THE DAIRY SUBSECTOR OF AMERICAN AGRICULTURE: ORGANIZATION AND VERTICAL COORDINATION

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FOREWORD

During the last decade, the topics of subsector organization and vertical coordination have become increasingly recognized as important factors in the organization and performance of the U.S. food system. However, little research has been conducted on these topics, in part because the methodology and conceptual framework for subsector analysis is not fully developed.

The North Central Regional Research Project NC 117 is examining the organization, coordination and performance of several commodity subsectors. Monograph 5 provides a comprehensive analysis of the U.S. dairy subsector. Future monographs will analyze the egg, beef and selected fruit and vegetable subsectors.

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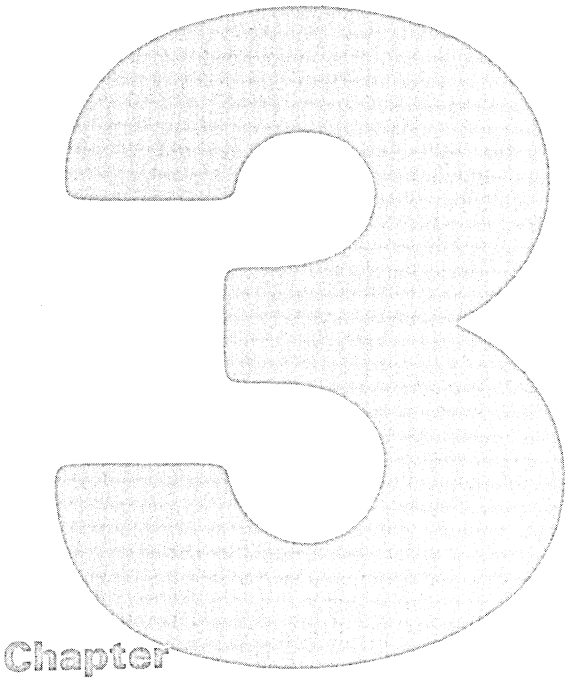
Coordination Within the Subsector



Nature of the Coordination Task

The preface referred to the coordination needed to efficiently integrate the contributions at each stage of the total vertical value-adding process and to insure that what comes off the end of the process is in fact what is demanded. Producing, assembling, processing, and distributing milk as a perishable commodity requires a high degree of coordination within the marketing system. There must be coordination in space, time, type and quality of product, and quantities. This coordination is complicated because most of the milk produced can be marketed in a variety of product forms each with different market structure and demand configuration. Various mechanisms are used in the subsector, both for coordination and for control. This chapter describes the mechanisms and analyzes the process of coordination at various levels.

Mechanisms of Coordination and Control

Two types of government programs provide the coordination required for orderly marketing in the dairy industry, the price support program and the federal order program. The price support program provides an underpinning of the price structure by supporting the price for manufacturing milk and the purchase prices of butter, nonfat dry milk and cheese. When production is larger than the aggregate quantity demanded, the excess supplies can be manufactured into one of the products with support prices and have ownership transferred to the government. Government stocks, therefore, would increase. Alternatively, when production is smaller than the aggregate quantity demanded, supplies can come out of government storage stocks to dampen any price increases which otherwise have occurred for the dairy products with price supports and indirectly for the other products in the industry.

One foundation of the price support system for milk is the control of imports. Without import controls, governmental stocks could increase in response to foreign supply-demand imbalances even though domestic balances were critically low. Certainly the existence of import controls does insulate the domestic market and permits domestic supply-demand balances to cause farm milk price levels to rise above as well as come back to support levels.

The second type of government program providing coordination in the dairy industry is the market order program. As previously discussed, the structure of the minimum Class I price resembles the sytem based on basic prices (M-W Series) plus transfer costs from the upper Midwest. As the basic price moves up and down in response to changes in support prices or supply-demand balances, minimum Class I prices in individual markets move up and down by equivalent amounts. In this way the raw materials costs for all dairy products tend to move in concert.

Under some state order systems both retail and farm prices are established. Establishment of both price series in a market effectively establishes a third price series—the marketing margin, and may require quotas or quantity controls to achieve the established prices. Viewed broadly, mechanisms for coordination and control include pricing systems at various levels, contractual arrangements, vertical integration, collective organizations, and information systems. Below these are described for the subsector.

PRICE SUPPORTS

The basis of the federal regulation governing the price of milk is the "Dairy Price Support Program." This program has been developed to carry out the provisions of the Agricultural Act of 1949 which requires that the price of manufacturing milk and certain of its products be supported at between 75% and 90% of parity.

Under the price support program for manufacturing milk (Grade B), the Secretary of Agriculture announces a support price for manufacturing milk and buying prices for butter, cheddar cheese, and nonfat dry milk, which are intended to return a U.S. average minimum of the support price to producers. The support for the three products is maintained by Commodity Credit Corporation purchases of production which will not clear the market at support prices. Because of ease of diverting milk among products, these purchases effectively establish a floor under the price of all manufactured dairy products [62, Table 3].' Historical data on support levels, purchase prices, quantities bought, and stocks are shown in Chapter 4.

FEDERAL AND STATE ORDERS

The price paid for Grade A milk is governed primarily by federal and state orders. The "Federal Milk Marketing Order Program" is designed to implement the provisions of the Agricultural Marketing Agreement Act of 1937 which deals with the milk eligible for fluid use. Table 3-1 summarizes the growth in federal milk market orders. In 1975, 78% of all Grade A milk and 63% of all milk produced in the United States was marketed through federal orders.

In federal milk orders, producer milk (Grade A) is sold on a classified pricing system. The price for milk used for manufactured products is based on a price series for manufacturing grade milk in Minnesota-Wisconsin while the price for milk used for fluid products is based on the same price series plus Class I (fluid) differential. This differential varies among orders but is related to the distance of the order from alternative sources of milk. Producers, then, are paid a blend or pool price determined by dividing the sum of the receipts from all sales by the hundredweight of milk in the pool.

Table 3-1. Federal Milk Orders, Number and Production 1947-1974.

Year	Number of Federal Milk Orders	Total Producer Deliveries	Deliveries to Federal Order Plants - As a Percent of Milk Delivered to all Plants and Dealers	
			Fluid Grade	All Milk
		('000 lb.)	– – – – *(Percent)* – – – –	
1947	29	14,980,301		21
1948	30	15,019,637		22
1949	33	17,049,170		23
1950	39	18,659,790		25
1951	44	20,116,620		27
1952	49	22,998,107		30
1953	49	25,895,718		31
1954	53	27,140,234		31
1955	63	28,948,067		32
1956	68	31,379,533		33
1957	68	33,455,338		34
1958	74	36,355,658		36
1959	77	40,149,083		40
1960	80	44,812,259		43
1961	81	48,802,558		45
1962	83	51,648,248		47
1963	82	51,648,091		48
1964	77	54,447,471		48
1965	73	54,443,675	70	48
1966	71	53,012,094	70	48
1967	74	53,761,000	71	49
1968	67	56,444,000	74	52
1969	67	61,026,000	77	56
1970	62	65,104,000	80	59
1971	62	67,872,000	80	60
1972	62	68,719,000	79	60
1973	61	66,229,000	78	60
1974	56	67,778,000	78	61
1975[a]	56	69,251,000	78	63
1976	50			

[a] Preliminary.
Sources: [68], [69], [70], [64].

In addition to the federal order system, state milk control laws are in effect in approximately 20 states. These laws are summarized in Figure 3-1. California is the only major producing state in which state laws dominate milk pricing, with a state agency empowered to establish minimum prices for fluid milk at all levels. Nearly half of the milk for fluid use not sold through a federal order is produced in California.

PRICING SYSTEMS IN THE SUBSECTOR

The pricing of milk is based on a classified pricing system where milk for fluid usage has the highest value and milk for manufactured dairy products the lowest value. The prices at the producer level are closely related to the support levels and market orders described above. The prices at processor and consumer levels are closely related to the price paid the producer since raw product costs constitute a major portion of the cost at processor and consumer levels. In this discussion, the pricing at the producer level is discussed first with some comments later for pricing at the processor and consumer level.

Producer Prices[14]

Prices for manufacturing grade milk are not subject to market order regulations and are established on a competitive basis at least in regions of dense production; however, the price support program does establish a floor on these prices. Since over one-half of the manufacturing grade milk in the United States is produced in Minnesota and Wisconsin, these two states represent the focal point of price determination for Grade B milk. Manufacturing milk plant operators in that area make their own decisions on what price they pay producers each month. These plant operators must consider several factors as they make their price decisions. They get supply information by looking across the milk shed to find out what they must pay in order to be competitive in their procurement program. To determine demand conditions, the plant operators look to the central markets including the Chicago Mercantile Exchange and the National Cheese Exchange to see at what level the manufactured products are being priced in the wholesale markets. In addition, the plant operators must direct some attention to anticpated future market conditions. In some years price support levels must be taken into account.

While the only market for Grade B milk is the derived demand from the manufactured products, this market can be satisfied by supplies of either Grade A or Grade B milk. When total supplies of milk are large compared to the demand, Grade B prices tend to fall to the support level. Since both Grade A and Grade B milk can be used for manufactured products, the two price series tend to be closely interrelated, particularly in the upper Midwest markets. Price series for fluid and manufacturing grade milk were shown in Figure 1-6.

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[14] Currently there is a wave of renewed interest in pricing milk to farmers on basis of the market value of its components. There is general agreement that this should be done although there are problems in measuring this value, especially for fluid milk. Authorities say that component pricing will not increase total returns to farmers, but that in some instances it could make distribution of returns more equitable as among producers. The subject is being studied by several committees (such as the one established by the National Milk Producers Federation), and articles are available which deal with the issues. For example, see Robert A. Cropp, Hugh L. Cook, and Allan N. Bringe, "Pricing Milk to Farmers on a Component Basis," Wisconsin Extension leaflet ZA7760814, June 1977.

Figure 3-1. State Milk Controls

Note: The islands of Oahu and Hawaii in the state of Hawaii regulate producer prices and Puerto Rico regulates producer and resale prices.
Source: [49]

Grade A milk prices are higher than Grade B milk prices. One justification for the difference is that Grade A milk can be used in the consumer market for fluid milk and there are additional costs associated with production and marketing of the higher quality of milk. However, part of the difference is because bottled fluid milk has a less elastic demand than manufactured products. Dealers get more for fluid milk than for the equivalent used in products. Charging dealers more for Class I results in higher returns to farmer producers. Therefore, the difference sometimes has been greater than the additional cost of producing and marketing Grade A milk.

Three factors determine the actual Grade A price. The first is the price paid for milk which goes into the same pool as Grade B milk to be used in manufactured products. This price will be very close to the Grade B price. The second factor is the price paid for that milk which is used for fluid usage. Due to the classified pricing system this price will be significantly higher in many markets. The third factor affecting the Grade A price is the proportion of the milk eligible for fluid usage that is actually processed into fluid products. In some market areas with large quantities of milk that qualify for Grade A, only a fraction of this can be used for fluid products. The higher this percentage the higher will be the price, other things being equal.

Generally, as distance from the midwest increases, producer prices reflect more and more the market for Grade A milk and tend to be somewhat higher. Grade A prices are higher because Class I differentials have been established on a basis of an alternative supply concept, sometimes referred to as Class I price alignment. In the Federal Milk Market Order Program, the lowest Class I price is established in the upper midwest where a relatively small price premium is required to draw milk from manufacturing outlets and make it available for the Grade A market. Class I price differentials in most other markets were originally aligned out of the upper midwest with more direct relationship to what it would cost to transport bulk raw milk from Minnesota-Wisconsin to the particular market. In recent years these differentials have not been increased to reflect the added cost of transportation [2]. However, Class I order prices are more than $2 per hundredweight higher in Miami, Florida market as compared to Minneapolis-St. Paul.

Wholesale Prices

Raw milk is the major cost factor for manufacturers of dairy products and processors of fluid milk. As a general rule, the cost of raw milk accounts for up to 75-80% of the value of milk and selected dairy products at the wholesale level. Wholesale prices of fluid milk tend to follow the local raw product price plus processing costs. Wholesale prices for manufactured dairy products, on the other hand, are influenced by more general factors as the following discussion will indicate.

Butter

The prices of both packer and private label brands of butter at the wholesale level of the marketing channel are based on central market quotations, particularly the Chicago and New York Mercantile Exchanges and to a lesser extent the USDA Market News reports. These exchanges are the best focal point for national supply and demand conditions that can be observed publicly. Payment to the butter (or cheese) factory is frequently by agreement specifying exchange prices and frequently a quality premium. This is explained under "contractual arrangements, etc." The method of price calculation commonly used for pricing the packer brand is to add to the central market quotation a fixed markup to cover the cost of assembly, printing, packaging, storing, handling, and distribution. There remains, however, a high positive correlation between wholesale butter prices and manufacturing grade milk prices.

Cheese

Because butter and cheese factories buy milk from the same supply, the two prices tend to move together. However, once again, an exchange market is influential in establishing wholesale prices. This exchange, the National Cheese Exchange, Inc. at Green Bay, Wisconsin, serves as the primary weekly source of price information at wholesale for American cheese as well as some other cheese varieties. While the volume of trading on the exchange is limited, the exchange represents the best focal point of supply and demand information relative to the cheese market. Studies have indicated that cheese prices at Wisconsin assembly points and on the Chicago and New York wholesale markets follow closely the prices on the exchange. Premiums above this price are often paid for quality considerations such as allowances for moisture content, flavor, and other characteristics that increase the value of the cheese.

Nonfat Dry Milk

The major factor affecting wholesale prices for nonfat dry milk is the purchase price of nonfat dry milk established by the Commodity Credit Corporation in the Dairy Price Support Program. In recent years (except 1973), CCC purchases of nonfat dry milk generally have accounted for 25-40% of production. This movement of nonfat dry milk to the Commodity Credit Corporation together with the resultant fact that inventories (especially government inventories) generally are quite substantial, maintains wholesale powder prices very near the CCC purchase price. Any differential above this price usually represents transaction costs or incentives for higher quality of powder.

Retail Prices

Except for a few states where retail fluid milk prices or minimum prices are established, retail prices for dairy products are established by retail outlets in conjunction with prices for all of their other items of sale. Retail prices for six commonly sold dairy products are shown in Table 3-2 for 1947 to 1976.

Futures Markets

Futures markets tend to be inactive or nonexistent for butter, powder, and cheese which have support price floors and purchase programs. When supplies are large, prices tend to be near the floor, perhaps dropping below the floor only temporily. Excess quantities not moving through commercial channels will enter the purchase program inventory. When supplies are short, prices can move off the floor but substantial upward movement cannot occur until after the program inventories have moved into commercial channels. Generally, neither the incentives nor the risks are consistent enough to support a viable futures market for this one-way price variability.

Butter prices illustrate the effect of support floors on price variability. Chicago high and low spot prices for 92 score butter were different by more than 2 cents per pound only in two of the 12 months in 1969 (Table 3-3). In five of the remaining months the high and low prices were identical. Within the year, prices reached lows of 66 cents per pound in January, February, and March and reached highs of 72 cents per pound in September and October. In 1970, the highs and lows were identical for seven months with a maximum within year difference of 3.75 cents per pound. In 1971, prices were even more stable with identical high and low prices during six months and a maximum difference within the year of only 2 cents per pound (highs of 69.25 cents in January, February, and March and lows of 67.25 cents in June, August, September, October, and November).

Butter in the dairy products group is traded on futures markets, but trading is light and contracts tend to exist only for the late summer and early fall months. On June 22, 1976, for example, the most active contract on the Chicago Mercantile Exchange for butter was September with an open interest of nine contracts, unchanged from the previous day. The total of open contracts was only ten. A nominal closing price and no volume figures were reported for the September contract and only a bid price was reported for the October contract.

The fact that futures markets for butter have been relatively inactive, and nonexistent for other dairy products, implies that price variability under price support programs since World War II is of the magnitude that most manufacturing firms can handle price risks as a part of risk associated with firm operations. If the price support program is changed to result in market prices different from support prices during most of the year, then the need for futures markets will surface and trading probably would be undertaken at one of the exchanges.

Table 3-2. Retail Prices of Selected Dairy Products, U.S., 1947-1977

Year	Ice Cream Half Gallon	Cheese American Processed Half Lb.	Butter 1 Lb.	Evaporated Milk 14.5 Oz. Can	Milk, Fresh Sold in Stores Half Gallon	Margarine 1 Lb.
				cents		
1947	N.A.	28.5[a]	80.0	13.1	34.5	40.5[b]
1948	N.A.	31.8[a]	86.2	14.8	38.4	41.1[b]
1949	N.A.	29.1[a]	72.1	13.1	36.7	30.6[b]
1950	N.A.	28.9	72.5	12.7	35.7	32.4[b]
1951	88.9	33.0	81.4	14.4	40.2	34.4
1952	89.6	33.9	85.0	14.9	42.1	29.1
1953	88.9	33.9	78.9	14.6	41.8	29.3
1954	87.2	32.4	72.1	13.9	41.3	29.6
1955	85.2	32.2	70.4	13.6	41.5	28.4
1956	84.4	32.2	71.7	13.9	42.8	28.4
1957	85.8	32.5	73.5	14.9	45.5	29.3
1958	86.3	32.5	73.5	14.9	45.5	28.6
1959	86.0	32.6	74.4	14.9	46.1	27.1
1960	84.7	33.9	73.9	15.4	47.4	25.9
1961	84.3	35.9	75.2	15.5	47.5	27.4
1962	83.2	35.7	73.9	15.2	47.4	27.1
1963	82.1	35.7	73.6	14.9	47.4	26.1
1964	80.2	36.6	74.1	14.9	47.6	26.0
1965	78.1	37.4	74.8	15.2	46.9	27.6
1966	79.5	41.9	81.2	16.0	49.7	28.3
1967	81.0	43.6	83.1	16.9	51.6	28.3
1968	80.7	44.4	83.6	17.1	53.7	27.9
1969	81.2	47.0	84.6	17.6	55.1	27.8
1970	84.5	50.4	86.6	18.7	57.4	29.8
1971	85.4	52.8	87.6	19.8	59.8	32.7
1972	85.8	54.3	87.1	20.0	59.8	33.1
1973	90.5	59.8	91.2	22.6	64.7	37.7
1974	105.1	75.4	93.5	28.5	80.1	53.9
1975	120.6	76.3	101.6	30.5	77.2	58.9
1976	127.3	84.7	131.3	34.4	82.5	51.1
(Prelim) 1977	136.9	86.5	134.5	36.9	83.9	60.5

[a] BLS index of price of American processed cheese—publ. page 167 of *Food Consumption Prices and Expenditures,* Agricultural Economic Report No. 138 (ERS).

[b] Obtained from adjusting BLS retail price series as follows:

$$\text{"Current" BLS Price} \times \frac{\left(\sum_{1951}^{1954} \text{USDA Price}\right)}{\left(\sum_{1951}^{1954} \text{BLS Price}\right)} = \text{"Current" Estimate}$$

Note: BLS price series are reported in [69].

Sources: 1947-1970: [71]
1971: [72]
1972: [72]
1973-1977: [74]

Table 3-3. Monthly High and Low Spot Butter Prices and Differences at Chicago, 92 Score, 1969-1972 (cents per pound)

	1969			1970			1971			1972		
	High	Low	Difference	High	Low	Difference	High	Low	Difference	High	Low	Difference
January	66.00	66.25	0.25	67.25	67.25	0	69.25	69.25	0	68.00	67.78	0.22
February	66.00	66.00	0	67.25	67.25	0	69.25	69.25	0	67.78	67.78	0
March	66.00	66.00	0	69.25	67.25	2.00	69.25	69.25	0	67.78	67.78	0
April	67.25	66.50	0.75	69.50	69.25	0.25	67.50	67.50	0	67.78	67.71	0.07
May	67.25	67.25	0	69.50	69.50	0	67.50	67.50	0	67.71	67.71	0
June	67.25	67.25	0	69.50	69.50	0	67.50	67.25	0.25	67.71	67.71	0
July	67.25	67.25	0	69.50	69.50	0	68.75	68.50	0.25	69.50	67.71	1.79
August	68.00	67.25	0.75	69.50	69.50	0	67.25	67.25	0	70.50	68.75	1.75
Sept.	72.00	67.25	4.75	70.75	69.50	1.25	68.50	67.25	1.25	70.50	70.00	0.50
October	72.00	67.25	4.75	71.25	69.50	1.75	68.50	67.25	1.25	70.75	67.75	3.00
Nov.	68.25	67.25	1.00	70.50	69.50	1.00	67.75	67.25	0.50	71.00	68.50	2.50
Dec.	68.25	67.25	1.00	71.00	69.25	1.75	67.75	67.50	0.25	71.50	67.71	3.79
Range	**72.00**	**66.00**	**6.00**	**71.00**	**67.25**	**3.75**	**69.25**	**67.25**	**2.00**	**71.50**	**67.71**	**3.79**

Source: Chicago Mercantile Exchange [16] p. 78

CONTRACTUAL ARRANGEMENTS AS A COORDINATING DEVICE

Contracts in the dairy industry are extensive although many are verbal. Contractual arrangements include those between producers and cooperatives, cooperatives and haulers, producers and haulers, cooperatives who bargain for super pools through an agency in common (e.g., the standby pool arrangement), cooperatives and handlers regarding full supply arrangements, federations and its members, country butter and cheese plants and their buyers for sales agreements, and various arrangements which handlers have with their outlets. Also on the supply side are contracts with suppliers and with labor.

In Grade A milk production and marketing, most of the major cooperatives appear to have a written contract with the producer, usually for a year. Enforcement of these appears to have been tightened substantially in recent years. If that cooperative likewise receives Grade B milk, the producer usually signs the same contract. Usually the member agrees: (a) to deliver all his milk as designated by the cooperative; (b) that the cooperative may pool proceeds to equalize producer returns or to provide adequate supplies to meet market demands; (c) to give the cooperative power to collect entire amounts due producers; and (d) to abide by rules and bylaws of the cooperative.

The cooperative agrees: (a) to handle or market all member milk as it deems best for all members; (b) to blend proceeds; (c) to pay producers all money due less deductions, as the cooperative may determine; (d) to guarantee payment of all sums due to members.

Typically, both member and cooperative agree that agreement is for one year subject to automatic renewal, unless either party gives written notice at least 30 days before anniversary date. Sometimes the bylaws may contain some provisions whereby either party can get out from under the contract, usually with some penalty involved. Since the AMPI consent decree which contained a provision with reference to the contracts, some of the larger producer associations have re-examined their producer contracts. Mid-America Dairymen, for example, has altered the time provision so that a producer may leave the cooperative with one month notice.

Some contractual relationships exist among the cooperatives who bargain for super pool premiums. For example, in Chicago the Central Milk Producers Cooperative (CMPC) made up of 14 members has a contractual relationship which specifies that each will charge the negotiated super pool premium for milk delivered to Chicago handlers. A similar situation exists with reference to the Central Milk Sales Association (CMSA), which is made up of six cooperatives operating on the Chicago market. These member cooperatives, however, are free to sell milk anywhere except to Chicago handlers, in any amounts, and for any price they care to negotiate without reference to CMPC or CMSA. The agency in common for CMPC or CMSA sends out a letter to Chicago handlers saying that milk received during a specified period of

time will be paid for at the following schedule of super pool premiums. Legally, it is expected that if the handler receives the milk during that period of time, he will abide by the premium specified in the letter or to check the shipment before it is dispatched to his plant. There are a number of alternative arrangements whereby handlers can pay less to meet competition. Two cooperatives do not belong to the CMSA.

Dairy cooperatives perform an essential balancing function in fluid milk markets. There is no natural short run supply-demand equilibrium in fluid milk markets for various reasons. Production seasonality, consumption seasonality, limited numbers of processing days per week, and intra-week lumpiness of consumer purchasing all combine to require supplemental milk supplies in some periods and diversions of producer milk in other periods. Dairy cooperatives are the primary institution available for the balancing or coordination function as milk requirements vary for a given market. In areas where milk producers are not effectively organized, coordination failures can generate substantial costs across the entire milk industry. For example, in California where only about 50% of the Grade A producers are members of dairy cooperatives, there has been a frequent incidence of milk being shipped out of plants in a market because of excess supplies, even while other plants in the market were having to bring in fluid supplies from distant points. Cooperatives are in position to perform an essential coordination function in many fluid milk markets across the United States and coordination is one of their primary missions.

The Associated Reserve Standby Pool Cooperative (ARSPC) is a contractual arrangement whereby a number of cooperatives in relatively deficit markets agree to contribute an agreed amount to a pool to be used for paying some reserve plants in Wisconsin, Minnesota, and Iowa to furnish supplemental supplies of Grade A milk to pool members when and as needed. ARSPC contracts with the reserve plants as to provisions whereby this milk will be called, terms and amounts of payment and how the milk shall be used unless called [18,82].

Full supply arrangements between cooperatives and handlers are said to be rather common, but almost none can be found in written form. This may be because the Justice Department looked at the full supply contracts so critically in the process of preparing the consent decree for AMPI. Since AMPI's consent decree, the cooperatives appear to be handicapped because of the problem of determining what the charges should be to the handler for agreeing to supply it with all the milk it requires and handling the surplus, as compared with the charges that should be made to the handler who buys occasional loads from the same cooperative.

Fluid milk dealers have contracts with schools or government installations to which they supply milk. These contracts result from a bidding process and specify for a period of time the exact prices that will be charged, although there may be a provision for a pass through of increased raw material cost, particularly during period of inflation. The method of packaging is specified, and there is some provision for the quantities that will be supplied. Such contracts may be written.

A milk dealer frequently has some sort of an arrangement with a bobtailer or distributor, but these are usually verbal, and the dealer must be careful as to the nature of this arrangement, unless he wants the bobtailer to be legally viewed as his agent. Although he might find it desirable to bind the agent to handling solely his product, if he does this, and the bobtailer becomes his agent, then he is legally responsible for all competitive practices carried on by this agent; a situation which he may prefer to avoid.

A very common form of contractual arrangement is the one used for pricing butter delivered by country point manufacturers to intermediate handlers, here called primary receivers. At least in the surplus manufacturing areas of the country, most butter is sold under some type of sales agreement, usually verbal. Most agreements specify the bases for pricing (usually a commercial price quotation) and which party is to bear the shipping costs. Usually an agreement provides for the shipper to pay for the cost of shipment to the receiving point. Usually the agreement provides for payment according to the quotation of the day of arrival. Most agreements provide for either premiums or discounts to be used with the quotation to establish the settlement price. There is a tendency for these premiums to fluctuate with the basic quotations, increasing in periods of high prices and decreasing with price declines.

The creamery tends to stay with its sales outlet, although the agreement does not bind it to do so. Most of the smaller creameries do not have any sales organization, nor do they have much storage space, so that price shopping for them is not particularly feasible. Research studies have shown that these agreements are reasonably equitable. The butter is graded at the receiving point and a record of the grades is sent to the shipper who has no good way of checking on this except, of course, that he can change sales outlets, or he can sell to the government, or he can join a cooperative sales federation.

The primary receivers tend to resell their butter based on the same quotations, which of course gives them a financial incentive to assure that the exchange quotations correctly reflect the national supply-demand conditions.

Essentially the same type of contractual arrangement exists in the pricing of American cheese to country cheese factories. The National Cheese Exchange (Green Bay) prices are used for the basis of settlement. The contractual arrangement or sales agreement calls for settlement on the basis of prices prevailing each Friday on the exchange. However, a rather complex system of premiums frequently brings the actual price paid substantially above the board quotations. Premiums may sometimes be in cash, ranging up to one cent or more per pound above the exchange quotation.

Those who have studied this sales agreement system that prevails for cheddar cheese seem to agree that the major fault with this agreement system is what

might be called secrecy which surrounds the arrangements and the payment of the premiums. Since the terms of a particular sales arrangement with one factory usually will differ from the terms of the sales arrangement with nearby factories, it is quite difficult for the manager to know what he is getting compared with other factories similarly located and having the same quality of product. Of course, the local factory can get out of this arrangement almost at will, but more sales expertise and more capital would be required than is now available to the average cheese factory to improve its sales arrangement very much. These factories do not have the storage space to hold cheese in order to accumulate car lots for sale directly to the government, nor does the manager who is almost always a cheesemaker have particular expertise at performing other functions [20, 33, 44, 46].

Another type of contractual arrangement is one that exists between a cooperative federation such as Land O'Lakes and the member cooperative. Under this type of arrangement, the federation contracts to perform a particular function or group of functions for the member cooperative. In the case of Land O'Lakes, it has such contracts with about 100 member cooperatives and essentially agrees to receive, prepare for sale and sell butter, powder, and cheese for these plants. It is not a very tight contract in that Land O'Lakes has no control over product mix of the member plant and also the member plant can sell direct such proportions of its output as it is able to sell, with no penalty. For the butter Land O'Lakes does receive, it maintains a federal grader on the premises at Minneapolis, and also tests the butter for its storability. It prints, packages, and brands the butter, and maintains sales services directly with retail stores. For cheese, in addition to selling natural cheese, the firm maintains a processing facility. For all its products it maintains research and development and promotion and advertising services. It will perform such services for the members of the individual creameries, as the members seek. Proceeds are pooled and distributed in the manner of the usual cooperative.

One of the problems that Land O'Lakes has in operating as a federation is that it may at times have difficulty meeting its sales commitments because it has no control over the product mix made by the member creameries. For example, if cream prices for ice cream should become unusually high, these plants might cut back on the output of butter and sell a large part of their cream to ice cream manufacturers. A similar problem could occur when cheese prices become unusually high relative to butter prices. Thus the Land O'Lakes federation has quality control and coordination problems that are not present in a fully merged organization.

No contractual arrangement has been successful in dairy farming of the type used in broiler and egg production, growing canning crops and fattening cattle and hogs. Attempts at "cow pools" and such have been shortlived in family dairy farming areas, which account for most milk output. One reason is that dairy

farmers make a large part of their income from marketing family labor (of which more is required than for many types of farm production) and homegrown feed and pasture. Also the economies of scale in handling dairy production in units of more than, say, 100 milkers seems to be low. Instances are rare of dairy processors establishing their own dairy farms, although many producers have retailed their own milk (producer-distributors). Most of the latter, however, have discontinued over the years in most markets. California and Pennsylvania are said to have a number of active producer-distributors left; probably because of features of their state milk control orders.

Most food chains have some kind of a central milk program which involves a contract with one or more milk processors and dairy manufacturers, unless these food chains are integrated backward into their own processing plants (chiefly the corporate food chains). Competition among processors for these contracts is keen and apparently the food chain renegotiates them frequently. The joint venture described is mentioned under *financing* and *credit.*

Vertical Integration (Ownership)

Vertical integration through ownership of various kinds exists. Some are described below. The dairy cooperatives seems to be becoming more fully integrated than ever before into nearly all stages and functions in milk production and marketing, up to processing for fluid milk and through the primary manufacturing for Grade B as well as surplus manufacturing for Grade A. Although there are some cooperatives who do some processing, that is to say, milk packaging and distribution, cooperatives in general have tended to stop short of processing. Those cooperatives now engaged in it include Dairymen, Inc. that has several plants, Dairylea of New York, Lehigh Valley of Pennsylvania, California Cooperative Creamery, Consolidated Dairy Cooperative of Washington, Mayflower Cooperative Dairy of Oregon, Prairie Farms of Illinois, and Land O'Lakes which has two substantial size packaging plants. Some smaller cooperatives such as Consolidated Badger Cooperative at Shawano, Wisconsin and Lake to Lake Dairy Cooperative, Manitowoc, Wisconsin have bottling and ice cream plants; but the two just named are primarily interested in manufacturing dairy products and their packaging and distribution operations are a small part of the total. Golden Guernsey Dairy Cooperative in Milwaukee is a specialized packaging and distribution operation, but its greatest success came during the period when Milwaukee was an individual handler pool in the federal order.[15] The flow chart on page 10 shows that 37 cooperatives were in processing in 1975, processing 5.7 million pounds milk equivalent.

[15] No attempt is made at this point to inventory the cooperative bottling and distribution operations, nor to analyze their record of success. There are several articles which deal with the latter, upon which there are sharply differing views. One article on this subject is William J. Monroe, [47].

As to butter, powder, and cheese, only a few of the large federated sales agencies and three or four large centralized regionals have integrated appreciably into the functions performed at the intermediate handler stage. Only a few milk marketing cooperatives such as Land O'Lakes are heavily integrated into farm supply operations. Nearly all handle a few dairy farm supplies at their locals.

The national dairy companies carry on little procurement of raw milk in most markets and do little surplus manufacturing (except in the New York City shed). In recent years they have depended on the cooperatives for those functions. These large companies process and distribute packaged milk, ice cream, cottage cheese, and usually a full line of soft products. In recent decades they have adopted the practice of packaging private label. In hard products they usually manufacture a relatively small part of what they handle but are integrated fully into all other stages and functions except retailing. The national dairy companies are heavily conglomerated now and the percentage of their total sales that is accounted for by dairy products has been steadily falling for several years. Borden, for example, in 1975 realized only 28% of its sales and 16% of its income from dairy. Except for the large nationals or regionals, privately-owned dairy concerns tend to specialize either as fluid processors and distributors, or as manufacturers, or as intermediate handlers. As intermediate handlers, they may integrate into most all functions for the commodity or commodities they handle.

A large number of retail food chains are integrated backwards into milk processing and other processing, but not in the manufacture of hard products with minor exceptions. These they have packaged for them under private label. Nearly one-fifth of the total packaged milk appears to be packaged by the retail food chains in their own plants. California data show 29% for 1973. A number of convenience stores are integrated backwards into dairy processing or manufacturing. Southland Corporation and Cumberland Farms are examples (Table 4-1).

Collective Organizations

Cooperative organizations in the dairy industry involved in marketing milk for producers generally are either bargaining cooperatives or operating cooperatives. In both cases, additional functions such as the assembly of milk from farms and providing financial services have been performed by or under the direction of the cooperative.

Bargaining cooperatives have emphasized factors which affect the terms of sale for milk produced by its members. A major objective of bargaining cooperatives generally has been to achieve the highest producer price for milk consistent with orderly marketing in the milk shed. Efforts to achieve this objective have resulted in inputs into the determination of support prices, federal order minimum prices, and premiums over minimum prices.

Operating cooperatives also emphasize the highest net returns to producers but with a different orientation. A major objective of operating cooperatives is plant operation near capacity which often involves lower milk prices in order to compete for larger volumes. Fluid milk operating cooperatives process and distribute fluid milk through retail stores and routes to consumers. The net price encompasses considerations of all costs of providing the marketing services, including processing and delivery of products. Operative cooperatives and many bargaining cooperatives also are involved in the manufacture of dairy products from Grade B milk and Grade A milk not used in fluid consumption. The processing function of the operating cooperative usually implies emphasis on profitability of processing. In contrast, the processing function of the bargaining cooperative may be subsidiary to the effort to achieve satisfactory prices for the combined milk sales—i.e., market allocation to achieve maximum returns for given quantities.

Some cooperatives as firms are organized into federations in which central direction and uniform procedures are followed in an effort to achieve mutually acceptable goals. Goals of the federations range from such diverse items as: (1) exchange of technical and economic information; (2) bargaining for price and other terms of trade; (3) operating a mechanism for movement of fluid milk from deficit to surplus areas at known price structures; (4) moving manufactured grade and excess Grade A milk to manufacturing facilities; and (5) advertising and research to promote and develop dairy products. The growth of regional cooperatives and federations has been particularly effective in increasing funds for advertising and research and in increasing efficiency through cost-savings in assembly and through reductions in high-cost, excess processing capacity. The National Milk Producer's Federation (NMPF) is the major general organization of milk cooperatives, performing trade association functions including lobbying.

Firms involved in milk processing and manufacturing are also organized into associations. However, most of these associations tend to be operated for the purpose of providing information to members on technical and economic matters through seminars, annual meetings, accounting summaries, and written publications. They may also provide a base for influencing legislation and disseminating public relations types of information. Examples of processing or manufacturing associations include: Milk Industry Foundation, International Association of Ice Cream Manufacturers, American Dry Milk Institute, Evaporative Milk Association, National Independent Dairies Association, and state associations of firms producing dairy products.

Information Systems

The U.S. Department of Agriculture provides much of the primary data on production and consumption of milk and dairy products. Estimates of numbers of cows, production per cow, marketings, feed costs and other factors influencing production are made by the Statistical Reporting Service. Estimates of utilization of milk

by classes and products in individual markets, blend prices, and sources of milk by market are made by the Consumer and Marketing Service. In addition, production, prices, and product utilization information is provided in many states through state departments of agriculture (particularly those with state orders). The various estimates of production, consumption, exports, imports, prices, and stocks are then used by the Economic Research Service in providing outlook information.

Minimum prices paid to producers for milk under federal orders are announced monthly by the administrators of the federal orders. Since these prices usually bear a fixed relationship to the Minnesota-Wisconsin (M-W) price series in a previous month, the minimum price paid by a handler tends to be both certain and known for a short period in advance. The only price uncertainty that occurs is when premiums over the order minimum prices are called for to reach spatial equilibrium in the short run or when premiums are negotiated by producer groups.

The M-W price series itself is variable and reflects primarily the demand-supply situation for manufactured milk products and the level of price supports. When the M-W price series is above the equivalent support price floor level, prices of individual products may depart from support prices by varying amounts. Spot price information at all times is available from sources such as *Dairy Market News* (a Federal-State [Wisconsin] Market News Service), newspapers, and mercantile exchange releases. Prices generally are quoted for New York, Chicago, and West Coast. Also, cold storage holdings are available.

It appears that prices of milk and dairy products are accurately portrayed by current price reporting techniques and agencies. Amounts paid by fluid milk processors are based on audited quantities and meet minimum price levels established by market administrators. The amounts are paid to nonmembers directly or to cooperatives for payment to members (though reblending may be used to satisfy the overall goals of the members through their cooperative).

Payment to producers for manufacturing grade milk is under less supervision and control. Nonprice as well as price-competitive techniques are frequently used by firms in securing milk supplies. Such techniques may involve milk weights, classification, blend prices, butterfat tests, farm pickup, equipment, supplies, method of payment, and on-farm services. Generally, competition for supplies has been great enough that producers as a group have been compensated adequately though aggregate returns might have been greater if fewer duplicate services had been provided.

Accuracy of prices also has a time dimension. Prices established and reported tend to be accurate reflectors of demand conditions for quantities supplied in the short run. The quantity of milk marketed at a given time is the result of many decisions made months and years before. Therefore, short run prices often are not at the

level nor do they necessarily move in the direction necessary to ensure adequate supplies at relatively stable price levels in the longer run.

Predictions of future supply-demand prices have been reasonably accurate. The price elasticities of demand and supply are highly inelastic in the short run, which have the potential for extremely wide price variability. However, the schedules generally have not shifted drastically. In addition, milk, cheese, butter, and powder prices have rested on support price floors for a significant number of years, and imports have been subject to quotas. These forces have made predictions of future prices somewhat more reliable than for many other agricultural commodities.

The Process of Coordination in the Dairy Subsector

COORDINATION AT THE PRODUCER LEVEL

The price system is the major coordinating mechanism for the industry at the production level. This does not necessarily mean a free price system, because producer prices at times are substantially influenced by government policy. Government programs for dairymen, however, are designed to operate primarily through the market price system. The producer price of milk performs the function of transmitting to producers the signals for the level of production for the fluid and the manufactured products markets. Price also performs the function of transmitting to processors the costs of raw materials which in turn affects the quantities of the various products eventually made available to consumers.

There are other mechanisms which operate with price in providing coordination at the producer level. One mechanism is the base plan under which an incentive is provided to adjust production to demand by valuing production in excess of fluid needs either at or near the marginal value of the product.

Class I milk base plans may be designed to achieve two different kinds of objectives though both will involve production adjustments. One objective is the longer run adjustment of production to meet consumer demand at "satisfactory" prices. The other objective is the shorter run adjustment of changing the seasonal pattern of production to more nearly coincide with the seasonal pattern of consumption.

Closed base plans, the first kind, have been in existence since the 1920's, particularly in milk sheds operating under state orders (Fallert and Lough, p. 9). Only in the last decade have such plans been implemented in federal order markets by a federal order decision (Puget Sound, Washington, 1967) or by a regional producer organization such as MPI in 1968. In contrast, seasonal base plans, the second kind, have been in and out of several federal order markets during the past three decades.[16]

[16] An analysis of base plans is contained in Blakley, [3].

Other mechanisms include producer association activities of providing technical information to improve technology in production, outlook information to improve decisions concerning production and marketing, and consumer information to improve decisions concerning family welfare of producers. Some of this information is based on research and services of the Land Grant Experiment Stations, U.S. Department of Agriculture, Extension services, and trade associations.

Producers respond, although often with a lag, to the profitability of using resources in the production of milk. The price of milk is a major factor in determining gross income but many other factors are important in determining profitability. Producers are responsible for the selection and organization of input resources, current production technology, and methods of marketing.

Factors not under producer control, however, are responsible for major departures of actual profitability from planned profitability. Weather plays a key role in causing fluctuations in crop and forage production which results in variability of feed costs. Foreign demand for food and feed grains also has exhibited large changes from year to year which influences the prices of feed. Still on the supply side, cyclical price variation in meat animal prices results in changes in dairy production costs and returns through changes in the values of cull cows and young animals marketed. On the damand side, business cycle variation causes fluctuations in the demand for dairy products. Also, the level of imports of dairy products into the U.S. varies from year to year depending upon Presidential directives and international business activity. Were it not for the stability provided by the price support program for manufacturing grade milk, particularly when supplies are large relative to demand, and by the federal order program for establishing Class I prices, price variations even greater than have been measured would have affected the profitability and level of milk production.

COORDINATION AT THE FIRST HANDLER LEVEL

Responsibility for assembling the raw milk from the farms and transporting it to points of processing rests on private haulers, cooperative associations, and processing firms.[17] Both transportation and marketing functions are performed in this assembly. The transportation function involves the network of services utilized in loading of milk at the farm, moving the milk from the farm to processing plant and unloading the milk into receiving facilities at the plant. The marketing function involves the coordination of supplies to meet the quantity and quality needs of processing firms on a daily as well as on a longer-run basis.

[17] For the sake of simplicity, in dealing with coordination in this section, the term "processor" will refer to manufacturers, likewise i.e., any concern that changes the form of the product.

The farm assembly system in years past was oriented around supplying milk to individual plants. Each plant (or firm) devoted resources in the form of personnel, equipment, information, and public relations to ensure that a dependable supply of milk was available for plant needs. Often this responsibility was shared by the plant and by one or more independent haulers. Duplicate routes traveling the same road network each day but supplying different plants was the typical result.

Responsibility for assembly of milk supplies gradually shifted from the individual processing plants to the cooperatives. There were at least three basic reasons. First, there were many apparent economies to be achieved in the actual assembly of milk to reduce hauling costs paid by producers. New technology had provided growth in the quantity, quality, and weight tolerances of the road networks, improvements in truck and trailer equipment, and adoption of bulk tanks for storage of milk on the farm. With the adoption and use of specialized transportation and receiving equipment, many of the duplicate facilities and truck routes involved in milk assembly were eliminated. Firms which provided the essential services of procurement and coordination of milk supplies at lower costs, therefore, grew in size and importance.

Second, an individual producer could not always locate an individual processing plant which would buy all his variable supplies during the flush spring months as well as during the short fall months. The cooperative was the only type of firm in the fluid milk market which was willing to market all the milk of its members and to take on any new producer as a member.

Third, the net price and classification of milk to producers and processors was an issue. With federal and state marketing orders, the rules concerning prices and price levels were made known and uniform for all producer milk. The classified pricing system and marketwide pooling common under the order system eliminated any differentiation of treatment for producers selling to one individual plant. Consequently, one firm specializing in the procurement and coordination could provide this service more economically than could each firm acting individually. Plant resources involved in procurement could be eliminated and direct operation costs reduced. Payment for this service by the processing firm could take the form of service charges or over-order payments on milk purchased through the cooperative or, if no payment were received, the effective producer price would be lower because of the extra expense to the cooperative of providing the service.

With cooperatives assuming primary responsibility for assembly, they also assumed responsibility for marketing the milk produced by members. Marketing may involve all aspects of the terms of sale. In the short run, available supplies must be used in meeting demand conditions. Since short run equilibrium prices for actual supply and demand conditions may not be fully reflected in each federal order minimum price, bargaining by cooperatives with handlers concerning price or premiums over federal order minimum prices is one important aspect of the marketing function.

Another marketing function involving coordination is the allocation function of marketing only as much milk as needed in Class I uses at satisfactory prices. In addition, the marketing function would include the derivation of the highest net price by minimizing the total transportation cost for all uses by moving only that quantity of milk needed to Class I uses to Class I milk processing facilities and moving the remaining quantity to the nearest manufacturing facility from the last farm stop.

Weather conditions are variable over the United States and departures from normal cause fluctuations in feed grain and forage supplies and prices which in turn result in fluctuations in milk production. Good weather is associated with larger than normal production. When these increases occur, markets are needed for milk that augments the surplus above Class I and Class II outlets. Facilities for manufactured milk products are limited in many markets located outside the Midwest and Northeast geographical regions. Consequently, considerable coordination and transportation cost is involved in marketing the excess supplies, particularly in the spring months.

Poor weather generally is associated with smaller than normal production with importation of milk needed in some areas to satisfy Class I and Class II needs. For the latter contingency, the coordination of milk supplies to move milk when and where needed for some markets, at a known price structure, and with minimum transfer cost is a function that has been assumed and performed by cooperatives acting together in recent years through standby pool arrangements. Enough milk has been committed to the pool to minimize the effects of fluctuations in supply in selected geographical regions with all Class I markets theoretically sharing in the cost necessary to support this coordinating institution. In other markets, informal arrangements for coordination have been in effect. A formal governmental institution, however, may be needed to ensure that the function can be performed and that a greater degree of equity among producers to support this coordinating function can be achieved.

Coordination in marketing milk is directly affected by the number and types of inspection. The fairly recent adoption of a uniform national standard for many markets and a willingness to accept certification of quality by inspection agencies in other states and cities (reciprocal inspection) has increased the mobility of milk supplies and has permitted a given milk supply to act as a reserve for fluctuations in the supply-demand balances in many markets. Nevertheless, in some milk sheds both producers and processing plants must face inspection by more than one agency where it is to be shipped between jurisdictions.

COORDINATION AT PROCESSOR LEVEL

Milk as a perishable commodity with high quality standards must be marketed at the time it is produced. Since milk is produced every day, very little latitude exists in the timeliness of the marketing process.

The consumer demand for milk also varies somewhat from day to day, season to season, and geographically from region to region. One problem is that the variations in consumption are not synchronized with the variations in production. Seasonally, demand is greatest in the late summer and fall months when production is relatively low, and production is greatest in the spring months when demand is decreasing (Table 3-4). Within the week consumers concentrate their purchases of milk on Monday, Friday, and Saturday even though household consumption might be fairly regular from day to day. Data on in-area daily sales of fluid milk in comparable federal order markets, 1963-72, showed that excluding Sunday as an actual sales day, seven days production must be marketed in six days with the lowest at 86% of average on Wednesday and the highest at 116% above average on Saturday (Table 3-5). This variation within the week combined with the seasonal variation had led some analysts to use 20% as a reasonable reserve for the fluid milk industry.

Each processed dairy product is influenced differently by the various time elements affecting demand and supply. Products such as ice cream and ice milk have peak seasonal demands during months when the demands for other products are seasonally low. To the extent that the demand shifts from one dairy product to another there is pressure primarily on firms to decrease output of one product and increase output of the other product. Often, however, the products are produced by different firms for which the adjustment is difficult. Each firm has a set of resources involved in the production process with only one set employed at efficient levels at a time. By definition, unused processing capacity will be typical for at least a part of each year. Even at a time when residual supplies for manufactured milk products is at the seasonally lowest levels, the translation of expected demands for products such as cheese and butter-powder will permit one product to be produced on a capacity basis with the other product using the residual supplies

Table 3-4. Seasonal Index of Average Dairy Delivery per Producer, and In-Area Sales of Fluid Milk for Comparable Federal Order Markets

Month	Index of Producer Deliveries[a]	Index of In-Area Sales[b]
January	98.2	103.3
February	100.6	104.3
March	102.9	103.1
April	108.0	101.8
May	111.1	98.3
June	108.1	92.5
July	97.6	91.8
August	94.6	93.0
September	95.1	102.7
October	94.7	104.6
November	93.6	103.1
December	96.1	101.5

[a] Based on years 1965-1969.
[b] Based on years 1963-1972.
Source: [15]

in a relatively less profitable use and operating at low levels of capacity. The coordination required to shift supplies to the production of products at the same level of capacity in all sectors with no tilt in the resulting price structure would require a significant capital investment in multiproduct processing plants in several regions of the country.

Table 3-5. Daily Index of In-Area Sales of Fluid Milk, Comparable Federal Order Markets, 1963-1972

Day	Index - Sunday Sales Included	Index - Sunday Sales[a] Excluded
Sunday	7.3	0.0
Monday	124.2	107.6
Tuesday	102.4	88.7
Wednesday	99.8	86.4
Thursday	106.4	92.2
Friday	125.7	108.9
Saturday	134.2	116.2

[a] The series was constructed from the Index including Sunday sales.
Source: [54]

Storage is a possible way of accommodating fluctuations in demand and supply. As raw milk storage in bulk tanks, with or without some processing such as pasteurization, is used by processing firms and cooperatives to accommodate daily and some weekend type of fluctuations. Processed and packaged milk is also stored to accommodate short-term fluctuations in demand and supply. Processed milk products such as cheese and butter can be stored much longer and storage has been used to accommodate seasonal or month-to-month fluctuations in demand and supply. Storage for periods longer than a year generally has been initiated under governmental programs aimed at longer run adjustments of supply and demand.

COORDINATION AT THE RETAIL LEVEL

Major changes have occurred particularly during the past decade in the selling arrangements which, in turn, have affected both the coordination function and the institutions assuming this function at the retail level. Partly on the basis of a higher quality product with a longer shelf life packaged in a disposable container, the feasible market area for any given processing plant has been greatly extended. The ability of a firm to expand geographical coverage combined with apparent consumer preferences for the purchase of milk at the grocery store rather than through home delivery intensified the competition among firms able to serve particular retail outlets. Moreover, the economies of size in processing still favored large volume firms even though some analysts assert that "small specialized companies with annual sales as low as $2 million to $3 million achieve a substantial amount of all potential scale economies" [26, p. 9].

The competition for the consumer's food dollar became more intense as retail food chains grew in size and market share as discussed in Chapter 2. Serving the private label milk market involves processing the milk and providing a combination of market services traditionally performed by the processor. The exact combination is subject to negotiation and agreement. Generally, however, the chain store shares in the performance of some services. With control of shelf space and the performance of selected marketing services, the chain store has assumed the major responsibility for coordinating the supply of milk to meet consumer demands.