

Utilization of Milk in San Antonio and Central West Texas

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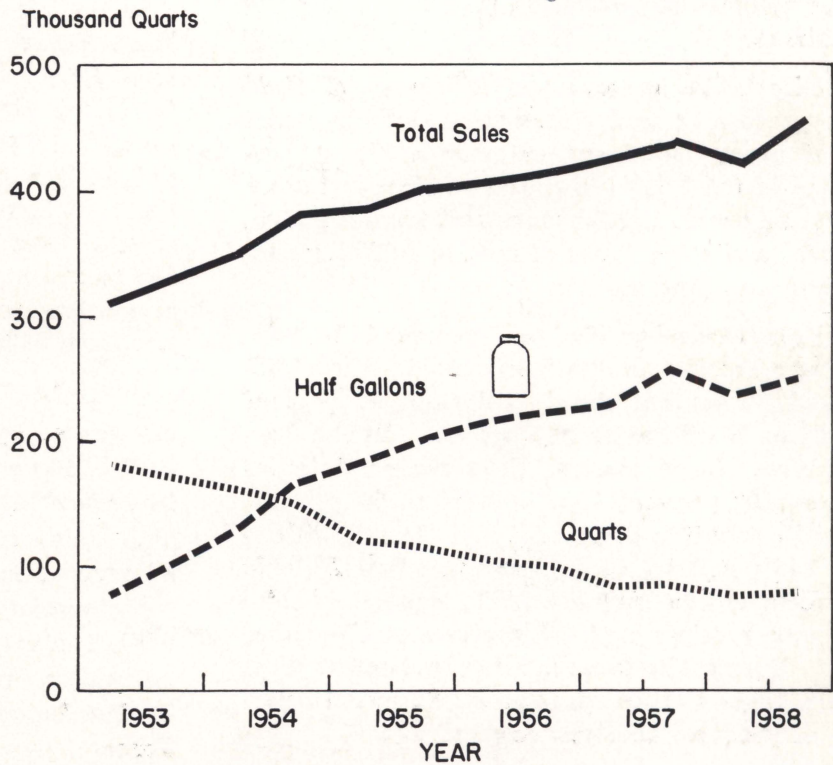


Figure 1. Average daily milk sales (quart-equivalent) in San Antonio and Central West Texas Markets, 1953-58.

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SUMMARY

Milk commands its highest value when sold or utilized in Class I or fluid form. Prices received by producers for milk utilized in Class I usually are 40 to 45 percent higher than prices received for milk used in manufacturing dairy products. For this reason, producers and others should strive to move as large a proportion of total production as possible into Class I.

Analyses of sales and utilization data indicate that more milk is sold in the larger containers, such as half gallons, gallons and bulk dispensers, than in quarts and smaller containers, a larger proportion of total sales are made in retail stores than on home delivery routes and larger volumes are moved in paper than in glass containers.

Efforts to improve the efficiency of fluid milk processing and distribution include wider use of paper containers, offering a higher proportion of total sales in containers larger than a quart and promoting homogenized, fortified skim, flavored and other types of milk in fulfilling consumers' changing desires.

From December 1952 to December 1958, total producer receipts in the San Antonio market increased 67 percent, total utilization 67 percent and Class II utilization 220 percent. In the Central West Texas market, producer receipts increased 107 percent, total utilization 75 percent, Class I utilization 65 percent and Class II utilization 245 percent. Class I sales in San Antonio in December 1952 represented 95 percent of total producer receipts and 89 percent in December 1958. During the same months in Central West Texas, Class I sales represented 82 and 79 percent of producer receipts, respectively.

Class I milk sales by handlers operating under federal milk marketing orders increased from an average of 191,514 quarts per day in San Antonio in 1953 to 253,556 quarts in 1958, while sales in Central West Texas increased from 127,932 quarts per day in 1953 to 187,311 quarts in 1958. Most of this increase was in whole fluid milk.

Homogenized milk sales in San Antonio increased from an average of 138,848 quarts per day during 1953 to 216,537 quarts during 1958, or an increase of 58 percent, while the increase in Central West Texas was from 72,154 to 159,589 quarts, or an increase of 121 percent.

On a quart-equivalent basis, daily sales of other Class I products from 1953-58 reacted as follows: Regular milk decreased from 32,174 to 8,114 in San Antonio and from 42,857 to 1,124 in Central West Texas; buttermilk decreased from 7,086 to 6,339 in San Antonio and increased from 7,804 to 11,988 in Central West Texas; flavored milk and drink increased from 4,022 to 9,635 in San Antonio and from 2,814 to 9,178 in Central West Texas; skim and fortified skim increased from 4,596 to 7,860 in San Antonio, and from 384 to 1,873 in Central West Texas; half and half remained stable at approximately 4,250 quarts per day in San Antonio, but increased from 512 to 2,435 in Central West Texas; coffee cream decreased from 192 to 112 in San Antonio, and from 768 to 375 in Central West Texas; and whipping cream increased from 384 to 507 in San Antonio, and from 512 to 562 in Central West Texas.

In 1953, 81 percent of the total fluid milk distributed by San Antonio handlers and 43 percent of the volume by Central West Texas handlers were in containers 1 quart or less in size. Only 30 percent of the milk in San Antonio and 23 percent in Central West Texas were sold in containers of 1 quart or less in size during 1958, while the volume sold in half gallons and larger containers amounted to 70 percent of total sales in San Antonio and 77 percent in Central West Texas.

In both markets, total sales of Class I products generally are higher during the fall and winter and lower during the spring and summer. All products follow this general seasonal pattern except buttermilk sales in San Antonio, which are higher during the summer and early fall than during other seasons.

Utilization of Milk in San Antonio and Central West Texas

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PEOPLE IN THE DAIRY INDUSTRY desiring to operate efficiently, expand total sales and obtain higher prices for their products must keep informed of the changing nature of the market for milk and milk products. A changing, or constantly growing population, affects the demand for milk and milk products. In addition, changes in dietary habits and seasonal factors affecting changes in consumption habits result in changes in the demand for milk.

This study concerns an analysis of the sales trends in the San Antonio and Central West Texas marketing areas. Texas Agricultural Experiment Station Miscellaneous Publication 287, "Trends in Sales of Milk in North Texas" (July 1958), contains an analysis of the trends in milk sales in the North Texas marketing area.

To maintain its competitive operational position, the dairy industry should respond quickly to changes in consumers' tastes and to changes in the form that consumers prefer its products. The dairy industry also should adopt many technological changes in milk assembly, processing, packaging and distribution that contribute to increased efficiency.

Use of larger containers afford some economies in fluid milk packaging and distribution, part of which are passed on by handlers to retailers. In most cases these economies are reflected in lower prices to consumers and result in increased consumption per capita. Surveys in other areas indicate that the lower price for milk in multiple quart containers was the principal factor in increasing milk sales about 45 percent within 1 year and motivating consumers to purchase 76 percent of their milk in multiple quart containers.

While attempting to promote wider consumer satisfaction, handlers have increased the number of different size containers and resorted to dual packaging operations in glass and paper containers. This has increased the packaging and distribution costs of many handlers, due to the cost of paper containers which are utilized only once and the extra equipment and time required to package in several container sizes.

Studies in other states indicate that if savings in retail paper distribution over glass or dual paper-glass by operating entirely with paper con-

tainers were reflected in per unit costs, these would amount to an average of 1.1 cents per quart. For a milk handler with dual operations whose retail distribution cost for a quart of milk is 6 cents, this would represent distribution savings of about 18 percent by converting a dual operation to paper only.

Other studies indicate that costs of distributing wholesale milk in paper averaged 24 percent less than the cost of wholesale milk in glass while retail delivery expenses for a paper quart is approximately 21 percent less than for a glass quart bottle.

The consumer has changed his milk consumption habits as well as his food purchases in general. Regarding milk, these changes included the type of milk and the size, shape and type of milk containers. In attempts to increase milk sales, promotional efforts by the dairy industry should be directed toward supplying milk and milk products to consumers in the form and type of container they desire. Increased sales of fluid

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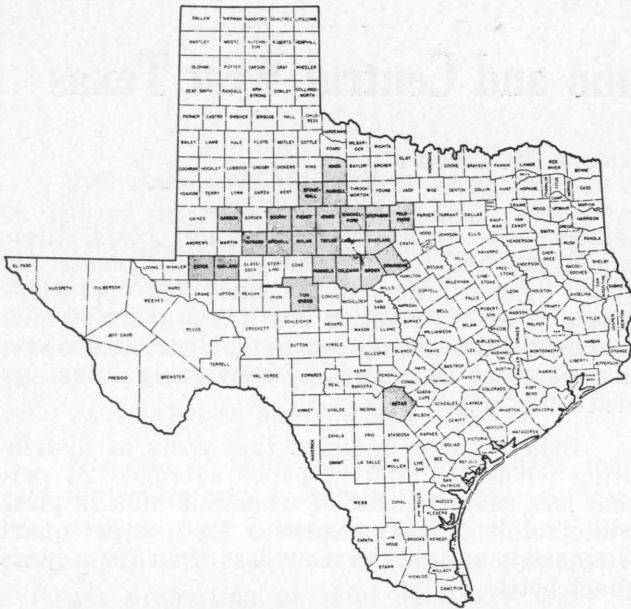


Figure 2. The Central West Texas Milk Market Order area includes only certain cities and towns and the Abilene Air Force Base located in the counties indicated.

milk in a market results in greater use of Class I milk, larger volumes of total sales by milk handlers and higher prices to dairy farmers for their products.

NEED FOR THE STUDY

An analysis of the disposition of fluid milk and milk products in terms of seasonal fluctuations and sales trends should present the industry with a broader understanding of changing desires, needs and attitudes of consumers. The nature of the demand for milk and the changes taking place are understood better by evaluating the trends in sales by type of milk and form. With a more comprehensive picture the industry can cope better with existing conditions and should be in a better position to anticipate or influence future changes to the best interest of producers, consumers and handlers of dairy products.

Milk commands its highest value when it is sold and utilized in Class I or fluid form. Prices received by producers for milk utilized in Class I usually are from 40 to 45 percent higher than prices received for Class II milk or utilized in manufacturing dairy products. For this reason, producers and others in the fluid milk industry should make every effort to move as large a proportion of total sales into Class I as possible.

During recent years the dairy industry has made efforts to increase sales of Class I milk or increase the demand for fluid milk. It also has made efforts to improve the efficiency of milk processing and distribution. These efforts include wider use of paper containers for fluid milk, offering a higher portion of total sales in con-

tainers larger than 1 quart, and promoting sales of homogenized, fortified skim and flavored and other types of milk in fulfilling the changing desires of consumers. Greater use of paper containers and an improved transportation and delivery system have made possible wider milk distribution areas and increased milk sales in retail stores.

The average marketing margin for a single quart of milk amounts to approximately 55 percent of the retail price. Greater economies are needed in milk distribution.

Dairy industry people are interested in more precise information on trends in the sale of the various Class I fluid milk products and use of the kinds and sizes of containers in which these products are packaged and distributed. Such information will serve to guide the industry in making adjustments needed to improve marketing efficiency and increase demand for fluid milk.

OBJECTIVES OF STUDY

The general objectives of this study are to present information on the changing nature of consumer demand for fluid milk and fluid milk products, to indicate to the dairy industry the direction it should take to increase total sales of fluid milk products to increase incomes to producers and to obtain greater milk utilization in its highest price class.

The specific objectives are to determine the monthly trend in the quantities of milk sold in packaged form for each product classified as Class I in the San Antonio and Central West Texas Markets, to determine the extent of monthly, seasonal and yearly variations in Class I milk utilization as indicated by sales of each Class I product and the volume of these products marketed in various size containers, and to show the trend in the use of different size containers in packaging and sale of fluid milk products.

METHOD OF STUDY AND SOURCES OF DATA

Data were obtained from the offices of administrators of the San Antonio and Central West Texas Federal Milk Marketing Orders. They are based on monthly reports from each handler operating under the regulations of the orders from July 1, 1952 through December 31, 1958 for San Antonio and from December 1, 1952 through December 31, 1958 for the Central West Texas Market. No records were available to provide the data previous to July 1 and December 1, 1952, the effective dates of the San Antonio and Central West Texas Federal Orders, respectively.

The data were analyzed into daily sales on a quart-equivalent basis for each Class I product and size container and represent only packaged Class I sales and some processed milk distributed in bulk, Figure 1.

Sales trends are analyzed by a second degree trend line curve ($Y_c = a + bx + cx^2$) in each case. These trend lines indicate the rate of change on a monthly basis and the overall trend of each item throughout the period for which data for each market is available.

In establishing the seasonal patterns of sales by product and container size, trend and cyclical fluctuations were eliminated by expressing the original data as percent of computed trend values resulting in monthly percentages or seasonal relatives.

PRODUCTION AND UTILIZATION CHANGES

Exact data concerning production and utilization of milk are available only since July 1952 for the San Antonio Market and since December 1952 for the Central West Texas Market — the effective dates of the federal milk marketing order in each market. The areas included in the San Antonio and Central West Texas Milk Marketing Orders are indicated in Figure 2.

From December 1952 to December 1958 the number of dairy farmers supplying milk to the market increased 24 percent in the San Antonio Market but decreased 3 percent in Central West Texas. However, during this period the average daily quantity of milk delivered per producer increased 71 percent in San Antonio and 113 percent in Central West Texas. From December 1952 to December 1958, total producer receipts in the San Antonio Market increased 67 percent, total utilization 67 percent, Class I utilization 56 percent and Class II utilization 220 percent, Table 1. In the Central West Texas Market in that period total producer receipts increased 107 percent, total utilization 75 percent, Class I utilization 65 percent and Class II utilization 245 percent. Class I sales in San Antonio (December 1952), represented 95 percent of total producer receipts and 89 percent in December 1958. During the same months in the Central West Texas

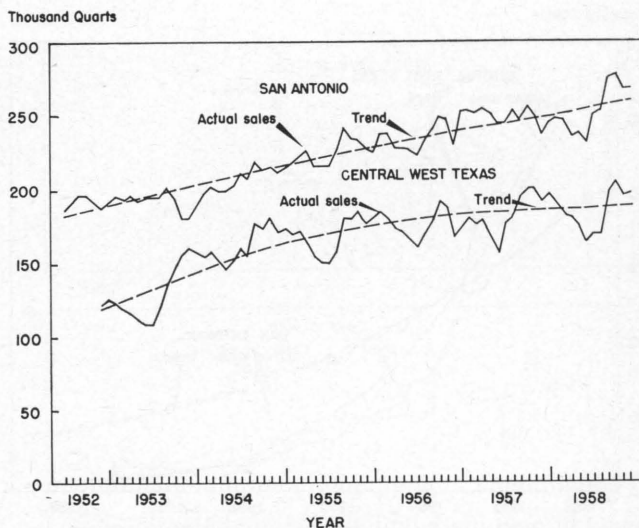


Figure 3. Trends in sales of total Class I milk, San Antonio and Central West Texas Markets, July 1952 through 1958.

Market Class I sales represented 82 and 79 percent of producer receipts, respectively.

SALE TRENDS IN VARIOUS CLASS I PRODUCTS

The sale trends of Class I milk by handlers operating under the regulations of the San Antonio and the Central West Texas Markets have increased since the effective dates of these market orders, but the increases have been at a decreasing rate.

Total sales of Class I milk in San Antonio increased from an average of 191,514 quart-equivalents per day in 1953 to 253,556 quarts in 1958, while in Central West Texas sales increased from 127,932 quart-equivalents per day in 1953 to 187,311 quarts in 1958, Figure 3. This represents an increase of 32 percent in San Antonio and 46 percent in Central West Texas in the 5-year period 1953-58. Most of this increase in sales volume

TABLE 1. CHANGES IN NUMBER OF PRODUCERS, TOTAL PRODUCER RECEIPTS AND MILK UTILIZATION IN THE SAN ANTONIO AND CENTRAL WEST TEXAS MARKETS, DECEMBER 1952 AND DECEMBER 1958

Item	San Antonio Market			Central West Texas Market		
	December 1952	December 1958	Percent change	December 1952	December 1958	Percent change
Number of producers	424	525	+ 24	539	523	- 3
	Pounds					
Producer receipts	10,021,418	16,772,605	+ 67	7,264,469	15,037,889	+107
Daily average per producer	762	1,301	+ 71	435	928	+113
Total utilization	13,203,002	22,020,957	+ 67	9,804,691	17,166,359	+ 75
Class I utilization	12,533,217	19,492,902	+ 56	8,160,943	13,487,763	+ 65
Class II utilization	669,730	2,141,070	+220	856,724	2,958,691	+245
Percent Class I use of total utilization	95	89		82	79	

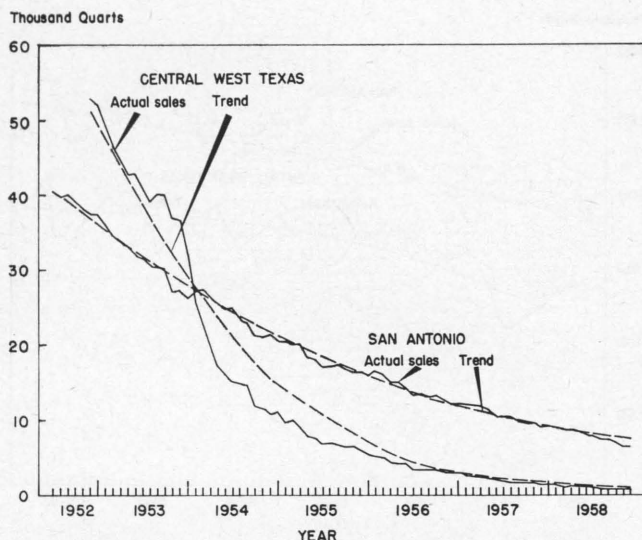


Figure 4. Trends in sales of regular milk, San Antonio and Central West Texas Markets, July 1952 through December 1958.

results from population increases in these two areas, but also is due to slight increases in per capita milk consumption and to the fact that a larger proportion of farm families in the latter than in the former year bought the milk they consumed. Wider distribution of packaged milk by handlers also accounts for some of the increase in total sales.

Regular and Homogenized Milk

The downward trend in sales of regular milk leveled out during 1958 in San Antonio and during 1957-58 in Central West Texas, Figure 4. Tables 2 and 3 show that during 1953 regular milk sales represented 16.8 percent of the total packaged Class I sales in San Antonio and 33.5 percent in Central West Texas. Homogenized milk sales represented 72.5 percent of total sales

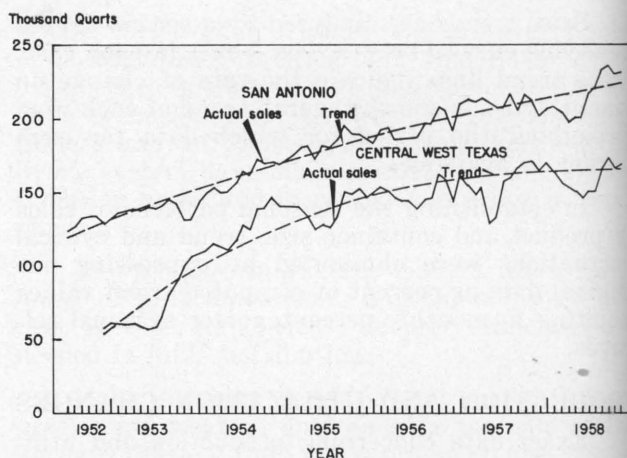


Figure 5. Trends in sales of homogenized milk, San Antonio and Central West Texas Markets, July 1952 through December 1958.

in San Antonio and 56.4 percent in Central West Texas. During 1958, however, regular milk sales amounted to only 3.2 percent of the total in San Antonio and .6 percent in Central West Texas, while homogenized milk sales increased 85.4 percent of total sales in San Antonio and 85.2 percent in Central West Texas.

On a daily quart-equivalent basis, regular milk sales in San Antonio decreased from an average of 32,174 quarts per day during 1953 to an average of 8,114 quarts per day during 1958, a decrease of 75 percent. In Central West Texas, sales of regular milk decreased from an average of 42,857 quarts per day during 1953 to an average of 1,124 quarts per day during 1958, a decrease of 97 percent. During this same period, homogenized milk sales in San Antonio increased from an average of 138,848 quarts per day during 1953 to 216,537 quarts during 1958, or an increase of 56 percent, Figure 5. In Central West Texas homogenized milk sales increased from an aver-

TABLE 2. PERCENT OF DAILY FLUID MILK SALES UTILIZED IN VARIOUS PRODUCTS, SAN ANTONIO MARKET, JULY 1952 THROUGH DECEMBER 1958

Year	Type of milk product								
	Regular	Homogenized ¹	Skim and fortified skim	Buttermilk	Flavored milk and drink	Half and half	Coffee cream	Whipping cream	Miscellaneous ²
Percent									
1952 (last 6 months)	20.6	68.5	2.4	3.8	2.1	2.2	.2	.2	³
1953	16.8	72.5	2.4	3.7	2.1	2.2	.1	.2	³
1954	12.0	78.1	2.5	3.0	2.1	1.9	.1	.2	.1
1955	8.2	81.4	2.1	2.9	3.2	1.9	.1	.2	³
1956	6.1	82.7	2.5	2.7	3.8	1.8	.1	.2	.1
1957	4.4	84.7	2.8	2.5	3.6	1.7	.1	.2	³
1958	3.2	85.4	3.1	2.5	3.8	1.7	³	.2	.1

¹Includes special milk and multivitamin.

²Includes sour cream and yogurt.

³Less than .1 of 1 percent.

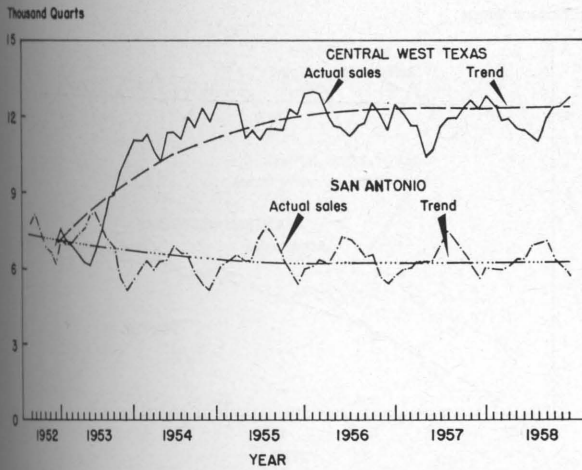


Figure 6. Trends in sales of buttermilk, San Antonio and Central West Texas Markets, July 1952 through December 1958.

age of 72,154 quarts per day during 1953 to 159,589 quarts during 1958, an increase of 121 percent.

Buttermilk

The sales trend of buttermilk in San Antonio decreased slightly during the period included in this study; however, in Central West Texas the sales trend of buttermilk increased, Figure 6. Tables 2 and 3 show that during 1953 buttermilk sales represented 3.7 percent of the total packaged Class I sales in San Antonio and 6.1 percent in Central West Texas. During 1957 buttermilk sales amounted to 2.5 percent of the total in San Antonio and 6.4 percent in Central West Texas.

On a daily quart-equivalent basis, buttermilk sales in San Antonio amounted to 7,086 quarts per day during 1953, but decreased to 6,339 quarts during 1958, a decrease of 11 percent. In Central West Texas, buttermilk sales increased from 7,804 quarts per day during 1953 to 11,988 quarts in 1958, an increase of 54 percent.

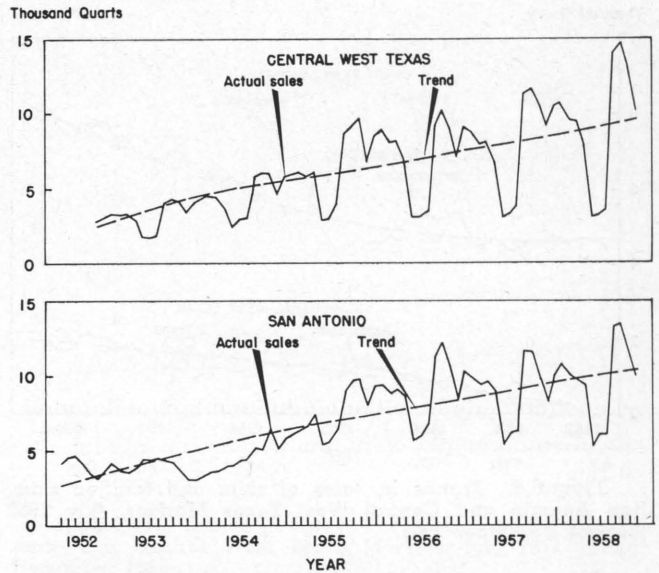


Figure 7. Trends in sales of flavored milk and drink, San Antonio and Central West Texas Markets, July 1952 through December 1958.

Flavored Milk and Drink

Daily sales of flavored milk and drink in San Antonio increased from an average of 4,022 quart-equivalents in 1953 to 9,635 during 1958, representing an increase of 140 percent. In Central West Texas, the daily sales of flavored milk and drink increased from 2,814 quarts during 1953 to 9,178 quarts during 1958, an increase of 226 percent.

The sale of these products represented an average of 2.1 percent of the total Class I packaged milk sales in San Antonio and 2.2 percent in Central West Texas in 1952. During 1958 this increased to an average of 3.8 percent in San Antonio and 4.9 percent in Central West Texas, Tables 2 and 3. Figure 7 shows the average daily sales of these two products, combined on a quart-equivalent basis, along with the overall

TABLE 3. PERCENT OF DAILY FLUID MILK SALES UTILIZED IN VARIOUS PRODUCTS, CENTRAL WEST TEXAS MARKET, JANUARY 1953 THROUGH DECEMBER 1958

Year	Type of milk product								
	Regular	Homogenized ¹	Skim and fortified skim	Buttermilk	Flavored milk and drink	Half and half	Coffee cream	Whipping cream	Miscellaneous ²
Percent									
1953	33.5	56.4	.3	6.1	2.2	.4	.6	.4	.2
1954	10.9	77.1	.6	7.0	2.7	.8	.5	.3	.1
1955	4.5	82.2	.7	6.7	3.9	1.0	.4	.3	.3
1956	2.3	84.3	.8	6.8	4.0	1.1	.3	.3	.1
1957	1.2	85.1	.9	6.4	4.3	1.2	.3	.3	.3
1958	.6	85.2	1.0	6.4	4.9	1.3	.2	.3	.1

¹Includes special milk and multivitamin.

²Includes sour cream and bulk processed cream.

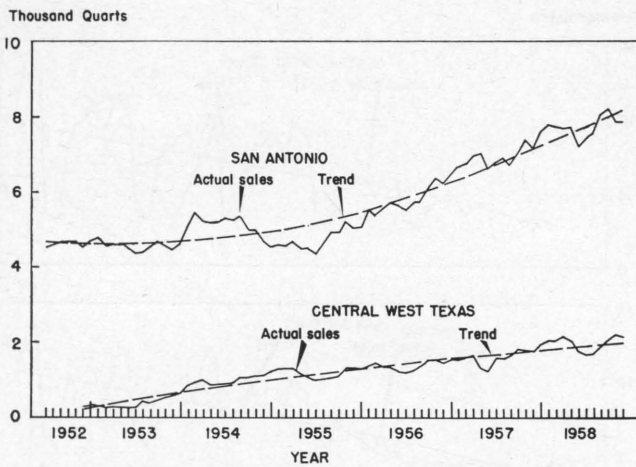


Figure 8. Trends in sales of skim and fortified skim, San Antonio and Central West Texas Markets, July 1952 through December 1958.

trend. Sales of these two products have been increasing at a decreasing rate in both markets and seasonal fluctuations have been increasing. These increased seasonal fluctuations are explained partially by the increased use of these products in school lunch menus.

Skim and Fortified Skim

From 1953-58 the average daily sales of skim and fortified skim milk increased 71 percent in San Antonio and 388 percent in Central West Texas. In San Antonio total sales on a daily quart-equivalent basis increased from 4,596 quarts in 1953 to 7,860 quarts in 1958, while sales in Central West Texas increased from 384 quarts in 1953 to 1,873 quarts in 1958, Figure 8. The large increases in sales of skim and fortified skim and of homogenized milk occurring during a period of pronounced decreases in sales of regular milk indicate the degree to which consumers' attitudes toward butterfat content of fluid milk is changing. Considerable interest is manifested by the dairy industry in the trend toward increased consumption of low-fat milk and milk products.

In San Antonio sales of skim and fortified skim milk represented less than 2.5 percent of total Class I sales in 1953 but increased to more than 3 percent in 1958, while in Central West Texas it represented .3 and 1.0 percent in 1953 and 1958, respectively, Tables 2 and 3.

Half and Half

In 1958 sales of half and half amounted to only 1.7 percent of total Class I sales in San Antonio and 1.3 percent in Central West Texas, compared with 2.2 and .4 percent of total sales in each market in 1953, Tables 2 and 3. While the sales of half and half in San Antonio remained fairly stable at approximately 4,250 quart-equivalents per day throughout the 6-year period of the study, sales in Central West Texas increased from an average of 512 to 2,435 quarts per day

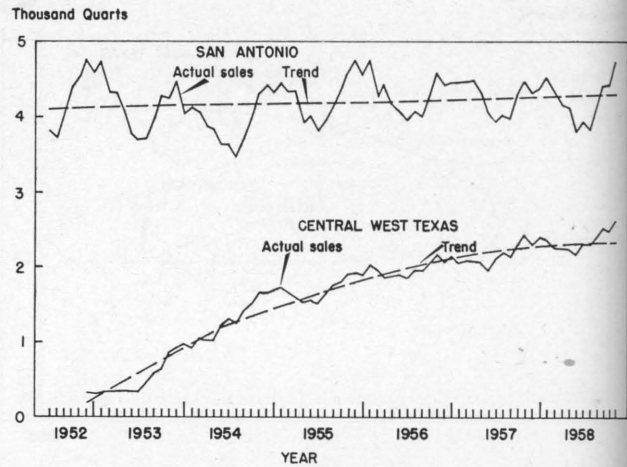


Figure 9. Trends in sales of half and half, San Antonio and Central West Texas Markets, July 1952 through December 1958.

or an increase of 376 percent during that period. The average daily sales and the trend in sales of this product is shown in Figure 9.

Coffee Cream, Whipping Cream and Other Products

Sales of coffee cream, whipping cream, sour cream, yogurt and/or special cream constitute only a small portion of total Class I sales in San Antonio and Central West Texas. In San Antonio coffee cream sales amounted to an average of 192 quart-equivalents per day in 1953 and 112 quarts per day in 1958 or a decrease of 42 percent, while in Central West Texas sales decreased from 768 quarts per day in 1953 to 375 quarts in 1958 or a 51 percent decrease, Figure 10.

Whipping cream sales amounted to 384 quarts per day in San Antonio in 1953 and increased to 507 quarts in 1958. In Central West Texas handlers sold an average of 512 quarts per day in 1953 and 562 quarts in 1958, Figure 11. This represented an increase of 32 percent in San Antonio and 10 percent in Central West Texas.

Combined sales of coffee cream, whipping cream, sour cream and yogurt and/or special cream constituted as much as 1 percent of total Class I sales only during 1953 and 1955 in Central West Texas and as much as .4 percent only during 1954 and 1956 in San Antonio, Tables 2 and 3.

SEASONAL PATTERN OF UTILIZATION OF CLASS I PRODUCTS

The seasonality in milk production per cow and in the number of cows milked are the largest factors contributing to seasonal changes in the milk volume delivered by farms to plants and dealers. Grade "A" milk cannot be stored over a long period and the quantity that is not sold as Class I within a reasonable length of time usually is converted into manufactured dairy products. Seasonality of Class I utilization mater-

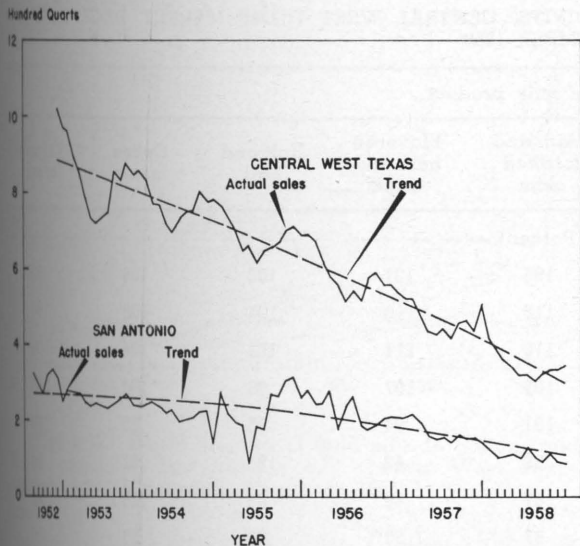


Figure 10. Trends in sales of coffee cream, San Antonio and Central West Texas Markets, July 1952 through December 1958.

ially affects seasonality of prices received by producers and the efficiency of milk packaging and distribution operations. Therefore, seasonality of fluid milk utilization as Class I is of great concern to dairymen, milk handlers and distributors.

The seasonal pattern of utilization of Class I products is indicated in Table 4 for the San Antonio Market and in Table 5 for Central West Texas. Generally, utilization of Class I milk and milk products is highest during the fall and winter and lowest during spring and summer. However, for all products except buttermilk and half

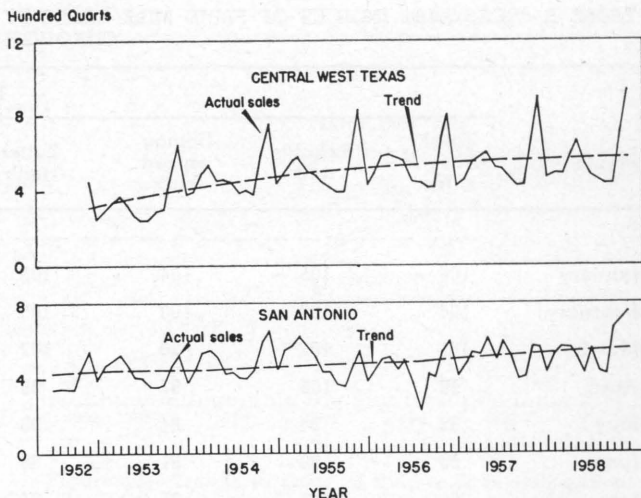


Figure 11. Trends in sales of whipping cream, San Antonio and Central West Texas Markets, July 1952 through December 1958.

and half there is greater seasonal fluctuations in sales in the Central West Texas Market than in San Antonio. During spring and summer, many fluid milk consumers substitute iced tea and other cold soft drinks for milk. Termination of the school lunch program during summer also accounts for the seasonality in fluid milk utilization.

Utilization of regular and homogenized milk and skim and fortified skim milk followed the general seasonal pattern and magnitude of total packaged sales on Class I products in San Antonio, while in Central West Texas utilization of these three products plus half and half, butter-

TABLE 4. SEASONAL INDICES OF FLUID MILK SALES BY PRODUCTS, SAN ANTONIO MARKET, JULY 1952 THROUGH DECEMBER 1958

Month	Type of milk product								
	Total Class I sales	Regular milk	Homogenized milk	Buttermilk	Skim and fortified skim	Flavored milk and drink	Half and half	Coffee cream	Whipping cream
	Percent								
January	99	101	100	93	100	104	104	100	83
February	101	102	101	96	106	112	106	113	102
March	102	102	101	97	103	100	103	103	111
April	100	102	100	99	101	101	104	104	115
May	98	100	98	100	100	99	97	98	114
June	98	99	98	101	99	72	94	91	98
July	99	99	99	112	95	76	92	95	95
August	99	98	100	110	97	81	92	89	88
September	102	100	102	110	98	127	96	94	80
October	103	100	102	102	104	128	102	101	83
November	101	98	101	93	100	108	104	103	111
December	98	99	98	87	97	92	106	109	120
Average	100	100	100	100	100	100	100	100	100

TABLE 5. SEASONAL INDICES OF FLUID MILK SALES BY PRODUCTS, CENTRAL WEST TEXAS MARKET, DECEMBER 1952 THROUGH DECEMBER 1958

Month	Type of milk product								
	Total Class I sales	Regular milk	Homogenized milk	Buttermilk	Skim and fortified skim	Flavored milk and drink	Half and half	Coffee cream	Whipping cream
	----- Percent -----								
January	106	105	104	105	105	121	105	108	82
February	104	102	103	105	110	119	105	108	91
March	101	102	99	102	110	111	101	104	106
April	98	105	97	99	109	107	96	100	109
May	92	94	94	96	101	94	95	95	108
June	90	96	91	96	89	49	94	91	99
July	91	91	95	94	87	48	94	90	88
August	93	96	96	97	87	53	97	95	82
September	106	100	104	98	94	134	98	95	76
October	107	102	104	102	102	140	102	103	77
November	108	105	107	105	104	124	106	107	123
December	104	102	106	101	102	100	107	104	159
Average	100	100	100	100	100	100	100	100	100

milk and coffee cream followed the general pattern and magnitude of total sales. Seasonal fluctuations of a greater magnitude than total Class I utilization were registered by flavored milk and whipping cream in Central West Texas and by buttermilk, flavored milk, half and half, coffee cream and whipping cream in San Antonio. In both markets flavored milk and whipping cream sales fluctuated more than sales of any other product. In both markets utilization of whipping cream is higher in December, April and May. This reflects increased use of whipping cream during the Christmas holiday season and the fresh berry season in the spring. In Central West Texas twice as much whipping cream is utilized in December as in September and in San Antonio utili-

zation during December is 50 percent greater than during September.

Of the eight products in both markets for which seasonal indices of sales were determined, only buttermilk in San Antonio registered larger utilization during the summer and early fall than during the winter and spring months. In San Antonio larger-than-average utilization occurred from June through October. In July, the month during which the largest sales were reported, 30 percent more buttermilk was utilized than during December, the month during which sales were lowest. Since a high proportion of the population in San Antonio is of Latin-American origin, this indicates that buttermilk as a summer drink is favored more by persons born in Mexico or who are otherwise Latin-Americans than it is among Anglo-Americans.

TABLE 6. PERCENT OF DAILY FLUID MILK SALES IN VARIOUS SIZE CONTAINERS, SAN ANTONIO MARKET, JULY 1952 THROUGH DECEMBER 1958

Year	Container size				
	Gallons ¹	Half gallons	Quarts	Pints	Half pints
	----- Percent of total sales -----				
1952 (last 6 months)	4.3	6.9	86.3	.3	2.2
1953	5.7	12.9	71.0	.3	10.1
1954	8.3	20.7	57.1	.3	13.5
1955	8.7	37.3	37.7	.6	15.7
1956	9.8	43.9	31.4	.9	14.0
1957	19.0	47.1	25.2	.9	7.8
1958	23.5	46.1	21.5	.9	8.0

¹Includes sales in containers larger than 1 gallon, such as bulk dispensers.

USE OF VARIOUS SIZE CONTAINERS

Results of efforts to increase per capita and total consumption of packaged fluid milk and fluid milk products will be more beneficial to the dairy industry if the products desired by consumers are made available in the size and type of containers they prefer. For this reason dairy industry people desire more information on the relative amount of milk sold in different size containers.

In this study the different units used for each fluid product were combined to obtain the total number of each unit for all fluid milk products. For purposes of comparison these were converted to daily quart-equivalents. The per-

Thousand Quarts

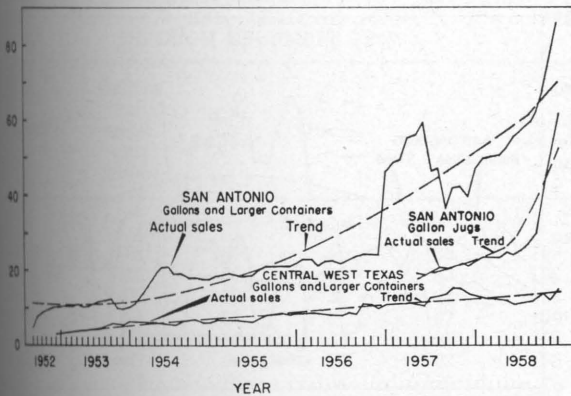


Figure 12. Trends in sales of fluid milk in gallons and larger containers, San Antonio and Central West Texas Markets, July 1952 through December 1958.

centage of total packaged Class I sales that was sold in each size container is indicated in Table 6 for San Antonio and in Table 7 for Central West Texas.

Gallon and Larger Containers

The gallon sales referred to include sales made in gallon-size containers, plus bulk dispenser milk and milk sold in 5 and 10 gallon containers to restaurants, military installations, hospitals and such. From 1953-56 sales in gallons and larger containers increased from 10,916 quart-equivalents per day to 59,586 quarts, or an increase of more than fourfold in San Antonio, and from 4,606 quarts to 12,737 quarts per day in Central West Texas or an increase of 177 percent. Figure 12 shows the trend in the sale of fluid milk in gallons and larger containers in both markets. In San Antonio the volume of fluid milk sold in gallons and larger containers represented only 5.7 percent of total sales of packaged milk products in 1953 but increased to 23.5 percent of total sales in 1958. In Central West Texas sales in gallons and larger containers represented 3.6 percent of total sales in 1953 and 6.8 percent in 1958.

In January 1957, daily sales of fluid milk in gallons and larger containers in the San Antonio market registered an increase of almost 100 percent over December 1956, the previous month, while sales in half pints decreased by almost one-fourth and total sales increased 11 percent. This indicates that sales in half pints under contract to institutions were substituted by contracts for fluid milk in gallons and larger containers.

Sales of fluid milk in gallon-size containers have been reported separately from sales in larger containers in the San Antonio market since May 1957. During that month an average of 19,638 quart-equivalents per day was distributed in gallon containers. During December 1958 this had increased to an average of 61,713 quart-equivalents per day or an increase of 214 percent, Fig-

Thousand Quarts

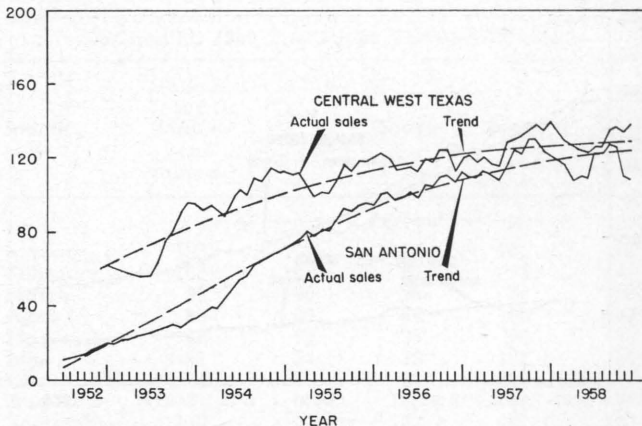


Figure 13. Trends in sales of fluid milk in half gallons, San Antonio and Central West Texas Markets, July 1952 through December 1958.

ure 12. Most of that increase occurred during October, November and December 1958.

Half Gallons

The sale of packaged fluid milk in half-gallon containers on a quart-equivalent basis in both markets is shown in Figure 13. Sales in this size container have increased each year since 1953 except during 1958 in San Antonio. Most of the increase in the use of half-gallon containers occurred at the expense of sales in quart containers which declined in both markets since 1952. The slight decrease in milk sales in half-gallon containers in San Antonio during 1953 was due primarily to the large increase of milk sales in gallon containers.

Sales in half-gallon containers amounted to 6.9 percent of total Class I milk sold in San Antonio during the last 6 months of 1952. During 1957 this had increased to 47 percent of total sales but decreased to 46 percent in 1958, Table 6. In Central West Texas sales in half-gallon containers represented 53 percent of total Class I milk sales in 1953 and 70 percent in 1958, Table 7.

TABLE 7. PERCENT OF DAILY FLUID MILK SALES IN VARIOUS SIZE CONTAINERS, CENTRAL WEST TEXAS MARKET, JANUARY 1953 THROUGH DECEMBER 1958

Year	Container size				
	Gallons ¹	Half gallons	Quarts	Pints	Half pints
	--- Percent of total sales ---				
1953	3.6	53.2	33.5	.3	9.4
1954	3.9	62.0	25.4	.9	7.8
1955	4.4	64.9	20.6	1.2	8.9
1956	5.2	67.3	17.3	1.2	9.0
1957	6.9	68.9	14.3	1.3	8.6
1958	6.8	70.0	13.2	1.5	8.5

¹Includes sales in containers larger than 1 gallon, such as bulk dispensers.

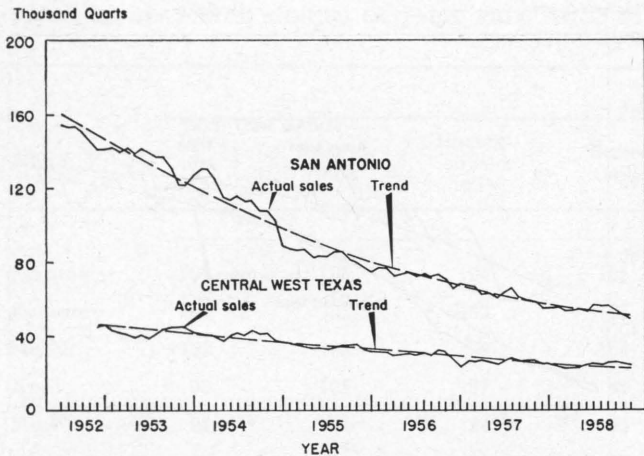


Figure 14. Trends in sales of fluid milk in quarts, San Antonio and Central West Texas Markets, July 1952 through December 1958.

Quarts

In San Antonio, 86 percent of all packaged fluid milk products were distributed in quart containers during the last 6 months of 1952, but during 1958, sales in this size container represented only 21.5 percent, Table 6. The sales volume decreased from an average of 135,395 quarts per day in 1953 to 54,515 quarts in 1958, a decrease of 60 percent.

In Central West Texas an average of 24,857 quarts, or slightly more than one-third of total Class I milk sales, were distributed per day in 1953, Table 7. However, in 1958 an average of only 24,725 quarts, or 13.2 percent of total sales, were distributed per day in this size container. Figure 14 indicates the sales trend of fluid milk products in quart containers in both markets.

Pints

Sales of fluid milk products in pint containers increased more than sixfold in Central West Texas and almost threefold in San Antonio from 1953-58. However, the volume distributed in this container size accounted for only .3 percent of

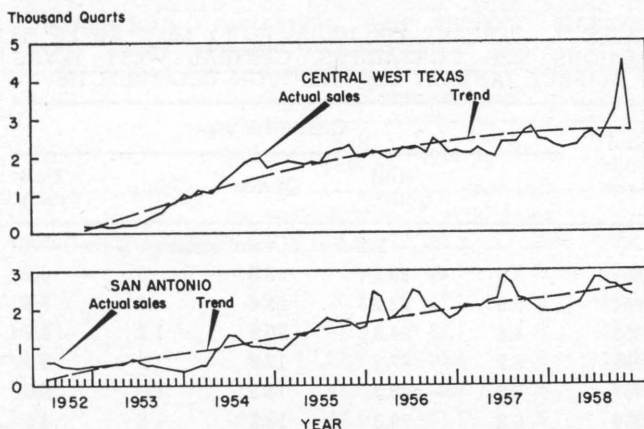


Figure 15. Trends in sales of fluid milk in pints, San Antonio and Central West Texas Markets, July 1952 through December 1958.

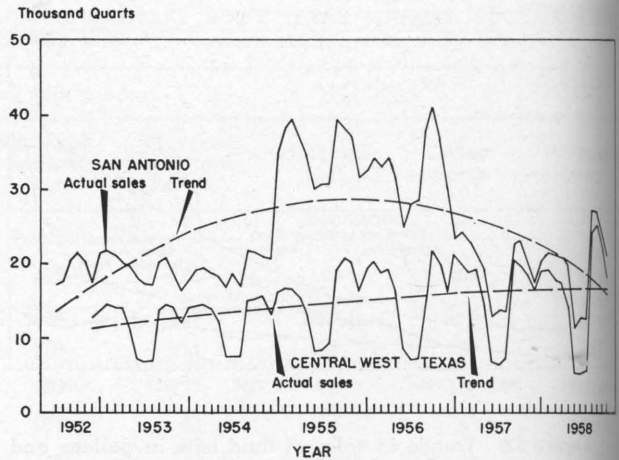


Figure 16. Trends in sales of fluid milk in half pints, San Antonio and Central West Texas Markets, July 1952 through December 1958.

total Class I sales in both markets in 1953 and represented .9 percent of total sales in San Antonio and 1.5 percent in Central West Texas in 1958, Tables 6 and 7. In 1953 daily sales in pint containers averaged only 574 quart-equivalents in San Antonio and 384 in Central West Texas. In 1958 this increased to 2,282 quart-equivalents per day in San Antonio and 2,810 in Central West Texas. The trend in milk sales in pint size containers for both markets are shown in Figure 15.

Half Pints

The sale of fluid milk products in half-pint containers on a daily quart-equivalent basis is shown in Figure 16. In Central West Texas sales in half pints increased from an average of 12,026 quart-equivalents per day in 1952 to 15,921 quarts in 1957. This represents an increase of 32 percent compared with an increase of 46 percent in total Class I milk sales during that period.

In San Antonio average daily sales increased from 19,343 quart-equivalents in 1953 to 20,284 quarts in 1958 or an increase of 5 percent. However, sales in half-pint containers reached their peak in 1955-56 when average daily sales amounted to more than 35,000 quart-equivalents. This represented an increase of 82 percent over the average daily sales in 1953. More milk was sold in half-pint containers during October 1956 than during any of the 78 months for which data is analyzed in this study. Average daily sales in 1958 amounted to less than 50 percent of the 41,017 quart-equivalents sold per day in October 1957.

Sales in half pints were 2.2 percent of total Class I utilization in San Antonio during the last 6 months of 1952. These sales increased to 15.7 in 1955, but in 1958 only 8.0 percent of total Class I sales were in half-pint containers, Table 6. In Central West Texas 9.4 percent of total Class I sales in 1953 were in half-pint containers and in

TABLE 8. SEASONAL INDICES OF FLUID MILK SALES BY SIZE OF CONTAINER, SAN ANTONIO MARKET, JULY 1952 THROUGH DECEMBER 1958

Month	Gallons and larger containers	Half gallons	Quarts	Pints	Half pints	Percent					
January	96	102	97	89	106						
February	100	102	98	93	106						
March	108	100	98	92	108						
April	106	99	97	97	104						
May	99	95	100	98	100						
June	99	92	98	102	79						
July	102	99	104	121	78						
August	104	102	104	121	75						
September	100	102	104	106	117						
October	102	103	103	101	121						
November	94	103	99	93	111						
December	89	101	98	87	95						
Average	100	100	100	100	100						

1958 sales in this container size represented 8.5 percent of the total, Table 7.

SEASONAL PATTERN OF SALES IN VARIOUS SIZE CONTAINERS

The seasonal pattern of Class I packaged sales in various size containers is indicated in Table 8 for San Antonio and Table 9 for the Central West Texas market. Generally, in both markets sales in gallon and larger containers, half-gallon and quart containers follow the same pattern and degree of seasonal fluctuation as total Class I sales. However, sales in pint and half-pint containers follow a different pattern or degree of seasonal fluctuation. In both markets sales in pint containers are larger in the summer and fall than they are during the winter and spring. From 1953-58 in San Antonio, 40 percent more Class I fluid milk products were sold in pint containers during July and August than during December and January. This is attributed primarily to the heavier-than-average consumption of fluid milk products in this size container by high school students on summer vacation employment who are accustomed to drinking milk with their noon meal.

Although the seasonal pattern of sales of fluid milk products in half-pint containers in both markets follows the general pattern of total Class I sales, the degree of fluctuations in sales in half pints is eight times greater than it is in total

TABLE 9. SEASONAL INDICES OF FLUID MILK SALES BY SIZE OF CONTAINER, CENTRAL WEST TEXAS MARKET, DECEMBER 1952 THROUGH DECEMBER 1958

Month	Gallons and larger containers	Half gallons	Quarts	Pints	Half pints	Percent					
January	103	105	100	101	118						
February	103	103	96	93	121						
March	98	100	95	95	118						
April	98	96	94	92	114						
May	92	92	96	90	93						
June	91	94	99	101	59						
July	94	96	99	100	51						
August	91	97	103	98	52						
September	110	103	103	103	120						
October	107	103	107	113	131						
November	109	105	108	115	121						
December	104	106	100	99	102						
Average	100	100	100	100	100						

sales in San Antonio and four times greater in Central West Texas. In Central West Texas more than twice as much milk in half-pint containers is utilized per day from September through April as from May through August, while in San Antonio the average daily volume of milk sold in half-pint containers from June through August is only three-fourths as much as the daily amount sold during the other months.

The extremely low volume of milk sales in half pints during the summer months reflects the termination of the school lunch program during the summer vacation, resulting in decreased milk consumption by school children in that size container.

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