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Marketing Operations Of Dairy Cooperatives, 2002

Abstract

The Nation's 196 dairy cooperatives marketed 139.2 billion pounds of milk delivered by its 61,390 member-producers, or 83 percent of all milk sold to plants and dealers, in 2002. (Including non-member milk, the volume marketed by dairy cooperatives was 144.3 billion pounds, or 86 percent of the U.S. total.) Forty-six cooperatives operated 174 dairy processing and manufacturing plants, 19 handled milk through receiving stations only and 131 had no milk-handling facilities. In addition, cooperatives had investment in but did not directly operate 75 dairy plants. Cooperatives marketed 71 percent of the Nation's butter, 86 percent of the nonfat dry milk, 40 percent of the natural cheese, 7 percent of the packaged fluid milk products, 9 percent of the cottage cheese, 3 percent of the ice cream, 6 percent of the ice cream mix, 2 percent of the yogurt, 53 percent of the bulk condensed milk products, 52 percent of the dry whey products, 13 percent of the sour cream, and 34 percent of the condensed buttermilk.

Key Words: Cooperatives, dairy products, marketing, milk, structure.

Marketing Operations of Dairy Cooperatives, 2002

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Preface

Information for this report came primarily from the responses to a survey of all U.S. dairy cooperatives. In some cases, data were estimated for non-respondents based on their financial statements or other sources.

Cooperatives were asked to supply information on their milk marketing operations for the fiscal year ending in calendar 2002. These fiscal years vary within the calendar year, so their data reflect some differences in time periods. This report updates RBS Research Report 173, which was based on cooperative operations for the fiscal year ending in calendar 1997.

Industry evolution and structural changes in recent years added some new dimensions to the operations of dairy cooperatives. This report offers some information which was not previously recorded.

Unless otherwise specified, when calculating cooperative marketing shares of various products, information for U.S. total volumes was from the latest statistics reported in the annual summaries of *Milk Production, Disposition and Income* and *Dairy Products,* published by USDA National Agricultural Statistics Service.

The cooperation of the responding cooperatives and other persons who supplied the necessary data for this report is gratefully acknowledged. The Statistical Services staff in RBS, especially Katherine DeVille, helped maintain the database for this survey.

Contents

Highlights

Dairy cooperatives' share of total milk volume sold by farmers to plants and dealers increased from 83 percent to 86 percent between 1997 and 2002, while member-producer milk alone inched up from 82 percent to 83 percent of all milk. This occurred despite the fact that dairy cooperatives decreased 13 percent, from 226 to 196. Cooperatives that processed and manufactured dairy products dropped from 63 to 46. The number of cooperatives selling raw milk fell from 204 to 174.

Sixty-two percent of total cooperative volume was sold as raw milk in 2002 versus 61 percent in 1997. The other 38 percent was manufactured at plants owned and operated by cooperatives.

There were 61,390 member-producers marketing milk through 194 dairy cooperatives that had direct members. Three regions--East North Central, West North Central, and North Atlantic--together accounted for 84 percent of all member-producers and 52 percent of cooperative milk volume.

Dairy cooperatives operated 209 plants in 2002, 35 for receiving and shipping milk only, 49 for manufacturing American cheese, 21 for Italian cheese, 30 for packaging fluid milk products, 43 for manufacturing dry milk products, and 27 for churning butter.

Dairy cooperatives also had investment in 75 dairy plants that they did not directly operate. The most numerous were 52 plants that packaged fluid milk products, 18 that made other dairy products, and 7 that made ice cream. (The production of these plants is not counted as cooperative volume.)

Cooperative marketing of butter, dry milk products and cheese increased from 1997 to 2002. Cooperatives' share of butter increased from 61 percent to 71 percent during the half decade, as did dry milk products (nonfat dry milk, dry whole milk, and dry buttermilk), which went from 76 percent to 85 percent. Cooperatives continued to have an overwhelming share of nonfat dry milk, which was 86 percent in 2002, a 5-point increase. Cheese marketed by cooperatives grew 17 percent, from 2,907 million pounds to 3,402 million pounds, while nationally cheese production also increased 17 percent. Cooperatives' share of the natural cheese market was unchanged at 40 percent.

Sales of packaged fluid milk products by cooperatives decreased both in volume and in share of market. The 3,810 million pounds marketed was 7 percent of the Nation's production, down from 14 percent in 1997. Cooperatives' sales of cottage cheese as a percentage of national production, at 9 percent, were one point lower than in 1997. Share of ice cream decreased from 6 percent to 3 percent. In 2002, cooperatives marketed 6 percent of the Nation's ice cream mix, 2 percent of yogurt, 53 percent of bulk condensed milk, 52 percent of dry whey products, 13 percent of sour cream, and 34 percent of condensed buttermilk.

Although most dairy cooperatives continue to be relatively small business organizations, through consolidation and growth, an increasing amount of dairy products was sold by larger cooperatives. The member-producer milk of the four largest dairy cooperatives represented 41 percent of U.S. milk sold to plants and dealers and that of the eight largest accounted for 52 percent. The largest cooperatives also produced major shares of commodity products such as butter and nonfat dry milk.

Marketing Operations of Dairy Cooperatives, 2002

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Farmer owned and operated dairy cooperatives continue to provide the most significant channel for marketing milk from the Nation's dairy farms.

In line with industry and dairy farm trends, the number of cooperatives is declining but those remaining are handling larger volumes. In addition, cooperatives process, manufacture, and market a large or dominant proportion of some of the Nation's dairy products. Cooperatives also have investment in various dairy firms to enhance their market position.

This report, eighth in a series of periodic appraisals of the scope and performance of dairy cooperatives, describes their continuing adaptation to an ever-changing marketing environment.

Cooperative Industry Profile

Between 1997 and 2002, the number of dairy cooperatives decreased 13 percent, from 226 to 196; the pace was slower than the 15-percent decrease recorded from 1992 to 1997. In 2002, 172 or 88 percent of all dairy cooperatives were headquartered in the North Atlantic, East North Central, and West North Central regions (table 1 and fig. 1). The North Atlantic region had the most with 85 dairy cooperatives. It was also the only region to show an increase of dairy cooperatives from 1997. Those numbers dropped in every other region. The greatest reduction by 2002 was 15 in the West North Central region. In the South Atlantic and the Western regions, each counted six fewer cooperatives.

In 2002, 46 cooperatives (23 percent of total) processed and manufactured dairy products, down from 63 cooperatives (28 percent of total) in 1997. Seventy-six percent of the decline occurred in the Western, West North Central, and East North Central regions. However, the East North Central region still had the most (21) cooperatives with plant operations.

Cooperatives that operated only milk-receiving stations decreased from 25 to 19 by 2002. The West North Central region dropped 10 cooperatives, while there was some gain in the East North Central, South Central, and Western regions.

Cooperatives that did not physically handle milk and other dairy products decreased from 138 to 131. More than half (77 or an increase of 5 from 1997) were in the North Atlantic region, the only region to show an increase.

Most cooperatives (89 percent of all dairy cooperatives) sold at least some bulk raw milk (table 2), but those marketing selected major dairy products continued to decline. Seventeen fewer cooperatives marketed butter and 10 fewer marketed natural cheese than in 1997. The story was similar in all cheese categories--the 24 cooperatives marketing Cheddar cheese were down by 9; the 10 handling other American cheese were down by 4; and the 6 selling Italian cheese were down by 6.

Proportionately, the largest drops in cooperatives marketing various products were in Italian cheese and yogurt (50 percent each), butter (47 percent), and ice cream (46 percent).

Milk Volume and Utilization

In 2002, cooperatives received or bargained for 144.3 billion pounds of milk (net of inter-cooperative transfers), or 86 percent of total volume sold by farmers to the Nation's plants and dealers (table 3). Cooperatives' share was up 3 percentage points from

Figure 1—**Number of Dairy Cooperatives by Headquarters Region, 2002**

Dairy cooperatives numbered 196 in 2002, a decrease of 30 from 1997. The North Atlantic was the only region to show an increase of dairy cooperatives headquartered there. The numbers dropped in every other region. The greatest reduction during the five-year study period was 15 in the West North Central region.

Table 1—Dairy cooperatives by type of operation and by headquarters region, 1997 and 2002

Region[1]	Processing and manufacturing dairy products		Operating milk receiving facilities only		Not operating milk plants or receiving facilities		Total	
	1997	*2002*	*1997*	*2002*	*1997*	*2002*	*1997*	*2002*
North Atlantic	8	7	3	1	72	77	83	85
East North Central	24	21	1	5	19	16	44	42
West North Central	14	10	20	10	26	25	60	45
South Atlantic	3	1	1	0	5	2	9	3
South Central	1	0	0	2	5	1	6	3
Western	13	7	0	1	11	10	24	18
All regions	63	46	25	19	138	131	226	196[2]
Percentage of total cooperatives	28	23	11	10	61	67	100	100

[1] Figure 1 shows states by region
[2] In addition, two dairy cooperatives reported that they were winding down business in early 2003 and that they did not market milk in 2002

Table 2—Cooperatives marketing selected dairy products, 1997 and 2002[1]

Item	1997	2002	5-year change	
		Number		
Bulk raw milk	204	174	-30	-15%
Butter	36	19	-17	-47%
Nonfat dry milk	24	17	-7	-29%
Dry whole milk	6	4	-2	-33%
Dry buttermilk	16	11	-5	-31%
Natural cheese[2]	42	32	-10	-24%
Cheddar	33	24	-9	-27%
Other American	14	10	-4	-29%
Italian	12	6	-6	-50%
Swiss cheese[3]		5		
Other cheeses[4]	12	11		
Packaged fluid milk products	21	16	-5	-24%
Cottage cheese	13	9	-4	-31%
Ice cream	13	7	-6	-46%
Yogurt	12	6	-6	-50%
Dry whey products	16	13	-3	-19%
Ice cream mix[3]		8		
Bulk condensed milk[3]		14		
Sour cream[3]		8		
Condensed buttermilk[3]		6		

[1] A cooperative may market several products.
[2] Other than cottage cheese.
[3] Separately counted for the first time in the current survey.
[4] Five-year change was not calculated due to different definitions for the category; for 1997, other cheeses included Swiss cheese.

Table 3—Cooperative share of milk delivered to plants and dealers, 1997 and 2002

Year	Milk from member-producers	Milk from sources other than cooperatives[1]	Total milk handled by cooperatives[2]	United States total	Cooperative share of U.S. total: Member milk	Cooperative share of U.S. total: Total milk handled
	Million pounds					
1997	125,103	2,315	127,418	153,405	82%	83%
2002	139,205	5,144	144,349	168,617	83%	86%
5-year change	11%	122%	13%	10%		

[1] Milk from nonmembers and noncooperative firms.
[2] Handled either by physical receipt or by bargaining or servicing transactions. Excludes inter-cooperative shipment.

83 percent in 1997. Cooperatives= volume increased 13 percent in the period, while the Nation's milk sold to plants and dealers rose 10 percent.

Of the 144.3 billion pounds of milk marketed by dairy cooperatives in 2002, 96 percent (139.2 billion pounds or 83 percent of all U.S. milk) was delivered by member-producers, the rest from nonmembers or noncooperative firms. Member milk deliveries increased 11 percent, while milk from other sources more than doubled (table 3).

Cooperatives sold 62 percent of their volume as raw milk, up 1 percentage point from 1997 (table 4). In other words, cooperatives processed or manufactured 38 percent of the milk in the plants they operated.

Table 4—Utilization of cooperatively marketed milk, 1997 and 2002[1]

Year	Volume	Percent
	Million pounds	
1997		
Sold raw[2]	78,234	61
Processed or manufactured	49,184	39
Total	127,418	100
2002		
Sold raw[2]	89,203	62
Processed or manufactured	55,146	38
Total	144,349	100

[1] Excludes inter-cooperative volume.
[2] Includes milk shipped to plants which cooperatives invested in but did not directly operate.

Market strategy changes and industry restructuring in recent years caused a large volume of the raw milk to be shipped to dairy plants in which cooperatives had an investment but did not directly operate. Declining cooperative plant numbers and decreases in market shares of some products to some extent were the results of this market evolution.

Member Supply and Location

There were 61,390 member-producers marketing milk through 194 dairy cooperatives that had direct members (two cooperatives did not have direct members). Most (24,314 producers) were in the East North Central region, followed by the West North Central region (14,199 producers) and the North Atlantic region (12,886 producers). Together, these regions had 84 percent of total member-producers, but only 52 percent of member milk (table 5).

Every region of the Nation seemed to be adequately served by dairy cooperatives. The South Atlantic and South Central regions were each served by eight cooperatives, while 87 cooperatives had members in the North Atlantic region.

In 2002, the Western region was the top source of cooperative milk volume. Cooperatives there marketed 49.1 billion pounds of member milk. This represented 35 percent of the member milk marketed by all cooperatives, up from 29 percent in 1997 (table 5). The East North Central region accounted for 25 percent of the total member milk volume, down from 26 percent in 1997. Farms in the North Atlantic and West North Central regions, respectively, supplied 14 and 13 percent of the total U.S. cooperative member volume.

Table 5—**Cooperative member milk by region, number of producers, and milk delivery per producer, 1997 and 2002**[1]

Year and region[2]	Number of cooperatives[3]	Cooperative member-producer milk in million pounds	Cooperative-regional share (%)[4]	Numbers of member-producers delivering	Million pounds of milk per producer
1997					
North Atlantic	87	18,330	69	15,394	1.2
East North Central	48	32,583	90	35,240	0.9
West North Central	71	18,294	94	22,343	0.8
South Atlantic	14	8,273	90	3,501	2.4
South Central	11	11,383	89	7,613	1.5
Western	28	36,240	73	3,847	9.4
All[5]	222	125,103	82	87,938	1.4
2002					
North Atlantic	87	19,826	72	12,886	1.5
East North Central	53	34,210	93	24,314	1.4
West North Central	53	17,893	93	14,199	1.3
South Atlantic	8	8,448	95	2,770	3.0
South Central	8	9,752	87	3,617	2.7
Western	24	49,076	75	3,604	13.6
All[5]	194	139,205	83	61,390	2.3

1 Milk from member-producers only.
2 Figure 1 shows states by region.
3 Cooperatives having member-producers in the region, but not necessarily headquartered there.
4 Cooperative member milk volume as a percentage of regional volume sold to plants and dealers.
5 Number of cooperatives do not add to all region total because some had member-producers in more than one region.

The Western, East North Central, North Atlantic, and South Atlantic regions increased milk volumes from cooperative members. The greatest increase was in the Western region, up 12.8 billion pounds in five years. Volume in the other two regions declined, but mostly in the South Central region--down 1.6 billion pounds (14 percent) from 1997 to 2002.

In 2002, cooperative milk volume from member-producers totaled 139.2 billion pounds or a market share of 83 percent of all U.S. milk, up from 82 percent in 1997. The proportion of milk marketed by cooperatives varied among the regions--from 72 percent in the North Atlantic region to 95 percent in the South Atlantic region.

The 14-percent decline in member milk volume in the South Central region caused cooperative regional milk market share to decline from 89 to 87 percent. The West North Central region also lost one market share point because of lower member milk volume. Elsewhere, both member milk volume and cooperative share were up in every region. Among all regions, the South Atlantic had the lowest member milk volume but the highest regional share. Its 5-point gain from 1997 to 95 percent in 2002 was the greatest among all regions.

Following the national trend of decreasing dairy farm numbers, dairy cooperatives reported a 30-percent decline in the number of member-producers in 5 years--87,938 to 61,390. The greatest decline was in the East North Central region, which had 10,926 fewer member-producers and accounted for 41 percent of the total decline. However, percentage-wise by region, the East North Central had a less steep decline (31 percent) than the 52-percent decrease in the South Central region or the 36-percent decrease in the West North Central region. Member-producers declined the least in the Western region, down 243 or only 6 percent.

Milk delivery per member-producer was highest in the Western region at 13.6 million pounds. It was about 11 times member delivery in the West North

Central region and 10 times the East North Central region rate. But per-member deliveries were up in all regions in the last 5 years. Nationally, it increased 59 percent from 1.4 million pounds to 2.3 million pounds. The Western region showed a 45-percent increase from 9.4 million pounds to 13.6 million pounds.

Plant Operations

The 209 cooperative plants, down 70 from 1997, performed a variety of marketing functions in 2002 (table 6). More than two-thirds (67 percent) were in the

Table 6—Number of dairy plants owned and operated and partially owned by cooperatives performing various marketing functions, by plant location, 1997 and 2002[1]

	Owned and operated by cooperatives[1]						
Marketing function	North Atlantic	East North Central	West North Central	South Atlantic and South Central[2]	Western	Total	Partially owned and are not directly operated[3]
	Number						
1997							
Receive and ship milk[4]	21	74	94	25	28	242	0
Make American cheese	6	27	14	4	10	61	1
Make Italian cheese	0	13	11	1	5	30	0
Process cheese	0	4	3	0	1	8	0
Churn butter	6	7	8	4	10	35	0
Make dry products	5	8	9	6	15	43	0
Make dry whey products	1	13	13	2	11	40	0
Make condensed products[5]	4	24	16	5	11	60	0
Package fluid milk	4	11	13	5	8	41	13
Make ice cream	2	6	6	1	4	19	3
Make cottage cheese	3	5	3	0	1	12	2
Other activities[6]	7	21	10	2	2	42	0
Total[7]	27	102	96	22	32	279	15
2002							
Receive and ship milk[4]	11	48	36	5	22	122	0
Make American cheese	3	24	11	0	11	49	2
Make Italian cheese	2	13	4	0	2	21	0
Make other cheeses	0	17	3	0	0	20	1
Churn butter	5	8	4	3	7	27	3
Make dry products	6	8	7	5	17	43	0
Make dry whey products	2	12	10	0	4	28	2
Make condensed products[5]	4	26	14	7	18	69	1
Package fluid milk	4	12	7	1	6	30	52
Make ice cream	0	7	4	1	4	16	7
Make cottage cheese	2	5	3	1	1	12	2
Other activities[8]	6	6	9	2	1	24	18
Total[7]	18	89	52	13	37	209	75

1 Figure 1 shows states by region.
2 Combined to avoid revealing individual cooperative information.
3 Partially owned through investment and are not directly operated by the investing cooperative(s).
4 Of plants performing this function, 91 were receiving stations only in 1997, and 35 in 2002.
5 Includes condensed whey.
6 Includes other cheeses.
7 Number of plants do not add to totals because some perform more than one function.
8 Includes culture products, process cheese, dairy ingredients, etc.

East and West North Central regions. The Western region had 37 plants, up 4 from 1997. It was the only region that showed an increase in plant number from 5 years ago.

Thirty-five plants served only as milk receiving and shipping stations, compared with 91 in 1997. Manufacturing operations were carried out in 174 plants, down 14 from 1997.

Sixty-nine plants made condensed products. Many manufacturing operations were devoted to cheesemaking--49 American, 21 Italian, and 20 other cheeses. The East North Central region had the most cooperative cheese plants in every category, followed by the West North Central and the Western regions.

Butter manufacturing plants declined from 35 to 27. Forty-three plants manufactured dry milk products, unchanged from 1997. But there were regional shifts in the last five years, with the Western region having 17 plants, the most among all regions. Dry whey products were made in 28 cooperative plants, mostly in the East and the West North Central regions.

Thirty cooperative plants packaged fluid milk products, down from 41 in 1997. East North Central had 12, West North Central had 7, and Western region had 6. Sixteen cooperative plants made ice cream and 12 made cottage cheese. In 2002, twenty-four plants had activities not shown in table 6.

Cooperatives had an investment in but did not directly operate 75 dairy plants, up five times from 1997. They concentrated in making highly perishable or nontraditional products, including 52 plants that packaged fluid milk products, 7 made ice cream, and 18 made other dairy products.

Dairy Products Marketed

This section and the accompanying tables describe the net volumes of major dairy products marketed by cooperatives. Comparisons are made between the volumes marketed by cooperatives and total U.S. production.

Raw milk—Dairy cooperatives most often sold raw milk. In 2002, net raw milk sales by 174 cooperatives amounted to 89 billion pounds or 62 percent of net total volume marketed (tables 2 and 4). This represented an increase of 11 billion pounds of milk sold raw from 1997, up 1 point in the raw milk sales as a percentage of total volume marketed.

Butter—Cooperatives marketed 956 million pounds of butter in 2002, up 37 percent from 1997 (table 7). U.S. butter production was up 18 percent over the same 5-year period. As a result, cooperatives' share of U.S. production increased from 61 percent in 1997 to 71 percent in 2002. The number of cooperatives marketing butter declined from 36 to 19 (table 2).

Dry milk products—A total of 1,423 million pounds of dry milk products (nonfat dry milk, dry whole milk, and dry buttermilk) was marketed by 17 cooperatives in 2002, up 35 percent from 1997 (tables 2 and 8). U.S. production of these dry milk products grew by 20 percent in the same 5-year period.

Table 7—**Volume of butter marketed by cooperatives compared with U.S. production, 1997 and 2002**

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Thousand pounds		
1997	697,639	1,151,250	61%
2002	956,211	1,355,148	71%
5-year change	37%	18%	

Table 8—**Volume of dry milk products marketed by cooperatives compared with U.S. production, 1997 and 2002**

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Thousand pounds		
1997			
Dry whole milk	27,564	122,091	23%
Nonfat dry milk	984,946	1,222,853	81%
Dry buttermilk	42,386	49,308	86%
Total	1,054,896	1,394,252	76%
2002			
Dry whole milk	22,425	47,411	47%
Nonfat dry milk	1,352,016	1,576,556	86%
Dry buttermilk	48,104	54,886	88%
Total	1,422,545	1,678,853	85%
5-year change	35%	20%	

Cooperatives gained share of U.S. production as a result, from 76 percent in 1997 to 85 percent in 2002.

Cooperatives marketed 47 percent of the Nation's dry whole milk, up from 23 percent in 1977. Their shares of nonfat dry milk and dry buttermilk were overwhelming, at 86 percent (up from 81 percent in 1997) and 88 percent (up from 86 percent), respectively.

Cheese—In 2002, cooperatives marketed 3,402 million pounds of natural cheese, excluding cottage cheese, up 17 percent (table 9), the same growth rate as the volume of natural cheese made by all U.S. firms. As a result, cooperatives' share of the natural cheese market remained unchanged at 40 percent.

Among the 3,402 million pounds of natural cheese marketed by cooperatives, the vast majority (2,436 million pounds or 72 percent) was American cheese, followed by Italian cheese (765 million pounds or 22 percent).

American cheese marketed by cooperatives grew 15 percent from 1997, while U.S. production increased 13 percent, resulting in cooperative share increased by one point, from 65 percent to 66 percent in 2002.

In the same five years, cooperative Italian cheese marketing increased by 11 percent, half the U.S. growth rate of 22 percent. Hence, cooperative share of U.S. total dipped two points, from 24 percent to 22 percent.

Table 9—Volume of natural cheese[1], by type, marketed by cooperatives compared with U.S. production, 1997 and 2002

Cheese type	1997	2002	5-year change
	Thousand pounds		
Marketed by cooperatives			
American types	2,119,394	2,435,938	15%
Italian varieties	687,646	765,426	11%
Swiss cheese[2]		39,509	
Other cheeses[3]	100,407	160,817	
Total, natural cheese	2,907,447	3,401,691	17%
U.S. total production			
American types	3,285,558	3,709,015	13%
Italian varieties	2,881,445	3,506,478	22%
Swiss cheese		254,096	
Other cheeses[3]	1,163,411	1,129,889	
Total, natural cheese	7,330,414	8,599,478	17%
Cooperative share of U.S. total			
American types	65%	66%	
Italian varieties	24%	22%	
Swiss cheese[2]		16%	
Other cheese[3]	9%	14%	
Total, natural cheese	40%	40%	

[1] Includes all types of natural cheese except cottage cheese.
[2] Cooperative Swiss cheese was separately counted for the first time in the current survey.
[3] For 1997, other cheeses included Swiss cheese.

Cooperative Swiss cheese was separately counted for the first time in the current survey. The 40 million pounds marketed by cooperatives had a 16-percent share of U.S. production in 2002.

Cooperatives also marketed 161 million pounds of natural cheese other than American, Italian, or Swiss in 2002. This accounted for 14 percent of U.S. production of other cheeses. Cooperative marketing of other cheeses (even excluding Swiss cheese in 2002) showed very substantial increases through the years.

The number of cooperatives marketing natural cheese decreased by 10, from 42 in 1997 to 32 in 2002 (table 2). Of the 32 cooperatives, 24 marketed Cheddar cheese; 10, other American cheese; 6, Italian cheese; 5, Swiss cheese; and 11, other natural cheese.

Packaged fluid milk products—Cooperatives marketed 3,810 million pounds of packaged fluid milk products in 2002, down in volume and share of total packaged sales of all U.S. firms (table 10). Cooperative volume of packaged fluid milk products decreased 51 percent in 5 years. At the same time, U.S. total beverage milk decreased only 1 percent. This halved cooperative market share to 7 percent.

The number of cooperatives marketing packaged fluid milk products decreased from 21 to 16 in the 5-year period (table 2). There were 41 cooperative plants that packaged fluid milk products in 1997 versus 30 in 2002 (table 6).

On the other hand, cooperatives had investment in 52 plants in 2002 that packaged fluid milk products, but did not directly operate them. The production of these plants is not counted as cooperative volume.

Cottage cheese—in 2002, cooperatives marketed 111 million pounds of cottage cheese, down 9 percent (table 11). Cooperative share of total U.S. production declined from 10 to 9 percent. The drop resulted from a 2-percent increase in U.S. cottage cheese production, while cooperative volume declined by 9 percent. Cooperative marketers of cottage cheese dropped from 13 to 9 during the half decade (table 2).

Ice cream and ice cream mix—Cooperatives were a minor player in the ice cream business, marketing 38 million gallons in 2002. Their share of the Nation's production decreased from 6 to 3 percent (table 12). Ice cream sales by cooperatives decreased 54 percent while U.S. production increased 2 percent. Only seven cooperatives marketed ice cream versus 13 in 1997 (table 2).

In 2002, eight cooperatives reported sales of 47 million gallons of ice cream mix or 6 percent of U.S. production (tables 2 and 13). This was a drop from 11 percent share in 1997. In the 5-year period, cooperative volume decreased 40 percent while U.S. production increased 5 percent.

Yogurt—Dairy cooperatives played an even smaller role in yogurt than in ice cream. The volume of yogurt marketed by cooperatives decreased 57 percent since 1997; market share occupied by the 6 cooperatives was only 2 percent in 2002 (tables 2 and 14).

Bulk condensed milk products—In 2002, U.S. firms produced 1,189 million pounds of bulk condensed milk products, down 7 percent. At the same time, the volume sold by cooperatives had a 23-percent

Table 10—**Volume of packaged fluid milk products marketed by cooperatives compared with U.S. total, 1997 and 2002**

Year	Marketed by cooperatives	U. S. total beverage milk sales[1]	Cooperative share of U.S. total
	Million pounds		
1997	7,730	54,782	14%
2002	3,810	54,216	7%
5-year change	-51%	-1%	

[1] Livestock, Dairy, and Poultry Outlook, LDP-M-108, Economic Research Service, U.S. Department of Agriculture, June 24, 2003; 2002 preliminary.

Table 11—**Volume of cottage cheese marketed by cooperatives compared with U.S. production, 1997 and 2002**

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Million pounds		
1997	122	1,165	10%
2002	111	1,185	9%
5-year change	-9%	2%	

Table 12—Volume of ice cream marketed by cooperatives compared with U.S. production, 1997 and 2002

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Million gallons		
1997	83	1,340	6%
2002	38	1,371	3%
5-year change	-54%	2%	

Table 13—Volume of ice cream mix marketed by cooperatives compared with U.S. production, 1997 and 2002

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Million gallons		
1997	78	709	11%
2002	47	748	6%
5-year change	-40%	5%	

Table 14—Volume of yogurt marketed by cooperatives compared with U.S. production, 1997 and 2002

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Million poundss		
1997	89	1,574	6%
2002	38	2,135	2%
5-year change	-57%	36%	

Table 15—Volume of bulk condensed milk[1] marketed by cooperatives compared with U.S. production, 1997 and 2002

Year	Marketed by cooperatives[2]	United States total production	Cooperative share of U.S. total
	Million pounds of solids		
1997	817	1,275	64%
2002	630	1,189	53%
5-year change	-23%	-7%	

1 Bulk condensed whole milk and skim milk.
2 Includes ultrafiltered milk solids in 2002.

Table 16—Volume of dry whey products[1] marketed by cooperatives compared with U.S. production, 1997 and 2002

Year	Marketed by cooperatives	United States total production	Cooperative share of U.S. total
	Million pounds		
1997	907	1,925	47%
2002	1,104	2,130	52%
5-year change	22%	11%	

1 Includes dry whey, dry whey protein concentrate and lactose.

Table 17—Volumes of some other dairy products marketed by cooperatives compared with U.S. totals, 2002

	Marketed by cooperatives	U.S. total volume[1]	Cooperative share of U.S. total
	Million pounds		
Sour Cream	133	1,031	13%
Condensed buttermilk	19	56	34%

1 U.S.total sour cream sales is from Livestock, Dairy, and Poultry Outlook, LDP-M-108, Economic Research Service, U.S. Department of Agriculture, June 24, 2003; 2002 preliminary.

decrease to 630 million pounds. The 14 cooperatives had a share of 53 percent of total U.S. production, down from 64 percent in 1997 (tables 2 and 15).

Dry whey products—The percentage of dry whey products sold by cooperatives increased from 47 percent to 52 percent of U.S. production in 5 years. In 2002, 13 cooperatives marketed 1,104 million pounds of dry whey products, up 22 percent from 1997, while U.S. production increased 11 percent in the same period (tables 2 and 16).

Sour cream and condensed buttermilk—For the first time, this survey separately counted sour cream and condensed buttermilk sold by cooperatives. Eight sold 133 million pounds of sour cream in 2002 and had a 13-percent share of U.S. production. Six marketed 19 million pounds of condensed buttermilk and had a 34-percent share of the production by all firms (tables 2 and 17).

Concentration Ratios

The largest cooperatives' proportion of all cooperative milk from member-producers and sales of selected products for 1997 and 2002 is shown in table 18. It shows their shares as a percent of total U.S. production. (The cooperatives in each size group are not necessarily the same for each product.)

The eight largest cooperatives' member milk represented 52 percent of the total U.S. volume of milk sold to plants and dealers, up from 42 percent in 1997. Their volume represented 63 percent of member milk marketed through all cooperatives, up from 52 percent.

In 2002, the eight largest cooperatives had an overwhelming share among cooperatives of these products: packaged fluid milk, 91 percent; butter, 95 percent; nonfat dry milk, 93 percent; natural cheese, 91 percent; and dry whey and dry whey products, 91 percent.

However, compared with the Nation's total production, their shares were less significant. The eight largest cooperatives sold only 6 percent of the Nation's packaged fluid milk, 36 percent of cheese, and 47 percent of dry whey and dry whey products. They dominated only in marketing butter and nonfat dry milk.

The four largest cooperatives accounted for 49 percent of milk delivered by member-producers. The four largest cooperatives also marketed more than two-thirds of cooperative volume of each of the selected products. Except for the packaged fluid milk products, their shares of U.S. production of the selected products increased from 1997 to 2002, following the same trend as in the case of the eight largest cooperatives.

Table 18—Share of milk received from farmers, milk processed or manufactured, and selected product marketed for largest dairy cooperatives[1], 1997 and 2002

Item	Share of cooperative volume		Share of U.S. volume[2]	
	4 largest cooperatives	8 largest cooperatives	4 largest cooperatives	8 largest cooperatives
	Percent of all cooperatives		*Percent of U.S. production*	
Milk from member-producers				
1997	36	52	30	42
2002	49	63	41	52
Packaged fluid milk				
1997	76	95	10	12
2002	73	91	5	6
Butter				
1997	53	76	32	46
2002	80	95	56	67
Nonfat dry milk				
1997	52	80	41	64
2002	76	93	66	80
Natural cheese				
1997	63	81	25	32
2002	74	91	29	36
Dry whey and dry whey products[3]				
2002	67	91	34	47

[1] Cooperatives included may change from product to product.
[2] In the case of milk, it was the volume of milk sold to plants and dealers.
[3] Market share calculated for the first time for 2002.

U.S. Department of Agriculture

Rural Business–Cooperative Service

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Rural Business–Cooperative Service (RBS) 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 cooperative segment of RBS (1) helps farmers and other rural residents develop cooperatives to 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. RBS also publishes research and educational materials and issues *Rural Cooperatives* magazine.