DAIRY MARKETING

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The marketing system for dairy products has been in the process of change ever since it began to be organized on a commercial basis a century ago. It has changed in organization, methods of operation, and efficiency. To a substantial degree, these changes are responses to changes taking place on the farm and in the household. Adjustments at one level have repercussions throughout the marketing system and these, in turn, have effects on the producer and the consumer. The marketing system provides for the flow of products from the farmer to the consumer and for the flow of information about consumer preferences and wants back from the consumer through the marketing system to the farmer.

THE COMMERCIALIZATION OF DAIRY FARMING

Dairy farming, like all other forms of agricultural production, is rapidly becoming more highly commercialized and specialized. The sideline dairy enterprise on general farms is rapidly disappearing, as is the small dairy farm. The number of farms selling milk or cream has dropped an estimated 75 percent in the past two decades and cow numbers are down 38 percent, whereas production of milk has increased 8 percent. While many small farms are disappearing, the number of large dairy farms is rising (10, p. 5). 1/

Each in a long list of changes in the technology of milk production has made a contribution toward changing the way a farm is organized and operated. The overall effect is to drastically increase production per man-hour of labor, per cow, and per unit of feed. In the process, purchased inputs--machinery, artifical breeding services, purchased feeds, and many others--have been substituted for inputs of the farmer's own labor or of feed, forage, and young stock raised on his farm.

The way farmers sell milk has been affected by changes on the farm and in the marketing system. Direct marketing of milk for fluid use by individual farmers to consumers has declined to about 1 percent of total milk production. Milk used on farms where produced dropped from 25 percent of production in 1929 to 5 percent in 1964. In the late 1920's, about a third of all U.S. milk production was separated on the farm into skim milk and cream, and only the cream was sold. Beginning during World War II, sharp increases in the value of the nonfat solids portion of the milk have encouraged farmers to shift from selling farm-separated cream to marketing whole milk. In 1964, only 4 percent of milk production was sold as farm-separated cream.

Since World War II, many farmers, particularly in fluid milksheds, have installed bulk milk tanks and abandoned the marketing of milk in cans. Farmer cooperatives and proprietary handlers have encouraged, and sometimes required, this change in technology.

CHANGES IN THE STRUCTURE OF DEMAND

The demand for any product or group of products is not an independent force in the minds of consumers. It is a reaction on the part of consumers and potential

1/ Underlined numbers in parentheses refer to Literature Cited, p. 167.

consumers to the choices available to them. Thus, manufacturers and merchandisers refer to demand creation when they introduce a new product or a variation of an old one. By making the product available and by making potential customers aware of its existence and its asserted virtues, the merchandiser creates a level of demand for that product.

The history of the food industry in the past century is one of demand creation. Developments in the technology of production, processing, and distribution and in merchandising have made possible the introduction of thousands of new products and new forms of old products. The increasing affluence of our society has made it possible for many more consumers to avail themselves of the opportunities afforded by the introduction of these products.

Across the board the change in variety and diversity of products available to the American consumer is revolutionary in its impact. Whatever the area of his wants, the variety offered him to meet them is much greater than it was several decades ago. It is trite, but true, to say that everything competes with everything else and that every food item competes with many other food items as well as with many nonfood goods and services. One aspect of this growing diversity of choices available to consumers is the great increase in items in which the basic product has been combined with varying degrees of built-in service. Thus, in choosing foods, one selects not only from among different nutritional categories, flavors, and textures, but also from items incorporating varying degrees of service that the manufacturer or distributor has performed for the housewife.

For dairy products, these changes mean that 100--or in some stores 200--items are now available to the consumer where 30 or 40 years ago there were something like 20. Each of these items incorporates varying kinds and degrees of physical characteristics of product, container, and services provided by the manufacturer and the distributor. Dairy products are available from many types of retailers including supermarkets, dairy stores, convenience food stores, corner grocery stores, drive-in dairies, gasoline stations, vending machines, and home delivery routes. Not all of these are present in every area, but consumers have many alternatives.

Other forces are shaping the demand for foods. The increasing proportion of the population engaged in essentially sedentary occupations has decreased the demand for high-calorie foods. Information and misinformation about the relationship of nutrition and health have shaped the demands for various foods, especially those regarded as fattening or conducive to heart problems. For fluid dairy products, this has meant that consumption of low-fat items has increased at the expense of whole milk. Sales of low-fat milk in its many forms have increased much more rapidly than those of whole milk. The introduction of 2-percent milk has apparently cut into the sales of both skim milk and whole milk (19).

For manufactured dairy products, calorie consciousness has not been as uniformly decisive. Sales of some low-fat items such as cottage cheese increased markedly in the 1950's. More recently, sour cream, a high-fat item, has entered the market and captured a significant share. Per capita sales of ice cream have about held their own, while those of ice milk have increased. This, however, is due largely to the introduction of soft ice cream products through a series of roadside stands. Probably relatively few consumers are aware that they are buying a low-fat product when they purchase ice milk from one of these vendors.

Butter has largely been replaced by margarine for home consumption, in response to wide price differentials between the two products. At the same time,

cheese consumption has increased sharply but at markedly different rates for the different types of cheese. Household consumption of evaporated milk has declined sharply while that of nonfat dry milk has increased rapidly.

Overall, these changes have increased emphasis on dairy products of lower fat content. However, nonfat solids in milk are still in relatively greater surplus than butterfat (11, p. 22).

The away-from-home eating market has expanded much more rapidly than the household market for foods over the past 30 years. This has meant considerable changes in the demand for dairy products, since consumption patterns in household feeding are quite different from those in many types of institutional eating places. Knowledge of this market is scanty, but it is obvious that the opening of many pizza shops influenced the demand for certain types of cheese, while the increase in away-from-home eating in conventional restaurants probably tended to decrease the consumption of fluid milk, which apparently is not consumed as commonly in restaurants as it may be at home.

Another major sector of the dairy market is represented by the Federal Government. Changes in Government programs have a marked effect upon the overall demand picture facing the producer of dairy products. Changes in the price support program have had a marked influence on demand and prices since these programs were instituted in the middle 1930's. In recent years, changes in the price support levels for butter, cheese, and nonfat dry milk and in the differentials between these products have influenced the relative profitability of producing one product or the other, with corresponding impacts on dairy marketing both at the processor and the farm level. Increasing support levels for nonfat dry milk made it profitable for processors to install drying equipment during World War II and subsequently; this was a major factor persuading many farmers to shift from selling farm-separated cream to selling whole milk. In more recent years, changes in the relative support levels for butter and cheese influenced the output of these products and their profitability to plants producing them and to the farmers supplying those plants.

RETAILING DAIRY PRODUCTS

The distribution system for fluid milk, which 40 years ago was based very largely on home delivery, has changed to a wide variety of outlets. The proportion of fluid milk sold on home delivery routes has declined from probably 80 to 85 percent of the total 40 years ago to 25 to 35 percent of the total today.

Merchandising of ice cream has also been markedly affected by the introduction and growth of supermarkets. Thirty years ago, most ice cream was sold through drug stores. With the introduction of the supermarket and the half-gallon container, the ice cream business rapidly shifted to supermarkets. In recent years, specialty ice cream stores entered the picture, most of them selling relatively high-priced products of a higher butterfat content or different texture than that commonly sold in supermarkets.

The retail cheese market is drastically different from that of 30 years ago. Development of new types of cheeses and new processing and packaging methods led to the present supermarket cheese department with 50 to 100 or more varieties, types and packages, in place of the handful of varieties from which the grocer cut a chunk. Natural cheese from several countries and a seemingly endless variety of processed cheeses, cheese foods, and spreads are available. Much of the cheese is sliced and almost all is prepackaged.

The principal changes in butter marketing were the nearly universal packaging in one form or another and the virtual disappearance of the old butter tub, the increased proportion of Grade A and AA butter, the more widespread use of consumer grades for butter as a merchandising tool, and the increase in private labels.

In the postwar period, nonfat dry milk became a consumer product of some importance as the instant product was introduced. It is commonly sold under private labels by many groups and under a small number of packer labels of a few major companies.

MERCHANDISING PRACTICES

The perishable commodities (primarily meat and fruits and vegetables) play an important part in the competitive strategy of retail stores by serving as "traffic builders." Shoppers quite generally appear to consider that dry groceries and household supplies will be available in all supermarkets at similar if not exactly equal prices--with some differences because of the availability and relative price levels of private brands and the number and variety of items offered. Therefore, their decisions as to which store to patronize can be strongly influenced by their impressions of the quality and price levels of the perishables. For perishables, quality considerations are relatively more important than for other commodities that are commonly assumed to be approximately equal in quality. The "store image" in the mind of the shopper--the shopper's overall impression of the store and the class of customer patronizing it--appears to be influenced more by the quality and price of perishables than by any other factor.

Dairy products occupy a middle ground. In some places and under some circumstances, fluid milk and ice cream are used as traffic builders and advertised at special weekend prices drastically below the regular prices. In many markets--probably the majority--prices remain unchanged for months at a time, these products being treated as a staple grocery items. Other dairy products are advertised occasionally, but they are not major traffic builders. Like any other grocery product, they may occasionally be used as a special item, but they do not play a major role in the advertising and pricing strategy of the supermarket.

GROWTH OF LARGE DAIRY COMPANIES

Eight large dairy companies are a major factor in the market for all types of dairy products. Several of them date back into the 19th century, but the major growth of all occurred since the turn of the century and all but one since the mid-1920's. Much of their growth--like that of other industrial firms throughout the economy--occurred during the three historic merger movements in the United States.

During the first wave of mergers, around the turn of the century, there were no significant activities in the dairy industry. The second merger movement during the last half of the 1920's saw one dairy company, which had sales of over $100 million in 1919, more than double that volume, primarily because of mergers with other dairy companies. Another company was organized in 1923 and immediately began a period of rapid growth, primarily through mergers. By 1930, it had passed the first company and become the largest in the dairy industry.

The 1950's brought the third major merger movement in the American economy. A number of dairy companies grew very rapidly, primarily by merger with other

firms in the industry. Each of the eight national dairy companies had sales of over $100 million by 1956, although this included many nondairy products.

In 1934, the three largest dairy companies made 22.8 percent of the sales of packaged fluid milk and cream of all commercial handlers (excluding producer-dealers). By 1950, their share declined to 16.4 percent. Between 1950 and 1957, the share of these three companies increased modestly from 16.4 to 18.8 percent. During the same period, the share of the fourth to eighth largest companies increased from 4.3 percent to 8.3 percent. This reflects the rapid growth through mergers of companies of minor importance at the beginning of the decade.

No later figures are available on the market share of these large companies. However, the merger movement in the dairy industry has slowed substantially since then, due primarily to the action of the Federal Trade Commission in challenging the acquisitions of a number of the large companies. In some of these cases, settlements have been reached in which the companies have agreed to divest themselves of some of the acquired companies. It appears likely that, when these divestitures have been completed, the share of the four largest and the eight largest companies in the national fluid milk market will be at about the 1958 levels or lower.

The large dairy companies have diversified increasingly over the years, entering a wider and wider variety of product lines. For five large dairy firms, sales of nondairy products increased from 11.9 percent of total sales in 1940 to 18.9 percent in 1950 and 29.2 percent in 1960 (1, p. 1). Between 1961 and 1964, one company increased its sales of nondairy items from 5 percent to 40 percent of total sales (9, p. 92). These companies--prevented from expanding their activities in the dairy industry--now are seeking and completing mergers which take them into many new lines both within and outside the food industry.

Concentration at the manufacturing level in the manufactured dairy products industries has increased little in the past 30 years. Between 1947 and 1958, concentration of production decreased in most of the industries for which data are available (table 1).

Concentration at the next level--the first buyers--is higher than at the manufacturing level in the butter and cheese industries (see pages 161 and 162).

The Structure of Fluid Milk Markets

The typical fluid milk market in the United States is supplied by a relatively small number of handlers, with a major portion of the sales made by a handful of firms. The number of handlers varies from 2 or 3 in the smallest markets to over 100 in a few, not always the largest (17).

The ranks of fluid milk handlers have been thinning ever since the development of city milk distribution began over 75 years ago. Throughout this period, a major influence has been a shift in the scale curve--the relative costs of small firms as compared to large ones. A century ago, very little happened to fluid milk between the farmer and the consumer. Equipment used was simple and the costs of the small distributor were not greatly different from those of the large distributor. The introduction of the glass milk bottle before the turn of the century was about the earliest developments causing some shift in the shape of the scale curve. Even simple bottle-filling equipment was expensive when used for a few quarts of milk a day, and as a result, many small distributors went out of business.

Table 1.--Concentration in dairy manufacturing industries, 1947, 1954, and 1958

Industry and year	Proportion of value of shipments accounted for by--		
	4 largest companies	8 largest companies	20 largest companies
	Percent	Percent	Percent
Butter:			
1958	11	18	28
1954	16	24	34
1947	18	24	32
Natural cheese:			
1958	35	42	50
1954	25	30	39
1947	27	32	40
Concentrated and dried milk products:			
1958	50	60	73
1954	55	68	80
1947	50	63	76
Frozen desserts:			
1958	38	48	59
1954	36	45	57
1947	40	48	57

Source: (23, pp. 10-11).

In the first two decades of the 20th century, the introduction of many city ordinances requiring the pasteurization of milk acted to increase the costs of small distributors as compared with large ones, and many more of the small distributors found that it was no longer possible to compete. In the 1920's and 1930's, the introduction of classified pricing plans providing for uniform prices to producers by all handlers, both large and small, forced many small handlers to pay the same prices as their larger competitors. Many found it impossible to do so and they too went out of business. In the late 1930's and 1940's, the introduction of the paper carton acted to raise the cost levels of smaller distributors. Since World War II, a number of technological and economic developments--no single one of them outstanding--have tilted the scale curve even further (16, p. 1).

Between 1950 and 1964, it dropped over one-half in Federal order markets, with a faster rate of decline in small markets than in larger ones (fig. 1). Most of the firms leaving the fluid milk business were small handlers with only a few routes--mostly retail (16, pp. 20, 34, 36).

The earliest milk marketing studies in the country found a few dominant firms in city markets. For example, in 1915, the six largest handlers in Philadelphia sold 43 percent of the milk (25). In the same year, the two largest handlers in Detroit had 43 percent of the sales and the six largest, 55 percent (4).

Thus, the decline in firm numbers and the dominance of large firms are nothing new in the fluid milk business.

In the last 30 years, the share of the market controlled by the largest firms increased in the smaller markets while it declined as often as it increased in larger markets. On the average, concentration in large markets has decreased since the 1930's (16, pp. 20-22). Between 1950 and 1962, the market share of the four largest handlers increased sharply in the smaller markets and very little in middle-sized markets, and declined in the largest ones (fig. 2). Since 1962, there has been some increase in all sizes of markets.

Specialization and Diversification in Manufacturing

Dairy manufacturing has been shifting from single-product to multiple-product plants, and is becoming concentrated in fewer plants. From 1944 to 1961, the whole-milk equivalent of dairy products manufactured increased 15 percent, while the number of plants decreased 33 percent. During the same period, single-product plants declined from 72 percent of all plants to 44 percent (3, 8).

The following tabulation shows the relative number of single- and multiple-product plants producing specified manufactured dairy products in 1961:

	Number of plants	One-product plants	Multiple-product plants	Principal product combination
		Percent	Percent	
Butter	1,510	47	53	Butter and dry milk products
American cheese	1,023	66	34	American cheese and butter
Other cheese	523	53	47	Other cheese and American cheese
Nonfat dry milk solids	431	2	98	Nonfat solids and butter
Condensed milk	396	3	97	Condensed milk and mixes
Evaporated milk	73	59	41	Evaporated and condensed
Frozen products	2,781	25	75	Frozen products and mixes
Mixes for frozen products	2,455	5	95	Mixes and frozen products

This shift has resulted from--and has contributed to--a number of important changes including (1) farmers shifting from sales of farm-separated cream to sales of whole milk, (2) improved quality of the raw milk supply, (3) changing relative importance of various dairy products, (4) improved transportation extending the sources of milk supply and the market areas for finished products, and (5) larger and fewer plants.

Several interrelated factors imply that these trends will probably continue. One group of factors bringing about changes in numbers and types of operations is related to change at the producer level. Milk producers, especially in the West North Central Region, have shifted from delivering farm-separated cream to plants to delivering whole milk. This means that a plant producing only butter would be required to locate a market for the resulting nonfat solids or to utilize them by drying, condensing, making cottage cheese, or other types of products. In addition, the increasing supply of Grade A milk available in excess of fluid needs in many markets has resulted in the expansion of facilities for manufacturing dairy products, often into diversified operations.

Another group of factors resulting in changes in numbers and types of operations is related to plant facilities. Economies of scale result from increasing the volume of raw milk manufactured into the various products. Equipment for producing

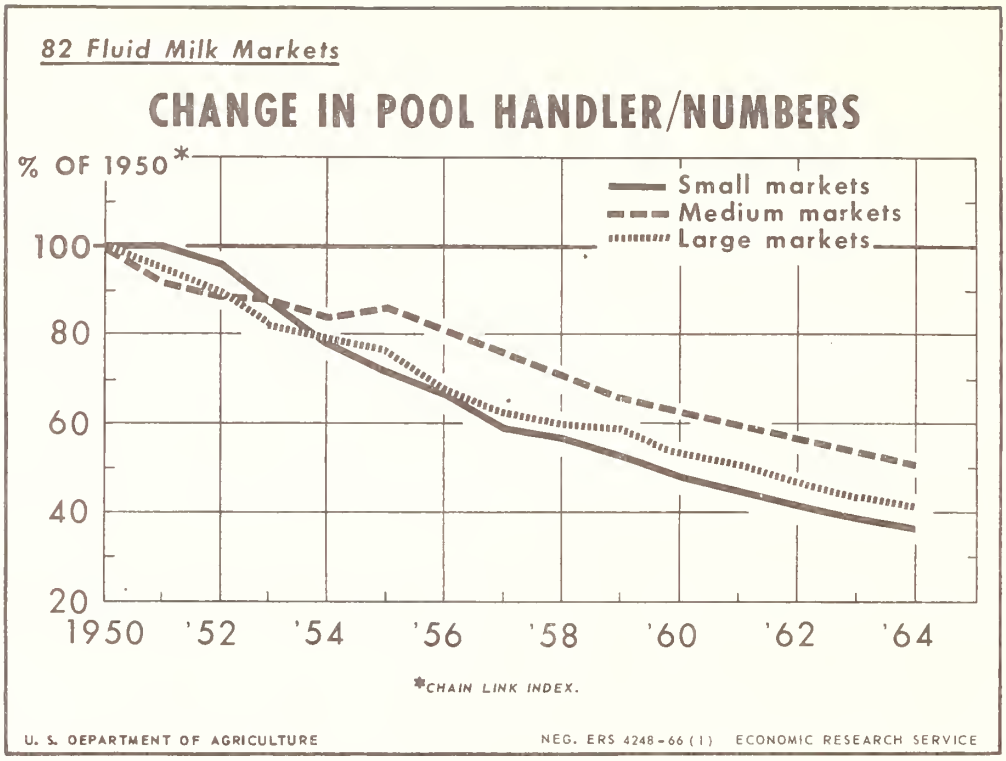


Figure 1

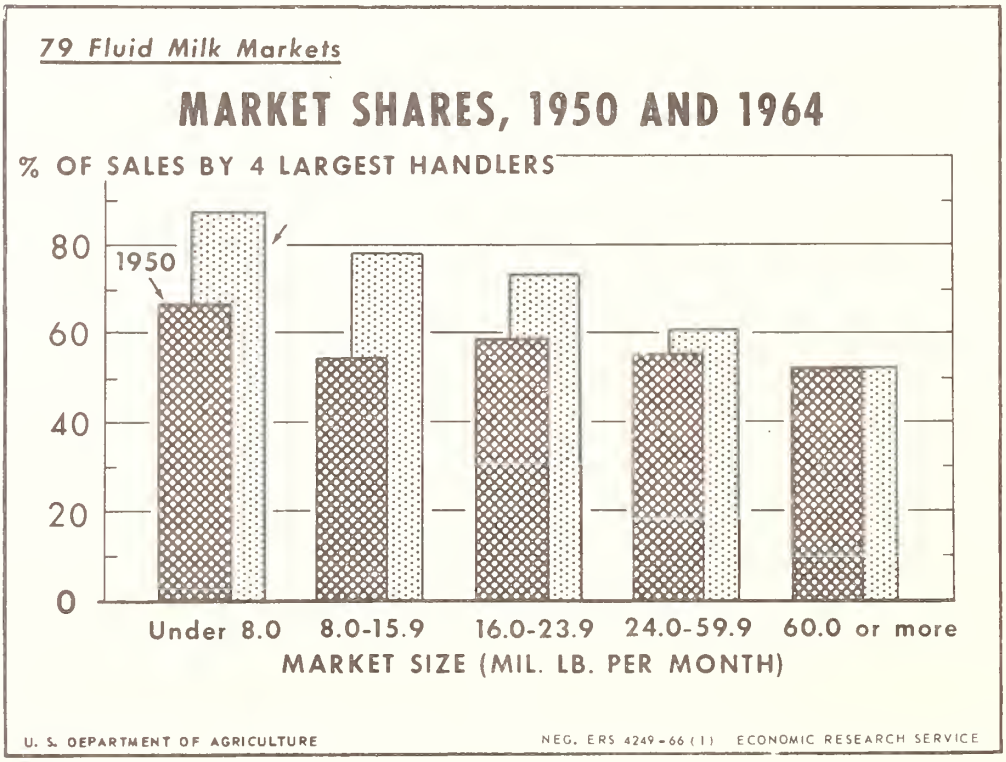


Figure 2

manufactured dairy products has been greatly improved, but, at the same time, it has become increasingly more costly. These higher equipment costs have forced many small plants to close down; many others increased the volume of a given product with the same equipment or started to manufacture additional products with minor changes in equipment.

A third group of factors bringing about changes in numbers and types of operations is related to the changes in available markets for given products. Expanding markets for certain varieties of cheese, for example Italian, have resulted in further diversification by some plants already manufacturing cheese. Increases in the aggregate demand for frozen products have resulted in plants manufacturing several types of frozen products and mixes. The Commodity Credit Corporation's offers to buy butter, nonfat dry milk solids, and American cheese to support farm prices contributed to diversification and expansion in plant facilities for these products, as farm marketings increased faster than commercial requirements.

All of these factors are likely to contribute to further changes in the dairy manufacturing industry. Indications are that the trend will be toward increased diversification, to meet changing raw-product patterns as well as ever-changing markets for the final products (3, p. 44).

MARKET POWER

Each of the changes previously discussed has its impacts on the relative bargaining power of the participants in the production and marketing process. This is nothing new. The particular power relationships which now exist are different from those at any earlier period and can be expected to change further.

The Raw Milk Market

In all but a few isolated fluid milk markets, farmer cooperatives perform a major function in the sale of raw milk to distributors. In recent years, their role has been changing in many markets. In Federal- and State-controlled markets, their principal role in earlier years was to represent the producer in the price-making process, through Federal order hearings or whatever arrangements a particular State might have. In some cases, they operated receiving stations, manufacturing plants, or fluid milk plants. In recent years, cooperatives have been broadening the scope of their operations in an effort to increase their marketing power. In many cases, they have taken over the operation of the entire procurement system, including assembly and management of fluid milk supplies, routing raw milk to the distributors as needed, and managing the surplus.

The high cost of procuring and coordinating a fluctuating supply to meet a variable demand, and the possibility of eliminating some of the uncertainty in this area, has led a number of handlers to accept full supply arrangements with a cooperative. Such an arrangement does not eliminate fluctuations, but it does reduce their impact on the handler by giving him a relatively simple, routine means of adjusting supply to demand with minimum effort and expense. Furthermore, a single agency is in a better position to make the necessary adjustments and reduce the burden of uncertainty.

In general, centralized supply management decreases both the actual handling cost and the reserve required to meet market needs. In addition, central facilities

to process excess milk in fluid milk markets can be operated at lower cost than a system with each handler operating individual facilities. Furthermore, costs of farm collection and intercity transfer can be reduced through central supply coordination (4).

The changed bargaining relationships in the procurement market and the lower operating costs associated with central supply management have helped create a climate where cooperatives can bargain for and obtain premiums over the prices established under the orders. About a third of the Federal order markets have had premiums in recent years (18).

Much of the market power of dairy cooperatives has been developed through the use of Federal and State orders. Given these control devices and the substantial quantities of milk available in most markets throughout the country, there is little incentive for fluid milk distributors to compete for independent milk supplies. They can obtain all they want from a cooperative at the going price. Therefore, in many cases, they have turned over the complete procurement job to the cooperative. This transfer of function is usually the subject of spirited bargaining between handler and cooperative as each attempts to obtain the largest possible share of the savings from centralized supply coordination. Centralized management of fluid milk supplies and of excess milk improves efficiency and lowers costs for the total job.

This is not to say that all markets are organized in this way. In markets where over-order premiums have been negotiated by a cooperative, or cooperatives, there is an incentive for a handler to break away from the cooperative and attempt to obtain milk supplies from other sources at the minimum order price. This can and does happen frequently enough to undercut super-pool premium agreements in a number of markets.

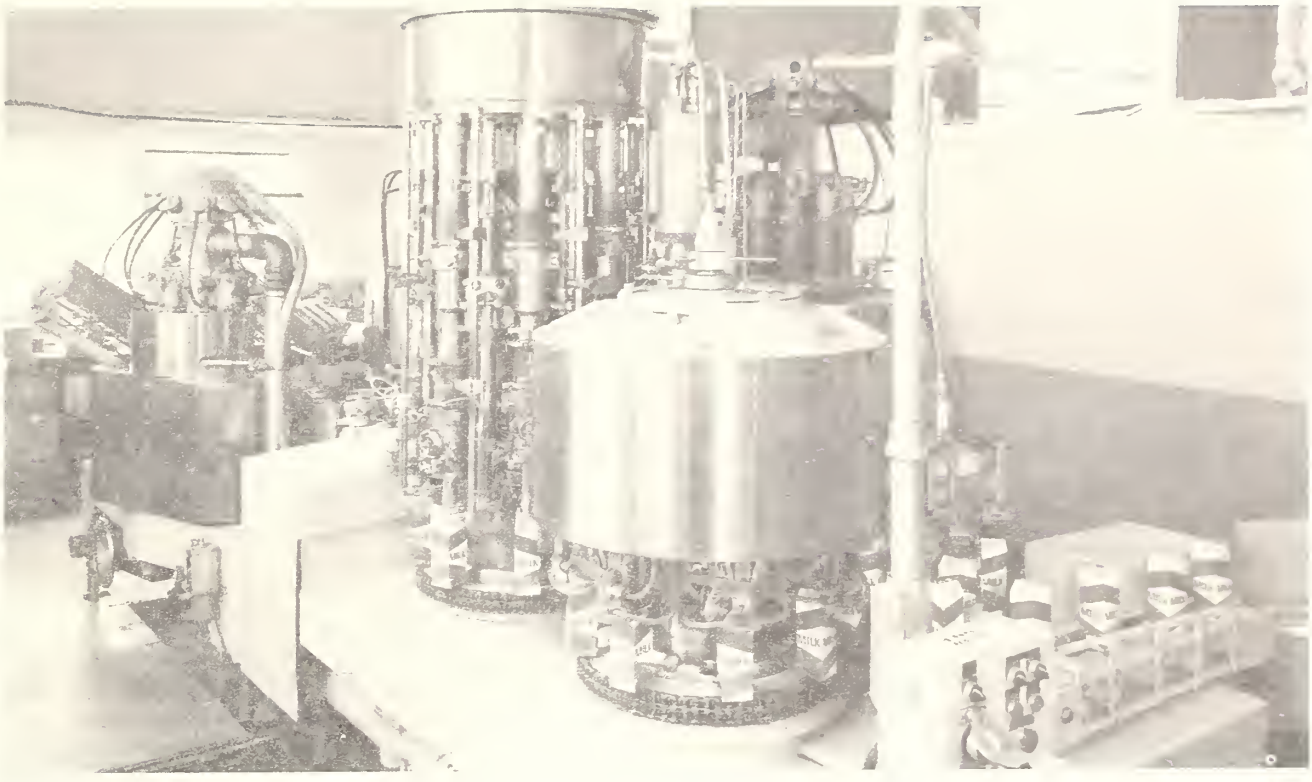
In many fluid milk markets, cooperatives have taken over an increasing share of the manufacture of surplus milk into various products, particularly butter, cheese, and nonfat dry milk. Ice cream and cottage cheese--the higher-valued products--are still produced mostly by proprietary handlers; but the lower-valued, less-perishable products are moving increasingly to the cooperative plants (14, 15, 27, 29).

Procurement in manufacturing-milk areas is another matter. Prices are arrived at more or less competitively, resting on a floor determined largely by the support prices of the Federal Government. Processors compete for supplies of milk through some forms of price competition and many more forms of nonprice competition. In general, prices tend to be somewhat higher in areas where more than one processor is competing for manufacturing milk supplies. Prices are not uniform within an area where several processors compete because of incomplete knowledge on the part of producers and of many factors other than price which influence producers' choices of market outlets (2, 5, 6, 20, 22, 28).

Improvements in handling and transportation methods for raw milk--principally bulk tank assembly--and larger average size of producers have lowered costs of assembly and widened procurement areas of plants. This has opened up additional alternative outlets to producers in many areas, even though many plants have closed.

The Bottled Milk Market

The competitive situation in the market for bottled milk has changed markedly over the past 30 years. Before the advent of the supermarket and many technological



At a speed of two per second, this machine forms cartons, fills them, and seals them. Various sized containers can be made with a simple changeover.

improvements in processing, refrigeration, and distribution of bottled milk, this market was largely a home delivery operation. Most firms had the same prices as all others in the market and competition was mainly in terms of services. With the growth of the supermarket, the dairy store, the convenience food store, and many other forms of retailing, the distributor faces a much wider variety of outlets. Each of these is a somewhat different market.

In dealing with large retail organizations--whether they be chains, voluntary groups, or retailer cooperatives--the processor finds himself in a much different competitive position than in dealing with large numbers of individual households. The chain may be larger than the distributor and have more bargaining power. Milk and other perishable dairy products constitute only one group of products among many sold in the retail store. Many forms of price and nonprice competition are available to the store operator. The fluid milk distributor no longer depends mainly on hundreds or thousands of individual consumers. The survival of his firm may depend on obtaining or losing a share of the business of any one of from one to a dozen supermarket groups in his market area.

One of the basic merchandising tools of the supermarket is the use of advertised specials. In some area, milk has become a frequently advertised item. In others, it is seldom or never advertised; and, when advertised, often does not carry a special price. The competitive strategy of the supermarket influences the distributor.

In recent years, many retail organizations have introduced private-label brands of milk and other perishable dairy products as a competitive device. Occasionally, the retail firm processes its own milk, but more often it is custom packaged under

contract with one of the distributors. It is a common practice to restrict the number of brands of milk that the supermarket sells to the private-label brand and the processor brand of the firm that packages the private-label milk.

Since the typical merchandising policy before the introduction of private labels frequently was to sell anywhere from three to a half-dozen of the major brands available in the area, the shift to private-label and one other brand typically means that the processors of the remaining brands lose a major outlet when the supermarket group makes the shift in merchandising policy. Thus, the introduction of private-label milk gives a retail organization substantial bargaining power in dealing with its suppliers.

Frequently, private-label brands are sold at somewhat lower prices than the processor brands in the market. At times, this has led to a response by distributors in the form of secondary brands sold at the same price level as private labels. Sometimes these secondary brands are of lower butterfat content--about at the minimum level allowed by local regulations--and sometimes they are in fact indistinguishable from the regular brands of the distributor.

Changes in structure and market power relationships have frequently led to price wars when drastic changes took place or a series of small changes accumulated. Price competition has become important in many markets. Frequently, it has broken out in exaggerated form as a price war. These price wars are often a symptom of change taking place in a market rather than the cause.

Markets for Manufactured Dairy Products

Changes in markets for manufactured dairy products have not been as drastic as in those for fluid milk and other perishable products, except in the case of ice cream, a semiperishable product. Many of the comments on fluid milk apply to ice cream as well.

The supermarket has become the most important outlet for ice cream, compared to the dominance of drug and confectionery stores 35 years ago (12, 13). Much as for fluid milk, the different structure of the retail grocery business and the merchandising practices of supermarket chains have meant drastic changes in the market facing ice cream manufacturers. Ice cream is even more subject to private labeling and price specialing than fluid milk. Partly as a result, the average retail price of ice cream in half gallons has declined slightly during the past decade, in spite of moderate increases in the prices of milk and cream used in its manufacture and in the general price level.

The nature of competition between the ice cream manufacturer and his largest outlets--chains and other supermarket groups--is very similar to that for fluid milk (7).

The market for cheese is dominated by the Nation's largest dairy company, which handles somewhat more than half of the processed cheese and a substantial proportion of the natural cheese. Control was acquired at an early period through patents and has been perpetuated through product differentiation, extensive promotion, and control of distribution (21). In postwar years, cheese has been increasingly a packaged item rather than a bulk item, which encourages and facilitates product differentiation and branding.

Concentration of market power is much less in the market for butter than in the market for cheese (22). Such control as exists is largely in the hands of a few major dairy companies and meat packers who also manufacture some butter, one or two cooperative sales federations, and a handful of receivers in the major markets of New York and Chicago. The Government price support program sets floors under the butter and cheese markets and provides alternatives to many firms that might otherwise feel the pinch of market control much more strongly.

Other dairy products not requiring refrigeration move through normal marketing channels for dry groceries. Large manufacturers deal directly with larger chains and wholesalers, while small manufacturers sell chiefly through brokers and smaller wholesalers. Concentration of market power in the canned evaporated milk industry has been high for many years and continues in the hands of a few firms. The market for packaged nonfat dry milk has become increasingly concentrated in the hands of a few major firms with successful brands. In both cases, private labels of grocery chains are an important competitive element. Many smaller processors and a number of the large ones supply these private label brands.

The Consumer Market

Consumers now have many more alternative products available to them to meet a basic need for milk and other dairy products, and many of these can be obtained from a much wider variety of sources than 30 years ago. The market power of the individual consumer is no greater than it ever was, except that through the availability of many more alternatives he has a greater opportunity to influence the sellers he faces. Supermarkets, dairy stores, and the many other types of retail outlets compete vigorously for his trade through many forms of merchandising activity and, sometimes, through price competition. In most markets, the consumer can buy bottled milk at a wide range of prices. If he goes to a gallon-jug store, he can obtain milk with a minimum of services at a low price. At the supermarket, he may pay a little more but may not have to travel out of his way to obtain milk. He often has the choice of several brands of milk at different prices. Or he can deal with a dairy on its home delivery routes, where he frequently has an opportunity for bargaining over prices on the basis of quantities or other considerations.

Prices and Farm-Retail Spreads

Prices and margins for dairy products have displayed somewhat diverse patterns of movement during the postwar period. Between 1951 (the first year for which retail price data are available for all products) and 1965, the farm value (prices received by farmers) for milk going into all dairy products declined. At the same time, retail prices of butter and ice cream decreased, while those of American-process cheese, evaporated milk, and fresh milk increased (table 2). Retail butter prices were under increasing competitive pressure from margarine, while the changes in outlets and merchandising practices for ice cream described earlier have brought about lower prices. Margins (farm-retail spreads) declined about 8 percent for ice cream and increased from 29 to 47 percent for each of the other products.

Throughout the postwar period, costs of items which dairy marketing firms purchased were increasing. Wage rates went up sharply in ice cream manufacturing, and average hourly earnings increased about 76 percent between 1951 and 1964 (24). Much of the increase in wage rates was offset by greater productivity per man hour.

Table 2.--Changes in prices and farm-retail spreads for dairy products, 1951-1965

Product	Farm value	Retail price	Farm-retail spread
	Percent	Percent	Percent
Butter	-15.3	-5.6	+35.5
American process cheese	-8.9	+17.4	+46.7
Ice cream	1/ -6.7	-8.0	-8.5
Evaporated milk	-12.2	+9.4	+33.8
Fresh milk:			
Home-delivered	-4.4	-15.1	+34.5
At store	-4.4	+11.3	+29.4

1/ Includes sugar.

For all manufactured dairy products, output per man-hour increased about 60 percent between 1951 and 1964 (26). In fluid milk processing and distribution, costs of all items except raw milk and cream increased between 1954 and 1964 (fig. 3). Wage rates of plant workers increased more than 50 percent, while those of deliverymen rose more than a third. At the same time, the amount of products processed or handled per hour increased, so that the labor costs per hundredweight of milk and cream processed increased hardly at all for plant workers and only about 25 percent for deliverymen (30).

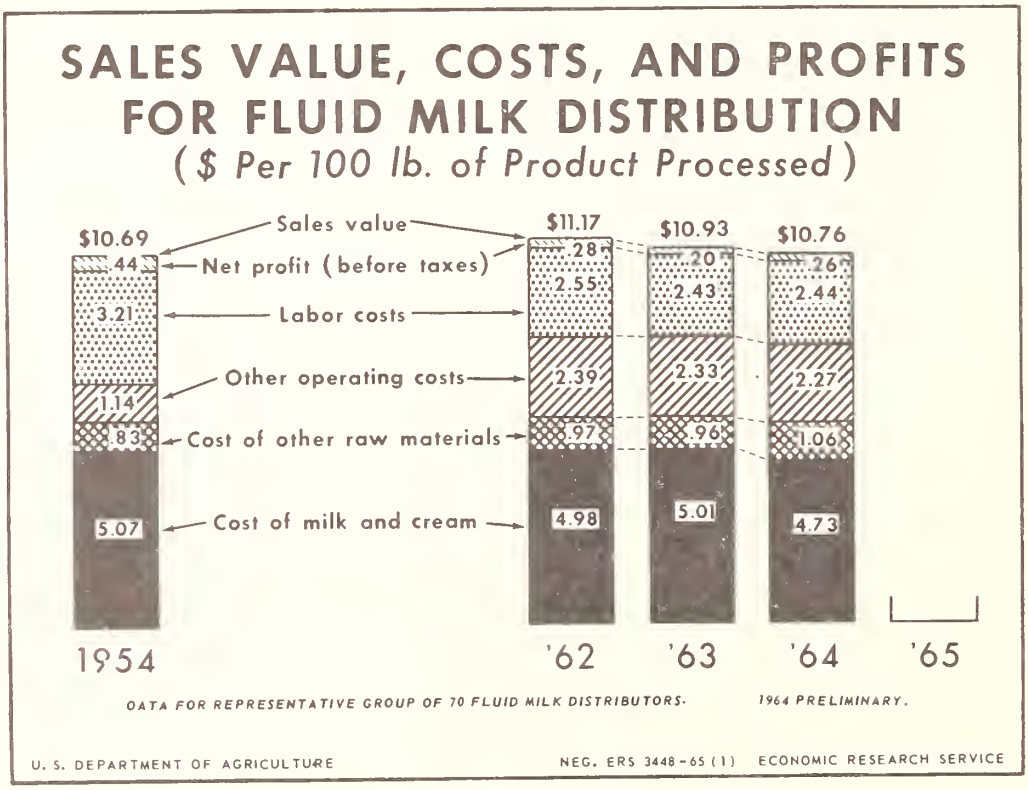


Figure 3

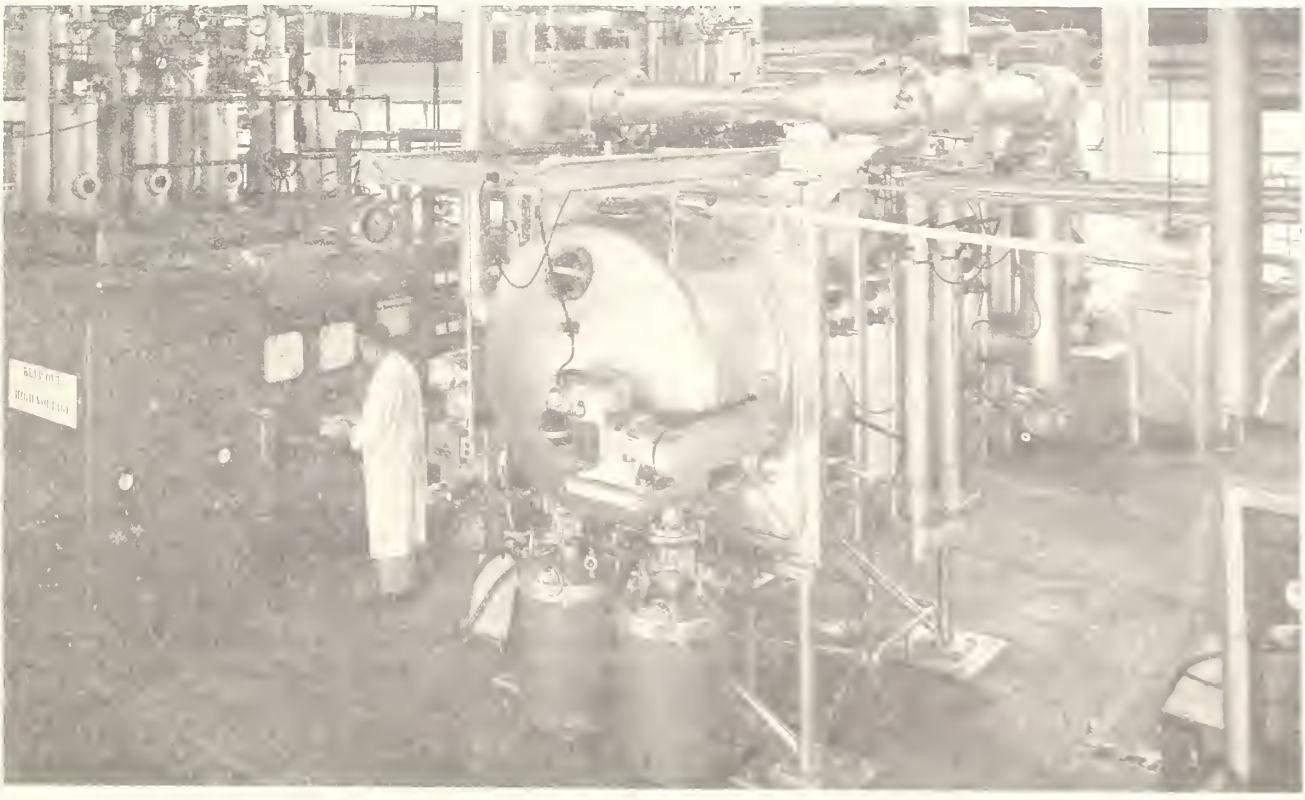
THE NEXT DECADE

Where might some of these developments be expected to lead during the next decade? First, an across-the-board reduction in the number of firms at any level can be anticipated, as many small firms find it impossible to continue to compete. This does not mean that the largest firms will increase their share in many individual markets. Primarily, it will be a matter of more nearly equalizing the power of large and middle-size firms.

Second, shifts of major importance in the functions performed by different types of firms in the marketing system for fluid milk can be expected. The change from the the early days of city milk marketing when the fluid milk processor performed all functions from farm assembly to delivery at the consumer's doorstep will be most dramatic. Probably by 1975, in most markets, farmer cooperatives will have assumed the entire supply function, including management and disposal of surplus fluid-grade milk.

Similarly, many processors will rid themselves of the route distribution function, transferring route operations to others--subdealers or vendors--or selling at the platform to retail organizations. Perhaps a third to a half of the milk they sell will be put up under private labels of chainstores, retail groups, or vendors.

As processors become more specialized in the processing function, individual plants will grow in size and distribute over wider and wider areas. Distribution areas of 300 to 500 miles from the plant will not be uncommon 10 years from now.



Shown here is a drier used in developing a continuous process for vacuum foam-drying of whole milk.

If these visions in the murky crystal ball bear any relation to reality, what can be said about the distribution of market power 10 years from now? In the first place, there may be much less competition for farmers' milk. Often, there will be only one farmer cooperative in an area handling virtually all of the milk. Even in areas where there are several firms to whom the farmer can sell, the numbers will be much smaller than they are now. Thus, the power of decision-making on the disposition of the farmer's milk will have shifted further from the individual farmer to his cooperative organization.

Problems of market power in the raw milk market will be found in the relationships between cooperatives in adjoining markets. There will be increasing competition between such cooperatives to supply raw milk to processors, particularly those located so they can draw supplies from two or more markets. This will undoubtedly lead to a marked increase in the number of mergers among cooperatives, so that they become predominantly regional rather than oriented to the local market.

Having given up their procurement operations, fluid milk processors will have more freedom to deal with alternative sources of supply. At the same time, they will be dependent upon a smaller number of large buyers. Their control of brands and prices will be markedly less as private labeling increases. However, this lessening of their market power will be somewhat offset by their increased mobility over wider geographic areas, which will make it possible for them to spread their business among buyers in a number of markets, partially offsetting the decline in numbers of buyers in any one market.

At the retail level, the increasing diversity of outlets where consumers can purchase milk, ice cream, and other dairy products will exert a restraining influence on the power of any one organization. Almost all large store groups--whether chain supermarkets, affiliated groups, or dairy stores--will have their own private-label milk and ice cream. Processor labels will continue to be of importance, although not as great as at present. The situation may well stabilize much like that in coffee or bread today, where every organization that wants one has a private label, and the products bearing it are frequently sold at lower prices than those bearing processor labels. As processor brands become somewhat less important and processors are less involved in retail pricing decisions, price wars may tend to become a less serious problem. With processors having less incentive to subsidize price wars, retailers may be less interested in carrying them on.

Already there is a certain amount of vertical integration between farmer cooperatives and processors and between retailers and processors. Can major changes be expected in this area in the next 10 years? Most of the cooperatives that now operate successfully in fluid milk processing and distribution undoubtedly will continue to do so and to grow. Some other cooperatives will enter the business, and some will succeed. However, a major takeover of the fluid milk processing business by cooperatives does not appear to be in prospect. The threat of entry into fluid milk processing by farmer cooperatives will remain an element of bargaining between cooperatives and processors, but it is not a major element except where the cooperative can acquire access to the consumer market through contracts with chains or other distributors.

Similarly, the few retailers who are now in the milk processing business will most likely continue, and a few others will enter the business. However, the possibility of retailers integrating back into fluid milk processing will remain important primarily as a threat, rather than as a reality. The ever-present threat of a major

chain or other retail organization going into the milk processing business, if it feels that it can bottle milk more cheaply than it can buy it from an existing processor, will continue to be part of the bargaining process between processors and retailers.

It is obvious that all these changes will mean adjustments more and more adjustments by everyone from the farmer to the consumer.

SUMMARY

As in all other agricultural industries, the story of the dairy industry--past, present, and future--is change. Dairy farming is becoming much more commercialized. Farms are larger and more specialized in milk production. This will almost inevitably continue until there are virtually no farms producing milk except specialized dairy farms. As dairy farms become larger and more specialized, their outlets change. The producer-dealer of fluid milk, numbered in the tens of thousands 30 years ago, is becoming increasingly hard to find. The sale of farm-separated cream, once the dominant outlet for farmers' milk in most manufacturing milk areas, is now confined to a few areas of sparse production.

At the consumer level, the tremendous increase in the number of varieties, products, packages, and outlets has vastly increased the alternatives available to housewives. Increases in consumer income and shifts in consumer preferences have altered the demands for each individual dairy product.

The growth of the supermarket to the dominance of the retail food business has helped to shape some of the changes in demand which face dairy processors. Home delivery of fluid milk has declined from nearly all of the milk to not more than a third today.

Thirty years ago, there were three large dairy companies. Since World War II, another half-dozen have grown large--one large enough to rival the original three. The large companies have been diversifying into other food products and nonfood lines, as have large firms in almost every line of business.

Local fluid milk markets have been dominated by a relative handful of firms from 50 years and the number of firms in these markets has been declining for at least that long. These trends have continued in the postwar period. The share of the market of the largest firms has increased in small markets as the number of firms declined, but in the large markets it has been almost unchanged for the last 15 years.

Dairy manufacturing has been shifting from single-product to multi-product plants and is becoming concentrated in fewer plants. Overall, there is little tendency to increase concentration in manufactured dairy products, except natural cheese.

In the raw milk market where bulk milk for fluid use is transferred from farmers to processors, fluid milk cooperatives are becoming increasingly important and are tending to expand the services which they perform including assembly and management of milk supplies. In many cases, cooperatives have assumed the entire procurement function, delivering bulk milk to fluid milk processors at the time and in the quantity required.

The competitive position of fluid milk and ice cream processors in the sale of their products has changed markedly with the growth of large retail organizations including chains, voluntary groups, and retailer-cooperatives. The processor now

has many fewer potential customers than he once had. Instead of thousands of households--or drugstores in the use of ice cream--he is dealing with a relatively small number of large buyers who often want milk and ice cream packaged under the store label rather than under the processor's brand.

All of these developments point toward much change in market power relationships in the dairy industry in the years ahead. There will probably be much less competition for farmers' milk, as the number of potential buyers decreases and the procurement job in fluid milk markets is increasingly assumed by cooperatives. Fluid milk cooperatives will increasingly find themselves in competition with other cooperatives in adjoining markets. This will undoubtedly lead to a marked increase in the number of mergers among cooperatives so that they become predominantly regional rather than local in character. At the retail level, the growing number of outlets tends to limit the power of any one organization. On the other hand, there do not appear to be major incentives to marked increases in integration either between producer cooperatives and processors or between retailers and processors of dairy products. All of these changes undoubtedly mean adjustments on the part of all concerned.

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