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Merchandising Milk and Dairy Products In Retail Grocery Stores

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CONTENTS

	Page
Foreword	3
Summary	4
Introduction	7
Purpose and Scope of the Study	8
Characteristics of the Study Area	8
Stores in the Study	12
Storage Facilities and Display Practices for Fluid Milk	14
Types of Cases	14
Refrigeration and Temperature	19
Reserve Storage	20
Volume and Description of Fluid Milk Products Handled	20
Major Products—Volume and Proportion of Stores Handling....	21
Grades and Types of Milk	22
Types and Sizes of Containers	22
Other Fresh Milk Products	24
Milk Delivery	24
Number of Milk Distributors per Store	25
Frequency of Delivery	27
Delivery Volumes	27
Costs of Duplicating deliveries to Stores	28
Services Provided by Milk Distributors	29
Delivery and Promotional Services	29
Credit and Refunds	31
Promotion of Dairy Products	31
Opinions as to Best Ways to Increase Sales of Milk	31
Promotion of Dairy Products in Preceding Year	32
Rating of Various In-store Promotional Methods	33
Handling Margins and Store Sales	38
Store Size and Margin	39
Customer Purchase	41
Income and Store Margins	44
Returns High per Dollar Invested	45
Appraisal	49
Appendix	52

FOREWORD

The important place of stores in the distribution of packaged fresh milk in large cities is common knowledge. Moreover, an earlier study by this research committee of the outer-market distribution of milk in paper containers indicated that stores now play a major part in making pasteurized, inspected milk available to consumers in many small towns and rural communities. These conditions led the North Central Regional Committee on Dairy Marketing Research to sponsor this study by representatives from Kentucky and Missouri and the cooperative agent.

Members of the Regional Committee while the project was under way were:

Illinois	Roland W. Bartlett
Indiana	Charles E. French (Chairman until October 1956)
Iowa	Geoffrey S. Shepherd, George W. Ladd
Kansas	Paul L. Kelley
Kentucky	John B. Roberts
Michigan	Gerald G. Quackenbush (Chairman since October 1956)
Minnesota	E. Fred Koller
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Wisconsin	Hugh L. Cook
United States Department of Agriculture	
Agricultural Marketing Service	Louis F. Herrmann
Farmer Cooperative Service	Donald E. Hirsch

Administrative Adviser to the Committee was Noble Clark, Associate Director of the Wisconsin Agricultural Experiment Station. Federal-state cooperative agent was Sheldon W. Williams.

The authors are indebted to the large number of store-keepers who contributed to the study; to C. C. Erwin and Quentin Banks, who assisted in taking the schedules; and to Mrs. Naida Seibel, who did a large part of the statistical work.

SUMMARY

This report deals with the handling and merchandising of milk in 235 stores in an area of western Kentucky, southeastern Missouri and southern Illinois a little larger than the state of Massachusetts. Dairying is not highly developed in the area. Packaged milk is distributed widely, and substantial amounts are brought in from plants outside the area. Of the 119 cities and towns in the area, only 3 depend entirely on local plants for supplies of fluid milk while 101 depend entirely upon outside plants. Milk prices at stores range rather widely and are lowest for ungraded milk in Illinois.

Of the 235 stores in the study, 30 were units of national chains, 30 belonged to regional, local or voluntary chains, and 175 were independents. Average number of customers per store per day ranged from a low of 15 to a high of 1,250. Stores of a given size appeared very similar in most characteristics irrespective of the population of the place in which they were located.

Facilities for retailing milk were generally good. In all the surveyed stores it was kept under mechanical refrigeration. Most of the larger stores had open-top cases, and many of them made effective use of cases by keeping only part of the milk on display and having the case replenished from reserve storage or by return trips of the deliveryman as needed.

Products sold included whole milk, buttermilk, one or more types of cream, chocolate milk or drink, cottage cheese and skim or low-fat milk. The average sales volume of whole milk, buttermilk, and skim and low-fat milk per store was 772 quarts per week, and was almost entirely packaged in paper containers. Nearly two-thirds of the whole milk and the bulk of the low-fat milk was in half-gallons, but buttermilk and skim were packaged mainly in quarts.

Three-fourths of the grocers carried milk from more than one distributor and one-third carried milk from three or more, with a maximum of six. The reason most commonly given by grocers for stocking more than one brand was that customers want a variety of brands.

The total number of stops made by dairies at stores ranged from 2 a week at some country stores off the main road to 48 or more a week in a few large supermarkets. Even with more frequent deliveries to the larger stores, the average volume per delivery was five times as large in stores serving 700 or more customers per day as in those serving under 140. Most grocers paid cash for milk upon delivery, with charge accounts mostly reported in the larger stores.

The principal suggestion of grocers for increasing sales of milk was to have a good display with self-service, but a variety of other suggestions that touched upon quality, price, advertising and promotion also were offered by considerable numbers. Three-fifths of the storekeepers reported that they had promoted dairy products in their stores in some manner or other during the year preceding the survey.

Grocers considered a display of the product an effective way to sell milk, and most of them had borne that out by providing good display cases. Over half the store operators rating price specials considered them good promotional devices; 30 to 40 percent rated them poor. Taste demonstrations found more favor than free recipes, which received comparatively poor ratings. Displays and premium sales, and taste demonstrations of milk and ice cream, were rated more favorably in large independent stores than in small ones, suggesting that those types of promotion may be better suited to large stores than to small ones.

The most commonly reported store-handling margins for milk were 3 cents per quart and 6 cents per half-gallon. The greatest variation in margins was on half-gallons. Most of the small neighborhood stores took a 3-cent-per-quart margin, but the average margin for supermarkets was about 1.5 cents per quart.

The average quantity of milk sold per store customer was related to store size and margins, although those two factors tended to have compensating effects. Apparently because of their convenient location to consumers, small stores sold comparatively large average quantities of milk per store customer even though their handling margins on milk were relatively wide. However, within groups of stores of comparable size, sales per customer tended to be larger in those that took narrow margins than in those that took wide margins.

When measured in terms of gross income for handling whole milk, margins on the average amounted to approximately \$8 per week in stores serving fewer than 140 customers per day and \$52 per week in stores serving 700 customers or more. This was 10.5 percent of the purchase cost, and below the markup on many of the items grocers stocked. Nevertheless, analysis indicated that even the average of the 142 smallest stores could realize an annual return of \$18.53 per dollar invested in milk after paying estimated costs of refrigerated display facilities. This is true even though the display would be only partly used for milk. Accordingly, it appears that grocers can afford to give considerable attention to merchandising and promotion of milk.

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Merchandising Milk and Dairy Products In Retail Grocery Stores

By John B. Roberts, Sheldon W. Williams and Stephen F. Whitted¹

The increased sale of milk through retail grocery stores and the emergence of area-wide distribution of packaged milk products have been outstanding developments in the Midwest since World War II. The drive to make fresh milk available in grocery stores in every community has been a powerful force in expanding whole milk sales. The kinds of facilities used, the way fresh milk is packaged and handled, the attitudes of the grocery store operator toward the product, and its merchandising are important factors in maintaining and expanding the market for milk and other dairy products. In some cities retail food stores sell as much as 70 percent of the fluid milk consumed by families and in many small towns and rural communities of the Midwest the retail grocery is the primary, if not the only, source of fresh whole milk.

With the general acceptance of paper containers and the widening of distribution areas, commercial milk distributors have been in position to meet the growing demand for their product in country areas. Consequently, commercially pasteurized milk is now sold through stores in small towns and rural areas that formerly did not handle fresh milk. Because of the widespread influence of paper cartons and interstate movement of packaged milk shown in a previous study,² the sale of the milk through grocery stores has regional as well as local characteristics.

¹ In the order named, the authors are Economist in Marketing, University of Kentucky; Cooperative Agent with the North Central Regional Committee on Dairy Marketing Research, and Instructor in Agricultural Economics, University of Missouri.

² This study grew out of an earlier study in the region of the widening of distribution areas for packaged milk. That study was reported in North Central Regional Publication 39 (Purdue University Agr. Expt. Sta. Bul. 600), "Outer-Market Distribution of Milk in Paper Containers in the North Central Region," October 1953. "Outer-market" sales of packaged milk refer to sales outside the city or town in which the plant that packages the milk is located.

PURPOSE AND SCOPE OF THE STUDY

This study is focused on grocery-store distribution of milk in a sample area of central United States. Its purposes include: (1) to determine how generally grocers make milk and milk products available, (2) to show sources and grades of milk handled and why they are stocked, (3) to appraise the facilities and conditions under which fluid milk products are held for sale, and (4) to evaluate merchandising and promotional practices used by food stores for dairy products.

Data were obtained in March 1955. Most of the information pertained to current or recent operations. However, a few questions applied to longer periods. For example, grocers were asked for their judgments, based upon their experience, about the effectiveness of various promotional practices.

Information was secured from one or more stores in each place of 200 or more people in a 27-county area of western Kentucky, southern Illinois and southeastern Missouri. A total of 235 stores was included. This represented about one-tenth of the grocery stores in the area. The method of selection of the stores is described in the appendix. Statistical tests of significance were applied to tables where appropriate.

CHARACTERISTICS OF THE STUDY AREA

The area chosen for study contains about 8,500 square miles, or somewhat more than the state of Massachusetts. It is nearly 100 miles square and approximately in the center of a triangle formed by lines connecting St. Louis, Nashville and Memphis (Fig. 1). The largest city is Paducah, Ky., with a population in 1955 of approximately 50,000. There are seven other cities with populations of 10,000 or more, but the largest of these has a population of less than 25,000.

Estimates based on the 1950 Census showed a population in the area of about 550,000, of whom about two-fifths lived in places of 2,500 or more. The survey covered 119 towns and cities with populations of 200 or more. Their combined population was 275,000. Available estimates indicate that there are roughly 2,000

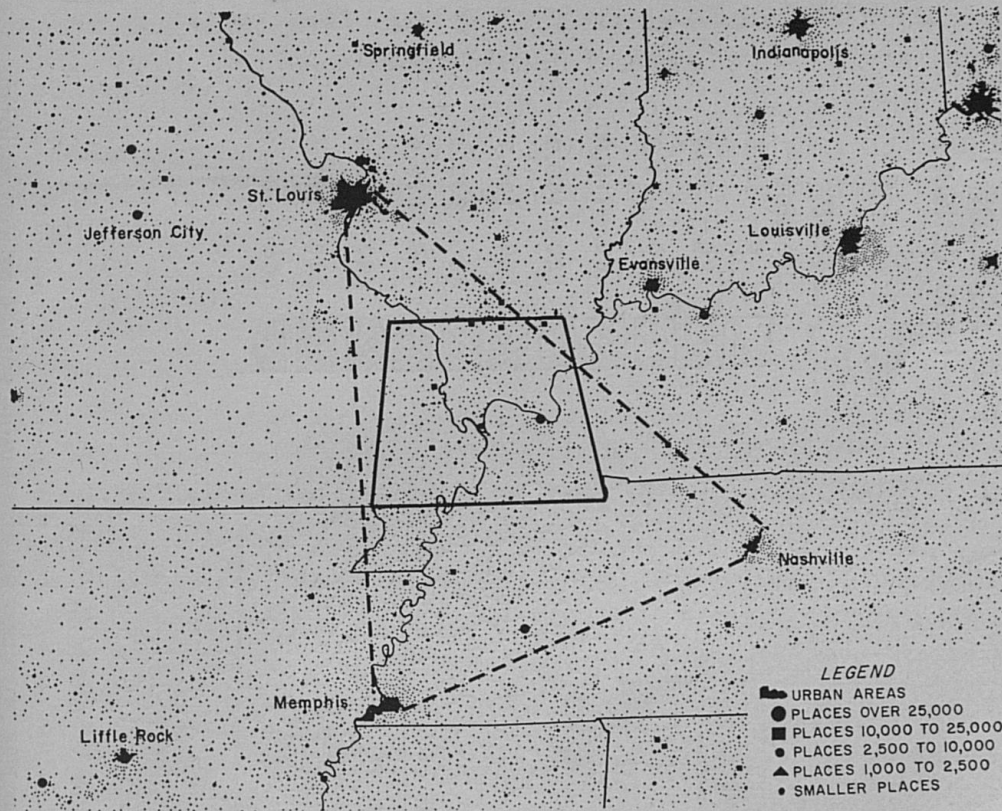


Fig. 1.— Survey Area and Population.

The markets studied included grocery stores in 119 towns and cities within the 8,000 square miles outlined in solid lines. The broken lines indicate the geographic location. Smaller towns of 200 or more were interspersed among larger cities ranging from 5,000 to 50,000 persons. The Midwest has many similar population areas.

food stores in the area, an average of about one for every 85 families.³

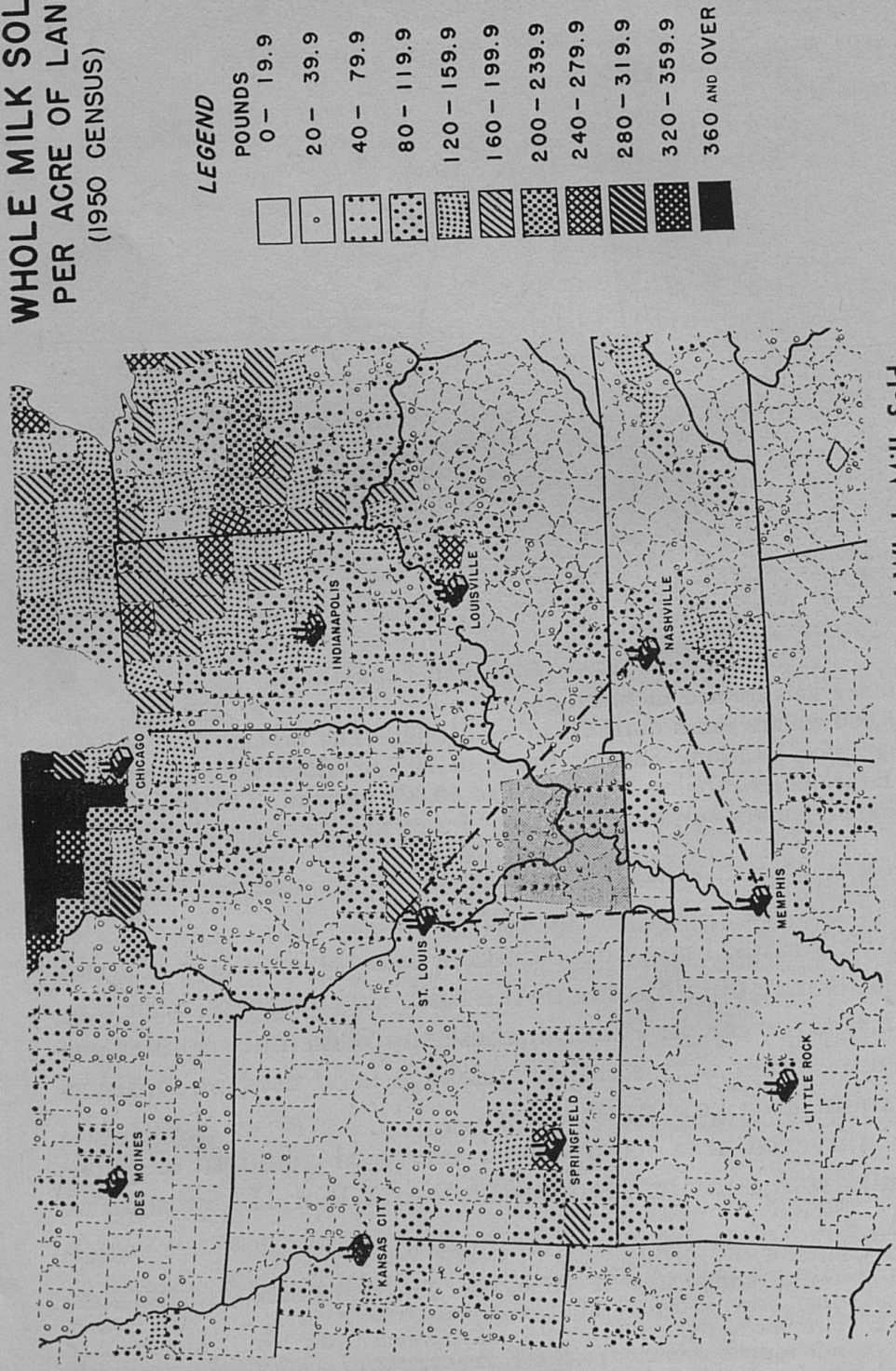
Dairying is not highly developed within the area (Fig. 2), and milk plants may obtain some of the milk they package from outside the study area. In Paducah these supplemental supplies are classified as "other source" milk, and have been used in considerable amount each year since 1948.⁴

The surveyed area has received increased amounts of packaged milk from outlying plants since World War II. Substantial

³ U. S. Census of Distribution, 1948.

⁴ See "Statistical Compilation of Production, Prices, and Sales, Paducah, Kentucky, Marketing Area 1948-55," Market Administrator, St. Louis, Mo. Other source milk. A review of reports of the Paducah Federal Order No. 77 suggests that milk from outside sources amounted to from one-quarter to one-half million pounds in many months for the years 1954 and 1955. At least a dozen plants, some as far away as central Wisconsin, were the suppliers.

WHOLE MILK SOLD PER ACRE OF LAND (1950 CENSUS)



LEGEND

POUNDS	Pattern
0 - 19.9	White box
20 - 39.9	Box with a central dot
40 - 79.9	Box with a grid of dots
80 - 119.9	Box with a grid of dots and horizontal lines
120 - 159.9	Box with a grid of dots and vertical lines
160 - 199.9	Box with a grid of dots and diagonal lines (top-left to bottom-right)
200 - 239.9	Box with a grid of dots and diagonal lines (top-right to bottom-left)
240 - 279.9	Box with a grid of dots and horizontal lines
280 - 319.9	Box with a grid of dots and vertical lines
320 - 359.9	Box with a grid of dots and diagonal lines (top-left to bottom-right)
360 AND OVER	Black box

Fig. 2.— Survey Area and Whole Milk Sold.
Milk production on farms was moderate to light within the market area, though relatively more than in the adjacent surrounding territories. Milk found in groceries was processed by distributors outside as well as inside

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quantities are received from as far away as Nashville, Tennessee and St. Louis and Springfield, Missouri. Retail stores in the study received milk from 20 firms with bottling facilities within the surveyed area and 9 outside firms. Altogether there were 29 brands of bottled milk and several additional brands of cottage cheese in store counters.

Four regional or national dairy firms sold milk within the area. Their operations were part of an extensive interstate distribution system. In addition, a number of dairies sold on a local or area basis.

The extent to which distribution is widespread may be suggested by measuring the distance from the bottling plant to the most distant grocery store in the area that handled milk from that plant. When this was done, it was found that milk from 11 plants did not go more than 25 miles by the nearest hard-surfaced route to the most distant store within the study area. In contrast, milk from 7 plants went to stores in the surveyed area that were more than 75 miles from those plants.

Distance from plant to most distant store handling its milk within surveyed area	Number of distributors within the range
Under 25 miles	11
25-49 miles	9
50-74 miles	5
75 or more miles	7

Of the 119 cities and towns in the area, only 3 depended entirely on local plants for supplies of fluid milk while 101 depended entirely upon outside plants.⁵ Over 90 percent of the places of more than 1,000 received milk from between two and five outside sources (Table 1). Presumably distributors were attracted to the

Table 1.—Number of places receiving outside milk^a from various numbers of sources, by market size, surveyed area, spring 1955

Outside sources of milk	Population group				
	200 to 999	1,000 to 4,999	5,000 to 14,999	15,000 and over	All places
Number	Number of places				
None	2	1	0	0	3
One	20	2	0	1	23
Two	40	15	6	0	61
Three or more	14	11	5	2	32

^a Outside milk refers to milk packaged in a different market than the one in which it is sold.

⁵ An "outside plant" referred to one located in another city or town. A plant was considered to be in a city or town if it operated within the built-up area or within 5 miles of it.

larger places by their greater market potential.

Transportation of milk within the area is influenced by its geographic features. The area is divided into three segments by the junction of the Mississippi and Ohio rivers at Cairo, Ill. Transportation of milk across the rivers is restricted to bridges at Paducah, Cairo and Cape Girardeau, and to river ferries at several other points.

STORES IN THE STUDY

Of the 235 stores in the study, 30 were owned by national chains, 30 belonged to regional, local or voluntary chains and the other 175 were single proprietary ownerships.

In terms of reported number of store customers served per day at the time of the survey, the stores ranged from a low of 15 to a high of 1,250.⁶ Nearly two-fifths of the stores reported fewer than 100 customers per day, and practically three-tenths reported serving 100 to 199 (Fig. 3). Not quite one-tenth had customer counts of 500 or more per day.

The enumerator classified each store as to location in the city or town as either "downtown", "neighborhood", "community center" or "other". Stores in the smallest towns were commonly classified as being downtown; consequently, this classification is most meaningful when related to the size of the town. More than two-thirds of the stores in the study were characterized as being downtown, but in markets of 10,000 people or more 32 percent were considered downtown stores, 44 percent were classified as neighborhood stores, and the others as being in community centers or on the highway at or near the outskirts of the city.

Stores also were classified as clerk-service or self-service on the basis of the dominant practice. Seventy-two percent of these stores, including all of the larger ones, were termed self-service stores, although many did not have self-service meat departments.

Nearly 70 percent of all stores sold on credit, but only 40 percent provided delivery service, and 35 percent had parking lots

⁶ "Customer count" or "store customers per day" was the storekeeper's estimate of the average number of customers served per day. Figures based on charge accounts and the operators' first hand knowledge of patronage were accepted for many smaller stores. For large stores reliance was placed on the manager's judgment and cash register counts.

PERCENT
OF STORES

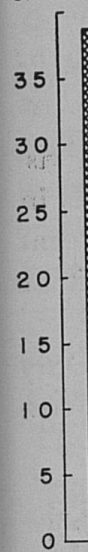


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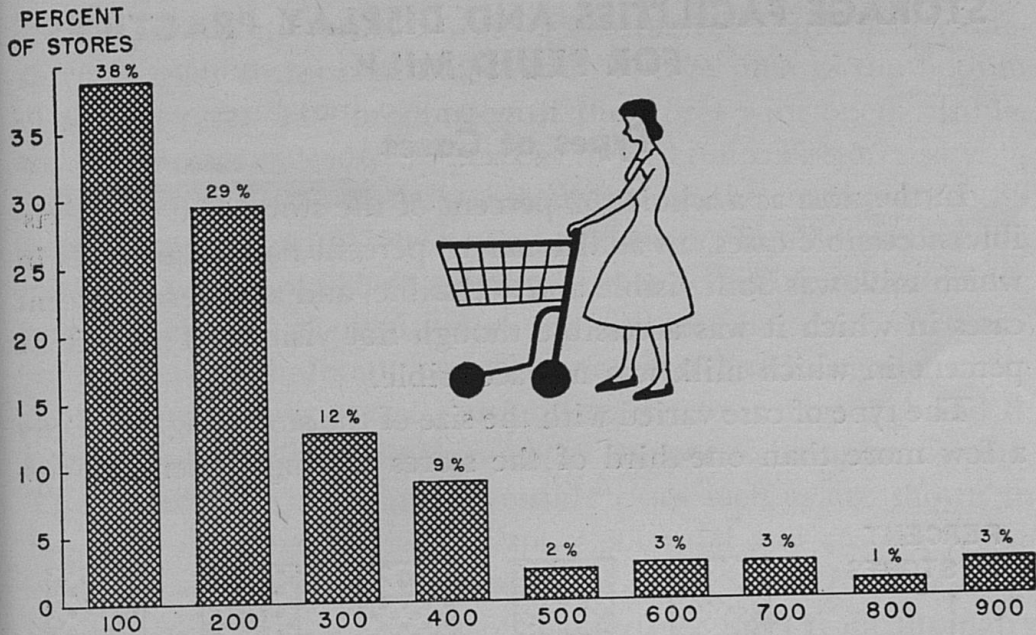


Fig. 3.—Variation in Reported Average Number of Store Customers Served Per Day, 233 Stores.

Two-thirds of the stores surveyed were small with less than 200 customers daily, 26 percent were medium sized "self-service" stores selling to from 300 to 600 customers and 8 percent were large "supermarkets" reporting from 700 to 1,250 customers daily.

for customers. Credit and delivery services were most commonly offered by small stores. Parking lots were provided mainly by the large stores.

The characteristics of a store of given size were similar irrespective of the size of the community in which it was located. Whenever a store with about 50 customers per day was found, it commonly was a small, independently owned store, no matter whether it was in a small or large town. The amount of display space used for milk was limited, the service rendered by dairies was restricted and, in general, the gross margin taken on fluid milk was substantially higher than for large stores in the same size of community. In contrast, the large stores tended to be similar to each other in their characteristics in all cases except in communities of under 1,000 people. In such communities, the larger stores averaged fewer customers, and for the most part were independent proprietary establishments as contrasted to chain owned organizations for the larger stores in communities having 1,000 population or more.

STORAGE FACILITIES AND DISPLAY PRACTICES FOR FLUID MILK

Types of Cases

In the area as a whole, 52 percent of the stores had open, visible, accessible cases, an additional 18 percent had closed cases in which milk was both visible and accessible, and another 9 percent cases in which it was accessible though not visible. This left 21 percent in which milk was not accessible.

The type of case varied with the size of the store (Fig. 4). Only a few more than one-third of the stores serving under 140 cus-

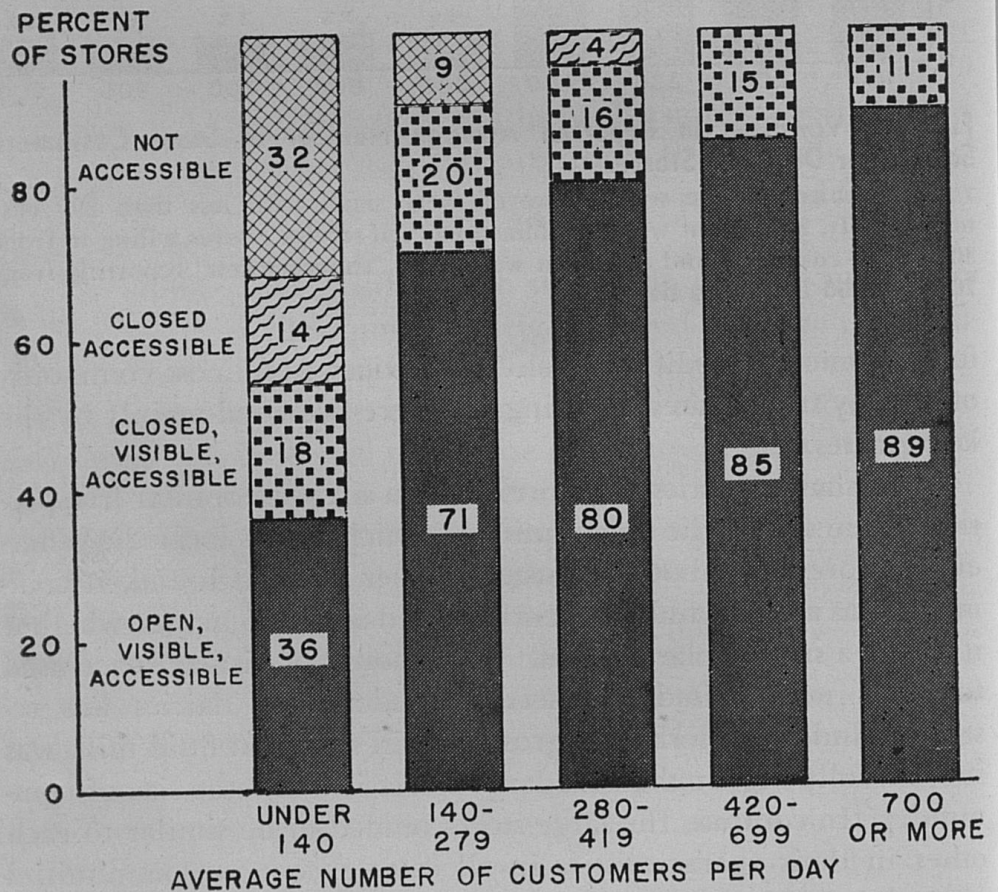


Fig. 4.—Relation of Store Size to Type of Sales Cases Used for Milk, 233 Stores.

Customer count and types of cases used in handling milk and dairy products. Small stores that sell about 30 percent of the volume have been slow to adapt modern cases and attractive display. Milk is accessible and visible in almost all large stores of the self-service type.

tomers per day had open, visible, accessible cases, and nearly one-third of those stores used inaccessible storage such as the bottom of a meat case. The proportion of the stores with open, visible, accessible cases exceeded 70 percent in all groups of stores serving 140 or more customers daily, amounting at the maximum to 89 percent in stores with 700 or more customers. In all stores having customer counts of 280 or more, milk was accessible to customers, and in nearly all of them it also was visible.

From the standpoint of self-service merchandising the open, visible, and accessible cases, such as are shown in Figs. 5 A and B, provide outstanding display and an appeal to impulse buying. The closed yet visible and accessible cases such as are shown in Fig. 6 do not have the same display potential and customer convenience as is true of the open accessible cases. Even less appealing from the standpoint of maximizing sales from the dairy counter is the visible yet inaccessible type of display. Common examples of inaccessible cases were meat display and cold boxes that could be reached only by a clerk from the back. A case of this general type devoted entirely to dairy products is shown in Fig. 7. This was a self-service setup but the customers had to go back of the counter, slide a door, and reach in. Such cases do not encourage maximum sales either for milk or other products displayed. Such cases are both inaccessible and have poor display potential for all products. In this respect, there are sharp contrasts with Figs. 5 and 6.

A fourth type of case used too frequently in retail groceries for handling milk was the closed bottom of the meat case, the vegetable counter, a cold drink box or other makeshift. From a customer standpoint, the problem is shown in Fig. 8. Here the customer had to know where to find the milk, had to stoop to get it, and was confronted by an unattractive and too often poorly kept storage space. Data analyzed suggest a large case such as shown in 5 A or a small case such as shown in Fig. 5 B would have increased store revenue and paid for itself in all but the very smallest stores. (See the analysis on store returns, p. 46.)

In stores where milk was visible to customers, the length of the milk display varied directly, though not proportionately, with



A



B

Fig. 5 A and B.— Open, Visible, Accessible Cases.
 Open, visible, accessible and attractive display of fresh milk and other dairy products encourage impulse buying and increased sales. Typical cases of the open, visible and accessible types range from small sale stands (B) to extensive mass displays many feet in length (A).

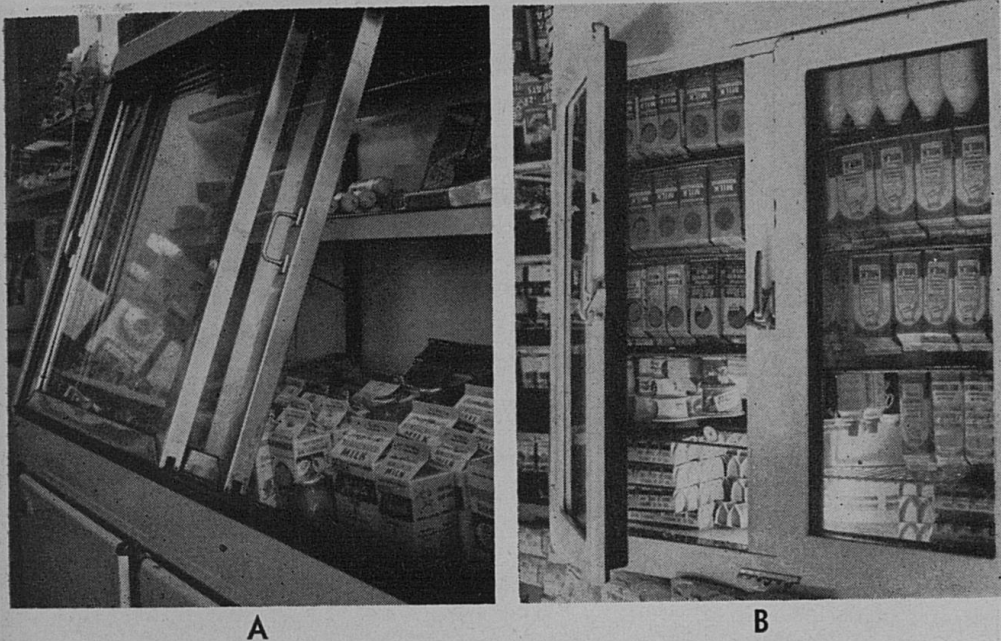


Fig. 6.— Closed, Visible, Accessible Cases.

Closed, visible, accessible cases require the customer to open door and reach in. Such cases are characterized by inconvenience and lack of display potential. Examples of such cases found in the area are shown here.



Fig. 7.— Visible, Inaccessible Cases.

Closed, visible and inaccessible cases, such as an adapted meat counter or a back-opening refrigerated case, discourage impulse buying and cause inconvenience to customers. Customers must pass obstructions to get access to the case shown here.

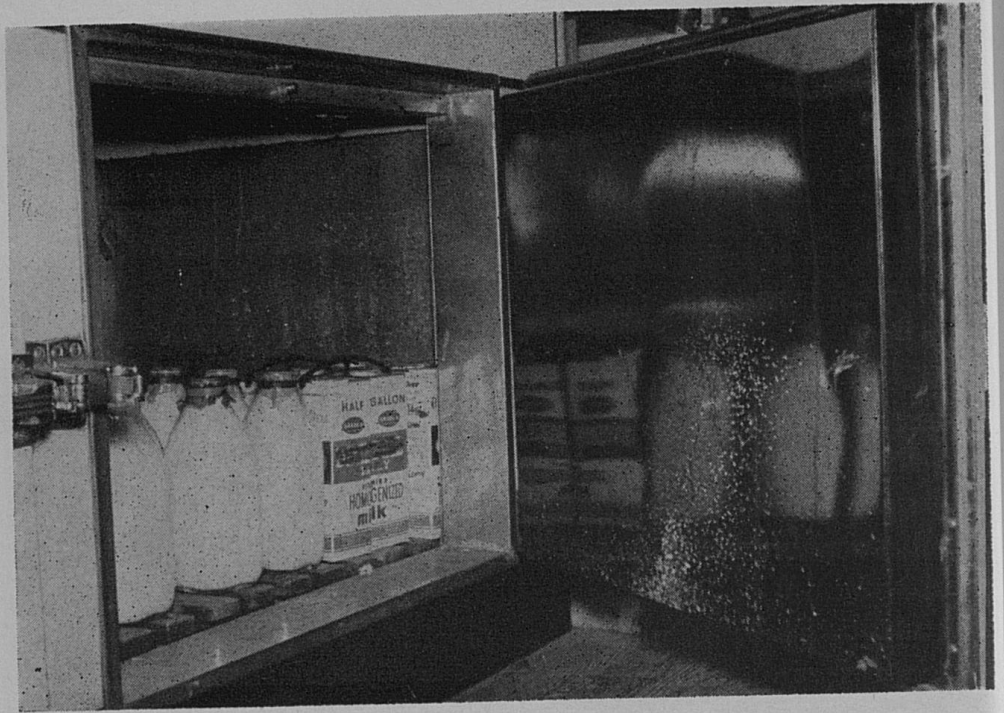


Fig. 8.— Closed Nonvisible Case.

Closed cases such as bottom meat counters, compartments under vegetable cases and cold drink boxes were often used by small stores. Product lines are limited and hard to get from cases such as the one shown above.

the size of the store. The length of the display increased from an average of 4 feet in stores serving fewer than 140 customers per day to 13 feet in those serving 700 or more.

The high percentage of stores with modern and attractive milk display equipment is a factor favorable to milk sales in the area. In total there was about 1,350 linear feet, or approximately 5,000 square feet, of refrigerated counter space devoted to bottled milk products in the surveyed stores. It is estimated that the amount of refrigerated display and counter space given to bottled milk products by all grocery stores operating in the study area was equivalent to that in a continuous counter 2 miles long and 44 inches deep.

In stores where fluid milk products were displayed, they occupied a little over half the length of one shelf (usually the bottom and widest shelf) of the cases in which they were displayed. Since there were other shelves in most of these cases, fluid products took up, on the average, considerably less than half—from a quarter

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to a third—of the display space in the cases. In most stores other dairy products used only part of the remaining space. Thus, in many stores there is additional space to expand the dairy products display if conditions warrant.

Milk was considered on display only if it was both visible and accessible to consumers. In stores where milk cases met this requirement, grocers were asked what percent of a normal day's sales was stocked in the display case. In 149 stores in which replies were obtained the average was 79 percent. The proportion of the milk on display was largest in the small and medium-sized stores, but averaged only 46 percent in those serving 420 or more customers per day.

To a considerable extent, the larger stores used reserve milk storage and/or depended on more than one delivery per day by milk distributors to keep their counters filled. Thus the daily volume of milk sold was greater than the amount displayed in their cases. Moreover, the overhead and maintenance costs of the display case were spread over many items by using the top of the case for products other than milk. Despite their making fuller use of display cases in these ways, with present equipment most stores could handle more milk if conditions warranted. They can do this either by making more complete use of the case, if not used to capacity for milk, or by obtaining more frequent deliveries, or by keeping more of the milk in reserve storage.

Refrigeration and Temperature

Almost all storage facilities for milk were electrically refrigerated. Consequently, most of the stores held milk at low temperatures.

The average temperature of milk in the stores, as determined by laying a thermometer on the top of the bottom layer of cartons in the case, was about 40°F. This temperature was somewhat lower in closed cases than in open-top displays (Table 2). However, an appreciable number of stores with open cases received milk two or more times daily from each distributor and moved it rapidly into customers' hands, so it was not long on display.

Some grocers stated that in hot weather keeping milk in open cases properly refrigerated was a problem in stores ventilated by

Table 2.—Relation of type of milk case to observed temperature of milk, 231 stores, spring 1955^a

Type of milk case	Number of stores	Temperatures	
		Average	Usual range ^b
	Number	°F	°F
Open, visible, accessible	117	43	37 - 50
Closed, accessible and non-accessible	114	38	34 - 42

^a Data not obtained in four stores.

^b Unusually low and high temperatures disregarded.

fans. To cope with it, some of them reported that they put transparent covers over their open cases in the summer to help keep the milk cold.

Reserve Storage

Regular use of reserve storage was reported in 104 of the 235 stores in the study. A walk-in cooler in the back room was the facility most commonly employed, although bottoms of meat cases or dairy cases were used in appreciable numbers of stores (Table 3). Temperatures observed in these reserve facilities mostly were

Table 3.—Type and temperature of reserve storage used for milk, 104 stores^a

Type of storage	Number of stores	Average observed temperature of storage ^b
		°F
Walk-in cooler	53	37
Bottom of meat case	23	38
Bottom of dairy case	17	39
Other types ^c	11	39

^a Stores in which reserve storage was commonly used for milk.

^b Based upon observations in 94 of the 104 stores.

^c Bottoms of vegetable cases and various types of open-front refrigerators.

in the range from the low 30's to 40 degrees. While the temperature was satisfactory for milk, other conditions in the reserve storage were not always ideal, especially where fruit and vegetables were handled in the same space. In a few instances, objectionable odors and unsanitary conditions made reserve storage unsatisfactory for keeping fresh milk and its products.

VOLUME AND DESCRIPTION OF FLUID MILK PRODUCTS HANDLED

At the time of the survey, weekly volume of sales, product descriptions, and information as to sources and prices were obtained for bottled whole milk, buttermilk and skim and low-fat

milk. In general these were the fluid milk products sold in largest volume, though sales of chocolate drink and chocolate milk exceeded sales of skim and low-fat milk in some stores. Product descriptions and information as to sources also were obtained for cream, chocolate drink, chocolate milk and cottage cheese.

Major Products—Volume and Proportion of Stores Handling

Average sales per store were 663 quarts of whole milk, 93 quarts of buttermilk and 16 quarts of skim and low-fat milk per week (Table 4). Average weekly combined volume of the three

Table 4.—Average weekly sales of whole milk, buttermilk and skim and low-fat milk per store, by size groups, 235 stores

Store customers per day	Stores ^a	Whole milk	Butter-milk	Skim and low-fat milk	Three products
		Quarts	Quarts	Quarts	Quarts
Number	Number				
Under 140	142	303	50	3	356
140-279	44	637	77	10	724
280-419	25	994	118	18	1,130
420-699	13	2,078	349	80	2,507
700 or more	9	3,564	436	150	4,150
All stores	235	663	93	16	772

^a Numbers of customers served were not reported for two stores, which were included in the "all stores" group.

products was 356 quarts in the stores reporting fewer than 140 customers per day as compared with 4,150 quarts in nine large supermarkets with 700 or more customers per day. The 142 stores with under 140 customers per day sold 28 percent of the total volume for all stores. The corresponding percentages for other size groups in Table 4 were 18, 16, 18 and 20, respectively.

The ratio of buttermilk sales to whole milk sales was about the same in stores of all sizes. Sales of skim and low-fat milk, however, increased from 0.8 percent of the combined volume of the three products in stores reporting fewer than 140 customers per day to 3.6 percent in those reporting 700 or more.

All the stores stocked whole milk, and all except two stocked buttermilk, but only 23 percent stocked skim or low-fat milk. Practically none of the small stores stocked skim or low-fat milk, but a majority of the large supermarkets did so.

Grades and Types of Milk

Almost all the whole milk in the surveyed portion of Kentucky and substantially all of that in Missouri was marked Grade A. In the Illinois area, however, slightly more than two-thirds did not carry a Grade A label. At the time of the study, Carbondale was the only city in the surveyed portion of Illinois which had a compulsory Grade A ordinance. Although Grade A milk was available in the other surveyed markets in Illinois, consumers commonly could buy ungraded milk if they wanted it. In those markets ungraded milk commonly was priced at one cent per quart less than Grade A milk. Outside Carbondale, the proportion of the milk that was Grade A varied considerably. In 3 other cities about the size of Carbondale (Harrisburg, Marion and Murphysboro) 10 percent or less of the milk sold in the surveyed stores was Grade A, but in Metropolis about 75 percent was Grade A.

All the whole milk was pasteurized, and practically all was homogenized. Slightly less than a third of the buttermilk contained flakes or other butterfat particles.

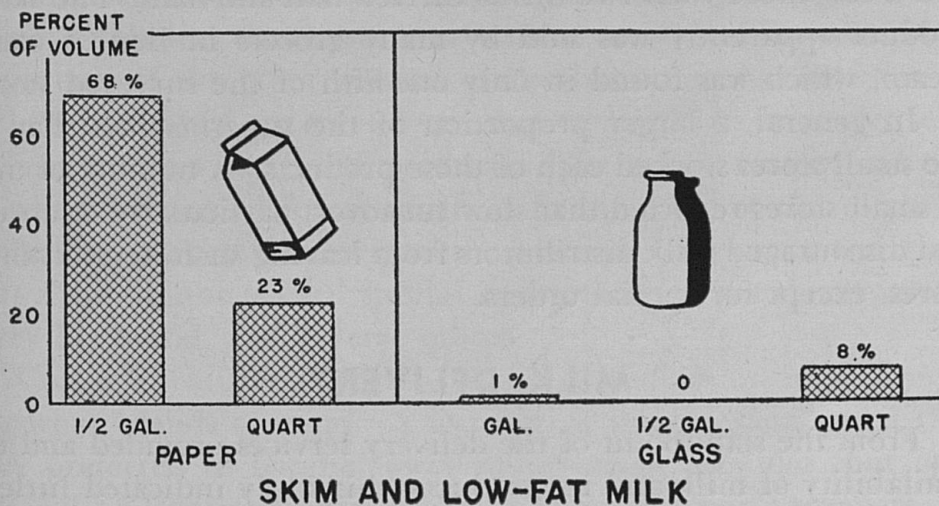
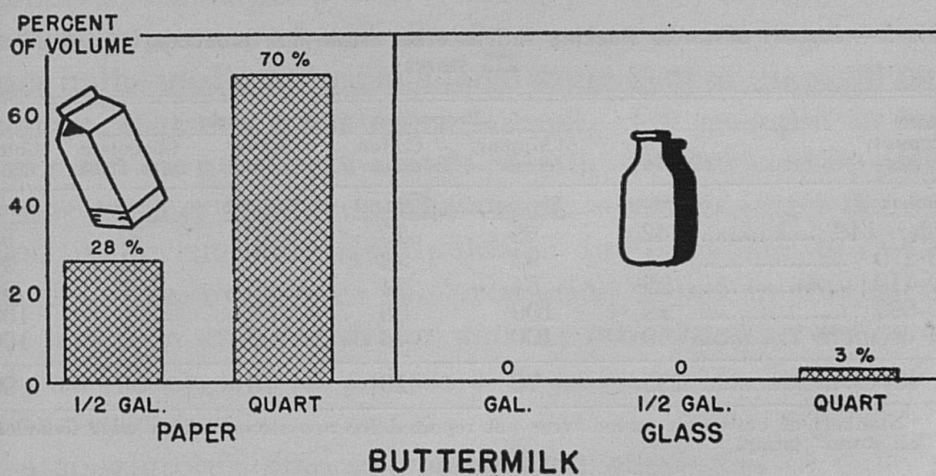
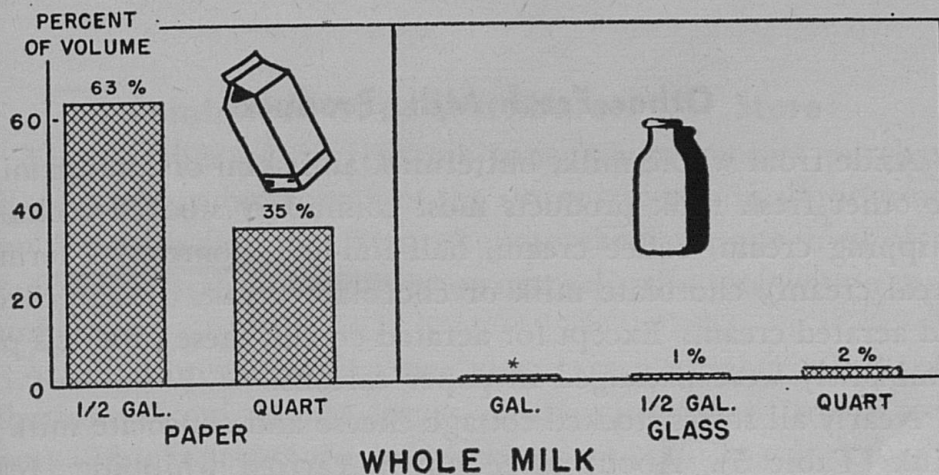
Skim and low-fat milk included plain and fortified skim milk and low-fat modified types of milk, most of which contained about 2.0 percent butterfat and added non-fat solids. In the aggregate, the volume of the 2.0 percent product exceeded the volume of skim milk.

Types and Sizes of Containers

Ninety-seven percent of the whole milk was sold in paper containers (Fig. 9). The great bulk of the buttermilk and of the skim and low-fat milk also was packaged in paper.

Practically twice as much whole milk was sold in half-gallon containers as in quarts. Half-gallons similarly dominated among packages for skim and low-fat milk. On the other hand, nearly three-fourths of the buttermilk was in quart containers.

With whole milk and with skim and low-fat milk, container size varied somewhat with the type of the product. In Illinois, a larger share of the ungraded than of the Grade A milk was in quart containers. Skim milk, which was sold in limited quantities, commonly was in quart containers. However, the 2-percent modified low-fat milk marketed by a few dairies quite generally was in half-gallons.



* LESS THAN 1%

Fig. 9.— Proportion of Fluid Milk Products Sold in Various Sizes of Containers, 235 Stores.

Grocery stores sold only 3 percent of their volume in glass containers. Half-gallon paper containers represented 63 percent of the whole milk sales, and 68 percent of the skim milk and low-fat sales. Seventy percent of the buttermilk was sold in quart units.

Other Fresh Milk Products

Aside from whole milk, buttermilk and skim or low-fat milk, the other fresh milk products most commonly stocked included whipping cream, coffee cream, half-and-half (sometimes termed cereal cream), chocolate milk or chocolate drink, cottage cheese and aerated cream. Except for aerated cream, these products predominantly were packaged in paper cartons.

Nearly all stores stocked cottage cheese and chocolate milk or drink (Table 5). About three-fourths carried whipping cream

Table 5.—Percent of stores stocking various other fresh milk products, by size of store, 235 stores

Store customers per day	Stores ^a	Proportion of stores stocking				
		Whipping cream	Coffee cream	Half-and-half	Chocolate milk, drink	Cottage cheese
Number	Number	Percent	Percent	Percent	Percent	Percent
Under 140	142	65	13	60	87	93
140-279	44	93	32	77	91	98
280-419	25	84	24	92	100	96
420-699	13	100	38	100	100	100
700 or more	9	100	44	100	100	100
All stores	235	76	20	70	90	95

^a Numbers of customers served were not reported for two stores, which were included in the "all stores" group.

and a few more than two-thirds carried half-and-half. The latter product apparently was sold by many grocers in lieu of coffee cream, which was found in only one-fifth of the surveyed stores.

In general, a larger proportion of the supermarkets than of the small stores stocked each of these products. A number of men in small stores reported that slow turnover, particularly of cream, had discouraged milk distributors from leaving such items in their stores, except for special orders.

MILK DELIVERY

From the standpoint of the delivery services provided and the availability of milk and its products, this study indicated little if any difference between local and outside distributors. There were, however, noticeable differences between stores in the cities and stores in the small towns in the number of milk deliveries they received. A similar difference was noticeable in the cities between the large supermarkets and the small independent stores.

Number of Milk Distributors per Store

The number of distributors from whom grocers purchased milk was one in one-fourth of the stores and two in slightly more than two-fifths (Fig. 6). The other storekeepers, one-third of the total number, patronized three or more distributors, with a maximum of six.

Among stores of similar size, the average number of milk distributors patronized was larger in the cities than in the small towns. This reflected the presence of more dairies competing for business in the larger places. Among places of comparable size, the average number of milk distributors patronized was somewhat larger in the medium-sized and large stores than in the small ones. However, that was not true in all stores. For example, in some large stores the number of brands of milk was restricted by policy.

The number of milk distributors per store was larger than was found in a recent study in Milwaukee.⁷ In Milwaukee, more than half the stops, over twice the proportion found in this survey, were served by only one dealer, and the proportion served by one and two dealers was 93 percent as compared with 68 percent in the surveyed area.

Among grocers who sold more than one brand of milk, the reason given most frequently (making up slightly more than half of the total) was that customers want a variety of brands. Most important of the other reasons, each accounting for between 15 and 20 percent of the total, were that competition improves service and to get a variety of products. The minor reasons, no one of which accounted for as much as five percent of the total, included having a variety of qualities,⁸ having both paper and glass, that a distributor offered special inducement to get the grocer to carry his brand, and several others.

Customer satisfaction was a major consideration in determining what brands to carry. A number of storekeepers stated that they preferred to handle fewer brands than they did, but considered the larger number necessary to satisfy their customers.

⁷ Cook, Hugh L., Harlow W. Halvorson, and R. Wayne Robinson. Costs and efficiency of wholesale milk distribution in Milwaukee, Wis. Agr. Expt. Sta. Res. Bul. 196, May 1956, p. 17.

⁸ Most of these were in Illinois, where a few storekeepers found it necessary to carry two brands in order to have both Grade A and ungraded milk. However, the leading Illinois distributors offered both Grade A and ungraded milk of the same brand except in Carbondale, where only Grade A milk was permitted.

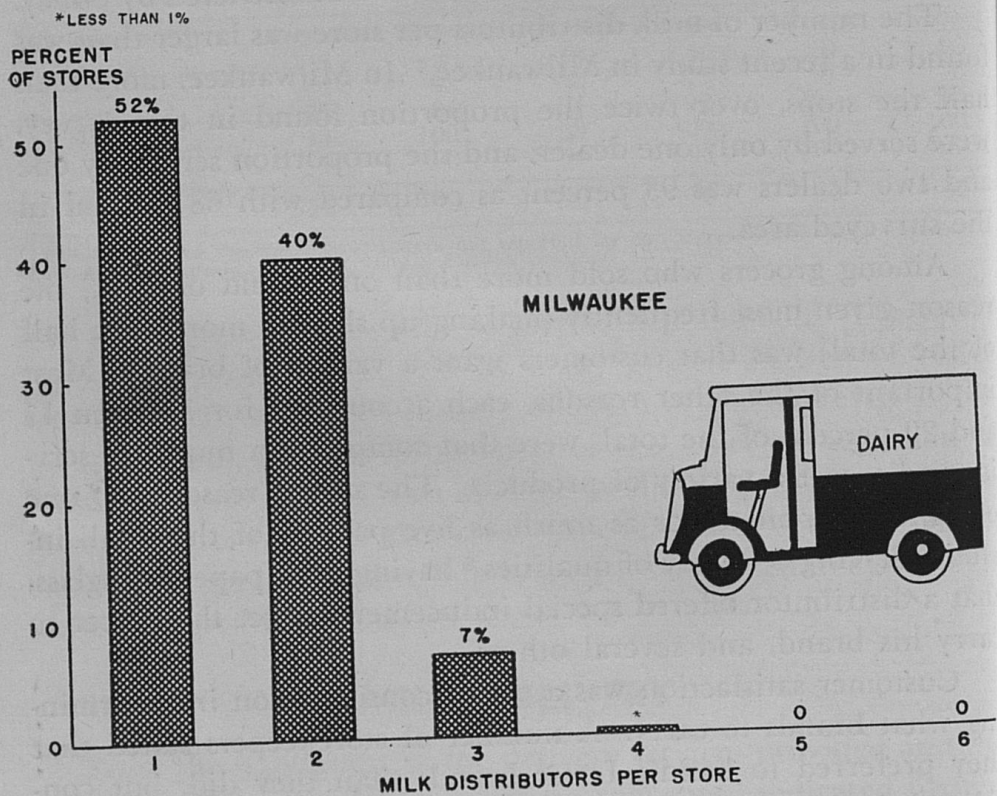
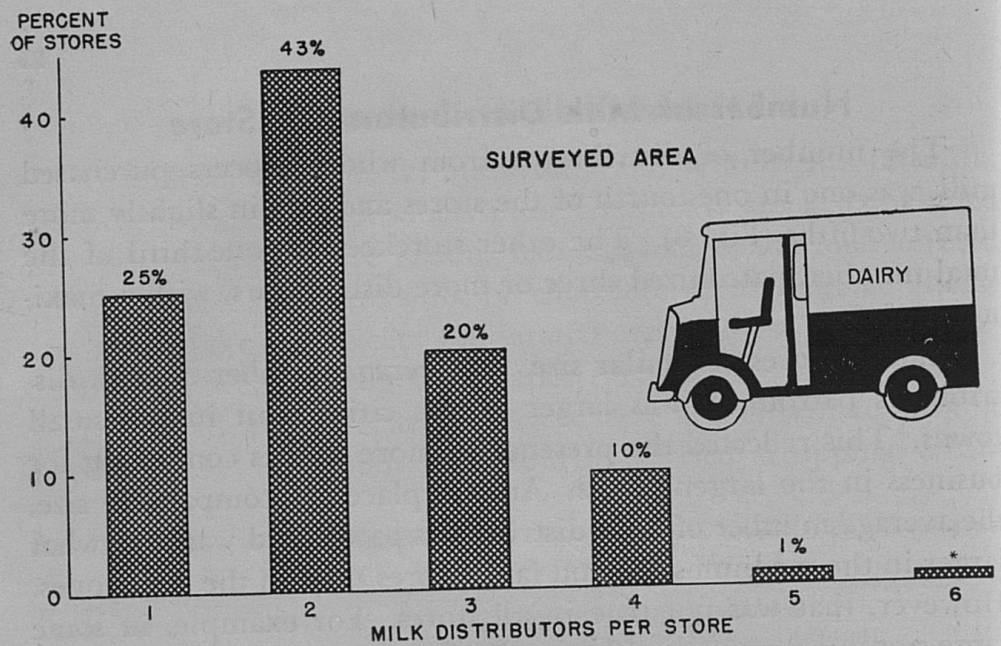


Fig. 10.— Variation in Number of Milk Distributors Patronized Per Store (235 Stores in Surveyed Area, and 1547 Stops on Milwaukee Wholesale Routes).

This gives the percentage of groceries that handled milk supplied by different numbers of milk distributors. In the surveyed area, 31 percent sold milk from three or more dairies as compared with 7 percent in Milwaukee.

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Frequency of Delivery

The frequency of milk delivery by milk distributors varied widely. Dairies delivered milk only twice a week in some small towns off the main roads. At the other extreme, dairies delivered milk to a number of large city supermarkets two or more times daily during most of the week, and in some cases even more frequently on Friday and Saturday. In nearly four cases out of five, however, milk was delivered by the dairy six times per week.

Obviously, the number of deliveries per store ranged even more widely than the number per distributor. A few stores in small isolated towns serviced by only one distributor received milk only two times per week. On the other hand, a few large city stores, taking milk from several distributors, received 48 or more deliveries per week, the equivalent of 8 or more deliveries per day.

A few stores serviced by distributors on a every-other-day basis received milk from two distributors on alternate days, so that they had one brand of milk fresh each day.

Delivery Volumes

Average volume per delivery was influenced by the volume of milk sold per store, the number of dairies supplying milk to the store, and their frequency of deliveries. Since, in general, the number of deliveries per week per dairy as well as the other factors increased with store size, the differences between small and large stores in volume per delivery were not proportional to the differences between them in volume of milk sold (Table 6). Nev-

Table 6.—Numbers of sources of milk, deliveries per week and average volume of fluid milk products^a per delivery, by size of store, 235 stores

Store customers per day	Stores ^b	Average number of distributors per store	Delivery stops per week		Average volume per stop ^a
			Per distributor	All distributors	
Number	Number	Number	Number	Number	Quarts
Under 140	142	2.0	5.4	10.7	33
140-279	44	2.5	6.0	14.9	48
280-419	25	2.6	6.4	16.5	68
420-699	13	3.0	8.7	26.0	96
700 or more	9	2.7	9.8	26.0	160
All stores	235 ^b	2.2	6.1	13.6	57

^a Whole milk, buttermilk, and skim and low-fat milk.

^b Numbers of customers served were not reported for two stores, which were included in the "all stores" group.

ertheless, the average combined volume of whole milk, buttermilk and skim and low-fat milk per delivery was five times as much in the largest supermarkets as in the stores with less than 140 customers per day. In the latter group, an average of 33 quarts of these products was left per delivery, and in some stores the amounts were considerably less than that.

Irrespective of the size of the market, average volume per stop increased with store size. It was greatest in the large stores in the cities (Table 7). Moreover, the difference in volume per stop be-

Table 7.—Average volume of fluid milk products^a per delivery in stores grouped by size of market and customer count, 233 stores^b

Market population	Customer count			
	Under 90	90-179	180-269	270 or more
	Average volume per stop, quarts ^a			
Under 1,000	33	50	54 ^c	70 ^c
1,000-4,999	33	36	52	71
5,000 or more	24	30	61	110

^a Whole milk, buttermilk, and skim and low-fat milk.

^b Numbers of customers served not reported for two stores.

^c Averages for groups of less than 10 stores.

tween the largest and smallest stores was considerably greater in the cities than in the smaller places.

Costs of Duplicating Deliveries to Stores

Studies have indicated that duplication of distribution services or "split stops" are costly. In California, where resale prices have been set by state agency, all customers of a given type pay the same unit price regardless of location in regard to the plant and regardless of differences in volume delivered. Clarke⁹ reports that a recent study of Fresno market wholesale routes shows delivery costs per unit amounted to over 4 cents with stops of 10 quarts or less and to under 1 cent for deliveries of over 300 units. He proceeds to point out that uniform prices, which fail to reflect differences in cost associated with differences in delivery volume, provide no incentive to the individual grocer to place his total order with a single firm but rather encourage him to divide his trade among several distributors in order to take advantage of whatever brand preference exists among his customers. This practice gives the customer a choice of brands, but it does not allow

⁹ Clarke, D. A. Jr., Fluid Milk Price Control in California, A report to the Joint Legislative Committee on Agriculture and Livestock Problems, University of California, Berkeley, Calif., June 1955, pp. 24, 157.

him to choose between a system which provides the privilege of choice at higher cost or one which limits choice but with lower costs. He says, "If all 'split stops' in this area are eliminated, whole milk delivery costs could be reduced by nearly two-thirds of a cent per quart."¹⁰

Helmberger and Koller¹¹ show that only about 17 percent of the cost of a wholesale delivery is due to the size of the delivery and that the remaining 83 percent depends on distance traveled and number of customers served. They also point out that the price paid for milk is made up of two main components, the cost of the milk itself and the costs of the delivery service involved.

Full and accurate reflection of the cost of these delivery services in the wholesale price of the milk would enable the grocer to weigh the costs against the benefits derived. In some cases this would reduce the number of deliveries and lower distribution costs without curtailing necessary services.¹²

Changes which reduce the number of deliveries per store, however, are not likely to be made in the absence of financial incentives, unless the distributors arbitrarily limit deliveries to a certain minimum size or divide up the outlets. To limit deliveries to a specific minimum in some cases would deprive small communities of their milk supplies. To divide up the outlets would be frowned upon as collusion in an attempt to limit competition. Some of the retail store operators felt that competition among distributors greatly improved the services they received. Possibly some grocers think that considerations such as this are more important to them than price concessions.

SERVICES PROVIDED BY MILK DISTRIBUTORS

Delivery and Promotional Services

One of the most important services of milk distributors that reduce storekeepers' operating costs is the stocking of the milk

¹⁰ *Ibid.*, pp. 105-151.

¹¹ Helmberger, John D., and E. Fred Koller. Quantity Discount Pricing of Fluid Milk, Minn. Agr. Expt. Sta. Bul. 433, March 1956, p. 19.

¹² With costs such as those found by Helmberger and Koller, milk delivery to the average store in the small group would cost roughly \$12.50 per week. By reducing weekly deliveries to 6, costs would be cut to about \$7.70 per week. This would be a saving of nearly \$5.00 per week, or 1.4 cents per quart. Costs in the area covered by this study are not known. Distance would be a more important factor than in the Minneapolis study.

counter by the routeman. This service was supplied to about 90 percent of the surveyed stores (Table 8). From 40 to 50 percent

Table 8.—Proportion of stores reporting various services by milk distributors, by store size, 235 stores

Service	Proportion of stores reporting in groups by average number of store customers per day			
	Under 140 customers	140-279 customers	280 or more customers	All stores ^a
	Percent	Percent	Percent	Percent
Clean counter	8	2	6	6
Stock counter	92	91	89	91
Mark prices	1	7	40	10
Put reserve in cooler	24	61	72	41
Make special delivery	31	70	79	48
Furnish display case	3	2	4	3
Furnish store signs	69	89	85	76
Advertise locally	63	82	91	72

^a Include two stores for which number of customers was not reported.

of the stores reported that distributors put reserve milk in the cooler and made special deliveries, although these services commonly were provided if requested. It was uncommon for routemen to clean counters or to mark the price of the milk on the cartons, and only a few grocers stated that their milk display cases were furnished by milk distributors.

The small proportion of the stores receiving some services was in part a reflection of little demand for those services. For example, in many stores there was no need to store reserve milk as all milk purchased was placed in the display case in the store. Likewise, a considerable number of storekeepers had never requested special deliveries. Some also indicated they did not favor distributors' signs in their stores, though 76 percent reported that they used them. About the same percentage indicated they were aware of the local advertising done by milk distributors.

How generally some services were provided varied with the size of the store. Marking prices, putting reserves in the cooler, and making special deliveries were services that were much more commonly provided to large stores than to small stores. There were similar but much smaller differences between small and large stores in the percent of the storekeepers who reported that milk distributors furnished store signs and advertised locally. The greater frequency of special deliveries and local advertising by distributors that was reported in large stores may have been due

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in part to the fact that a large proportion of them were located in larger markets where it was feasible for distributors to provide such services.

Credit and Refunds

In 87 percent of the 232 stores for which the information was obtained, milk was paid for in cash upon delivery.¹³ More than nine-tenths of the stores serving fewer than 280 customers per day paid cash for milk upon delivery, but only three-fourths of those with 280-419 customers per day and half of those with 420 or more customers per day did so. Most of the stores in which milk was charged were chain stores which were billed at headquarters offices.

Milk distributors made their product good, giving credit for any replaced by fresher stock, or lost because of leaky packages or quality defects attributable to faults in the product itself or in processing.

In response to the question "Does the dealer stand part or all of any price specials?" about one-fifth of the storekeepers answered in the affirmative. Many storekeepers reported that they never had price specials on milk and that consequently the question was not pertinent. This may reflect some reticence to acknowledge them, but it appeared that neither milk distributors nor storekeepers generally favored price specials on milk.

PROMOTION OF DAIRY PRODUCTS

Opinions as to Best Ways to Increase Sales of Milk

Each storekeeper was asked his opinion as to the most effective way to increase store sales of fresh milk. A total of 227 positive suggestions were offered (Table 9). Slightly more than one-fourth of them were classified in the category of good display, with self-service. In addition, one-fifth emphasized the importance of having high quality milk and keeping it fresh. The importance storekeepers attached to good display and high quality was attested by the investments many of them had made in modern display cases.

¹³ In a few stores, milk from one or more distributors was charged while other milk was paid for in cash. Classification was based upon the dominant method of payment in each store.

Table 9.— Suggestions offered by store operators in answer to the question "What do you think is the best way to increase fresh milk sales?"

	Suggestions	
	Number ^a	Percent
Good display; self-service	60	27
Have high quality milk; keep it fresh	45	20
Lower price; increase buying power of people	37	16
Advertising; stress food value	48	21
Promotion; premiums and prizes; demonstrations; suggest milk to customers	27	12
Other suggestions ^b	10	4
	227	100

^a Not all grocers offered suggestions for increasing sales of milk.

^b Have variety of products; have enough to meet consumer demand; raise prices in competing markets, when they are lower; install bulk dispenser in store; give more credit; clerk service.

Among other suggestions, one-sixth of the total were for lower prices or measures to increase the buying power of people in the community. In the aggregate, one-third of all suggestions were for advertising and promotion. The bulk of these were for advertising, which was considered to include educating consumers as to the food value of milk. There were, however, a number of suggestions for what was termed "promotion", in which were classified such activities as giving premiums and prizes, giving taste demonstrations, and suggesting milk to customers.

PROMOTION OF DAIRY PRODUCTS IN THE PRECEDING YEAR

Each storekeeper was requested to describe promotional activities for dairy products carried on in his store during the past year. This information provides some indication of storekeepers' attitudes toward various promotional practices.

Promotional activity for dairy products was related to the size and ownership of the store. Only 47 percent of the grocers serving less than 140 customers per day reported promotional activities for dairy products in the preceding year, but 91 percent of those serving 280 or more customers per day¹⁴ reported promotional activities.

During the preceding year promotion of dairy products had been carried on in 87 percent of the stores operated by national

¹⁴ Stores serving 280 or more customers per day comprised 20 percent of the surveyed stores but sold 54 percent of the fluid milk products. Accordingly, effective promotion and sales programs among the medium and large stores give promise of reaching directly a high proportion of food customers.

chains, 63 percent of the stores operated by local, regional and voluntary chains, and 51 percent of the independent stores. National chains made more use of taste demonstrations and displays than the other stores. On the other hand, store signs for dairy products were used by about equal proportions of all three classes of stores. Store signs as a rule are provided to grocers free of charge and, being easy to put up, probably are considered more practical by grocers in small stores than displays and taste demonstrations, which may involve too much trouble to be worthwhile in those stores.

A summary classification of the types of promotion reported, with indication of major products promoted, is given in table 10.

Table 10.—Types of dairy product promotion reported carried on in year previous to the survey, 226 stores^a

Type of promotion	Major products promoted ^b	Grocers reporting	
		Number	Percent ^c
Store signs	Ice cream, milk	84	37
Price specials	Cheese, ice cream, milk	61	27
Premium sales	Milk, ice cream	45	20
Taste demonstrations	Milk, ice cream, cheese	40	18
Some type of display	Cheese	37	16
Mentioned in advertising	Milk, dairy products	22	10

^a Data not obtained from 9 stores; percentages based upon the 226 stores that reported.

^b Based upon those replies which indicated what products were promoted.

^c Percentages add to more than 100 because some grocers reported two or more types of promotion.

Types of promotional activities carried on ranged in frequency from use of store signs, reported in 37 percent of the stores, to mentioning dairy products in advertising, reported in 10 percent. Offering of price specials and premium sales were second and third in rank by frequency and were followed by taste demonstrations and displays, respectively.

Milk and ice cream were the two products at which the four most used types of promotion were most commonly directed. However, displays were mostly of cheese, and cheese was one of the dairy products on which price specials were offered and of which samples were given.

Rating of Various In-Store Promotional Methods

Storekeepers were asked to rate the effectiveness of types of in-store promotional methods with which they had had experience

or in which they were particularly interested. The effectiveness of each method was rated as good, fair or poor. Ratings were obtained separately for (1) bottled milk products, (2) ice cream, (3) cheese (referring mainly to American and similar types of cheese, including processed cheese foods), and (4) butter.

Because storekeepers were asked to rate only methods with which they had experience or in which they had special interest, the proportion rating a method gives some indication of the amount of attention that had been given to it. For example, more storekeepers had had experience with store signs than with taste demonstrations.

The promotional methods rated were:

1. **Store signs:** point of sale material, window signs, clocks and any other types of signs used in or around the store to call attention to the item, particularly to a branded item.

2. **Product display:** a quantity of the product placed where customers can see it.

3. **Mass display:** a large special display set up to catch the attention of customers (rated only for cheese).

4. **Basket display:** a display made by filling a self-service cart with the product and placing it in the aisle or in some other conspicuous spot (rated only for cheese).

5. **Price special:** reduction from the customary price.

6. **Premium sale:** a sale in which added inducement is given to purchase the product. The inducement may take the form of an added article, such as a glass or a refrigerator dish, or some sort of bonus in the form of product, as when a package of cottage cheese is given or sold at reduced price with the sale of a half-gallon of milk.

7. **Taste demonstrations:** the giving of a sample of the product to the customer for trial.

8. **Free recipes:** the giving of free recipes with the product which stresses its use in cooking or food preparation.

STORE SIGNS

Not quite two-thirds of the storekeepers rated the effectiveness of store signs for milk and ice cream, and about two-fifths for cheese and butter (Table 11). Nearly three-fourths of those rating

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Table 11.— Proportion of the grocers who rated the effectiveness of store signs for various types of dairy products, and their ratings, 235 stores

Dairy product	Proportion of grocers who rated store signs	Proportion of grocers rating store signs who rated them		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	65	46	25	29
Ice cream	63	58	24	18
Cheese	42	72	15	13
Butter	39	72	19	9

store signs for cheese and butter rated them good, but not quite half of the ratings for milk and three-fifths of those for ice cream were good.

PRODUCT DISPLAY

About three-fifths of the storekeepers expressed opinions about the effectiveness of product displays of milk and ice cream, and over half rated product displays of cheese and butter (Table 12).

Table 12.— Proportion of the grocers who rated the effectiveness of product display of the item for various types of dairy products, and their ratings, 235 stores

Dairy product	Proportion of grocers who rated product display	Proportion of grocers rating product display who rated it		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	64	90	5	5
Ice cream	58	96	3	1
Cheese	54	95	4	1
Butter	53	93	5	2

For all types of products, 90 percent or more of the ratings were good.

MASS DISPLAY AND BASKET DISPLAY

These two types of display were rated only for cheese. Thirty-eight percent of the storekeepers expressed opinions about the effectiveness of mass displays, with practically three-fourths of the ratings good. Only 17 percent rated basket displays, with half the ratings good.

PRICE SPECIALS

About half the storekeepers evaluated the effectiveness of price specials for milk, ice cream and cheese, and a slightly smaller proportion did so for butter (Table 13). From 50 to 60 percent of

Table 13.—Proportion of the grocers who rated the effectiveness of price specials for various types of dairy products, and their ratings, 235 stores

Dairy product	Proportion of grocers who rated price specials	Proportion of grocers rating price specials who rated them		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	52	55	13	32
Ice cream	52	54	14	32
Cheese	52	59	7	34
Butter	44	53	9	38

those rating price specials considered them good means of stimulating sales, but rather large proportions (30 to 40 percent) rated them poor.

PREMIUM SALES

Half the grocers expressed opinions as to the effectiveness of the use of premiums in promoting sales of milk, and about one-fourth did so for each of the three other groups of dairy products (Table 14). Between 60 and 70 percent of the ratings were good.

Table 14.—Proportion of the grocers who rated the effectiveness of premium sales for various types of dairy products and their ratings, 235 stores

Dairy product	Proportion of grocers who rated premium sales	Proportion of grocers rating premium sales who rated them		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	50	68	16	16
Ice cream	28	63	20	17
Cheese	25	63	22	15
Butter	23	62	24	14

TASTE DEMONSTRATIONS

The proportion of the storekeepers rating taste demonstrations ranged from 15 percent for butter to 32 percent for cheese (Table 15). For ice cream and cheese, between 75 and 80 percent of the

Table 15.—Proportion of the grocers who rated the effectiveness of taste demonstrations for various types of dairy products, and their ratings, 235 stores

Dairy product	Proportion of grocers who rated taste demonstrations	Proportion of grocers rating taste demonstrations who rated them		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	22	54	19	27
Ice cream	26	76	14	10
Cheese	32	79	14	7
Butter	15	56	22	22

ratings were good, but for milk and butter only about 55 percent were good.

FREE RECIPES

These were rated only for milk, cheese, and butter, and some 20 to 30 percent of the storekeepers rated them, depending upon the product (Table 16). About half the ratings were good, with

Table 16.—Proportion of the grocers who rated the effectiveness of free recipes for various types of dairy products, and their ratings, 235 stores

Dairy product	Proportion of grocers who rated free recipes	Proportion of grocers rating free recipes who rated them		
		Good	Fair	Poor
	Percent	Percent	Percent	Percent
Fluid milk	27	45	27	28
Cheese	26	54	28	18
Butter	20	45	30	25

the showing a little better for cheese than for milk and butter.

EVALUATION

The percentage of the storekeepers rating promotional practices varied with the ownership and, to a lesser extent, the size of the store. Each of the promotional practices considered was rated by a larger proportion of the chain store managers than of the independent storekeepers no matter what the class of dairy products for which its effectiveness was being evaluated.

In general, the proportion of the independent grocers who expressed opinions about the effectiveness of product displays of dairy products, price specials and premium sales on manufactured dairy products, and mass displays of cheese, increased with store size. The percentage of the ratings for product displays and premium sales that were good was lower in the small stores than in the larger ones. Likewise the percentage of the ratings of taste demonstrations for milk and ice cream and of mass displays of cheese that were good tended to increase with store size.

In general, the operators of large stores have more experience with and greater interest in promotional practices than do grocers in small stores. The lower rating of displays in the small stores reflects an opinion of some storekeepers that persons who buy there know what items are stocked and are unlikely to buy more of a staple item just because it is displayed. Taste demonstrations

of products like milk and ice cream that require special attention are more practical in large stores than in small ones.

Examination of the ratings emphasizes the importance attached by most storekeepers to a display of the product. No matter what the product, a higher percentage of the storekeepers rated this type of promotion good than rated any other type of promotion good. On the whole, the types of store signs to which these grocers were accustomed were considered much less effective than displays of the product itself. Since the storekeeper has much influence in determining how the product is displayed, this suggests that an important promotional tool may to a large extent be under his control.

Price specials were not held in as high regard as some other promotional devices. Some grocers stated that any increase in sales so obtained was likely to be temporary. Small grocers had little opportunity to draw additional customers into their stores by offering price specials, in part because many did not advertise regularly. In large stores, however, price specials were a potential means of increasing traffic as well as expanding sales of the item on which the price special was offered.

Taste demonstrations generally were rated as more effective than free recipes. This, like the rating of displays of the product as more effective than store signs, suggests that grocers generally believe the product itself to be more effective for promotion than a mere reminder of it.

HANDLING MARGINS AND STORE SALES

Grocery store operators were in general agreement that having high quality dairy products, a good display and well timed promotion were factors in the sustained sales of milk and dairy products. Many felt that price was also an important factor in milk sales.

While this study was not primarily concerned with consumer prices, information was secured on the prices paid by store operators and the prices charged customers for fluid milk items. A careful examination of price patterns for packaged milk bought at wholesale showed a relatively narrow range in the price paid by grocers in any given locality. However, a variation of as much as 6 cents per quart was found from one locality to another. Most

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of this variation was associated with differences in the basic farm price, in standards for quality, and in locational and service factors.

The prices charged consumers for different brands of milk were usually the same within a given store. However, because there was variation in store handling margins, the price charged consumers for milk in a given area varied from store to store, particularly in the larger communities.

In general, disregarding extremes, the "mark up" or store "margin" on milk ranged from 2 to 7 cents per half-gallon container and from 1 to 4 cents per quart unit. The most common margin for half-gallon containers was 6 cents; the next most common margins were 4 and 5 cents. A considerable number of stores handled milk for as little as 2 or 3 cents per half-gallon package (Fig. 7). On quart containers, 3 cents was the common mark up, and the majority of the other stores took 2 cents. Seven percent of the stores sold milk with a margin of 4 cents or more per quart unit.¹⁵

Store Size and Margin

A careful appraisal of all available information indicated that store size and characteristics were closely related to the average margin set for handling milk. Stores with a "customer count" of less than 140 patrons were considered to be small. There were 142 stores with an average of 76 patrons per day in the small size grouping (Table 17). Eighty-four percent of the stores in this

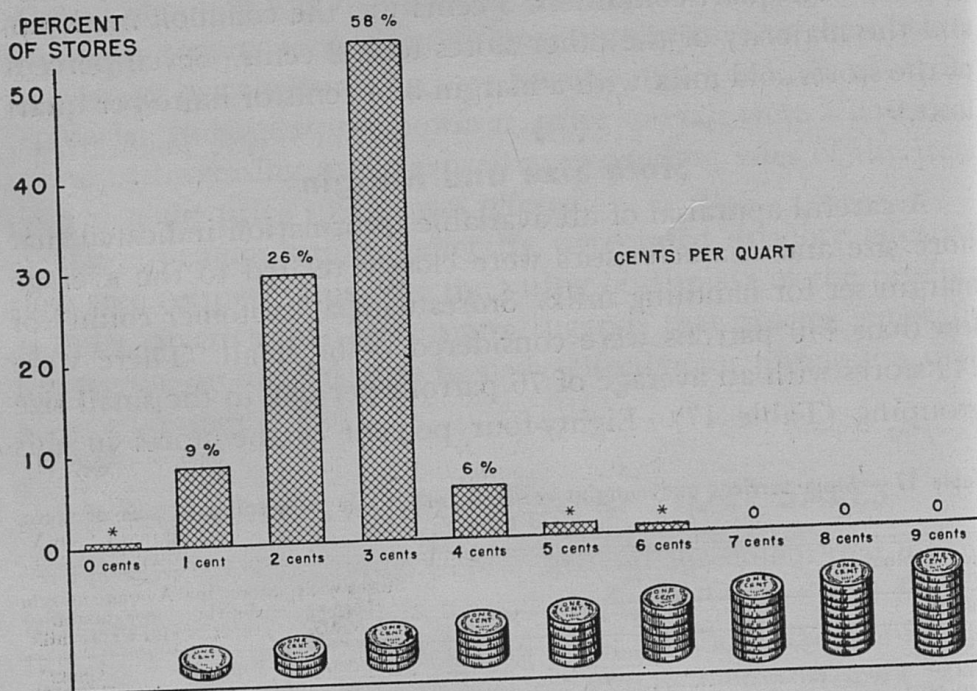
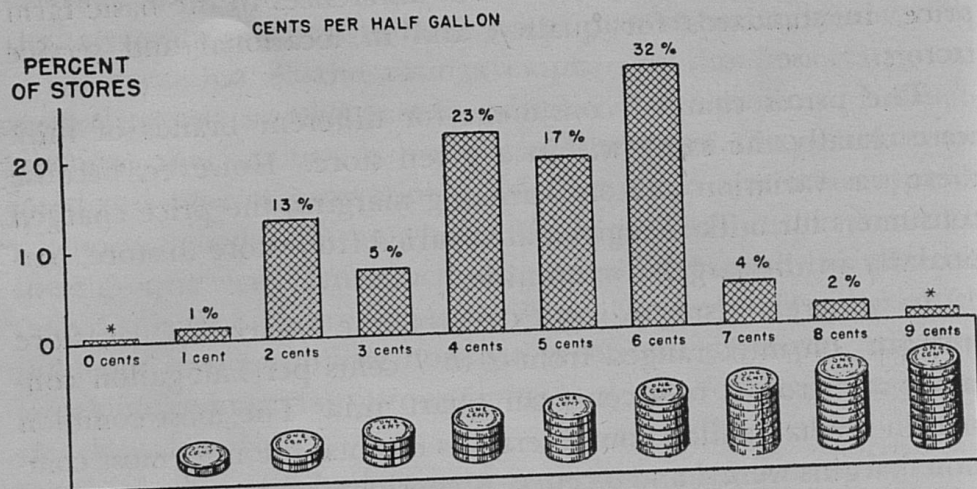
Table 17.—Store services and margins realized from whole milk sales, by size of store, 233 stores^a

Store customers per day	Average	Stores	Stores with charge accounts	Stores that deliver groceries	Average margin per quart on all whole milk
Range	Number	Number	Percent	Percent	Cents
Under 140	76	142	84	49	2.6
140-279	199	44	73	43	2.3
280-419	329	25	36	16	2.0
420-699	563	13	0	0	1.3
700 or more	953	9	0	0	1.5

^a Number of customers was not reported for two stores.

size group carried charge accounts and 49 percent delivered groceries to homes of patrons. The largest size stores were entirely

¹⁵ In general, storekeepers took the same margin on grade A and ungraded milk.



* LESS THAN 1%

Fig. 11.— Variation in Store Margins on Grade A Milk.
 Gross margin or "mark up" on half-gallon and quart paper containers of fresh milk. Six cents per half-gallon was the most common margin but 40 percent of the stores handled it for 4 cents or less. Thirty-five percent of all stores handled quart containers for 2 cents or less and 53 percent for a 3-cent gross "mark up".

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cash-and-carry, self-service stores. Comparisons given in Table 17 show a decline in the margin for handling milk as the size of the store increased and individual customer services were reduced.

It is significant to a cost-and-margin analysis that the stores serving 700 or more customers per day sold on the average nearly 12 times as much milk per week as those serving under 140 customers per day (Table 4, p. 21). It is also important to note that the display cases in the largest stores were serviced frequently by distributors (Table 6, p. 27). The more complete use of display counters, larger volume of sales and the handling of milk with a minimum of store labor and storage space are factors associating lower margins with large stores.

Customer Purchase

It was shown in Table 17 that large stores handled milk on the average for a margin that was about one cent per quart less than for the smallest stores. In general, this meant consumers could buy milk at approximately a one-cent saving in the larger stores.

Using the information obtained on the quantity of milk sold weekly and the number of store customers served, an average amount of milk sold daily per customer was computed. The data showed daily sales of milk per store customer to be highest in the group of smallest stores and next highest in the group of large stores (Table 18). The small stores averaged about 30 percent

Table 18.—Relation of customer count to margins taken on whole milk and to average quantity of milk sold per customer, 233 stores^a

Store customers per day	Stores	Average margin per quart on all whole milk	Quantity of milk per day per store customer
		Cents	Quarts
Under 140	142	2.6	0.67
140-279	44	2.3	.53
280-419	25	2.0	.50
420-699	13	1.3	.62
700 or more	9	1.5	.62

^a Number of customers was not reported for two stores.

more, and the largest stores about 20 percent more, per patron than did intermediate sized stores. Characteristically, small stores were in neighborhood locations, the largest stores were super-

markets, and the intermediate grouping a mixture that could be less clearly defined as to location, convenience and services.

Many of the operators of stores in the small size group reported that their stores served especially as convenient sources for items such as milk and bread.¹⁶ The fact that people depend on these stores for such items helps explain the comparatively large sales of milk per customer in small stores. On the other hand, above average sales per customer in the supermarkets is associated with the fact that customers tend to shop less frequently in those stores and to buy larger quantities per visit. The fact that milk is readily available in stores of all sizes is highly important, the exact price level perhaps less so, once the customer's shopping pattern is established.

On the other hand, some customers are relatively sensitive to price differences and, for a given market, make purchases where the price is most favorable. In this connection margins are important because a low margin results in a correspondingly lower consumer price.

By making a second sort of stores based on the average margin in handling milk, a more specific relationship between margins and sales per customer could be established. In the 25 stores whose average margin on milk was less than 1.3 cents per quart (Table 19), the retail price of milk would have been about 2 cents per quart less than for the 16 stores taking a margin of 3.3 cents or

Table 19.—Relation of store margin on whole milk to customer count and to average quantity of milk sold per customer, 233 stores^a

Average margin per quart on all whole milk	Stores	Store	Quantity of milk
		customers per day	per day per store customer
Cents	Number	Number	Quarts
Less than 1.3	25	403	0.74
1.3-2.2	67	260	.54
2.3-3.2	125	111	.59
3.3 or more	16	142	.35

^a Number of customers was not reported for two stores.

¹⁶ In a study in Minneapolis, Minn., it was reported that 69.8 percent of those who buy milk at stores buy it at neighborhood stores at an average distance of 1.8 blocks from their homes. Helmberger, op cit, p. 20. Similarly, a study in Portland, Ore., showed that milk items comprised almost three times as large a percentage of total sales among small stores as they did among large stores. Korzan, Gerald E. and John A. Pfanner, Jr., Costs of retailing milk among a group of grocery stores in Portland, Oregon, Ore. Agr. Expt. Sta. Bul. 504, Oct. 1951, pp. 7-9.

more. The average amount of milk sold per customer in the first group was more than twice that sold per customer in the latter group (Table 19).

Although sales per customer did not decline regularly and smoothly with each group-to-group increase in margins, it is evident that the size of the margin taken by the store had appreciable influence in determining where some consumers purchased milk. Furthermore, it is emphasized that relationships of customer count and margins to milk sales per customer are complicated by the fact that the margins taken on milk tend to be narrower in large stores than they are in small stores. Thus location and margins tend to have compensating effects.

A two-way sort that separated stores with less than average margins from those having above average margins was made and the groupings subdivided according to customer count. This classification provided additional information on store margins and sales.

No matter whether the margin was above or below the average for all stores, the small stores sold more milk per customer than the medium sized and large stores taking comparable margins (Table 20). Furthermore, milk sales per customer tended to be

Table 20.—Daily average quantity of milk sold per store customer in stores grouped by customer count and by average margin on whole milk, 233 stores^a

Store customers per day	Stores with average margins on whole milk of less than 2.3 cents per quart		Stores with average margins on whole milk of 2.3 cents per quart or more	
	Stores	Quantity of milk per day per store customer	Stores	Quantity of milk per day per store customer
Number	Number	Quarts	Number	Quarts
Under 90	18	0.91	65	0.70
90-179	25	.53	50	.60
180-269	10	.59	16	.56
270 or more	39	.61	10	.35

^a Number of customers was not reported for two stores.

larger in stores of a given size that took below average margins than in stores of the same size grouping whose margins were above average. The difference was most noticeable in the group of largest stores where average sales per store customer among those with narrow margins were nearly double sales per customer among those with wide margins.

Income and Store Margins

In order to determine the contribution of milk sales to store operating income, weekly gross income from milk was computed for stores in the different size groupings. The 142 stores with less than 140 customers per day reported average sales of whole milk of \$65.97 per week, which is equivalent to \$3,430 per year (Table 21). The stores which served over 700 customers per day reported

Table 21.— Value of sales and gross margin from the sale of whole milk, by size of store, 235 stores

Store customers per day	Stores	Average dollar sales of whole milk per store		Average gross margin from sale of whole milk per store	
		Week	Year ^a	Week	Year ^a
Number	Number	Dollars	Dollars	Dollars	Dollars
Under 140	142	65.97	3,430	7.96	414
140-279	44	136.43	7,094	14.76	768
280-419	25	204.56	10,637	19.51	1,015
420-699	13	419.59	21,819	27.20	1,414
700 or more	9	727.02	37,805	51.76	2,692
All stores	235 ^b	138.92	7,224	13.22	687

^a Figured at 52 times the weekly rate.

^b Include 2 stores for which number of customers was not determined.

whole milk sales averaging \$727.02 per week, or \$37,805 per year.

The 142 small stores reported an average gross margin on whole milk of \$7.96 per week, or \$414 per year. The 9 largest stores reported an average gross margin of \$51.76 per week, which would amount to \$2,692 per year. These stores realized 11 times as much total revenue from the sale of whole milk as the smallest ones, but only 6½ times as much gross margin. This reflected a decreasing percent gross margin on purchase cost as store size increased (Table 22). The smallest stores took a 13.7 percent gross

Table 22.— Gross margin on whole milk in percent of purchase cost, by size of store, 235 stores

Store customers per day	Stores	Average purchase cost of whole milk per store per week		Average gross margin per store per week		Percent gross margin on purchase cost	
		Dollars	Dollars	Dollars	Percent		
Under 140	142	58.00	7.96	13.7			
140-279	44	121.67	14.76	12.1			
280-419	25	185.05	19.51	10.5			
420-699	13	392.39	27.20	6.9			
700 or more	9	675.19	51.76	7.7			
All stores	235 ^a	125.69	13.22	10.5			

^a Include 2 stores for which number of customers was not determined.

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Table 23.—

Store customers per day	Number
Under 140	142
140-279	44
280-419	25
420-699	13
700 or more	9
All stores	235

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margin on the purchase cost of the milk, while the largest stores averaged only 7.7 percent. For all stores the gross margin on whole milk averaged 10.5 percent.

The fact that the percent margin on fluid milk is relatively low as compared with that received on many other products leads some grocers to conclude that milk is not a profitable item to handle (Table 23). Only 56 percent of those expressing an opin-

Table 23.—Attitudes of grocers as to profitability of milk, by size of store, 209 stores^a

Store customers per day	Stores ^a	Do you consider bottled milk an item worth pushing for sale?		
		Yes	No	Percent yes
Number	Number	Number	Number	Percent
Under 140	125	72	53	57.6
140-279	39	24	15	61.5
280-419	24	12	12	50.0
420-699	12	5	7	41.7
700 or more	7	3	4	42.9
All stores ^b	209 ^a	117	92	56.0

^a Those expressing opinions as to the profitability of milk.

^b Include 2 stores for which number of customers was not determined.

ion felt that milk was worth pushing. There was no clear-cut relationship between size of store and the proportion who felt that milk was profitable, although a somewhat smaller proportion of the managers of the larger stores seemed to consider milk profitable.

Even though the margin taken on milk is relatively low as compared to that taken on most items in a grocery store, certain characteristics of milk sales make further consideration desirable.

Returns High per Dollar Invested

Most grocers have only a small amount of money invested in milk, and most of this is recovered daily as the milk is sold. Among stores in this study, the annual gross margin on milk averaged nearly 35 times as much as the daily investment (Table 24). The ratio for the smallest stores was 44 to 1, while that for the largest stores was 24 to 1.

Since distributors picked up any unsold milk, storekeepers had practically no loss from shrinkage or waste on milk. Also, since routemen commonly stocked milk in store counters, as a rule milk was handled with a minimum of store labor. Conse-

Table 24.—Relation of annual gross margin on milk to daily investment in milk, by size of store, 235 stores

Store customers per day	Daily volume of whole milk	Per store	
		Daily investment in whole milk @ 19¢ qt.	Yearly gross margin on milk
Number	Quarts	Dollars	Dollars
Under 140	50	9.50	414
140-279	106	20.14	768
280-419	166	31.54	1,015
420-699	346	65.74	1,414
700 or more	594	112.86	2,692
All stores	110	20.90	687

quently, in such stores the cost of providing and operating refrigerated storage for milk apparently was the chief out-of-pocket handling expense.¹⁷ Furthermore, the investment in a special dairy counter may be made partly to draw trade and to provide refrigerated display for other products. The counter commonly is placed in the store so as to lead customers past other merchandise displays with the intent of increasing the amount of impulse buying of those items.

The fact that some store operators felt they carried milk as a customer service suggested that they were not fully aware that milk in itself was profitable. From the information obtained in this study and from other sources, it is possible to make some further analysis that can be applied to stores where the milk handled is predominantly in paper containers. For example, a small 5-foot, 2-shelf refrigerated display case with a capacity of 144 quart paper milk cartons can be purchased for about \$475, f.o.b. factory, so should not cost more than \$600 installed in the store. The manufacturer estimates the operating costs will average about \$10 per month. If the costs of operating this refrigerated display case are charged to the gross margin from fluid milk sales, the average store found in the smallest group will still receive an estimated annual return of more than \$18 per dollar invested in milk even though less than half of the case is used for fluid milk and the remaining display area is available for other products.¹⁸ In a store that used the case to capacity for milk, the

¹⁷ Korzan, *op. cit.*, pp. 8-12.

¹⁸ Assume: 6 year life of case $\$600 \div 6 = \100 annual depreciation $\$10$ per month operating costs $\times 12 = \$120$ annual operating cost.
Assume: 6 percent rate of interest—average rate on the original investment would
(footnote continued on next page)

return would be more than \$26 per dollar invested in milk.

When it is recognized that milk is a low-margin, fast selling item, the total dollar income per year rather than the percent markup becomes the important consideration. Gross income from milk per square foot of display space is relatively high. Kirkwood and Blackstone¹⁹ found that milk accounted for 5.8 percent of the total dollar volume of sales but occupied only 2.6 percent of the display space. A square foot of milk display space in the average store in their study had annual gross sales of \$270 and a gross margin of \$26. The present study showed similar results, with average annual gross sales of \$329 and a gross margin of \$31.20 per square foot of display space utilized for milk (Table 25). The largest store utilized the display space allotted to milk much more efficiently than the smaller ones, and so had returns considerably in excess of these averages. Part of this result no doubt was due to the fact that these stores were able to utilize reserve storage or else additional deliveries, furnished by distributors at no additional charge, to keep the store space allotted to milk at a minimum, without adversely affecting sales volume.²⁰

Speaking generally, the percentage markup or margin taken on products such as cream, cottage cheese, cheese foods and other items commonly found in dairy cases are substantially greater

(footnote continued from preceding page)

be about 3 percent

$3\% \times \$600 = \18 average interest charge per year

$\$100 + \$120 + \$18 = \238 annual cost of display case (disregarding minor expenses such as taxes and insurance)

\$414 annual gross margin from sale of fluid milk

$\$414 - \$238 = \$176$ returns from sale of fluid milk to be applied to store operating income

$\$176 \div \9.50 (daily inventory) = \$18.53 annual return on each dollar invested in inventory *plus* the fact that over half of the refrigerated area is available for other products.

On a comparative basis, a larger store which serves from 140-279 customers per day could use the major portion of the case for fluid milk. The calculated return in such a store would be:

\$768 annual gross margin from sale of fluid milk

$\$768 - \$238 = \$530$ returns from sale of fluid milk to be applied to store operating income

$\$530 \div \20.14 (daily inventory) = \$26.32 annual return on each dollar invested in inventory.

¹⁹ Kirkwood, E. K., and Blackstone, J. H., *Merchandising Dairy Products in Alabama Retail Food Stores*, Ala. Agr. Expt. Sta. Bul. 294, May 1955, pp. 14-16.

²⁰ In dollar sales per square foot, butter was highest and milk and cream fourth highest among the 323 product groups sold in a group of supermarkets whose sales and margins were analyzed in detail in a recent study. In gross profit per square foot, butter ranked seventh and milk and cream tenth among the 323 groups. See "Foodtown Study," published by Progressive Grocer, 1955.

Table 25.— Relationship between store size and display area, milk sales, and gross margin on milk, 192 stores with displays of milk^a

Store customers per day	Stores		Display space per store		Sales of whole milk per store per week		Gross margin on milk sales per store per week	
	Number	Number	Linear feet	Area (44" deep)	Total	Per square foot of display	Total	Per square foot of display
Under 140	103	4.2	15.4 ^b	65.97	4.26	7.96	0.51	
140-279	42	6.6	24.2	136.43	5.67	14.76	.61	
280-419	23	7.2	26.4	204.56	7.75	19.51	.74	
420-699	13	11.2	41.1	419.59	10.12	27.20	.66	
700 or more	9	13.2	48.4	727.02	15.00	51.76	1.07	
All stores ^a	192	6.0	22.0	138.92	6.33	13.22	.60	

^a All stores with a fluid display; include 2 stores for which number of customers was not determined.

^b The assumption of a depth of 44" may overstate the square feet of display space for this group since many did not have open display cases.

If this is true, it would show a lower sales per square foot and a lower gross margin per square foot than actually was the case.

than for milk. Unquestionably, a good program of merchandising these items through existing dairy cases yields added income even to the small stores.

The analysis has not attempted to allocate overhead costs such as rent, lights, heat, store personnel, and advertising. If overhead costs were taken into account, the returns from milk would be less favorable than those shown. However, the information obtained in this study indicates that in most stores more milk could be handled without increasing overhead costs materially or interfering with the general operation of the store. Where that is the case, the grocer will find it profitable to promote increased sales of milk.

APPRAISAL

Retail grocery stores are a major outlet for milk and dairy products and an increasingly effective agency in merchandising those items. The kinds of packages, brand names, prices and services vary from region to region and from point to point, but the facilities, products, merchandising practices and attitudes of grocermen have much in common in different areas.

The opportunities to expand grocery store sales of milk are favored or limited by the storekeeper's attitude, the facilities and handling, the product quality, and the price and profit structure. This study showed clearly that grocery store operators considered fresh milk and dairy products to be a necessary part of their over-all business. Most storekeepers were receptive to promotion and sales help. However, beyond supplying what they considered the necessary refrigeration, display and storage, the owners took essentially a neutral position. They took no particular stand on whether milk was processed locally or outside but handled both if there was local demand.

No community in the study area was without fresh milk delivery to stores. With two or more sources of milk available in most communities, markets commonly could offer customers their choice of more than one brand. In many small towns and even in some larger places, milk was available to consumers only through stores. Thus store distribution provided pasteurized milk to consumers in many places where otherwise it might not have been obtainable.

For the area studied, almost all except some of the smallest stores had good-to-excellent equipment and displayed fresh milk and dairy products. Much of the dairy counter arrangement and display is done by drivers who make store deliveries. In stocking counters, drivers rotate stock according to instructions from dealers but, unless they fully appreciate the importance of this job, consumers can get over-age and poor quality products. The purchase of a poor quality product in the grocery store sometimes leads to an immediate change in brand and/or permanent loss of a customer. With home delivery, consumers do not have the ready alternative of another brand and may not switch sources as quickly as store customers. At least the dairy company knows of the change and may try to correct the problem.

The 22 largest stores (about 10 percent of all stores) sold milk at the lowest prices and handled about 40 percent of total store sales. Small stores in residential areas took the widest margins and charged most for milk, yet these stores sold, on the average, more milk per store customer than did stores in other locations. Unquestionably their nearness to the customer, personal services and similar factors not directly connected with milk products influenced the pattern of milk purchases.

The average mark-up on milk was about 10 percent of the price paid the dairy, and low as compared with that on most grocery items. This low markup caused many store operators to consider milk a low profit item. This study showed it to bring in a high annual return per dollar invested in milk. Store operators may have overlooked the relatively small investment in product inventory, the high rate of capital turnover and the relatively small amount of store time and labor in servicing the dairy counter. General accounting procedures which allocate expenses by formula also tend to cover up these same items and to rate milk low as a profit item.

Because of the importance of retail grocery stores in fluid milk distribution, farmers, milk dealers and others interested in expanding markets through this outlet should keep several points in mind: First, milk is only one of many items in the grocery store; second, most storekeepers are receptive to promotion and sales help, but are not primarily interested in promoting one product

over another. Milk is important in the income of most grocery stores, but many storekeepers underestimate what it adds to their net income. Since retail grocery store operators view their business as one of service to consumers, someone else will need to take the lead in aggressive sales promotion. Distribution of quality products, attractive packaging and maintaining consumer satisfaction and demand require cooperative efforts from producers, processors and distributors.

APPENDIX

Selection of Stores

The sampling plan was developed to meet the particular needs of the study. Because there was no list of retail grocery stores in the area from which a randomized sample could be drawn, it was necessary to devise a plan for selecting the stores to be studied. Information indicated that conditions were likely to vary more from town to town than within a given market. Consequently, obtaining spatial coverage over the entire area seemed more important than replicating interviews in a given town.

The method devised proved economical and workable and reduced enumerator bias in the selection of stores to be surveyed. It is described for the purpose of helping others who may at some time face a similar problem and to assist in appraising the data.

Defining the area to be surveyed. The survey was made in western Kentucky, southeastern Missouri, and southern Illinois. It included the following places:

Illinois—towns and cities in the southern tip of the state, extending approximately as far north and east as state routes 34 and 13.

Kentucky—all places west of the Tennessee River and in Livingston County.

Missouri—all places in that section of southeastern Missouri bounded on the west by state route 51 and (farther south) state route 25, extending as far north as Perryville and as far south as state route 62.

Plan for sampling. The universe was all places of 200 or more people as listed by the United States Census of Population for 1950 and the Rand-McNally Commercial Atlas and Marketing Guide, eighty-third edition, 1952. For the purpose of this study, contiguous towns and cities, as in the case of a city and its adjacent suburbs, were treated as one market.

The enumerator started counting stores with the first one he came to as he drove into town. In towns of less than 1,000 people he took a schedule from the first store. In places of more than 1,000 people, the first store to be contacted in each town was selected by a system of rotation set up for different population groups according to the following plan:

Population	Select first store from among numbers	Order of selection, initial store
1,000 - 4,999	1 - 3	Choose the number of the initial store to be surveyed in the first town in each population group at random from the indicated range; in successive towns select the initial store by taking the next number in the range in rotation.
5,000 - 14,999	1 - 6	
15,000 or more	1 - 10	

Additional schedules were taken so as to include stores handling milk from all other distributors who served the town but did not serve the first store visited. It was found that in small and medium-sized places reliable information could be obtained by inquiring about other distributors from the first stores and following the leads they provided. However, to obtain better coverage, in places of 5,000 or more people more schedules were obtained than was necessary to include stores handling the various brands of milk that were sold. Where this was done, stores were chosen from different parts of the city and in a manner that included the various sizes and types of stores. In Paducah, a 10-percent sample was drawn from a list of the stores in that city. In total, 235 stores were surveyed, which was about 10 percent of those in the area. All the surveyed stores handled a variety of groceries, and some of those in rural areas also carried general merchandise.