United States
Department of
Agriculture

Rural Business-
Cooperative
Service

RBS Research
Report 173

Marketing Operations of Dairy Cooperatives

Abstract

The Nation's 226 dairy cooperatives marketed 127.4 billion pounds of milk, or 83 percent of all milk sold to plants and dealers, in 1997. These cooperatives were owned by 87,938 member-producers. Sixty-three cooperatives operated 203 dairy processing and manufacturing plants, 25 with milk-receiving stations only and 138 with no milk-handling facilities. Cooperatives sold 14 percent of the Nation's packaged fluid products, 6 percent of the ice cream, 61 percent of the butter, 76 percent of the dry milk products, 40 percent of the natural cheese, 48 percent of the dry whey products, and 10 percent of the cottage cheese.

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

Marketing Operations of Dairy Cooperatives

K. Charles Ling
Rural Business-Cooperative Service

RBS Research Report 173

June 1999

Preface

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

Data covers cooperatives' fiscal year ending in calendar 1997. These fiscal years vary within the calendar year, so their data reflect some differences in time periods. This report updates ACS Research Report 133 based on cooperative operations for the fiscal year ending in calendar 1992.

Because of the rapid cooperative structural changes in recent years, some of the larger cooperatives have significant operations in regions other than where cooperatives are headquartered. Regional marketing data on cooperative operations based on where cooperatives are headquartered are no longer meaningful and are discontinued in this report.

The author acknowledges assistance from some State agencies for this study, plus USDA's National Agricultural Statistics Service and particularly Federal milk market administrators for supplying data as authorized by some cooperatives.

Contents

Highlights iv

Cooperative Industry Profile 1

Milk Receipts and Utilization 3

Member Supply and Location 3

Plant Operations 5

Dairy Products Marketed 7

Raw Whole Milk 7

Butter 7

Dry Milk Products 8

Cheese 9

Packaged Fluid Milk Products 10

Cottage Cheese 10

Ice Cream and Ice Cream Mix 10

Yogurt 10

Bulk Condensed Milk Products 11

Dry Whey Products 11

Cooperative Concentration Ratios 11

Highlights

While dairy products represented 30 percent of the value of all agricultural cooperative marketings during 1997, dairy cooperatives received or bargained for 83 percent of all milk sold by farmers to the Nation's plants and dealers.

Dairy cooperatives decreased 15 percent, from 265 to 226, between 1992 and 1997. Similarly, cooperatives that processed and manufactured dairy products dropped from 86 in 1992 to 63 in 1997. Following the same pattern, the number of cooperatives selling raw whole milk fell from 230 in 1992 to 204 in 1997. But cooperatives' share of total volume sold by farmers to plants and dealers inched up from 82 percent to 83 percent.

Sixty-one percent of total cooperative volume was sold as raw whole milk in 1997 versus 60 percent in 1992. The other 39 percent was manufactured at plants operated by cooperatives.

There were 87,938 member-producers delivering milk to 222 dairy cooperatives with direct members. Three regions—East North Central, West North Central, and North Atlantic—together accounted for 83 percent of all member-producers and 55 percent of cooperative milk volume.

Dairy cooperatives owned 298 plants in 1997, 91 for receiving and shipping milk only. They operated 62 plants for manufacturing American cheese, 30 for Italian cheese, 54 for packaging fluid milk products, 43 for manufacturing dry milk products, and 35 for churning butter.

While net sales of butter and dry milk products decreased from 1992 to 1997, those of cheese increased. However, cooperatives' share of these products all declined during this period.

Cooperatives' share of butter decreased from 65 percent to 61 percent during the half decade, as did dry milk products (nonfat dry milk, dry buttermilk, and dry whole milk), which went from 81 percent to 76 percent.

Cheese marketed by cooperatives grew 3 percent, from 2,820 million pounds to 2,907 million pounds, while nationally cheese production increased 13 percent. Cooperatives' share of the natural cheese market declined from 43 percent to 40 percent by 1997.

Sales of packaged fluid milk products by cooperatives decreased both in volume and in share of market. The 7,730 million pounds marketed was 14 percent of the Nation's production, down from 16 percent in 1992. Cooperatives' sales of cottage cheese as a percentage of national production, at 10 percent, was also lower than in 1992. Share of ice cream decreased from 10 percent to 6 percent. In 1997, cooperatives marketed 11 percent of the Nation's ice cream mix, 4 percent of yogurt, 65 percent of bulk condensed milk, and 48 percent of dry whey products.

Most dairy cooperatives continue to be relatively small business organizations. However, through consolidation and growth, an increasing amount of dairy products was sold by larger cooperatives. The 20 largest dairy cooperatives received 77 percent of all producer milk marketed through cooperatives. And 89 percent of cooperative milk processing and manufacturing was conducted by the 20 largest cooperatives with plant operations.

Marketing Operations of Dairy Cooperatives

K. Charles Ling
RBS Agricultural Economist

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.

This report, seventh 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 1992 and 1997, the number of dairy cooperatives decreased 15 percent, from 265 to 226, a faster decline than the 10 percent recorded from 1987 to 1992. In 1997, 187 cooperatives, or 83 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 83 dairy cooperatives, the most among all regions.

Cooperative numbers dropped in every region. The greatest reductions by 1997 were 12 each in the North Atlantic and the West North Central regions. In the East North Central region, 9 fewer cooperatives were counted.

In 1997, 63 cooperatives, or 28 percent of all dairy cooperatives, processed and manufactured dairy products, down from 32 percent and 86 cooperatives in 1992. Seventy percent of the decline in the number of these cooperatives occurred in the East North Central and West North Central regions. However, the East North Central region still had the most (24) cooperatives in this activity.

Cooperatives that operated only milk-receiving stations decreased from 44 to 25 by 1997. They represented 11 percent of all dairy cooperatives. Twenty of the 25 cooperatives, or 80 percent, were in the West North Central region.

Bargaining cooperatives (did not physically handle milk and other dairy products) increased from 135 to 138. More than half (72) were in the North Atlantic region. The only increase in the number of these cooperatives was in the East and West North Central regions.

Nationally, the number of cooperatives marketing selected major dairy products continued to decline (table 2). More cooperatives (90 percent of 226 in dairy) continued to sell raw whole milk in bulk than any other product.

The greatest decline among the decreasing number of cooperatives marketing various dairy products was the 47 percent among those marketing butter.

Cooperatives marketing natural cheese decreased by 44 percent to 42 cooperatives in 1997. The story was similar in all cheese categories—the 33 cooperatives marketing Cheddar cheese was down 44 percent; the 14 handling other American cheese was down 63 percent; the 12 in Mozzarella, down 56 percent; the 7 in other Italian cheese, down 42 percent; and the 12 handling other cheese, down 48 percent.

The 13 cooperatives marketing cottage cheese were down by 9 cooperatives or 41 percent. Similarly, the 12 selling yogurt dropped 37 percent; ice cream, dropped 35 percent to 13 cooperatives; and packaged fluid milk products dropped 28 percent to 21 cooperatives.

Table 1—Dairy cooperatives by type of operation and by headquarters region, 1992 and 1997

Region[1]	Processing and manufacturing dairy products		Operating milk receiving facilities only		Not physically handling dairy products		Total	
	1992	1997	1992	1997	1992	1997	1992	1997
North Atlantic	12	8	6	3	77	72	95	83
East North Central	35	24	1	1	17	19	53	44
West North Central	19	14	36	20	17	26	72	60
South Atlantic	4	3	0	1	8	5	12	9
South Central	3	1	1	0	3	5	7	6
Western	13	13	0	0	13	11	26	24
All regions	86	63	44	25	135	138	265	226
Percentage of total cooperatives	32	28	17	11	51	61	100	100

[1] See figure 1 for States included in each region.

Figure 1—Number of Dairy Cooperatives by Headquarters Region, 1997

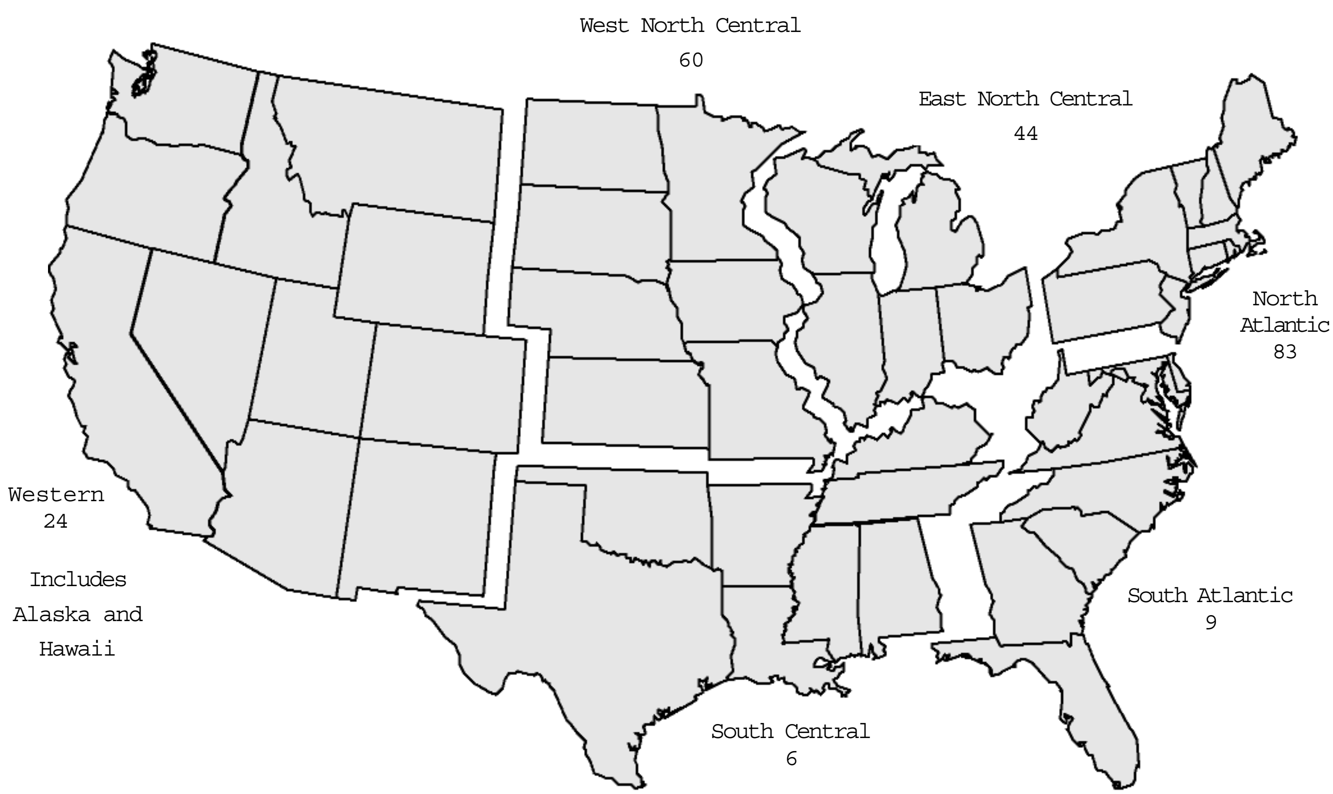

Table 2– Cooperatives marketing seleted dairy products, 1992 and 1997 [1]

Item	1992	1997	5-year change
	Number of cooperatives		Percent
Bulk whole milk	230	204	-11
Packaged fluid milk products	29	21	-28
Ice cream	20	13	-35
Yogurt	19	12	-37
Cottage cheese	22	13	-41
Natural cheese [2]	75	42	-44
Cheddar	59	33	-44
Other American	38	14	-63
Mozzarella	27	12	-56
Other Italian	12	7	-42
Other cheese	23	12	-48
Butter	68	36	-47
Nonfat dry milk	26	24	-8
Whole milk powder	9	6	-33
Buttermilk powder	21	16	-24
Dry whey products	17	16	-6

[1] A cooperative may market several products.
[2] Other than cottage cheese.

The smallest decline in the number of cooperatives was among those marketing dry whey products and nonfat dry milk (6 and 8 percent, respectively). In 1997, 16 cooperatives marketed dry whey products, while 24 marketed nonfat dry milk.

Milk Receipts and Utilization

In 1997, cooperatives received or bargained for 127.4 billion pounds of milk (net of inter-cooperative transfers), or 83 percent of total volume sold by farmers to the Nation's plants and dealers (table 3). Cooperatives' share was up one percentage point from 82 percent in 1992. Cooperatives' volume increased 4 percent in the period, while the Nation's milk sold to plants and dealers rose 3 percent.

Of the 127.4 billion pounds of milk received by dairy cooperatives in 1997, 98 percent came directly from member-producers. The rest came from nonmembers or noncooperative firms. Member milk deliveries to cooperatives increased 5 percent, but declined from other sources 38 percent (table 3).

Total cooperative milk volume sold as raw whole milk was up 1 percentage point to 61 percent (table 4). In other words, cooperatives processed or manufactured 39 percent of the milk received in the plants they operated, down 1 percentage point from 1992, even though the volume processed or manufactured actually increased.

Member Supply and Location

There were 87,938 member-producers delivering milk to 222 dairy cooperatives with direct members (table 5). Most (35,240 producers) were in the East North Central region, followed by the West North Central region (22,343 producers) and the North Atlantic region (15,394 producers). Together, these regions had 83 percent of total member-producers, but only 55 percent of member milk delivered to dairy cooperatives.

Reflecting national milk production trends, the Western region replaced the East North Central region as the top source of cooperative milk volume. Cooperatives in the Western region received 36.2 billion pounds of milk directly from member-producers. This represented 29 percent of the milk received directly from member-producers and marketed by all cooperatives, up from 26 percent in 1992 (table 5). The East North Central region accounted for 26 percent of total cooperative member milk volume, down from 29 percent in 1992.

Table 3– Cooperative share of milk delivered to plants and dealers, 1992 and 1997

Year	Milk from member-producers	Milk from nonmembers and noncooperative firms	Total milk handled by cooperatives [1]	United States total	Cooperative share
		Million pounds			Percent
1992	118,883	3,739	122,622	148,804	82
1997	125,103	2,315	127,418	153,894	83
		Percent			
5-year change	5	-38	4	3	

[1] Handled either by physical receipt or by bargaining transactions. Excludes intercooperative transactions.

Table 4– Utilization of cooperatively marketed milk, 1992 and 1997 [1]

Year	Volume	Percent
	Million pounds	
1992		
Sold raw	73,934	60
Processed or manufactured	48,688	40
Total	122,622	100
1997		
Sold raw	78,234	61
Processed or manufactured	49,184	39
Total	127,418	100

[1] Excludes intercooperative volume.

Farms in the West North Central and North Atlantic regions each supplied about 15 percent of the total U.S. cooperative member volume. The Western, South Central, and North Atlantic regions increased milk volumes from cooperative members, up almost 5.5 billion pounds in the Western region. Volume in the other three regions declined. The greatest decline was in the East North Central region, down about 2.2 billion pounds from 1992 to 1997.

In 1997, cooperative marketings of milk for member-producers totaled 125.1 billion pounds or a market share of 81 percent of all milk, up from 80 percent in 1992. The proportion of milk marketed by cooperatives varied from 69 percent in the North Atlantic region to 93 percent in the West North Central.

Quantities marketed increased significantly in the Western region, but cooperative milk market share declined from 80 to 73 percent. Cooperative milk volume was up in the South Central region, and regional market share was up 22 percentage points to 89 percent in 1997. The North Atlantic region also had higher milk volume and gained 7 market share points. The South Atlantic region lost 2 market share points, while East North Central's market share was constant, even though milk volume declined in both regions from 1992 to 1997. Volume also declined in the West North Central region, but cooperatives gained 8 market share points.

Following the national trend of decreasing dairy farm numbers, dairy cooperatives reported a 20-percent decline in the number of member-producers in 5 years, from 110,440 to 87,938 in 1997. Most of the decline was in the East North Central region, with 13,775 fewer member-producers in 1997 than in 1992, or down 28 percent. The Western region had a 26-percent decline or 1,331 fewer member-producers. The West North Central region saw more decrease in member-producers (5,033) than the Western region, although percentage-wise, it was a less steep decline of 18 percent. The only region to increase member-producers was South Central, up 425 or 6 percent.

Milk delivery per member-producer was highest in the Western region at 9.4 million pounds. It was about 12 times the milk delivery per member-producer in the West North Central region and 10 times the East North Central region rate. Milk delivery per member-producer increased in all regions. Nationally, it increased 27 percent from 1.1 million pounds to 1.4 million pounds. The Western region increased from 5.9 million pounds to 9.4 million pounds per member-producer or 59 percent.

Table 5–Marketing share of cooperative member's milk by region, number of producers, and milk delivery per producer, 1992 and 1997 [1]

Year and region [2]	Number of cooperatives [3]	Cooperative volume of milk in million pounds	Marketing share (%) [4]	Number of producers delivering	Million pounds of milk per producer
1992					
North Atlantic	94	16,502	62	17,559	0.9
East North Central	57	34,813	90	49,015	0.7
West North Central	78	18,500	85	27,376	0.7
South Atlantic	19	8,994	92	4,124	2.2
South Central	14	9,326	67	7,188	1.3
Western	29	30,748	80	5,178	5.9
All regions [5]	256	118,883	80	110,440	1.1
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	93	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 regions [5]	222	125,103	81	87,938	1.4

[1] Includes milk either physically received by cooperatives or marketed by firms. Includes only milk from member-producers, and excludes milk from nonmembers or from cooperative or noncooperative firms.
[2] See figure 1 for states included in each region.
[3] Cooperatives having members in the region, but not necessarily headquartered there.
[4] Cooperative member volume as a percentage of milk sold to plants and dealers.
[5] Number of cooperatives do not add to totals because some receive milk from more than one region.

Plant Operations

The 298 cooperative plants performed a variety of marketing functions in 1997, 83 fewer than in 1992 (table 6). Seventy-one percent of them were in the East and West North Central regions. The Western region had 33 plants, for the first time surpassing the 28 in the North Atlantic region.

Ninety one plants (31 percent) served only as milk receiving and shipping stations, compared with 81 (21 percent) in 1992. Manufacturing operations were carried out in 203 plants, down 96 plants (32 percent) from 1992.

Most manufacturing operations were devoted to cheesemaking—62 making American, 30 Italian, and 8 process cheese. Most cooperative cheese plants were in the two North Central and the Western regions.

Butter was manufactured in 35 plants, down from 48 in 1992. Cooperative butter plants were concentrated in the Western and East and West North Central regions. Forty-three plants manufactured dry milk products. Drying operations showed the same regional concentration. Dry whey products were made in 40 cooperative plants, again mostly in the same three regions. The number of plants making dry whey products was the only category that remained the same as in 1992; the number of plants making other dairy products all declined.

Fifty-four cooperative plants packaged fluid milk products, down from 75 in 1992. West North Central region had the most plants, with 19, followed by 13 in the East North Central and 9 in the Western region. Twenty-two cooperative plants made ice cream and 14 made cottage cheese. Forty-two plants had activities not shown in table 6.

Table 6– Number of plants owned and operated by cooperatives performing various marketing functions, by plant loacation, 1992 and 1997

Marketing function	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	Total
	Region [1]						
	Number of plants						
1992							
Receive and ship milk	33	78	126	12	16	27	[2] 292
Make American cheese	4	39	24	0	4	9	80
Make Italian cheese	1	18	17	0	5	5	46
Process cheese	0	2	3	1	2	2	10
Churn butter	6	9	15	1	4	13	48
Package fluid milk	11	13	18	13	7	13	75
Make dry products	5	9	15	1	7	15	52
Make dry whey products	2	10	18	0	4	6	40
Make condensed products [3]	6	21	28	1	8	12	76
Make cottage cheese	4	7	6	1	1	6	25
Make ice cream	5	9	13	2	2	6	37
Not operated	0	1	0	0	0	0	1
Other activities	8	16	29	0	1	2	56
Total number of plants [4]	38	116	153	19	22	33	381
1997							
Receive and ship milk	21	74	94	7	18	28	[2] 242
Make American cheese	6	28	14	0	4	10	62
Make Italian cheese	0	13	11	0	1	5	30
Process cheese	0	4	3	0	0	1	8
Churn butter	6	7	8	1	3	10	35
Package fluid milk	4	13	19	5	4	9	54
Make dry products	5	8	9	1	5	15	43
Make dry whey products	1	13	13	0	2	11	40
Make condensed products [3]	4	24	16	2	3	11	60
Make cottage cheese	3	5	5	0	0	1	14
Make ice cream	2	7	7	0	1	5	22
Not operated	1	2	1	0	0	0	4
Other activities	7	21	10	0	2	2	42
Total number of plants [4]	28	107	104	9	17	33	298

[1] See figure1 for states included in each region.
[2] Out this total, 81 were receiving and shipping stations only in 1992; 91 in 1997.
[3] Includes condensed whey.
[4] Numbers of plants do not add to totals because some perform more than one function.

Dairy Products Marketed

This section and the tables that follow describe the net volumes of major dairy products marketed by cooperatives after subtracting transactions among cooperatives. Comparisons are made between the net volumes marketed by cooperatives and total U.S. production. Other tables show the number of cooperatives marketing dairy products and the volume marketed by selected size groupings. The tables by size groupings show both the pounds marketed and the percentage of total cooperative sales without adjustments for inter-cooperative transactions.

Raw Whole Milk

Dairy cooperatives most often sold raw whole milk. In 1997, net raw milk sales by 204 cooperatives amounted to 78 billion pounds or 61 percent of net total volume received (tables 2 and 4). This represented an increase of 4.3 billion pounds in milk volume marketed from 1992, and also an increase in the raw milk sales as a percentage of total receipts.

Butter

Excluding inter-cooperative transfers, cooperatives marketed a net volume of 698 million pounds of butter in 1997, down 21 percent from 1992 (table 7). U.S. butter production was down 16 percent over the same 5-year period. As a result, cooperatives' share of U.S. production decreased from 65 percent in 1992 to 61 percent in 1997.

Table 7– Volume of butter marketed by cooperatives compared with U.S. production, 1992 and 1997

Year	Marketed by cooperatives [1]	United States total production	Cooperative share of U.S. production
	Thousand pounds		Percent
1992	885,321	1,365,164	65
1997	697,639	1,151,250	61
	Percent		
5-year change	-21	-16	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Table 8– Size groups of dairy cooperatives marketing butter, 1992 and 1997

Item and year	Size group (1,000 pounds): Less than 2,500	2,500-19,999	20,000-39,999	40,000 and over	Total
			Number		
Number of cooperatives					
1992	44	9	7	8	68
1997	15	8	7	6	36
			Percent [1]		
Percentage of cooperatives					
1992	65	13	10	12	100
1997	42	22	19	17	100
			1,000 pounds		
Group volume [2]					
1992	9,087	66,469	201,774	625,446	902,776
1997	4,364	72,385	198,501	488,114	763,364
			Percent [1]		
Group volume as percentage of total cooperative vollume					
1992	1	7	22	69	100
1997	1	9	26	64	100

[1] Percentages may not add to 100 due to rounding.
[2] Volume not adjusted for intercooperative transactions.

The number of cooperatives marketing butter continued to decline—from 68 to 36 between 1992 and 1997 (table 8). Thirteen cooperatives, each handling 20 million pounds or more, marketed 90 percent of the volume marketed by cooperatives, compared with 15 in the same size group marketing 92 percent of the volume in 1992. The six cooperatives, each marketing 40 million or more pounds of butter, accounted for 64 percent of cooperative butter sales, down from 69 percent marketed by 8 cooperatives in the same size group in 1992. Volume of those marketing less than 20 million pounds increased by about 2 percent from 1992 to 1997 and accounted for 10 percent of volume marketed by cooperatives in 1997 versus 8 percent in 1992.

Table 9– Volume of dry milk products marketed by cooperatives compared with U.S. production, 1992 and 1997

Year	Marketed by cooperatives [2]	United States total production	Cooperative share of U.S. production
	Thousand pounds		
1992	904,411	1,111,470	81
1997	1,054,896	1,394,252	76
	Percent		
5-year change	17	25	

[1] Includes nonfat dry milk, and dry buttermilk.
[2] Adjusted for intercooperative transactions. Includes purchases from other sources

Dry Milk Products

Cooperatives marketed 1,054 million pounds of dry milk products, up 17 percent from 1992 (Table 9)—nonfat dry milk, dry buttermilk, and dry whole milk. However, U.S. production grew by 25 percent in the same 5-year period. Cooperatives lost share of U.S. production as a result, from 81 percent in 1992 to 76 percent in 1997.

The number of cooperatives marketing dry milk products declined from 29 to 25 (table 10). Eighty-one percent of cooperatives' dry milk products was marketed by nine cooperatives in the 40-million-pounds-and-greater size group, compared with 66 percent marketed by the six cooperatives in the size group in 1992. The volume marketed by cooperatives in the largest and smallest size groups increased, while the volume marketed by the two intermediate size groups declined.

Table 10– Size groups of dairy cooperatives marketing dry milk powder [1], 1992 and 1997

Item and year	Size group (1,000 pounds)				
	Less than 10,000	10,000-19,999	20,000-39,999	40,000 and over	Total
			Number		
Number of cooperatives					
1992	8	10	5	6	29
1997	7	6	3	9	25
			Percent [2]		
Percentage of cooperatives					
1992	28	34	17	21	100
1997	28	24	12	36	100
			1,000 pounds		
Group volume [3]					
1992	16,387	151,898	136,642	601,721	906,648
1997	22,762	89,592	84,318	863,448	1,060,120
			Percent [2]		
Group volume as percentage of total cooperative vollume					
1992	2	17	15	66	100
1997	2	8	8	81	100

[1] Includes nonfat dry milk, dry whole milk, and dry buttermilk.
[2] Percentages may not add to 100 due to rounding.
[3] Volume not adjusted for intercooperative transactions.

Cheese

In 1997, cooperatives marketed 2,907 million pounds of natural cheese, excluding cottage cheese, up 3 percent from 1992 (table 11). During this period, the volume of total cheese made by all U.S. firms increased 13 percent. As a result, cooperatives' share of the national cheese market decreased from 43 percent to 40 percent.

Among the 2,907 million pounds of natural cheese marketed by cooperatives, the vast majority (1,844 million pounds or 63 percent) was Cheddar cheese. Cooperative Cheddar cheese sales were 70 percent of the nation's production. Cooperatives marketed 576 million pounds of Mozzarella cheese or 26 percent of U.S. production in 1997. Other American cheese, at 275 million pounds, was the third major cheese category of cooperatives' sales, accounting for 43 percent of U.S. production.

Cooperative shares in the three major categories of cheese all declined from 1992, while their shares of other Italian cheese and other cheese increased.

Sales of other Italian cheese by cooperatives was 112 million pounds or 18 percent of U.S. production. Cooperatives also marketed 100 million pounds of natural cheese other than American or Italian, a 9 percent share of U.S. total production of this category of cheese.

The number of cooperatives marketing cheese declined from 75 in 1992 to 45 in 1997, reflecting consolidations in the cooperative sector (table 12). Cooperatives marketing less than 10 million pounds annually declined from 51 to 26, while those marketing 10 million or more pounds dropped from 24 to 19. Ninety-two percent of all cooperative cheese sales in 1997 was conducted by the largest 13 cheese marketers.

The 100-million-pounds-and-larger size group had seven cooperatives, accounting for 2,254 million

Table 11– Volume of natural cheese [1], by type, marketed by cooperatives and comparisons with U.S. total production, 1992 and 1997

Cheese Type	1992	1997	5-year change
	1,000 pounds		Percent
Marketed by cooperatives [2]			
Cheddar	1,804,341	1,844,261	2
Other American	290,210	275,133	-5
Mozzarella	568,877	575,576	1
Other Italian	77,364	112,070	45
Other cheese	79,183	100,407	27
Total, natural cheese	2,819,975	2,907,447	3
U.S. total production			
Cheddar	2,400,700	2,639,526	10
Other American	535,861	645,677	20
Mozzarella	1,969,106	2,244,005	14
Other Italian	539,471	636,399	18
Other cheese	1,043,153	1,163,411	12
Total, natural cheese	6,488,291	7,329,018	13
	Percent		
Cooperative percentage of U.S. total production			
Cheddar	75	70	
Other American	54	43	
Mozzarella	29	26	
Other Italian	14	18	
Other cheese	8	9	
Total, natural cheese	43	40	

[1] Includes all types of cheese except cottage cheese.

[2] Does not include purchases from other cooperatives.

Table 12– Size groups of dairy cooperatives marketing cheese, 1992 and 1997

Item and year	Size group (1,000 pounds) Less than 10,000	10,000-19,999	20,000-39,999	40,000-99,999	100,000 and and over	Total
				Number		
Number of cooperatives						
1992	51	8	5	6	5	75
1997	26	1	5	6	7	45
				Percent [1]		
Percentage of cooperatives						
1992	68	11	7	8	7	100
1997	58	2	11	13	16	100
				1,000 pounds		
Group volume [2]						
1992	72,538	115,573	160,458	506,129	1,977,245	2,831,943
1997	70,670	*	150,258	435,300	2,253,662	2,909,890
				Percent [1]		
Group volume as percentage of total cooperative volume						
1992	3	4	6	18	70	100
1997	2	*	5	15	77	100

[1] Percentages may not add to 100 due to rounding.
[2] Volume not adjusted for intercooperative transactions.
* Included in the previous group.

pounds (77 percent) of total cooperative cheese volume. That volume was 14 percent higher than the 1,977 million pounds marketed by the five cooperatives in the same size group in 1992.

Packaged Fluid Milk Products

Cooperatives marketed 7,730 million pounds of packaged fluid milk products in 1997, down in volume and share of total sales of all U.S. firms (table 13). Cooperative volume of packaged fluid milk products decreased 13 percent in 5 years. At the same time, U.S. total beverage milk decreased only a fraction of a percent. This lowered cooperative market share to 14 percent, a drop of 2 percentage points.

The number of cooperatives marketing packaged fluid milk products decreased from 29 to 21 in the 5-year period (table 2).

Cottage Cheese

In 1997, cooperatives marketed 122 million pounds of cottage cheese, down 27 percent from 1992 (table 14). Cooperative share of total U.S. production declined from 13 to 10 percent. The cooperative market share drop resulted from a 10 percent decline in U.S. cottage cheese production, which was slower than decline in cooperative production. Cooperatives marketers of cottage cheese dropped from 22 to 13 during the half decade (table 2).

Ice Cream and Ice Cream Mix

Cooperatives were a minor player in the ice cream business. Their share of the Nation's production decreased from 10 to 6 percent (table 15). Ice cream sales by cooperatives decreased 33 percent while U.S. production increased 11 percent. Only 13 cooperatives marketed ice cream versus 20 in 1992 (table 2).

In 1997, cooperatives reported sales of 78 million gallons of ice cream mix or 11 percent of U.S. production (table 16). This does not include mixes used by cooperatives to make ice cream or ice milk.

Yogurt

Dairy cooperatives played an even smaller role in yogurt than in ice cream. Although the volume of yogurt marketed by cooperatives increased 59 percent since 1992, cooperative market share was only 4 percent in 1997 (table 17).

Table 13– Volume of packaged fluid milk products marketed by cooperatives compare with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total beverage milk [2]	Cooperative percentage of total
	Million pounds		Percent
1992	8,917	55,204	16
1997	7,730	55,122	14
	Percent		
5-year change	-13	-0.1	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.
[2] Livestock, Dairy and Poultry Situation and Outlook, LDP-M-52, Economics Research Service, U.S. Department of Agriculture, July 16, 1998.

Table 15– Volume of ice cream marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million gallons		Percent
1992	123	1,204	10
1997	83	1,332	6
	Percent		
5-year change	-33	11	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Table 14– Volume of cottage cheese marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million pounds		Percent
1992	166	1,289	13
1997	122	1,165	10
	Percent		
5-year change	-27	-10	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Table 16– Volume of ice cream mix marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million gallons		Percent
1992	81	644	13
1997	78	705	11
	Percent		
5-year change	-4	9	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Bulk Condensed Milk Products

In 1997, U.S. firms produced 1,248 million pounds of bulk condensed milk products, down 23 percent since 1992. Simultaneously, cooperatives had an 86-percent production increase to 817 million pounds. Cooperative share was 65 percent of total U.S. production, up substantially from 27 percent in 1992 (table 18).

Dry Whey Products

The percentage of dry whey products sold by cooperatives dipped from 52 percent to 48 percent of total U.S. production (table 19). In 1997, cooperatives marketed 907 million pounds of dry whey products, net of inter-cooperative transfers. Dry whey products production by cooperatives was down 1 percent from 1992 to 1997, while U.S. production increased 7 percent in the same period.

Cooperative Concentration Ratios

The largest cooperatives' proportion of all cooperatives' receipts of milk from farmers (both members and nonmembers), milk processed or manufactured, and sales of selected products for 1992 and 1997 are shown in table 20. The larger cooperatives' proportion of receipts, processed or manufactured volume, and sales are also shown as a percent of total U.S. production. However, the cooperatives in each size group are not necessarily the same for each product.

Table 17– Volume of yogurt marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million pounds		Percent
1992	56	1,757	3
1997	89	1,990	4
	Percent		
5-year change	59	13	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Table 18– Volume of bulk condensed milk marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million pounds		Percent
1992	439	1,624	27
1997	817	1,248	65
	Percent		
5-year change	86	-23	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

Table 19– Volume of dry whey products marketed by cooperatives compared with all processors, 1992 and 1997

Year	Marketed by cooperatives [1]	Total manufactured	Cooperative percentage of total
	Million pounds		Percent
1992	920	1,781	52
1997	907	1,905	48
	Percent		
5-year change	-1	7	

[1] Adjusted for intercooperative transactions. Includes purchases from other sources.

The 20 largest cooperatives, in terms of receipts of producer milk, received 63 percent of the total U.S. volume of milk sold to plants and dealers, up from 58 percent in 1992. Their volume represented 77 percent of producer milk marketed by farmers through cooperatives, up from 71 percent.

The 20 largest cooperatives with processing and manufacturing operations accounted for 89 percent of cooperative processing milk volume, up from 85 percent in 1992. The volume was 34 percent of the total U.S. milk volume sold to plants and dealers, down from 36 percent 5 years ago.

In 1997, the 20 largest cooperatives had an overwhelming share among cooperatives of these products: packaged fluid milk distribution, 100 percent; butter, 99 percent; dry milk products, 100 percent; and natural cheese, 98 percent.

However, compared with the Nation's total production, their shares were less significant. The 20 largest dairy cooperatives sold only 13 percent of the Nation's packaged fluid milk and 39 percent of cheese. They dominated only in marketing the so-called last resort products: butter and dry milk products, even though their market shares of these two products declined.

The four largest cooperatives in each product line continued to sell a significant proportion of total cooperative volume. Their shares of total U.S. production of butter increased somewhat, while their shares of U.S. cheese and dry milk products have declined.

Table 20– Share of milk received from farmers, milk processed or manufactured, and selected product sales for largest dairy cooperatives, 1992 and 1997 [1]

Item	Receipts of producer milk		Milk processed or manufactured		Packaged fluid milk		Butter		Nonfat dry milk		Natural cheese	
	1992	1997	1992	1997	1992	1997	1992	1997	1992	1997	1992	1997
	Percentage of all cooperatives											
Share of total cooperative volume [2]												
4 largest cooperatives	30	35	35	46	61	76	46	53	54	52	66	63
8 largest cooperatives	44	52	56	65	85	95	69	76	75	80	80	81
20 largest cooperatives	71	77	85	89	100	100	97	99	98	100	96	98
	Percentage of U.S. production											
Share of total U.S. volume												
4 largest cooperatives	25	29	15	18	10	10	30	32	49	41	29	25
8 largest cooperatives	36	42	24	25	13	12	45	46	67	64	35	32
20 largest cooperatives	58	63	36	34	16	13	63	60	88	80	42	39

[1] Group of cooperatives may change from product to product.
[2] Volume adjusted for intercooperative transactions.

U.S. Department of Agriculture

Rural Business–Cooperative Service

Stop 3250

Washington, D.C. 20250-3250

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.