cooperatives that primarily process or manufacture members' milk into a variety of products. Most have arranged for pool participation in fluid milk markets, to assure members a competitive price for their grade A milk. Some specializing in cheese production have provided attractive market outlets without fluid market pool participation.

Bottling and manufacturing cooperatives too small for diversification may increase their chances for survival by performing highly specialized operations.

Some small raw milk sales cooperatives will benefit from handlers' efforts to maintain milk supply alternatives to the dominant cooperatives serving the area.

In many areas of the Nation, small raw milk sales cooperatives and independent producers will continue to have considerable impact on the marketing of grade A milk. Their share of the market could stabilize in the range of 20 to 30 percent of the total.

Numbers of dairy cooperatives are expected to decline at about the same rate as between 1964 and 1973 (table 2). The greatest decline—two-thirds to three-fourths—is expected with small cooperatives that primarily market raw whole milk. Included in this group are those that market both grade A and manufacturing grade milk. Although we expect continued formation of small raw milk sales associations, those marketing grade A milk without providing milk supplies tailored to buyers' needs, or being sponsored by a handler, will decline. Also, those cooperatives marketing manufacturing grade milk that previously operated small manufacturing plants will decline.

Cooperatives that primarily manufacture milk received from

small-volume cooperatives have tended to distribute more of their products under their own label than have large-volume cooperatives.

Structure

Dairy cooperatives face increasingly specialized markets.

Buyers of raw whole milk are seeking large volumes for efficient operations, often insisting supplies be tailored to a 4- or 5-day workweek. So cooperatives are developing least-cost systems of farm-to-plant hauling and facilities to manage and manufacture reserve milk supplies. Cooperatives have become largely responsible for providing producer-related services, partly to secure needed market power but also because many milk processors have decreased their services. These services include supply procurement, field service for quality production, farm-to-plant hauling, and producer payroll activities.

Buyers of manufactured dairy products are often national or regional firms desiring large volumes for further processing or use in food industries. These may include food chains and other distributors buying large volumes of products packaged for retail distribution, often under private labels.

To maintain and improve members' milk markets, many dairy cooperatives have found it necessary to greatly enlarge their scale of operations and assume new marketing and processing functions. Many cooperatives have merged or consolidated with others to gain operating efficiencies and sufficient milk supplies to fully meet requirements of large handlers.

Most cooperatives providing supplies of raw whole milk to handlers provide few, if any, related services. However, a handful of cooperatives have greatly expanded services to handlers, becoming known as "full-service" raw milk sales cooperatives. They now account for twice the volume of milk provided by "minimum-service" cooperatives.

Full-service cooperatives primarily sell raw whole milk in truckload lots tailored to customer plant needs. They own facilities capable of manufacturing all or nearly all of the seasonal and weekend residual reserve milk under their control. They also may own and operate fluid milk bottling plants. Like bottling and manufacturing cooperatives, they perform producer-related functions including procurement and field work on quality production, farm-to-plant and over-the-road hauling in their own or contract trucks, determination of producer deliveries and tests, payroll

records, and assured producer payments. Many of these activities formerly were performed by customer handlers.

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Cooperatives that primarily manufacture milk received from

Table 1—Share of grade A milk received from farmers, milk processed or manufactured, and selected product sales for largest dairy cooperatives, 1973

Item	Receipts of grade A milk[1]	Milk processed or manufactured	Cooperative sales			
			Packaged fluid milk	Butter	Dry milk products	Natural cheese
	Percent		*Percentage of all cooperative sales*			
Shares of total co-op volume:						
4 largest co-ops	38	34	35	54	53	40
8 largest co-ops	51	42	51	65	68	54
20 largest co-ops	67	59	75	79	85	74
			Percent of total U.S. production			
Shares of total U.S. volume:[2]						
4 largest co-ops	31	10	4	34	46	13
8 largest co-ops	41	12	6	41	57	18
20 largest co-ops	54	17	9	51	72	25

[1]Grade A milk received from farmers.
[2]Adjusted to exclude intercooperative transactions.
Note: Groups of cooperatives may change from function.

Table 2—Structure and market shares of dairy cooperatives in 1973 and projected structure and shares for 1985[1]

Item	Cooperatives		Milk marketed in[2]	
	1973	1985	1973	1985
	Number		*Percent*	
Centralized cooperatives				
Raw milk sales				
Full-service[3]	18	17-25	38	50-60
Minimum-service[4]	336	80-110	21	10-15
Bottling[5]	40	20-30	3	3-5
Manufacturing[6]	187	50-80	11	15-20
Total	581	200-285	73	75-80
Federated cooperatives[7]				
Product sales and plant operation[8]	9	5-10	2	3-5
Barganing	10	10-15	(9)	(9)
Total	19	15-25	2	3-5
Grand total	600	230-335	75	80-85

[1]Projections based on industry changes. Cooperatives classified by primary marketing activity.

[2]Milk marketed for farmer members.

[3]Market raw whole milk tailored to buyers' needs, and manufacture reserve milk supplies.

[4]Market raw whole milk without operating supply balancing and manufacturing facilities.

[5]Package and distribute members' milk.

[6]Manufacture members' milk.

[7]Market products for member cooperatives.

[8]Market dairy products for member cooperatives and/or manufacture milk received from members.

[9]Volumes marketed included in data for member cooperatives.

members are expected to decline almost one-half to three-fourths. In 1973 more than two-thirds of these cooperatives received only manufacturing grade milk. With the continuing shift from manufacturing grade to grade A milk production, we expect full-service and large manufacturing cooperatives to perform much of the milk manufacturing presently done by small manufacturing cooperatives.

The number of cooperatives that primarily bottle milk is expected to drop by one-fourth to one-half. Yet the volume of milk bottled by cooperatives will increase because full-service cooperatives are expected to add and expand fluid milk bottling operations. The shift could lead to bottling becoming the primary activity.

Although full-service cooperatives are expected to grow only moderately in numbers, milk volume marketed is expected to increase substantially.

Specifically in the Northeast, the number of small raw milk sales cooperatives will decline and full-service cooperatives will increase. The number of cooperatives that primarily package fluid milk will likely decline, but the volume packaged will increase.

In the Upper Midwest, a substantial decline will occur in number of small cooperatives, both manufacturing and raw milk sales. Larger manufacturing cooperatives and those with specialized high-margin products will continue to grow. Use of full-service cooperatives will expand, but bargaining federations will continue at about the the present level. Although the volume of fluid milk packaged will likely increase, the number of cooperatives that primarily bottle milk is expected to decline.

During recent years, the South has experienced sharp changes in the structure of dairy cooperatives. A number of local raw milk sales and bottling cooperatives disappeared with the formation and growth of large full-service cooperatives. Expansion in the use of these cooperatives will continue, while the number of cooperatives primarily bottling milk will continue to decline. However, volume of milk bottled will continue to grow.

A similar trend in the West toward greater use of full-service cooperatives may possibly include formation of one or more serving multimarket areas. At the same time, the number of small raw milk sales cooperatives will decline.

Few cooperatives in the West are engaged primarily in fluid milk packaging and distribution. Expansion in bottling by cooperatives in the area is expected largely through large cooperatives that primarily manufacture member's milk. These manufacturing cooperatives will continue their dominant position in the West.

Marketing Operations

In 1973, cooperatives marketed 82.5 billion pounds of milk received from farmer members. These receipts accounted for 75 percent of the 110 billion pounds farmers sold to all plants and dealers. Assuming that total farmer sales in 1985 will approximate 123 billion pounds, cooperative receipts from farmer-members should expand to 98 billion pounds or 80 percent of the total.

Total milk marketed is expected to increase 12 percent from 1973 to 1985 (table 3). Growth will be much larger in Sacramento,

Table 3—Total milk marketed, amount marketed by cooperatives, volume needed for Class I use, and residual for manufacturing by Farm Credit districts, 1973 and projected 1985[1]

Farm credit district	Total milk marketed[2]			Marketed by co-ops			Class I needs			Residual Class II		
	1973	1985	Change	1973	1985	Change	1973	1985	Change	1973	1985	Change
	Million pounds		*Percent*	*Million pounds*		*Percent*	*Million pounds*		*Percent*	*Million pounds*		*Percent*
Springfield	13,987	15,300	10.1	9,763	11,094	13.6	10,580	11,374	7.5	3,407	3,926	15.2
Baltimore	9,801	11,375	16.1	8,121	9,835	21.1	6,043	6,530	8.1	3,758	4,845	28.9
Columbia	4,747	5,645	18.9	3,471	4,310	24.2	4,820	5,570	15.6	(73)	75	(3)
Louisville	10,365	11,200	8.1	7,793	9,168	17.6	6,610	7,269	10.0	3,755	3,931	4.7
New Orleans	2,640	2,700	2.3	1,933	2,145	11.0	2,177	2,216	1.8	463	484	4.5
St. Louis	6,150	6,125	(0.4)	4,534	5,020	10.7	4,987	5,331	6.9	1,163	794	(31.7)
St. Paul	32,160	36,300	12.9	26,609	31,033	16.6	5,435	5,757	5.9	26,725	30,543	14.3
Omaha	6,770	7,125	5.2	5,513	6,036	9.5	1,651	1,586	(3.9)	5,119	5,539	8.2
Wichita	3,516	3,775	7.4	3,125	3,406	9.0	2,307	2,347	1.7	1,209	1,428	18.1
Houston	3,160	3,500	10.8	2,782	3,150	13.2	2,831	2,972	5.0	329	528	60.5
Sacramento	11,603	14,600	25.8	5,780	8,750	51.4	6,880	7,609	10.6	4,723	6,991	48.0
Spokane	4,923	5,265	6.9	3,108	3,772	21.4	2,011	2,034	1.1	2,912	3,231	11.0
Total	109,822	122,910	11.9	82,532	97,719	18.4	56,332	60,595	7.6	53,490	62,315	16.5

[1]Total and cooperative marketing based on milk production in the districts. Also Class I needs based on population in the districts. Residual Class II is total milk marketed less amount needed for Class I. Negative residual volume and percentage decline are shown in parenthesis.

[2]Total milk sold to plants and dealers.

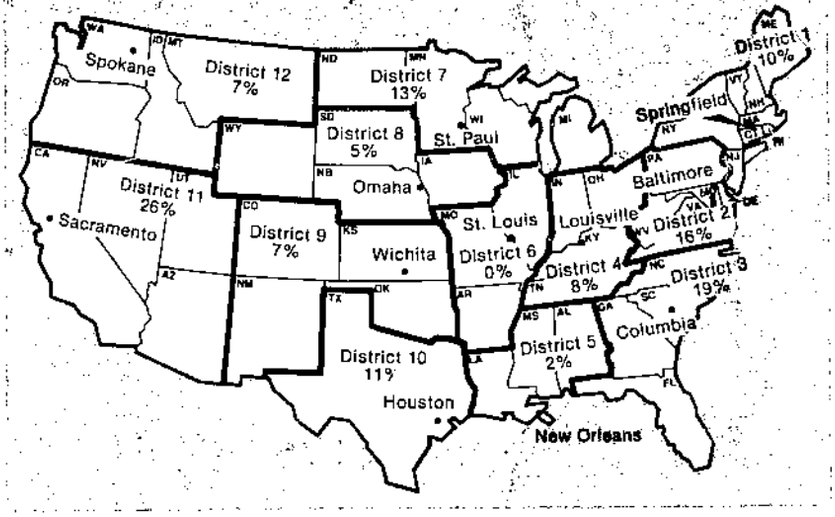
[3]Not applicable.

Columbia, and Baltimore Farm Credit districts and smaller in St. Louis, New Orleans, and Omaha districts (fig. 1).

Growth in demand for national Class I use is projected at 7.6 percent for the period 1973-1985. Large increases in supply are expected in the Columbia, Berkeley, and Louisville districts. Little or no increases are expected in Omaha, Spokane, Wichita, and New Orleans districts.

By moderately increasing their share of grade A milk marketed, cooperatives could expand volume marketed by 18 percent. Greatest increases are expected in the Sacramento, Columbia, Spokane, and Baltimore districts, largely because of increased total milk production.

Figure 1--Expected increase in total milk marketed by Farm Credit districts, 1973 to 1985



While cooperatives are expected to expand their milk bottling operations by almost 36 percent, their share would increase from 12 percent to 15 percent of total milk bottled, a gain of 3 percent (table 4). Cooperative mergers can greatly affect the amount bottled by cooperatives headquartered in a given district. Compared with 1973, the Louisville district has the largest projected increase in milk bottled by cooperatives.

Cooperatives are expected to expand their milk manufacturing operations by 32 percent. Their share would then increase from 46 percent to 52 percent of total milk

Table 4—Cooperatives' total milk marketed, milk bottled and manufactured by Farm Credit districts, 1973 and projected 1985[1]

Farm credit district	Total marketed[2]			Bottled			Manufactured			Sold raw		
	1973	1985	Change	1973	1985	Change	1973	1985	Change	1973	1985	Change
	Million pounds		*Percent*	*Million pounds*		*Percent*	*Million pounds*		*Percent*	*Million pounds*		*Percent*
Springfield	11,759	13,100	11.4	1,368	1,750	27.9	1,270	2,600	104.7	9,121	8,750	(4.1)
Baltimore	4,891	5,600	14.5	851	1,000	17.5	995	1,250	25.6	3,045	3,350	10.0
Columbia	2,414	2,500	3.6	705	600	(14.9)	62	200	222.6	1,647	1,700	3.2
Louisville	9,916	12,000	21.0	532	1,500	182.1	761	1,500	97.1	8,623	9,000	4.4
New Orleans	983	1,100	11.9	([3])	([3])	([3])	([3])	([3])	([3])	971	1,100	13.3
St. Louis	([3])	([3])	19.1	([3])	([3])	36.1	([3])	([3])	19.0	([3])	([3])	16.9
St. Paul	16,388	18,900	15.3	1,357	1,750	29.0	9,707	11,000	13.3	5,324	6,150	15.5
Omaha	3,740	4,100	9.6	([3])	([3])	([3])	993	1,125	13.3	2,680	2,875	7.3
Wichita	([3])	([3])	7.4	([3])	([3])	([3])	([3])	([3])	([3])	([3])	([3])	5.5
Houston	([3])	([3])	14.6	([3])	([3])	([3])	([3])	([3])	([3])	([3])	([3])	5.7
Sacramento	6,102	8,750	43.4	581	750	29.1	2,246	3,625	61.4	3,275	4,375	33.6
Spokane	2,955	3,775	27.7	604	800	32.5	1,193	1,550	29.9	1,158	1,425	23.1
Unspecified[4]	24,078	27,900	15.9	717	975	36.0	7,194	9,400	30.7	16,246	17,625	8.5
Total	83,226	97,725	17.5	6,715	9,125	35.9	24,423	32,250	32.1	52,090	56,350	8.2

[1]Volume based on cooperative headquarter location.
[2]Includes almost 700 million pounds received from non-cooperative firms in 1973.
[3]District data not shown for less than three cooperatives or when individual cooperative operations might be disclosed.
[4]Includes data not shown by districts.

manufactured, a gain of only 6 percent. Districts with large projected increases in milk manufactured by cooperatives include Houston, Sacramento, St. Paul, and Louisville.

Even though cooperatives will substantially increase the volume of milk bottled and manufactured by 1985, the number of plants used will likely decline. Numbers of plants needed were estimated by using projected volumes of milk to be processed and manufactured by cooperatives in 1985, based on industry trends. In making these projections, the number of plants that would likely continue to exist in 1985 were estimated and then plants were added to handle the cooperative volume. The number of bottling plants is projected to decline by 35 percent and the number of manufacturing plants by 56 percent (table 5).

Processing and manufacturing larger volumes of milk in fewer plants will require extensive modernization and remodeling of existing plants and the construction of some plants at more desirable locations.

Table 5—Number and average size of cooperative bottling and manufacturing plants, 1973 and projected 1985[1]

Farm Credit districts	Bottling				Manufacturing			
	Plants		Average size		Plants		Average size	
	1973	1985	1973	1985	1973	1985	1973	1985
	Number		*Million pounds*		*Number*		*Million pounds*	
Springfield	21	15	65.1	116.7	19	10	66.8	260.0
Baltimore	16	10	53.2	100.0	6	5	165.8	250.0
Columbia	14	5	50.4	120.0	(2)	(2)	(2)	(2)
Louisville	17	15	31.3	100.0	16	10	47.6	150.0
New Orleans	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
St. Louis	13	8	42.4	93.8	27	20	124.4	200.0
Omaha	(2)	(2)	(2)	(2)	23	6	43.2	187.5
Wichita	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Houston	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Sacramento	14	8	41.5	93.8	15	10	149.7	362.5
Spokane	17	10	35.5	80.0	19	12	62.8	129.2
Unspecified[3]	5	4	33.2	68.8	37	27	103.6	207.4
Total	139	90	48.3	101.4	367	160	66.5	201.6

[1]Number of plants and volume based on cooperative headquarter location.
[2]District data not shown for less than three plants or when individual cooperative operations might be disclosed.
[3]Includes data not shown by districts.

Organizational and Operating Options

Technological changes in milk assembly, processing, manufacturing and distribution have provided economic incentives for overall changes in the dairy industry structure. Generally, both dairy firms and their plants have become larger. Dairy farmers have expanded their farming operations through greater use of labor-saving equipment, and are changing the structure of their cooperatives in search of higher prices, greater market security, and more efficient operations.

Federation and Centralization

To meet the needs for larger or more integrated cooperatives, farmers have followed two basic organizational structures, in some cases adopting a combination of these two: (1) Centralization by combining individual cooperatives into a single cooperative with direct farmer membership, and (2) federation by forming a new cooperative with the individual cooperatives as members. The choice has been and will continue to be based largely on the type of marketing activities to be combined.

Centralized cooperatives have been generally preferred where marketing activities were principally the assembly and delivery of raw whole milk from farms to plants. Federations, on the other hand, have proved effective for specialized activities such as regional or interregional bargaining and price alignment, operating specialized manufacturing plants, joint selling of manufacturing products, and interregional pooling of reserve supplies of raw milk. Both forms of organization can provide all of these services for farmers.

Federations

In a federation, member cooperatives own the equity investments and the boards of directors of member cooperatives elect representatives to the federation's board. Board representation is generally allocated among member cooperatives on the basis of business done with the federation, equity investment, or some combination. Allocation of earnings is proportionate to business volume with the federation.

Federations are easy to form both from a legal and a financial standpoint. Individual cooperatives simply pool their resources and charter a new organization to perform certain func-

tions. No changes are made in the member cooperatives' structure. Services are provided by the federation as specified in membership agreements. Directors, management, and at least most personnel keep their jobs. Only a few assets may be shifted to the federation. The so-called "people" problem can be ignored because member loyalties and community and business recognition remain undisturbed.

The assets and functions assigned to a federation should be operated more efficiently than on a separate basis by each member cooperative. Initially, the federation is viewed as providing the advantages of marketing strength and economies of scale while local ownership and control of basic operations is retained by member cooperatives. Another role often performed by federations is that of providing a forum for resolving mutual problems and conflicts.

The basic structure of a federated marketing cooperative can present a challenge for effective long-term operations. Compared to a centralized cooperative, a federation has only a few members that individually provide a large percentage of the federation's product supply. Viewed in a negative sense, the loss of a member cooperative will likely have a much greater economic impact on a federation than the loss of a farmer member by a centralized cooperative. The challenge referred to is for federations to develop and maintain the business discipline needed to carry out a strong marketing program and at the same time avoid a debilitated membership. Following are suggestions for policies designed to avoid operating and management problems, specifically in areas where cooperative history has shown a need for increased federation business discipline.

1. Membership agreements should be of such nature and length as to minimize possible threats of withdrawal by members. Such threats can limit growth or the undertaking of needed activity. When uncertainty about future growth or change is transmitted to lenders or other members, it becomes difficult to raise capital and plan for expansion.

2. Directors should have a clear responsibility to represent majority membership when making decisions to bring about the overall, long-term improvement of the federation.

3. Federation management, both hired and elected, must be given leeway to make timely decisions and not be subject to long delays because of member cooperative ratification procedures.

4. Possibly the most important task confronting federations is obtaining vastly improved supply commitments from member cooperatives. By this we refer to commitments in terms of length of time and both quantity and quality of product supplies. Federations cannot develop effective marketing programs using members' residual supplies, often in competition with members.

To deal with these problems, some federations are assuming more functions including the ownership and operation of milk processing and manufacturing plants as well as other assets. Their member cooperatives are assuming the role of farmer membership organizations while federations operate more as centralized cooperatives. Even though initially structured as federated organizations, they have tended to perform processing and marketing activities more as centralized dairy cooperatives. In fact, some federated dairy cooperatives have established membership units for farmers choosing to join the organization directly.

Earlier we discussed the relative ease with which federations can be formed. This can be an effective means of adapting long established cooperative operations to changing market demands. Federations formed to provide a full line of services both to member cooperatives and customers may have a particularly strong potential for success in some areas, for example in the Northeast's presently fragmented structure.

The federated approach to marketing manufactured dairy products offers great potential for improved marketing returns. Cost of developing a national consumer brand franchise is much too large for individual cooperatives. Also the large volume of uniformly high quality product required to assure buyers a continuous supply is often greater than the supply from one cooperative.

Instead of individual efforts with local brands, dairy cooperatives could together develop a most effective national brand and sales program for all products as is now exemplified only by Land O'Lakes for butter.

Some further major advantages that could accrue to a joint sales effort are:

1. Capture many marketing charges now spent outside of the cooperative sphere by offering a full line of closely specified products in large quantities to further processors.

2. Gain numerous savings in assembly, transportation, and distribution of products from member cooperatives.

3. Support the large overhead required for new product research, development, and sales.

Certain types of federations will continue to play an important role in milk marketing. Examples include: Central Milk Producers Cooperative, bargaining and supply coordination; O-AT-KA Milk Products Cooperative, manufacturing reserve grade A milk; Upstate Milk Cooperatives, Inc., fluid milk packaging; Northland Foods Cooperative, whey drying; Land O'Lakes, Inc. and Valley Lea Dairies, product sales; Associated Reserve Standby Pool Cooperative, providing reserve milk supplies to fluid markets; and Great Lakes-Southern Milk, multimarket bargaining.

Centralized Cooperatives

Large centralized cooperatives, including full-service, bottling, and manufacturing types, have grown to the point where they market a majority of the Nation's total raw milk supplies and produce most products processed and manufactured by dairy cooperatives. Goals expressed by farmer leaders who formed these cooperatives indicate that benefits to members would flow from increased market security and bargaining strength, economies in raw milk procurement and distribution, improved plant operations, and reduced overhead.

It has been difficult to objectively measure monetary benefits gained from forming large centralized cooperatives, particularly in the areas of market security and bargaining. Nevertheless the assessment by cooperative leaders of gains made by these cooperatives have been such that dairy farmers continuing to restructure their organizations have most often chosen the centralized cooperative form.

Large centralized cooperatives particularly the interregional organizations formed in the past decade face a series of challenges just as do federations. Yet these challenges arise for different reasons and point to different policy suggestions.

1. Growth in membership size tends to reduce members' feeling of belonging and influence. This suggests need for improved communications to support development and implementation of policies leading to overall long-term benefits to members.

2. Growth in membership areas often leads to membership with diverse interest because of different milk production and market characteristics. It may be necessary to provide some autonomy to groupings of membership, although care must be taken not to submerge programs for long-run economic improvement to short-term efforts with narrow membership application.

3. Multimarket delivery points and diverse milk marketing programs complicate efforts to achieve equitable treatment of members with respect to milk hauling, facility financing, and milk pricing. It is important that large cooperatives continually monitor their marketing programs for adjustments needed to maintain equitable treatment of members.

4. Facility modernization along with vertical and horizontal integration create a need for increasing amounts of equity capital. Policies and programs need to be developed to equitably obtain neeeded capital even in the face of shortrun membership problems where results point to long-term financial and market security gains.

5. Costs of providing handlers with raw milk supplies tailored to their plant needs may in the short run leave full-service cooperatives unable to pay prices competitive with those received by producers able to avoid these costs. By increasing their efficiency in supplying milk to handlers, and by using cost justified pricing of milk to buyers, the full-service cooperatives can, and in the long run they must, narrow any competitive gap with nonmembers and small raw milk sales associations.

6. The size and perceived market power of large centralized cooperatives have brought attacks by State and Federal regulatory agencies. Legal defense against these attacks has been expensive for members and generated much negative publicity. No cooperative has been convicted of significant wrongdoing, but the attacks have made it abundantly clear that large dairy cooperatives cannot afford to do things that give even a remote image of wrongdoing.

In summary, we foresee in the coming decade a continuing strong growth in milk marketed by large centralized cooperatives. These cooperatives must intensify efforts to earn competitive margins.

Federations have a strong potential in some areas as a vehicle to unify individual cooperatives' efforts for a total marketing program, but this will require greater commitment of supply and financial support than member cooperatives have given in the past.

Farmers choosing the federated approach appear to be using it only for selected marketing activities. However, we believe that cooperatives manufacturing milk, both full-service cooperatives and manufacturing cooperatives, should seriously consider unifying their product sales efforts in sales federations. This form of joint marketing effort appears to be declining, yet the advantages of coordinated product marketing are numerous.

Open and Closed Membership

Open membership means the cooperative accepts all farmers wishing to become members and participate in its operations. Closed membership means the cooperative accepts farmers wishing to join only as the cooperative needs additional volume for its regular sales outlets.

The choice between these policies depends on the marketing services performed, physical capacity of facilities, and the current marketing conditions.

A major reason for open membership is to acquire benefits through cooperative growth. For both full-service and other raw milk sales cooperatives, membership growth can mean a larger share of the raw milk market, low-unit marketing costs, increased market power, and volume for expanding sales outlets. Also, manufacturing-oriented cooperatives with under-utilized facilities can gain lower per-unit plant costs by increasing member milk volume.

A major disadvantage of an open membership policy is that farmers are permitted to become members when other marketing alternatives are less attractive, even to the shortrun detriment of members. Also, it could discourage members from targeting production for a stable supply-demand balance. Farmers may be inclined to view open membership cooperatives as market security organizations that they would join when other outlets were not available; in effect, a market of last resort for farmers who may have sought others and failed.

Another disadvantage of this policy is that it permits non-cooperative handlers to be more selective in procuring independent producers knowing that possible criticism of accepting only large well-located dairymen would be minimized because cooperatives would serve the remaining producers. The cooperatives could end up with memberships that have above average service costs, impairing their ability to pay competitive producer prices. With less than average pay prices, cooperatives would cease to be attractive market outlets for dairy farmers.

More specifically, let us examine the impact of membership policies on selected kinds of dairy cooperatives and marketing conditions.

A market's dominant raw milk sales cooperative would likely solicit new producers for membership when they entered the market, because the increased volume would provide needed marketing strength along with greater marketing economies and a more equitable sharing of costs. However, it would likely encourage them to enter the market during the short supply periods when additional milk was needed to minimize the price lowering effect to the market.

Also full-service cooperatives will likely choose policies directed more toward large market shares than toward high Class I utilization. Yet they have placed greater emphasis on Class I prices than charges to handlers for services performed. As a result, supply balancing and surplus disposition have generally cost full-service cooperatives more than the amount charged for these operations. The larger the market share the more equitable the distribution of these costs. Further, the larger its market share the more probable that the cooperative can obtain prices that cover costs of the marketing services provided.

Cooperatives that primarily manufacture milk seek milk supplies that enable efficient plant operations. Milk in excess of the optimum amount for given facilities would increase costs and reduce returns to members. To restore optimum operations, it would be necessary to adjust either plant facilities or milk supplies received. Rather than expand plant facilities milk supplies could be curtailed by limiting membership at least during heavy milk production months. With normal attrition some new members are generally needed to maintain a given supply level.

Fluid milk bottling cooperatives differ from milk

manufacturing cooperatives in storability of finished product. Another major factor is the difficulty of expanding sales rapidly. Where fluid milk sales are relatively stable, bottling cooperatives may be inclined to close their membership after member milk supplies reach optimum levels. Thereafter, membership might remain closed except for member supply replacement and sales expansion.

In the future, all types of dairy cooperatives may tend to take on new members only as replacements or to meet other supply needs at such times as would best serve the total membership. The desired milk supply level for given cooperative plant facilities is becoming more critical. With increasing plant costs, cooperatives can ill afford under-utilized facilities. Thus, new facilities probably will be built to meet predetermined needs. As cooperatives approach the desired balance between milk supplies and plant facilities, they may choose to use a modified closed membership policy.

Dairy Specialization and Diversified Operations

Milk marketing involves the use of highly specialized equipment and techniques unrelated to any other farm commodity. Likewise, owing largely to its perishability and geographic production dispersion, milk is marketed through a unique set of institutions. For these reasons, cooperatives handling milk have specialized heavily in the commodity. In fact, during recent years only Land O'Lakes and some small cooperatives in the North Central Region have shifted away from dairy specialization by taking on more diversified operations.

However, some observers, perhaps after studying the operation of Land O'Lakes and corporate conglomerates, have proposed that dairy farmers in the future might be served better by diversified cooperatives. Advantages and disadvantages of this option exist, some clear and others debatable.

Both an asset and a liability can be seen in the highly specialized nature of the dairy industry. Because the dairy industry deals with a perishable product, marketing, operating, and investment decisions must be rapid, precise and accurate, demanding the interaction of highly knowledgeable boards and management. Specialization at least provides a framework for this

interaction. Democratically conceived policies formulated strictly by dairymen are more likely to reflect desires of most dairy farmers and enhance member loyalty to the cooperative.

But this very specialization poses the obvious problem of being financially dependent on the health of the dairy industry, particularly in the cooperative segment of the industry. This is illustrated by the financial difficulties some manufacturing cooperatives encountered in the early 1970's because of declining returns from butter and nonfat dry milk compared to natural cheese. Also, many cooperatives specializing in fluid milk packaging have lost volume needed for profitable operations to food chains choosing to package their own supply. Such events as dietary fads and changing import regulations can also have harsh effects on some specialized dairy operations.

Diversified cooperatives have several major advantages. Not only can the cooperative withstand economic problems that could arise in any product line but distinct advantages in the marketplace accrue to those who can offer buyers a full line of products. For example, besides dairy products, Land O'Lakes offers poultry, margarine, and other products. Another advantage is the potential for complementary marketing and manufacturing operations. Overhead costs can be spread over a large number of functions and operations although this can create problems.

The most notable problem with diversified cooperatives is how to formulate policies and decisions resulting in equitable treatment of members with diverse farming interests in a democratically controlled enterprise. Corporate conglomerates are responsible to stockholders who may not use their services or products offered. They can shrink or drop a service or function based solely on a profit criteria. But a cooperative has to answer to members who rely on it.

Thus, the questions: With limited capital, should the cooperative invest in meatpacking or in milk bottling? Should it increase earnings on feed sold to dairy farmers in a time of falling milk prices? Should heavy earnings in fertilizer be used to improve dairy operations? How should overhead costs be shared among members? Resolution of these problems will involve making proper accounting, legal, tax, and membership relations decisions.

We cannot observe any trend toward the increased use by dairy farmers of diversified cooperatives for milk marketing. However, the advantages of this option should be continually

studied for its application to dairy marketing, particularly for brand products. In the meantime, methods must be developed to ensure that dairy members and the cooperative's dairy staffs maintain adequate control of the dairy segment of a diversified cooperative's total program.

Price Leadership and Minimum Price Policy

The shift from can to tank assembly of milk enabled cooperatives to gain control over the movement of their members' milk. With cooperatives able and willing to sell milk in truckload lots, many fluid milk handlers turned over supply procurement and disposition of reserve grade A milk to the emerging full-service cooperatives.

Initially, handlers paid producers premiums above minimum order prices for tank assembled milk. However, as cooperatives took on milk procurement and other market functions, the tank-milk premium was needed to cover marketing costs borne by the cooperative.

Full-service cooperatives have become responsible for handling the residual supply that fluctuates widely between days in a week and months in a year. Federal milk orders price this residual supply at the Minnesota-Wisconsin price. Cooperatives generally have been unable to fully recover their costs for servicing the fluid market from sales of manufactured products made from the residual supply at prices reflected by the national market. To offset these losses, cooperatives logically seek marketing service charges from handlers receiving tailored milk supplies. Otherwise, they find it necessary to either reduce the prices paid for reserve grade A milk or distribute losses among members.

Cooperatives performing supply balancing and reserve grade A milk disposal activities often pursue a price leadership policy while other raw milk sales cooperatives seek prevailing prices without bearing their share of costs of these activities. Let us look at some of the advantages and disadvantages to members for each policy.

Cooperatives with a price leadership policy generally are the dominant full-service cooperatives, providing a range of services to the fluid milk markets. Their members are assured a market for their milk often through the use of plant facilities for processing and manufacturing milk not sold as raw whole milk. They

contribute to overall milk marketing efficiency and marketing cost reductions by coordinating the movement of members' milk from farms to plants, allocation of milk supplies among plants, and disposition of reserve grade A milk.

They can make alternative disposition of milk if handlers refuse to receive milk at a specified price or refuse to negotiate prices acceptable to the cooperative. Records of the dominant cooperatives enable them to note early trends in milk production and use, and to make appropriate price adjustments in the best interest of members and the industry.

A major disadvantage of the leadership policy is that nonmember producers gain many of the benefits without bearing an equitable share of the costs. For example, handlers receiving milk from independent producers and members of small raw milk sales associations often receive the producers' full production. Additional supplies may be obtained as needed in truckload lots from other sources including the market's dominant full-service cooperative.

Although over-order prices are uniform among handlers, payments to producers, except for markets using super pools, often reflect price advantages to some producers because of differences in handlers' Class I utilizations. Thus, handlers with high Class I use can often pay producer members of small raw milk sales associations and independent producers higher blend prices than those received by members of the full-service cooperatives. At the same time these small associations and independent producers avoid their share of supply balancing and reserve milk disposal marketing costs.

By pursuing a minimum price policy, order prices plus cost-justified service charges, the full-service cooperatives could narrow the difference between prices paid members and prices received by nonmembers. However, payments to all producers would be less than those received when the full-service cooperative pursued a price leadership policy. Also, a minimum price policy does not adequately signal to producers production adjustments needed to maintain an adequate supply.

Plant costs for manufacturing reserve grade A milk are nearly always higher than plant costs for manufacturing an equal volume of milk in concentrated milk production areas where plants generally utilize more of their producers' total milk production. Because products made from reserve milk must be

sold on a national market, it is often impossible to obtain sales revenue equal to the minimum order price for reserve milk plus supply balancing, manufacturing, and other costs.

While a reduction in the reserve milk prices could eliminate losses from supply balancing and reserve disposal, plants that manufacture essentially the total production from a given group of producers would continue to generate higher net operating margins than plants that manufacture the weekend and seasonal reserve milk.

Use of cost-justified supply balancing service charges on Class I milk, on both receipts from other plants and receipts direct from producers where only part of their supply was included, would provide relatively uniform supply costs among all handlers that primarily bottle milk. Ideally, the Class I service charge should apply to all Class I milk. The money provided should be distributed among plants manufacturing reserve milk in a manner that would compensate them equitably for their cost burdens related to the daily and seasonal fluctuations in Class I use.

A seasonal pricing plan for producer payments would encourage producers to produce milk more evenly throughout the year and reduce the need for reserve milk supplies. Because milk production is generally more expensive during the short supply months, "base-excess" or other seasonal pricing would help provide more equitable treatment of producers.

Horizontal and Vertical Growth

For the purpose of this discussion, horizontal growth is defined as expansion in membership and amount of milk marketed for members, and vertical growth as expansion to other levels of dairy product marketing, including selling directly to the consumers.

Recent growth of dairy cooperatives has been largely horizontal through mergers and acquisitions. Their share of milk sold to plants and dealers has reached 76 percent for all milk and 81 percent for grade A milk. At the plant level, they process or manufacture only 28 percent of total supply. Cooperatives' sales at retail are less than 1 percent for any dairy product.

The rapid decline in number of dairy cooperatives and the expansion in volume of milk marketed by them are the results of

substantial horizontal growth by surviving organizations. We expect continued growth in size of dairy cooperatives.

However, their share of total milk marketed may be near a peak level. The shift from manufacturing grade to grade A milk production during recent years has resulted in cooperatives marketing a slightly smaller share of total grade A milk. With a complete shift to grade A milk production, cooperatives' share of total milk may not rise much above 80 percent.

Much of the horizontal growth of dairy cooperatives was accomplished by farmers combining their cooperatives into fewer and larger units to better serve their marketing needs. Creation of the new cooperative structure was not expensive in terms of new capital input and did not require Government premerger approval.

Benefits from more efficient use of milk hauling and plant facilities are easily observed. Educational programs of the larger cooperatives lead to a better understanding by farmers of milk marketing problems. A large informed membership is the underpinning needed to attain and continue a strong bargaining position.

On the other hand, it is more difficult to keep a large membership fully informed. Bigness itself may create an image that tends to dampen membership participation and support.

While horizontal growth may be desired, it is not completely within a cooperative's control. Representatives may solicit nonmembers for membership but the nonmembers make the decision to join. In like manner, representatives may seek acquisition or merger of another cooperative, but the other members must approve the proposal.

Vertical growth offers new frontiers to many dairy cooperatives. They have the raw products and can themselves develop and implement plans for further milk processing. However, it is important that steps taken be well conceived and planned, provide sufficient volume, and lead to well run low-cost operations and effective sales programs.

Major roadblocks to vertical growth include reluctance of members to have their cooperatives move from raw milk sales to plant operations that require large capital investments and increased marketing risks, the reaction of customer plants, and restrictions on acquisition of non-cooperative dairy firms. Capital

requirements for expansion into fluid milk packaging and distribution could reach a dollar a hundredweight using a 10-year revolving period. Entry into fluid milk distribution could adversely affect the cooperative's relationship with its customer fluid milk plants, and result in lost raw milk sales. Further, the Federal Trade Commission's restrictions on acquisitions of bottling plants encourage cooperatives to be selective in making acquisitions.

In summary, horizontal growth has been largely through merger and coordination with other cooperatives. In a large area, it may not go beyond 70 to 80 percent of total producers in one organization. In other words, 20 to 30 percent of total producers may choose to be members of other cooperatives including small raw milk sales cooperatives or refuse to join any cooperative. Some cooperatives have reached this level of horizontal growth in their present membership area.

In the future, cooperatives will give increased consideration to vertical growth, particularly in packaging and distributing fluid milk and related products. However, this will require greater capital investments by members. In the present marketing environment, a combination of vertical and horizontal growth may be needed for farmers to reach desired marketing objectives.

Adjustments to Best Serve Members

Dairy cooperatives exist to serve their farmer members. Marketing operations depend on decisions made by members. As marketing conditions change, it is necessary for management to reappraise the cooperative's operations and make needed changes.

Manufacturing

Perhaps the chief reasons farmers organized dairy manufacturing cooperatives were to provide an assured market for their milk and cream and to protect themselves against abuses existing in local markets. In some communities, no satisfactory outlets were conveniently accessible. In others, there was little or no competition among dealers, particularly in supply procurement.

By 1925, 1,400 cooperative creameries were operating largely in Minnesota, Wisconsin, and Iowa. There were also 600

cooperative cheese factories, mostly in Wisconsin. The number increased during the 1920's, leveled off during the 1930's, and began a continuous decline in the early 1940's.

The continuing shift since the 1950's to tank-assembled milk has greatly hampered the successful operation of small manufacturing cooperatives and milk receiving stations because tank milk can be efficiently moved directly from farms to distant large-scale manufacturing plants. Also, most creameries are now much too small to effectively market grade A milk to fluid milk outlets.

The result has been a declining role of cooperative creameries and small cheesemaking cooperatives as manufacturing operations centralized into larger cooperatives. Initial steps have often proved to be too little and too late to provide the surviving organizations with adequate volume and modern facilities needed to continue as successful organizations.

Increases in cheese prices during the early 1970's provided much higher return for milk used in making cheese than milk used in butter and nonfat dry milk production. The market has continued to favor cheese production underscoring the need for flexibility in plant product mix and a restructuring of manufacturing cooperatives to gain benefits of multiplant operations.

These events highlight a serious problem confronting small manufacturing cooperatives specializing in the production of a major product, such as butter, cheese, or nonfat dry milk. Smaller organizations are generally single plant units and cannot afford the heavy investment required for multiproduct operations. Large cooperatives have broader alternatives. They can choose to have specialized plants to which they can allocate milk supplies as product prices dictate or operate very large multiproduct plants in which production is geared to market operations.

Present milk prices encourage large-volume producers of grade B milk to shift to grade A milk production. Yet loss of volume by manufacturing cooperatives with fixed plant facilities, reduced their ability to pay competitive prices for milk for manufacturing.

To obtain an adequate milk supply for survival, manufacturing cooperatives will likely need to pool grade A milk receipts on fluid milk markets. Thus, the cooperatives could provide members a competitive price for grade A milk and at the same time keep all or most of their milk supply for

manufacturing. To do this, manufacturing cooperatives, except those in markets with low pool shipping requirements (e.g., orders 2 and 68), may need marketing arrangements with fluid milk handlers or fluid milk marketing cooperatives permitting pool qualification without shipping a substantial amount of milk to the fluid market.

Manufacturing cooperatives with efficient operations and a high return product mix may rely less on fluid milk market pools to pay members a competitive price for grade A milk. With the Class I differentials becoming a smaller part of the total price, cooperatives in reserve milk producing areas are better able to pay members competitive prices without participation in the fluid milk markets.

In summary, milk manufacturing cooperatives were among the first organized. The shift to grade A milk production and tank-assembled milk brought a sharp decline in number and a restructuring of the survivors.

Although increasing amounts of milk are manufactured by full-service cooperatives, manufacturing cooperatives will continue in the Upper Midwest and other areas of concentrated milk production. Some will be large volume organizations with modern facilities primarily producing multiproducts for commercial market outlets. Some will be federated organizations manufacturing the reserve milk for member cooperatives supplying the fluid milk market. With wide variations in milk supply, these organizations would likely specialize in producing price supported products. Surviving small organizations often will benefit from performing specialized operations.

Bottling

The milk producers' objective in forming many of the early bottling cooperatives (defined as those that primarily bottle members' milk) was increased returns from retail distribution. Dairymen believed the distributors were getting more than a fair share of the consumer's dollar. By bottling and distributing their milk, producers reasoned that they would increase their returns an amount equal to the distributor's share of profits, believed to be exceptionally large.

Bottling cooperatives were established principally in small or medium-sized cities, operating on a small scale with retail distribution. Product quality and service were the foundation

upon which most were built. Because farmers supplying the milk were nearby and personally acquainted, they found it easy to get together in their cooperative effort.

The trend in the 1950's toward large volume operations and wide distribution areas accelerated the shift to single service containers and increased sales of milk through grocery stores. The result has been a decline in number of small bottling and distributing plants, both cooperative and noncooperative.

By the mid-1960's, changes in marketing conditions had encouraged integration into fluid milk processing by food chains. They were generally able to process and distribute to themselves at lower costs than dairy firms because of their ability to force distribution economies on their integrated operations. Typically, they required 3-day advance orders, restricted package returns from stores, and required store personnel to move products from stock docks to dairy cases. Large volume outlets with predictable demand patterns enabled food chains to develop efficient operations with low unit-cost investment in plants and distribution equipment. Obviously, also, there were no credit problems. Without substantial sales to food chains, bottling cooperatives may not be able to compete for a shrinking market and earn satisfactory profit margins.

Bottling cooperatives today face many of the supply-balancing problems experienced by other bottling firms dependent on direct producer milk supplies. Both find it burdensome to handle weekend milk and to carry excess milk supplies throughout the year to assure adequate milk during the short supply season. Some have reduced supply handling costs through milk supply coordination and balancing activities with other cooperatives.

Many bottling cooperatives began with modest capital investments by members and with the authority to retain earnings and make capital deductions that would be revolved at the discretion of the directors. They continually face the need for increasing amounts of capital both in total dollars and dollars per hundredweight of milk marketed. Compared with other marketing alternatives, the investment and capital risks with single plant bottling facilities are high.

The investment level required for a modern, automated bottling plant of competitive size, say 75,000 gallons a day, easily exceeds $10 million. In most cases, the total investment in older facilities modernized to a competitive level would be only a little less. Today, a bottling cooperative with 250 members would

require from $20,000 to $40,000 equity investment per member to finance such an operation with a debt-equity ratio satisfactory to cooperative banks. This high level of off-farm member investment might be extremely profitable to members. Some highly successful local bottling cooperatives have annual net margins exceeding 20 percent of member equity. In such cases they have survived and grown from earlier years by reason of continuing good management, long-term member capital support, or other fortuitous circumstances.

A local group planning entry into processing will face a nearly insurmountable problem of raising member capital, beside the risks inherent in entering a new venture. For this reason, new ventures in bottling generally will be limited to expansions of large full-service cooperatives with their broad capital base.

To avoid making an annual investment to revolve equity capital and at the same time maintain equity among members, some cooperatives have instituted base capital programs. With these plans, members make capital investments based on their annual marketing volumes. Where new member investments are about equal to the money needed for equity retirement, capital requirements for continuing members change only when the organization's total capital needs change

During recent years, cooperatives have relied increasingly on per-unit capital retains as a stable source of funds to revolve member investments and to maintain and expand facilities. Bottling cooperatives depending largely on retained earnings for capital may find it necessary to lengthen the revolving period, reduce producer pay prices, or deduct service charges to provide adequate margins for capital.

Regardless of the method or combination of methods used to obtain needed financing, bottling cooperatives are finding no easy solution to the problem. Unless these cooperatives adopt carefully planned long-term financial programs to meet the evolving fluid milk marketing structure, their survival is in doubt.

In summary, bottling cooperatives are declining in number, struggling for increased volume, and facing growing capital problems. Large volumes of milk are distributed by food chains increasingly operating their own plants and distribution. Cooperatives and other bottling firms are left with a decreasing market to obtain needed volume for modern automated plants of a competitive size.

The result is instability in the market at a time cooperatives

need additional capital to modernize facilities. In many areas, bottling cooperatives have merged with large full-service cooperatives. Only a few of the relatively small single-plant bottling cooperatives are expected to survive. Many other cooperatives engaged in milk bottling will face depressed returns during a restructuring of the fluid milk industry. Yet, the amount of milk bottled by cooperatives is expected to greatly increase.

Minimum-Service

The major objectives in organizing raw milk sales (bargaining) cooperatives were to increase prices paid producers, provide for checks on tests and weights of members' milk, and assure members a market for their milk.

Generally, bargaining associations began with little capital and no facilities for physically handling milk. Their bargaining strength depended largely on the support given by all producers in the market. Members were bound together by uniform milk marketing agreements between each producer and the association.

By 1929, most of the major fluid milk markets had one or more bargaining associations. The 1930's brought chaotic milk marketing conditions that led to renewed and wider producer interest in bargaining associations.

The breakdown of classified pricing and pooling systems established through direct handler-association negotiations was a major reason for associations seeking government assistance to help overcome the problem of nonmember milk supplies. Some State Governments instituted milk marketing regulations and the Federal Government responded with a program leading to Federal milk marketing orders.

Introduction of farm tanks for bulk milk assembly triggered the development of new marketing systems. For years, associations had struggled to gain control of the movement of milk supplies and thus strengthen their bargaining position. Bulk milk assembly offered this control plus opportunities to improve the efficiency of farm-to-plant milk hauling.

The shift to farm tanks resulted in a dramatic increase in the volume of milk produced by bulk milk shippers. Although the number of producers shipping grade A milk to most markets declined, total volume of milk increased, causing lower blend prices.

It became apparent that the reserve milk in most markets

could be handled best by one organization. Many of the cooperatives, providing a large portion of the supply for major fluid milk markets, responded to this challenge by directing the movement of members' milk to handlers according to their needs and disposing of reserve supplies. Many handlers chose to concentrate their efforts in packaging and distribution and turn over to the associations their supply procurement and producer-related activities. Changes in the larger cooperatives that assumed these responsibilities led to their characterization as full-service cooperatives.

Remaining raw milk sales cooperatives were generally small and often served primarily in the development of a unified producer's voice and as a communication link between producers and their milk handler. With the growing influence of the full-service cooperatives, some handlers have supported the development of minimum-service associations in an effort to obtain captive milk supplies.

Improved technology has resulted in a declining number of fluid milk plants and an increasing mobility of both packaged milk products and raw milk supplies. Surviving plants have become larger, are more highly automated, and require a greater volume of milk. Hence, associations and handlers in a market can no longer operate as though their market was separate from other markets.

Low-cost processing and distributing operations help assure producers a reliable market for their milk. In fact, low-cost operations from the farm to the consumer are becoming increasingly necessary for survival of both raw milk sales cooperatives and their local handler customers.

Small raw milk sales associations are finding that their impact on the market at best is mixed. Often they develop into what could be described as a captive of their customer handler in an effort to be assured of a market and to avoid some of the service costs borne by members of the larger cooperatives. Yet, this tends to undermine the price structure without increasing market volume through lower consumer prices.

Today, there is a growing cleavage between the minimum-service associations and the larger full-service cooperatives somewhat similar to that between members and nonmembers in the 1930's. At that time, Federal milk orders brought uniform treatment to all producers with handlers receiving each producer's full milk supply. While dairy industry leaders generally recognize

that certain marketing services formerly provided by milk bottling plants can be provided best by cooperatives, they have not agreed on a way to distribute the costs uniformly among either handlers or producers.

Some governmental agencies are concerned with preservation of the minimum-service associations as a means of obtaining a more competitive market for milk supplies even though their formation may have been encouraged and supported by handlers. As long as handlers believe the benefits received outweigh service costs incurred to maintain these associations, they will likely continue.

Raw milk sales activity is not restricted entirely to grade A milk. During recent years a number of small cooperatives organized as manufacturing cooperatives have closed their manufacturing operations and sold all milk received as raw whole milk. These cooperatives could be viewed as a type of bargaining organization, with some operating receiving stations and others delivering their milk directly to selected manufacturing plants. Generally, their milk goes to large cooperative plants. However, with full conversion to farm bulk tanks and increased movement of milk directly from farm to manufacturing plants, the need for these cooperatives will decline. Although viewed presently as raw milk sales associations, they are merely a passing stage in the restructuring of manufacturing cooperatives.

In summary, raw milk sales associations began with little or no capital, and possibly an office and a laboratory. With the advent of State and Federal milk marketing orders they gained stature and a degree of market power. As technological changes affected milk marketing, many associations combined their operations forming large full-service cooperatives. Remaining raw milk sales associations have often avoided full-service costs by selling to handlers willing to incur the cost of supply-related services.

As fluid milk handlers have grown in size, they have increasingly looked to full-service cooperatives for tailored milk supplies. Thus, minimum-service associations must look to a declining sector of the industry for market outlets.

Full-Service

Full-service cooperatives primarily provide tailored milk supplies to customer fluid milk plants and manufacture the reserve grade A milk. Generally the dominant cooperatives supplying milk to one or more metropolitan marketing areas, they

are the surviving organizations of a restructuring of cooperatives through horizontal mergers.

Recognizing that milk marketing was becoming regional in nature, associations located over wide areas united to form federated regional bargaining associations. They pioneered regional pricing of milk in the mid-1960's after years of heavy milk production and low prices. By 1967, with the help of reduced milk supplies, they established over-order prices for Class I milk in an area extending from the Canadian border to the Gulf and the Mexican border.

Regional federations were successful in bargaining, but difficulties developed in the federated approach. The mere logistics of obtaining local board approval of a pricing plan acceptable to member cooperatives were burdensome and time consuming. Where disagreements on the plan developed, problems in obtaining member acceptance were greatly magnified. Also disagreements could lead to withdrawal of member cooperatives to pursue independent courses.

Prior to 1967, efforts to merge dairy cooperatives into large centralized organizations had been made primarily on a market by market basis. Since then many of the raw milk sales associations in the central part of the Nation have merged into a few large full-service cooperatives.

Changes in organizational structure and marketing services bred new problems, including how to equitably treat members. Large full-service cooperatives are better able to adjust prices to reflect market conditions, particularly in the short run, than their predecessor minimum-service cooperatives. Yet full-service activities often lead to inter-market movements of milk and differences in marketing services performed that complicate the equitable treatment of members.

Cooperative leaders have long recognized that excessive milk supplies greatly reduce cooperatives' bargaining strength. Yet cooperatives have no control over the amount of milk that farmer members may choose to produce and they are generally obligated to market members' total production.

In an effort to achieve the desired balance between milk supplies and market needs, cooperatives marketing grade A milk have implemented, through milk orders or by themselves, a number of programs, including: Base plans, seasonal (Louisville) pricing plans, and participation in reserve standby pools. While the various base plans and seasonal pricing plans have been effective

in shifting the seasonality of milk production, they have not reduced total milk supply nor was this their intent. On the sales side, cooperatives have expanded their generic advertising in an effort to offset the cutbacks in brand advertising by bottling firms and maintain a strong demand for milk which is increasingly distributed under private label through food chains.

Full-service cooperatives are making improvements in the overall marketing efficiency. For example, they have taken steps to better organize milk assembly routes and direct movement of the area's milk supply to plants on a least-cost basis, locate and operate milk manufacturing plants to best handle the area's reserve milk supply, provide centralized low-cost processing of low-volume fluid milk products, coordinate milk supply and supply balancing activities with other cooperatives serving the area, integrate marketing of manufacturing grade milk with the marketing of reserve grade A milk, develop a centralized field service program for producers, and combine producer payroll activities with other producer records.

While full-service cooperatives have improved efficiency in marketing milk, opportunities for further gains remain particularly in the areas of milk assembly, supply movement, supply-balancing, and specialized plant operations.

Some of these benefits could be readily obtained if members would make needed changes on their farms. For example, least-cost milk hauling, where farmers ship less than truckload amounts, is dependent upon each producer having bulk tanks large enough to permit every-other-day pickup. Also, the milk room must be accessible to assembly trucks of optimum size.

Efficient movement of assembled milk supplies requires production of high quality milk cooled to low temperatures at the farms. To obtain such milk, some cooperatives have expanded field service activities to assist members in producing high quality milk, and arranging for access to milk rooms by large milk assembly trucks. Some cooperatives have instituted incentive prices for high quality milk. Generally this is done by making deductions for quality premiums from the cooperatives' milk pools, before blend price determination.

One possible means of maintaining farm bulk tanks of adequate size for every-other-day pickup is for cooperatives to own and lease tanks to members. Producers would thus avoid the problem of selling their old tanks and buying new tanks to handle

a changed milk supply. Instead, they would pay a service charge to cover installation of a tank to meet current needs.

Historically, producers have paid for having their milk picked up at their farms and hauled to the plants of first receipt. When milk assembly routes are reorganized to minimize hauling costs, producers will need a system of milk hauling deductions that assures equitable treatment among producers.

Some full-service cooperatives charge each producer a milk hauling rate reflecting his equitable share of total hauling costs rather than a rate reflecting actual hauling of his milk. Conceptually, each producer's share of total hauling costs should be the computed cost for hauling his milk to the major market outlets or nearer outlets to extent of need plus his share of additional costs or savings resulting from actual delivery of reserve milk to manufacturing plants. Total milk hauling deductions should be pooled and payments made to haulers based on milk hauling services performed by either contract haulers or cooperative operated trucks. Such sharing of assembly and transfer cost is essentially the same concept as marketwide pooling of returns for fluid and manufacturing class uses.

As much as is practical, milk should be hauled directly from the farm to the plants that will utilize it in fluid milk processing or manufacturing. Some plants specializing in the production of a few major fluid milk items have arranged to process and package milk as it is unloaded.

This system places extra burden on milk supplies and hauling. For example, with more than 65 percent Class I use and assuming market's normal use by days in a week, and a fixed producer supply, some milk from a previous day will be needed. If milk was properly cooled on the farm, it often could be "rolled"—held for 1 day on a truck. Otherwise it would need to be received and cooled at a supply plant or pump-over station before reshipment.

Plants can help reduce the market's daily supply-balancing problem by coordinating their days down to better equalize the aggregate daily plant volume. The seasonal supply-balancing problem is generally more difficult to resolve. In most markets this responsibility remains with cooperatives that generally have plants with the capacity to manufacture both the weekly and seasonal surplus. Service charges to handlers should encourage their participation in a workable solution to the supply-balancing problem.

A major problem in supply-balancing is equitable treatment of both handlers and producers. Disposition of reserve grade A milk at Federal order prices in markets with relatively high Class I utilization is generally viewed as a loss operation. The volume fluctuates widely between days in a week and months in a year, resulting in relatively low utilization of manufacturing plant capacity for peak day Class I needs and high unit operating costs.

While eastern and southern markets often provide higher prices for manufactured dairy products than midwestern markets, the price benefits usually are not large enough to offset the higher plant costs. Thus, losses suffered in disposition of reserve grade A milk must be recouped through marketing service charges on sales for Class I use.

Some bottling firms exacerbate the problem by purchasing part of their supply from independent producers and minimum-service associations. These buying practices increase the cost borne by members of full-service cooperatives and enable other producers to avoid all or at least part of these costs.

Regulatory agencies establish minimum class prices to be paid by a handler of first receipt. Service charges added to the minimum Class I prices by full-service cooperatives are not part of the regulatory system, and can be undermined by independent producers and competing cooperatives that manage to avoid marketing service costs. As counter measures, full-service cooperatives often sell customer-handlers either their full supply requirements or an agreed portion of their Class I supply needs.

The question arises as to whether full-service cooperatives will be able to maintain a strong market position with a marketing program that excludes packaging and distributing fluid milk. They have a stake in maintaining outlets for members' milk. Also, they are concerned that market outlets for packaged milk are adequately served, and that processor costs and margins are not so excessive as to substantially reduce sales volume.

Information gained from operating milk bottling plants is helpful to cooperatives in establishing pricing policies for raw milk supplies. With the backward integration of food chains into fluid milk bottling and the exit of non-cooperative firms from bottling, full-service cooperatives may be encouraged to serve institutional outlets, eating establishments, and independent food firms with packaged milk. Prices to these outlets must be on a

cost-justified basis if the cooperative is to operate on a competitive basis.

As bottling firms develop more specialized operations, they may need to centralize production of low-volume fluid milk items and certain fluid milk related products. Large full-service cooperatives may be better prepared to provide these items than other firms.

Should full-service cooperatives choose to operate large processing plants to supply markets not served by integrated food chain dairies, a number of organizational adaptations would be needed:

1. Fluid operations might be established best as wholly owned subsidiaries. Raw whole milk and manufactured product sales to these subsidiaries should be kept scrupulously at terms equal to those offered to other handlers. "Arms length" dealing with subsidiaries will never be completely above suspicion from competing handlers but every effort should be made to keep it so. Fair dealings with both should eventually overcome this problem.

2. These subsidiaries must be kept competitive. They should not be operated in a manner that requires subsidization by the cooperative.

3. Management of these subsidiaries should be held fully accountable to the cooperative but at the same time they should have more operating freedom than is customary in many cooperatives. The fluid sector presents more critical day-to-day challenges than other segments of the industry, and good management requires leeway to make major decisions rapidly. Likewise, higher management compensation may be required to retain quality personnel.

4. Cooperatives must adjust their financial planning to take into account the high plant investments required for profitable returns. Undercapitalized and labor-inefficient operations cannot compete successfully.

The issue then becomes whether cooperatives assume the residual milk packaging operations in much the same manner as they now assume milk balancing operations. Entry of food chains into bottling often sharpens the need for remaining plants to modernize and increase volume. But with a reduced market share, the result is a reduction in number of successful bottling firms.

At some point, entry of full-service cooperatives into bottling could be in the public interest by making packaged milk

more readily available at reasonable costs. Benefits to members would come primarily from Class I sales expansion.

In summary, full-service cooperatives were developed largely through horizontal mergers of small raw milk sales cooperatives. Technological changes in the dairy industry necessitated changes in cooperative structure. In this age of specialization, large cooperatives offer increased efficiency in providing fluid milk handlers with tailored milk supplies, and manufacturing the reserve supply.

Some handlers encourage minimum-service associations and independent producers as an alternative supply to the dominant full-service cooperative. However, food chains that have integrated into bottling and other large volume handlers generally prefer tailored milk supplies from full-service cooperatives to supplies from alternative sources. As bottling plants become larger, the preference for tailored milk supplies will likely increase.

With the decline in bottling by non-cooperative milk bottling firms, full-service cooperatives may find it desirable to expand into fluid milk bottling to maintain market outlets and assure wide distribution at reasonable costs. For some, bottling may become the principal activity.

Expansion into bottling by full-service cooperatives may exacerbate relations with raw milk customers. Thus, bottling operations should be kept completely separate from raw milk sales operations so customer plants will have equal supply costs and be assured of a fair competitive position.

Leadership Requirements

Why should cooperatives have "director problems"? Are these different or more widespread than in other forms of corporations?

Cooperatives do have director problems and they have been at the root of a number of dairy cooperative failures and poor performances in recent years. These problems may be more widespread and severe than in comparable non-cooperative firms. The cause is found mostly in some basic differences between cooperatives and other forms of capitalistic enterprise.

Cooperatives are the most democratic form of capitalism. Ownership, control, and use of the business is all vested in the same group. This group elects the people who direct the

enterprise, usually on a one-person one-vote basis. The enterprise is limited to functions that serve only the interests of the members, not necessarily maximizing returns on invested capital. Directors are rarely experienced, by training and background, in the operation and financing of the cooperative. Further, they are politically responsible to dairy farmer members who may have even less knowledge of the enterprise than themselves.

By contrast, non-cooperative corporations are owned and controlled by stockholders who are not necessarily users of the corporation's products or services. Directors usually include chief operating personnel as well as the owners of the company. Directors of corporations usually are experienced in the operation and financing of the company or the industry of which the company is a part. The corporation need have no reservation about changing direction to participate in other higher profit industries or functions. The corporation's ultimate goal is to maximize profits to investors rather than to provide maximum services to users.

As cooperatives become larger and more complex, the potential problems expand. It should be kept in mind that directors are also likely to be preoccupied with the growing complexity and size of their own dairy farm operations. Under these circumstances, directors may tend to lean increasingly on the advice and judgment of hired management. This may or may not be a problem, depending on the skill of hired management and the ability of directors to understand and respond to management's information.

A basic step toward developing directors so they can effectively lead the large, complex cooperative of today is a well-conceived director training program.

The new director needs an immediate and intensive briefing on internal cooperative operations, existing policies, duties, responsibilities, and how to interpret management reports.

New directors, and periodically all directors, can benefit in training experiences with their counterparts in other cooperatives. Toward this end, cooperatives should help sponsor and support intercooperative director training programs designed to provide a broad perspective of duties, responsibilities, and industry knowledge.

We see the role of directors becoming more challenging and difficult, with the consequences from error or oversight having greater impact. As directors recognize this fundamental problem,

they must also grapple with a number of specific issues. Resolution of these will aid directors in meeting their mandate for effective leadership.

Effective Boards of Directors

What is an effective board?

An effective board has these attributes:

1. Directors thoroughly understand the cooperative's functions, operations, and finances. This includes all, or nearly all directors, not just a few.

2. Directors are also knowledgeable about the dairy industry. It is not uncommon to find some directors who do not understand classified pricing of milk in Federal milk orders using marketwide pooling systems. It is impossible to have intelligent policymaking under this circumstance.

3. The board has developed and understands its role of policymaking as opposed to hired management's role of policy implementation and reporting.

4. Directors communicate members' desires and needs to the corporate level, and cooperative policy and progress to members.

5. Directors as individuals represent their district membership in setting and supporting policies that are in the best interests of the cooperative. They do not take a narrow position that may favor only their own district. This implies a need for a team approach to establishing board policies.

The question of an appropriate board size comes up frequently with cooperatives in the process of reorganization or consolidation. There is certainly no set answer, even for a particular size or type of cooperative. Consideration must be given not only to size of the cooperative and its function, but also the geographic scope of membership, and each cooperative's traditions and practices.

Boards should be large enough to encompass the experience and judgment of as large a number of successful dairy farmers as workable. Boards of fewer than 11 members may be passing up the opportunity to gain useful input from other talented membership. Also, directors may have trouble maintaining member contact if they represent too many members.

Large cooperatives require large boards, even with the use of "division" boards. The topmost board is often termed the cor-

porate board and carries the legal responsibility for cooperative policy direction. Large numbers of directors are required to provide adequate representation of producer interests in widely dispersed areas, often marketing milk under varying market systems and conditions.

In cooperatives that use large boards with more than 25 directors, several problems are likely to arise. One is the inconvenience to directors and expense to the cooperative of assembling many directors who have to come long distances. This must be weighed against the desire for full "grass roots" participation in policy development. While a large board may create an impression of closer contact with members, the operating effect may be to reduce directors' participation in meetings.

Medium-size or smaller cooperatives fully involved in bottling and manufacturing have heavier per member equity investments and their members may demand closer involvement with board policymaking.

For both these cooperatives and large organizations, one option is more intensive and well organized use of committees of the board. For example, three or four committees, including finance, operations, and membership could meet monthly or on an alternating basis with full board meetings. Each board member could spend a year or two on a committee to allow time to develop an indepth knowledge of the committee's area. The director might then rotate to another committee.

This alternative might help resolve the problem of the board not understanding complex issues. as described earlier. The full board, however, should not abdicate to committees its responsibility to understand the cooperative's operations and problems. These select committees should be used only to spread out the workload on individual directors and provide input and leadership for full board policy decisions on complex issues.

Large cooperatives unfortunately must create one or more layers of member representation between the member and the corporate board. This can cause members to feel distant from their cooperative and likely has played a part in some areas in the appearance of small splinter groups or persistence of nonmembers. The projected growth of large cooperatives as the predominant dairy marketing firms suggests that in the next decade these cooperatives must concentrate on finding ways to keep membership closer to the affairs of the cooperative.

A first step is to have elected directors responsible to as few

producers as possible. A group of 50 to 150 is optimal. Thus, in cooperatives with many thousands of members, division boards and in some cases regional boards are essential, and on paper at least, provide a workable solution. For example, a cooperative of 15,000 members with a 24-man corporate board could have 6 divisions about equal in number of producers. If a decision were made to have each division board member represent districts of 100 producers, each division board would have a 25-man board, providing at least an opportunity for close member contact. Each division could elect four directors to the corporate board. If divisions were unequal in size, they would elect directors to the corporate board in proportion to size.

It is not only important to have the right number of board members but it is also important that the directors reflect the composition of membership in as many ways as possible.

Having created division and regional boards, the operating question then is to find the best distribution of authority and responsibility between the corporate, regional, and division boards. Again, it is difficult to offer a general blueprint, but these guidelines are based on characteristics of existing regional and division boards and how they serve the interests of large interregional cooperatives.

In the first place, the individual divisions in the six-division example cited would serve principally as a membership representation and communication link to guide policy formulation. For practical linkage to management staff and cooperative operations, divisions may be formed around a metropolitan market and grouped into regions where size of the cooperative warrants. The board governing these regions and divisions would assume such responsibilities as would be delegated by the corporate board.

Contrary to some early speculation, these division and regional boards have developed into successful and important contributors to policy formulation and cooperative operations. Division board members often represent less than 75 members each. Their greatest role is probably communicating and discussing local problems with staff serving the division or region. These might include problems of operating budgets, hauling, customer plant issues, price alignment, health department, et cetera. Thus, these boards can and do serve as a "grass roots" forum for communication. Developing and nurturing these boards

is not just an option for large cooperatives in the future; it is a necessity.

The growth in size and complexity of cooperatives calls for better informed, more active directors. How can the best directors be elected from membership?

This is becoming less of a problem as more dairy farmers who survive in the industry have qualities needed as directors. Some ideas to ensure a better board are:

1. Nominate successful dairy farmers who are also successful business people.
2. Nominate people who enjoy communicating with people.
3. Nominate people who commit themselves to the work needed as directors.
4. Require the nomination of at least two individuals for each office.
5. Encourage election of farm wives as directors.
6. Do not shy away from nominating people who may be dissenters from generally accepted cooperative direction, if they meet other criteria.
7. Emphasize nominating candidates who have had successful experience on junior boards, select committees, or other organized groups within or outside the cooperative.
8. Select nominating committee members who also meet these director criteria.

There is an option of whether to limit the terms of directors on boards. Cooperatives with time limits on directors' service usually justify this policy as a means to infuse "new blood" into the board and allow more opportunity for younger farmers to serve.

While these are commendable goals, frequent forced board turnover reduces the ability of directors to truly understand the cooperative. Many of these cooperatives gravitate to manager-dominated organizations with all their dangers. If cooperative leaders do determine a need for a term limit, it should be long enough to allow for adequate continuity, perhaps 10 years. Most cooperatives do not limit terms of director service.

Considerable debate centers on the issue of having nonfarmers on cooperative boards. Outside directors who are nonfarmers and nonemployees, may not have legal voting rights on boards of cooperatives qualified to market members' milk in Federal milk orders. The issue, then, centers on having employees without voting rights on the board or outsiders in an official advisory capacity.

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In the first place, the individual divisions in the six-division example cited would serve principally as a membership representation and communication link to guide policy formulation. For practical linkage to management staff and cooperative operations, divisions may be formed around a metropolitan market and grouped into regions where size of the cooperative warrants. The board governing these regions and divisions would assume such responsibilities as would be delegated by the corporate board.

Contrary to some early speculation, these division and regional boards have developed into successful and important contributors to policy formulation and cooperative operations. Division board members often represent less than 75 members each. Their greatest role is probably communicating and discussing local problems with staff serving the division or region. These might include problems of operating budgets, hauling, customer plant issues, price alignment, health department, et cetera. Thus, these boards can and do serve as a "grass roots" forum for communication. Developing and nurturing these boards

One advantage held by non-cooperative firms is their ability to staff policymaking boards with inhouse and outside industry experts. It has been suggested that outside nonvoting directors for cooperatives are an approach to capturing this advantage. However, because cooperatives are strictly user-owned and service oriented to these user-owners, policy direction should come from owners. In the long run, problems with cooperative member relations may arise if members believe nonowners as directors are regularly participating in policy decisionmaking. This is not to suggest that boards, or board committees should not make use of outside consultants on a regular basis. In fact, many cooperatives may be remiss in not using more of such help. Many groups have their legal counsel or auditing firm regularly attend board meetings. The banks for cooperatives' employees frequently attend board meetings and offer financial advice, as do staff from USDA's Cooperative Program. We see no great advantage in formal placement of outside advisers on boards.

Employees of member cooperatives are often elected to the boards of federations, but the trend is toward emphasizing board membership from farmer-members. This appears to be happening because of concern for potential member relations problems, rather than for operating reasons.

Bargaining federations will continue to be powerful tools for cooperatives in the years to come, and their judicious use may be expanded. Farmer-members are predominant on boards, although working committees for developing and implementing policies and procedures are largely manned by hired staff from the member cooperatives. Boards serve to fine tune proposals and make final policy decisions. This management technique will continue, as it undoubtedly best serves member interests.

Cooperatives have on occasion discussed problems of frequency and length of board meetings. One problem is that as dairy farms become more capital intensive, farm operations increasingly tend to pin down operators. Going to distant meetings certainly is more burdensome. Thus, directorship in large cooperatives is becoming limited to only those who have hired or adult family help, freezing out many talented farmer-leaders.

As cooperatives grow in size and complexity, staff management itself is growing in skill and depth. There is a tendency to delegate more of the smaller issues to staff and to reduce the number and agenda of board meetings. However, the importance of directors to cooperatives and the nature of critical

issues that affect modern cooperatives require continued or increased attention from directors. No easy solutions to demands on farmers' time is evident.

Cooperatives might improve the quality of board meetings by carefully planning agenda and meeting contents. For example, it should not be necessary for directors to approve expenditures for small items or the hiring of low level staff. Budget and staff reports can be mailed out in advance of meetings. In the future, cooperatives might consider the use of conference phone calls as a substitute for some meetings. Evening meetings at widely varied locations could ease the burden for some directors.

But as a general observation we can only suggest that boards make a serious attempt to use meetings and meeting time more effectively. Board meetings should not be such a burden that farm leaders do not wish to serve.

Per diem levels for directors at times cause a "tempest in a teapot." The time of successful producers is becoming more valuable as are their contributions to the cooperative. Cooperative membership will recognize this and set equitable per diem rates commensurate with directors' value. As a note of caution, care should be taken not to set a rate so high that directors serve for the money involved and thus influence policy decisions in a manner adverse to the cooperative's long term interests. In the larger cooperatives of the future, directors' contributions will become more important but their compensation will be a smaller part of the cooperative's expenses.

The problems of communication in cooperatives can be partially solved by the use of division and regional boards simply because directors would be responsible to as few members as possible. But the general solution lies in actually recognizing that lack of communication is a problem and trying to remedy it. This seems an obvious answer but many cooperatives are not emphasizing member communications. The persistent or increasing non-member problem may be a symptom.

Some other programs might include improved newsletters or magazines, the regular use of questionnaires to members, upgrading the quality and perhaps number of field service staff, and more frequent and better local meetings. All of these are expensive, but in most cases, better communication programs are wise investments.

Staff-Board Relationships

Management is the decisionmaking element of the cooperative, responsible for evaluating alternatives, formulating policies, and guiding the evolution of those policies. The cooperative management team has three elements: the members, the board of directors, and hired management. To be effective, hired management staff must clearly understand its responsibilities. They are to: (1) Direct or conduct the operations of the cooperative; (2) set goals and make short-range plans; (3) staff the cooperative; (4) initiate specific records and reports; and (5) report back to the board of directors.

While these may seem clearcut, there are still problems of division of management functions that occur between the board of directors and hired staff. Certain guides may be used to help point out the duties of each. Some of these are: (1) Long-range decisions are generally made by boards, short-range decisions by hired management; (2) proposals are made and goals established by the board, action decisions are made by hired management; (3) the board has the trustee responsibility while hired management has only specifically delegated authority; (4) the board has responsibility for basic control of activities while hired management has responsibility for secondary controls; (5) the board hires top management and top management hires lower level staff.

These guidelines on division of responsibilities of hired management hold for all types of cooperatives. In the evolution of large cooperatives, no serious problems have arisen in the implementation of these guidelines or in obtaining the proper balance between board and management staff. This is due in part to the increased professionalism and expertise of both parties.

Nevertheless, in recent years, several major dairy cooperatives have encountered financial problems ascribed partially or wholly to problems of staff-board relationships. Specifically, staff was empowered to play a major role in long- and short-range planning but failed to inform or educate the boards adequately about the risks involved in implementing alternative policies. At the same time, boards were guilty of overly trusting hired management and not requesting adequate information both about future planning and current operations.

From these experiences, several recommendations are suggested:

1. Take care to understand and implement the previously described principles of separation of responsibilities between boards and management staff. No matter how much trust a board may have developed in its management staff, none of the board's responsibilities can be abrogated.

2. Place increased emphasis on staff's responsibility to report back to the board on the condition of the cooperative. In increasingly complex cooperatives, a broader range of staff expertise should be involved in this task, not just the general manager.

3. For major policy and investment decisions, boards and staff should expand their use of consultants, both as a source of special expertise and as a check on potentially erroneous decisionmaking.

Staff—Requirements

It is difficult to define a "good" dairy cooperative staff. Therefore, the following guidelines are based on a few general observations from experiences with both successful and failing cooperatives.

Generally, cooperatives experience difficulty in finding top management staff who can profitably operate a complex, competitive business and still successfully communicate and work with farmer-directors who require that the business serve their special interests.

Five major attributes seem to be common in successful managers: (1) An ability to understand the cooperative nature of the business and hence the mandate to serve members; (2) a highly developed sense of cost consciousness and cost control; (3) an excellent knowledge of financial needs and sources; (4) full knowledge of markets for the cooperative's products; and (5) the ability to accomplish objectives through delegated responsibility and authority.

In recent years, many cooperatives have hired former executives from large conglomerate dairy firms who are phasing out of dairy processing. In most cases, these men have made valuable contributions to their new employers. Most notably, they have brought with them the cost control, investment, and personnel management techniques learned from experience with these widely diversified conglomerates.

Some are experiencing difficulties in the transition from working for investors to working for farmer-users because of a

lack of understanding of the cooperative form of business. However, the difficulties probably at times must be laid at the feet of farmer-directors who may be learning new business methods.

The emerging large full-service cooperatives have special requirements for top staff. In some areas, staffing is made easier by the size of these organizations, because a number of highly specialized personnel are needed. But the regional or division managers must be people who can work both as a strong team with other top staff and yet be responsive to local interests and needs. Developing staff with this ability is a critical task.

Personnel Development and Recruitment

Management staff should approach hiring for beginning level positions as would any type of corporation, with special emphasis, however, on training in the cooperative nature of conducting business.

Special emphasis should be placed on the training and recruiting of field staff and also drivers of the cooperative's bulk milk tanktrucks. If it is accepted that nonmember status and member relations is a growing problem, then more attention should be focused on those who most often meet with farmers.

Field staff jobs are often underrated in importance. They are frequently underutilized, inadequately supervised, and perhaps underpaid. It is interesting to note that many of the qualities of good field personnel are the same as those for superior top management. As a first step, field personnel should be subjected to intensive training in all phases of the cooperative and also in cooperative dairy marketing, as complex as it is.

Promotion or hiring policies may be either "internal" or "external" in orientation. In general, internally oriented promotion programs are preferable. Any departure from this policy should be for exceptional reasons, such as acquisition of computers leading to a need for programmers or computer oriented accountants. Another reason might arise with the need to hire a new general manager and the board's desire to conduct a search for the best talent available.

A well run organization will train and develop its own second level staff to the point where they can logically assume and adapt to leadership positions. However, the problems of management in-breeding that occur in companies with internal promotion policies should be recognized. They can be largely

avoided with well conceived training programs and employee performance standards.

Cooperative employees at all levels need to understand the fundamental difference between cooperatives and non-cooperatives. A cooperative business does not operate at arm's length from its members; it is an extension of each member's farm business.

Staff people serve as stewards to guide the business as it serves the members' farm business. When this fact is forgotten, members may take the "we" and "they" attitude about a cooperative. Member loyalty is absolutely essential for the growth and success of dairy cooperatives, both to achieve market power and to provide the equity capital necessary for increasing the financial strength needed in the future.

Personnel Policies

USDA advisory assistance programs are rarely concerned with individual cooperative personnel problems and policies. For this reason these suggestions are generalizations based on observation of many cooperatives, all too frequently those who have encountered operating or financial problems.

Responsibility growth: One difference between successful and less than successful cooperatives is that the better ones generally provide growth opportunities for lower level staff through a delegation of challenging levels of responsibility. Also, they require a high level of staff performance and have accurate and sophisticated reporting systems.

As an example, division managers develop operating budgets based on overall cooperative policy. They are then expected to live within budget costs but are allowed a relatively free rein in how budget margin objectives are achieved. This approach seems to produce an esprit de corps that extends to all operating levels. As cooperatives grow in size and complexity, the day of the one-man operation will disappear.

Salaries: This issue has plagued cooperatives since their beginning. Frequent inquiries seek guidelines on salaries for top level management. Salary problems exist because of some of the unique characteristics of dairy cooperatives. One is that although a cooperative's business volume and complexity may justify competitive high salaries for top level management, farmer members and boards have often been unwilling to set a salary much higher

than their own earnings. Another problem is that dairy cooperatives, particularly raw milk sales associations, are unique and have had no industrywide benchmark to guide salary levels.

We believe the salary issue may be gradually resolving itself. Cooperatives, managers, and board members are all becoming more sophisticated in business methods, and realizing that talented staff must be properly paid. Further, the cooperative segment of the dairy industry has been developed long enough to provide a competitive norm for setting compensation.

Cooperative boards should periodically review salaries paid by similar cooperatives to ensure that top staff salary levels are appropriate, considering the nature of the cooperative and the performance of its staff. As with any investment, cheapest is not often the best.

Earnings participation: Top staff of non-cooperative companies are often owners or major stockholders. Also, hired management is often partially compensated with stock options or stock. Thus, these people can participate in corporate earnings through stock dividends or value appreciation, providing a performance incentive.

Cooperatives cannot do this except in the form of incentive pay, or salary increments based on net margins. But it is difficult to measure a cooperative's "profitability" because the board can make an independent decision to pay higher or lower advance prices to producers and reduce or raise margins. Likewise, management with a salary incentive could make or recommend actions that might be to their shortrun financial interest but against members' longrun interests.

For these reasons a recommended course of action remains the more traditional annual salary review by the board with any changes based on an overall measure of management performance and corporate progress.

Financial Requirements

Data gathered from 460 dairy cooperatives for their fiscal year 1976 and similar data from 827 for fiscal year 1970 provide the basis for assessing the financial condition of dairy cooperatives and projecting their future capital needs.

Without significant changes in financial planning, dairy cooperatives will be facing a difficult future. In the 6 years, 1970-

1976, members' equity in dairy cooperatives increased about one-third the rate of increases in fixed assets.

Numerous problems of operating dairy cooperatives competitively during the past few years have provided management with the difficult choice between paying farmers higher returns for their milk than marketing conditions warranted, and maintaining a strong financial condition for the cooperative. It appears that adopting a policy of paying higher than justified returns won out much too often. Such a policy is a tradeoff by farmer members for high cash returns now at the risk of impairing equity and contributing to future financial failure.

A policy of overpaying producers hides from members the true significance of other operating and marketing policies. As long as farmer members are receiving a competitive price for milk, they may be reluctant to demand and support changes in operations needed to eliminate losses or increase returns. Even though the aggregate equity of the cooperative is visibly impaired, damage to individual member's equity is less visible.

Although adequate financing is fundamental to successful operations by dairy cooperatives, it is often forgotten in times of difficulty.

We have noted in previous sections that cooperatives will be called on to provide more services both to farmers and customers. They will also provide a greater mix of products, particularly those packaged for distribution to consumers. This will require increased amounts of capital, both member equity capital and debt capital.

Equity capital is generally provided by members according to their use of the cooperative. Member equity is provided by (1) retained earnings, (2) per-unit retains, and (3) members' purchases of equity paper. It bears the financial risk.

Debtor capital is generally obtained from nonowners and is returned to them in accordance with prior agreement. This capital carries an interest cost. The banks for cooperatives are a major source of debt capital for dairy cooperatives.

Successful cooperative operations are associated with good financial management. This includes not only controlling uses of capital but also analyzing potential returns for alternative uses. The financial manager should study the availability of capital from alternative sources so as to achieve the least cost and appropriate combination of debt and equity financing for the cooperative.

Principles of Financing

Members must assume major responsibility for financing their cooperatives. Member financing should be done within a context of certain principles. Some of these are:

1. Cooperatives, as other businesses, need adequate capital not only to provide services today but for continued modernization and expansion for the future. Adequate capital also assures good credit ratings, a requirement for obtaining future debt capital at least cost.

2. Total equity capital should at least equal the value of net fixed assets and investments in other cooperatives. Initially, some long-term loans might be used to purchase fixed assets but they should be replaced with equity capital as they are repaid. Members should also provide sufficient capital to finance noncash current assets at their yearly minimum.

3. Capital needed to meet seasonal peak requirements may be obtained from credit institutions as short-term loans.

4. Equity should be provided by members in proportion to their use of the cooperative. This assures equitable treatment among members and eliminates the need for determining fair distribution of earnings to capital and final settlement for products marketed and services performed.

5. Interest or dividends for use of member equity capital should be paid only if net margins warrant. Restricting interest rates and dividend payments for equity capital diminishes emphasis on members providing capital for its own return.

6. Current patrons should provide a major portion of the equity capital. Investment and control should be in the hands of active patrons. They know and express their needs and should provide capital to obtain necessary facilities and staff to serve those needs.

7. Cooperatives should return members' equity capital when they are no longer active. Generally, equity capital should not be transferable and consequently fairness dictates that members be assured of getting their money back when they quit using services provided by the cooperative.

Aggregate Balance Sheet

Total assets for all dairy cooperatives in 1976 were $2 billion (table 6). Of this total, $1.3 billion were current assets and $536 million were fixed assets.

Total liabilities in 1976 amounted to $1.3 billion. Current liabilities accounted for $985 million or 76 percent of total liabilities and term debt accounted for $310 million or 24 percent.

Between 1970 and 1976, total assets increased about 53 percent and liabilities increased almost 87 percent. Yet, member equity increased less than 15 percent. The ratio of equity to total assets was 0.36 in 1976 and 0.47 in 1970. The ratio of equity to fixed assets for the same time periods was 1.34 and 1.68, respectively.

Table 6—Combined balance sheet for all dairy cooperatives at close of fiscal years 1970, 1976, and projected 1985[1]

Item	1970	1976	1985[2]	Adjusted 1985[3]
		Million dollars		
Assets				
Current assets	812	1,253	2,390	2,575
Fixed assets (net)	372	536	930	1,050
Other assets	136	225	470	375
Total assets	1,320	2,014	3,790	4,000
Liabilities				
Current	516	985	2,370	2,060
Term	178	310	535	630
Total	694	1,295	2,905	2,690
Equity	626	719	885	1,310
Total liabilities and equity	1,320	2,014	3,790	4,000

[1]Includes intercooperative data.

[2]The 1985 data are estimated by projecting each item to 1985 at the rate of increase between 1970 and 1976.

[3]The 1985 adjusted data were based on the increased volume of milk manufactured and facilities needed with assumed future structure of dairy cooperatives. Current assets and member equity were adjusted to obtain a current ratio of 1.25 and a member equity to net fixed assets ratio of 1.25. Future inflation is accounted for at the 1970-1976 rate.

By 1976, cooperatives had acquired $719 million in net equity (table 7). About 91 percent of total equity was evidenced by qualified certificates of equity or capital credits and 3 percent by common stock, 6 percent by preferred stock, 1 percent by membership certificates, and 1 percent by unallocated losses.

These net losses amounting to $14 million resulted from an aggregate of more than $30 million in unallocated losses primarily by a few cooperatives in the Northeast. Other cooperatives nationally had $16 million in unallocated earnings.

Dairy cooperatives in 1976 acquired 2 percent less of their capital from patronage earnings and 1 percent less from per-unit retains than in 1970. This trend is expected to continue through 1985.

Current ratios varied from a low of 1.0 in the New Orleans district to a high of 1.72 in the St. Louis district (table 8). The ratio of equity to fixed assets varied considerably, from a low of 0.39 in the Springfield district to a high 2.00 in the New Orleans district. There was also wide variation in the ratio of equity to total assets and the ratio of total assets to term liabilities.

Total borrowed capital including both short-term and long-term capital for all dairy cooperatives in 1976 amounted to $513 million compared with $284 million in 1970 (table 9). Some $333 million of the 1976 total, or 65 percent, was borrowed from banks for cooperatives. Their share of cooperatives' borrowed capital increased 5 percent during 1970-1976 and is expected to increase an additional 7 percent by 1985.

Table 7—Method of acquiring equity capital by dairy cooperatives, 1970, 1976, and projected 1985

Year	Co-ops	Equity capital	Method of acquiring		
			Retained earnings	Per-unit retain	Other
	Number	*Mil.dol.*		*Percent*	
1970	827	626	73	24	5
1976	460	719	71	23	6
1985	250	1,310	68	21	11

Table 8—Combined balance sheet and ratios for selected dairy cooperatives at fiscal years 1976 by Farm Credit districts[1]

Farm Credit district	Co-ops	Assets				Liabilities and net worth				Current assets/ liabilities	Equity/ fixed assets	Equity/ total assets	Total asset term liabilities
		Current	Net fixed	Other	Total	Current	Term	Net worth	Total				
	Number	*Million dollars*								*Ratio*			
Springfield	63	145	46	15	206	139	49	18	206	1.04	.39	.09	.24
Baltimore	31	59	38	8	105	50	20	35	105	1.18	.92	.33	.19
Columbia	10	33	24	2	59	24	5	30	59	1.38	1.25	.51	.08
Louisville	20	118	64	9	191	95	18	78	191	1.24	1.22	.41	.09
New Orleans	8	10	1	2	13	10	1	2	13	1.00	2.00	.15	.08
St. Louis	13	117	53	16	186	68	51	67	186	1.72	1.26	.36	.27
Omaha	238	445	162	120	727	345	82	300	727	1.29	1.85	.41	.11
Wichita	6	10	4	1	15	9	1	5	15	1.11	1.25	.33	.07
Houston	2	129	48	20	197	91	41	65	197	1.42	1.35	.33	.21
Sacramento	20	88	53	12	153	81	25	47	153	1.09	.89	.31	.16
Spokane	17	72	28	12	117	55	12	45	112	1.31	1.61	.40	.11
Total	460	1,253	536	225	2,014	985	310	719	2,014	1.27	1.34	.36	.16

[1]Includes data for 460 dairy cooperatives as described in table 6.

Table 9—Source of borrowed capital for dairy cooperatives, 1970, 1976, and projected 1985

Year	Co-ops	Bank for Co-ops	Other	Total Co-ops	Bank for Co-ops	Other	Total
	Number		*Million Dollars*			*Percent*	
1970	827	169	115	284	60	40	100
1976	460	333	180	513	65	35	100
1985	250	770	300	1,070	72	28	100

Capital Needs

By 1985, dairy cooperatives will be marketing 98 billion pounds of milk annually. About 9 billion pounds of this milk will be bottled and some 32 billion pounds manufactured into butter, nonfat dry milk, cheese, and other dairy products. The balance will be marketed as raw fluid milk.

Dairy cooperatives are expected to operate about 100 bottling plants in 1985 averaging almost 100 million pounds annually per plant. These will be some 40 fewer plants than in 1973, yet average volume of milk handled annually per plant should increase by 40 to 50 million pounds.

Manufacturing plants owned and operated by dairy cooperatives will likely decline to fewer than 200 by 1985, about half the number in 1973. At the same time, the volume of milk manufactured per plant is expected to reach 150 to 200 million pounds a year. The change in average volume will result largely from the closure of small volume plants.

These market structure changes in the cooperative sector of the dairy industry will require increased amounts of capital. If dairy cooperatives' requirements for borrowed funds continue to increase over the 9 years of 1976-1985 at the same rate as in the prior 6 years, cooperatives' total borrowed capital in 1985, in terms of 1985 dollars, will amount to about $1.1 billion.

Of this amount, dairy cooperatives probably will be borrowing some $770 million from banks for cooperatives. These estimates assume that dairy cooperatives will grow in terms of sales and needed assets in the next 9 years at the same rate as in the prior 6 years, and that inflation will continue at the rate of the past 6 years. This rate of borrowing is not financially sound for dairy cooperatives in total. Also part of this borrowed capital should be replaced by equity capital.

Needed Working Capital

In 1976, cooperatives had working capital of $268 million. In 1970, cooperatives' working capital totaled about $296 million. If financial trends for the 1976-1985 period continue at about the same rate as for 1970-76, estimated working capital in 1985 will decline $27.5 million a year to $20 million. The ratio of current assets to current liabilities for 1985 then would be slightly more than 1.0 compared to 1.27 in 1976 and 1.57 in 1970. This unfavorable ratio indicates that cooperative members should provide more capital for the next 9 years. A current ratio of 1.25 in 1985 would require $515 million in working capital, an increase of $495 million above the 1970-76 trend projected level or an average increase of almost $55 million per year.

Needed Capital for Fixed Assets

Estimated aggregate investment in net fixed assets needed by 1985 in addition to that which would be provided at the 1970-1976 rate would amount to about $120 million or an average of about $13.3 million per year for the 1976-1985 period. These additional assets would be needed to provide for the assumed cooperative market structure in 1985.

The challenge to cooperative members in financing needed facilities can be illustrated by the following example. Let us assume a cooperative needs $10 million for a new plant, and that this amount could be financed with a 10 percent 7-year facility loan by pledging existing assets. Average annual repayment would be $2,054,050. With members receiving the minimum 20 percent cash patronage refund, the cooperative must earn average annual margins equal to 24 percent of the investment for the activity to be financed entirely from retained earnings. This required earning rate is well above that generally experienced in the dairy industry, particularly in plants manufacturing reserve grade A milk, and demonstrates the need for members to furnish investment capital.

Capital Sources

In 1976, farmers "owned" about 36 percent of their dairy cooperatives' total assets but about one and one-third times their net fixed assets. That is, the ratio of equity to total assets in 1976 was 0.36 and the ratio of equity to net fixed assets was about 1.34.

In 1970, these ratios were more favorable with the equity to total asset ratio at 0.47 and the equity to fixed assets ratio at 1.68. If farmer members increase equity for the next 9 years at the same rate as they did between 1970 and 1976, $166 million in additional capital would be provided. However, if the ratio of equity to net fixed assets in 1985 is to be 1.25, cooperative members will need to increase total equity by $591 million dollars, or 65.7 million annually to reach $1.3 billion by 1985.

About 71 percent of member equity in 1976 was provided through retained patronage earnings and 23 percent by per-unit retains. By 1985, about 68 percent of member equity will be provided by retained patronage refunds and 21 percent by per-unit retains.

The significant increased needs, by 1985, for both debt and equity capital to finance the needed growth of cooperatives have serious implications for both creditors and farmer members of dairy cooperatives.

The first issue raised centers on what proportion of total capital requirements will be provided by creditors and what proportion by members. The cooperative principle "service to members at cost" precludes the possibility of profit participation often demanded by creditors where they supply a large share of total capital requirements to a business. Thus, in cooperative finance, creditors must require that members supply a majority of capital. Further, creditors must limit their lending below the point where debt service costs stand a risk of impairing the ability of a cooperative to remain competitive and survive. It follows that farmers will have to increase not only the amount of equity capital, but also their proportion of total capital, even before taking inflation into account.

The next issue is how much more equity capital will farmers be willing to supply. The growth in raw milk sales, bottling, and manufacturing projected to 1985 will undoubtedly tax the ability of cooperative members to supply the needed capital. However, this projected growth will be slowed if members do not respond favorably.

The final issue is what method or combination of methods will be used to meet the growing equity capital requirements. By 1985 dairy cooperatives will still be financed primarily by revolving funds obtained by margins and per-unit retains. However, more of the larger cooperatives will move to base

capital plans. In these, each member invests a fixed amount in the cooperative based on past milk production. The member's base does not change from year to year unless aggregate cooperative capital requirements change or the member's production changes significantly. Cooperatives may also make greater use of other financing systems such as "lease back" and "leveraged leasing."

Joint ventures with large non-cooperative food processing and marketing firms may be a future option. To date dairy cooperative's experience with these have been mixed.

If dairy cooperatives are going to fulfill their income and market security objectives for which they were organized, farmers must make greater commitment to the financial support of their cooperatives than they have during the past several years. They will need $1.3 billion in equity capital, an increase of $591 million, by 1985 to improve financial conditions of their cooperatives and provide for developing modern facilities essential for effective milk marketing in the 1980's. This financial need translates into increased capital investments above the 1970-1976 rate of about 5 cents a hundredweight of milk marketed. Total member investments for 10-year revolving of needed equity would reach 13 cents a hundredweight of milk marketed by 1985. With a base capital plan, members would need to invest about $1.34 per hundredweight of annual milk sales.

The needed member investment rate will vary widely among cooperatives. In 1976, it ranged from less than 5 cents a hundredweight for 10-year revolving by many raw milk sales cooperatives providing minimum services to about 60 cents a hundredweight for some bottling cooperatives. By 1985, the investment rate for fully integrated bottling cooperatives could exceed a dollar a hundredweight.

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COOPERATIVE PROGRAM

U.S. Department of Agriculture
Economics, Statistics, and Cooperatives Service

The Cooperative Program of ESCS provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The Program (1) helps farmers and other rural residents obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

The Program publishes research and education materials and issues *Farmer Cooperatives*. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, or national origin.

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