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## FACTORS AFFECTING FLUID MILK

## SALES IN URBAN MARKETS

A Report to Market Research and Economics Division AMERICAN DAIRY ASSOCIATION 20 North Wacker Drive Chicago, Illino is

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# THE TEXAS AGRICULTURAL MARKET RESEARCH AND DEVELOPMENT CENTER 

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# FACTORS AFFECTING FLUID MILK 

 SALES IN URBAN MARKETS
## by

Randall Stelly and John Nichols

## INTRODUCTION

This report is a summary presentation identifying those factors which can affect fluid milk consumption in a local market. The information required to measure these factors as well as data sources is provided. The research cities, Albuquerque, New Mexico; Austin, Texas; Minneapolis St. Paul, Minnesota; and Rochester, New York, were selected to provide a wide variation in the type of market considered and its geographic location.

This study was done for the American Dairy Association and conducted by the Texas Agricultural Market Research and Development Center.

## WHY THIS REPORT

- Per Capita consumption of milk has been declining (dropped 15\% from 1960 to 1969).
- There is concern over the need for more intensive milk promotion activities to overcome this trend.
- Evaluation of milk promotion programs is an important management function requiring knowledge of a large set of highly interrelated factors. The effect of numerous other variables must be accounted for in order to measure the effect of promotion programs. More that 100 items would have to be monitored.
- In order to evaluate promotion activities it is necessary to understand the role played by these other factors which affect fluid milk consumption and how they fit together.
- The purpose of this report is to present, in sequence, a summary of the major groups of factors which may affect the consumption of fluid milk in a specific market for a specific period of time.
- The probable importance of each market factor is indicated as a general guide to milk sales evaluation.

A more detailed discussion of these market factors, alternative measurement methods and further sources of information for them are presented in a separate report designed for those who have an interest in research to measure the effectiveness of specific promotion programs.

## WHO INFLUENCES THE MARKET FOR FLUID MILK

- Consumers ultimately determine the market through their basic attitudes toward and the way they use the product.
- Retailers, both food stores and eating establishments, influence the market through the way they display and merchandise milk.
- Handlers or distributors, by their choice of packaging, quality control and promotion also influence sales.
- Producers affect the market by the promotion and marketing efforts of their organizations and through their control over the basic milk supply.
- Competitive beverage firms influence the market for milk through the activities carried out in behalf of their products.


## WHAT "MAKES" THE MARKET FOR MILK

The level of consumption of milk is the result of many interrelated circumstances in the market. Some of these may be under the control of those individuals or groups who handle or own the product. Others are independent of individual control or influence of a group. They may be categorized as follows:

- Direct Activities in behalf of fluid milk sales such as advertising, merchandising, product availability, publicity, etc. These are controlled, in general, by someone in the industry.

The "public image" of milk is affected by either favorable or unfavorable publicity. The image of milk is often helped or hurt by medical reports and diet recommendations of doctors and others outside the dairy industry.

Sales activities in behalf of products which are related to fluid milk, either in competition (soft drinks, fruit drinks, milk substitutes, etc.) or complementary products (instant breakfast). These factors are independent of control but can be assisted or counteracted by the fluid milk industry.

- Changes in the economic or competitive environment of the market such as government programs, kind and level of employment and income conditions, nature of the consumer makeup of the market and competitive activities of handlers and retailers. Good marketing takes advantage of such changes insofar as possible.
- Changes in market size as affected by population and the transient movements in the market. These are beyond control of the Dairy Industry but are necessary as guides to market planning.


## SIMPLIFIED DIAGRAM OF FACTORS AFFECTING FLUID MILK SALES



## NEEDS AND PROBLEMS IN EVALUATING PROMOTIONS

NEEDS

- Identification of the principal factors which can affect fluid milk consumption in the market area concerned.
- Knowledge of the specific sources of data for each factor in the list.
- Determination of the unit basis of measurement to be used for each of the primary factors.
- Development of a running information record in each market factor for a selected time period before, during, and after the promotion program.
- Obtain the counsel of marketing research specialist in formulating the necessary information gathering systems.
- Arrange for a competent market research analyst to try to evaluate the results of the promotion from the market data outlined above. It often is not possible to measure the promotion results in a single market even with the large amount of information available.


## PROBLEMS

Effects of a promotion may be masked by changes in one or more other factors at the same time.

- Special attention must be paid to other promotions, or counter-promotions, for competing beverages occurring in the same time period. Included are mass media, in-store or direct to consumer market activities for competing beverages.

Development of sales data for fluid milk for only the promotion market concerned since federal order areas often are larger than the promotion area involved. Be sure the sales data are accurate for the area.

# CHECK LIST OF MAJOR GROUPS OF FACTORS AFFECTING FLUID MILK SALES 

To assist you -

On the following pages are listed the major factors
affecting fluid milk sales in most markets.

In each of the major groups, the factors are classified
as to -

- Why it is important
- Relative probable level of importance
- Kind of information required
- Usual information source


## MARKETING ACTIVITIES FOR MILK

Item
Importance

CHANGES IN ADVERTISING

## Handler Sponsored

Annual advertising expenditure of about $\$ 30$ million by handlers to support dairy products, or about 16 cents per capita.

Industry Sponsored
A.D.A and others spend about $\$ 20$ million per year to support dairy product advertising, or about 10 cents per capita.

Retailer Sponsored
Milk, for example, appeared an average of 20 times in a recent month among food store ads in a major paper in two metropolitan markets.

## CHANGES IN MERCHANDISING ACTIVITY

| In-Store Displays | Impulse buying affects $1 / 3$ to $2 / 3$ of all food purchases in retail stores. In <br> one supermarket a new dairy product display reportedly increased sales $42 \%$ <br> among total dairy products. |
| :--- | :--- |
| Special Promotions | Coupons, double stamp days at retail stores can also cover milk purchases. <br> About $37 \%$ of food chains gave trading stamps in 1970. |
| PRICE CHANGES | Al $\%$ price increase, associated with no other marketing changes usually <br> causes sales to drop $0.3 \%$. Average retail price increased $7 \%$ during the <br> last 2 years. |
| QUALITY OF PRODUCT | In a survey, $58 \%$ of samples did not have an acceptable odor after 10 <br> days and $74 \%$ after 14 Days. Average keeping quality ranged from 3.3 <br> to 5.7 days. Decreased frequency of pick-up, processing, and distribution <br> are critical factors. |


| For Market Sales Evaluation |  | $\frac{\text { Information }}{\text { Required }}$ | $\frac{\text { Information }}{\text { Source }}$ |
| :---: | :---: | :---: | :---: |
| Likely Occurrence | Importance if Occurs |  |  |
| High | High | $\$$ expenditure in local market area, no. of households reached by the ads. | Nationally based advertising audit services available through |
| High | High | \$ expenditure in local market area, no. of households reached by the ads. | market area. <br> Offices of all media outlets in your local market area; radio, television newspaper and billboard |
| Medium | High | Amount of ad space devoted to milk, retailers share of the area's milk sales. | sponsoring promotion for milk as appropriate. |
| Medium | High | No. of stores with special displays. | Offices of milk handlers operating in local market area. Offices of industry groups actively |
| Low | High | No. and kind of special deals offered and market coverage to which applies. | Office of dairy products merchandisers of retail food chains in the market. |
| Low | High | Retail prices of fluid milk, in retail outlets delivery routes, and eating establishments. | Food chain dairy product merchandisers. <br> Offices of handlers with home delivery routes, independent |
| Low | Medium | Days lapsed time from milking to final home use. | Offices of public health agencies of city and county. Dairy product, handlers. |

PACKAGING AND RETAIL AVAILABILITY OF MILK
Item Importance

CONTAINERS - PACKAGING
Changes in package designs can improve convenience of product handling, storage, and use. Competing products have capitalized on this.

AVAILABILITY IN RETAIL OUTLETS
Nearly 2,000 convenience food stores are opened each year which changes milk availability.

Home delivery routes are declining in number and frequency of delivery. Some people claim that home delivery enhances milk consumption. Proportion of fluid milk sales through home delivery decreased from 30 to $19 \%$ during the past 8 years.

| - | For Market Sales Evaluation |  | Information | Information |
| :---: | :---: | :---: | :---: | :---: |
|  | Likely Occurrence | Importance if Occurs | Required | Source |
| - | Low | Medium | Date of change in packaging and number of handlers and stores or homes involved. | Offices of chain store dairy product merchandisers and handlers. |
| - | Low | Medium | Changes in number of retail food stores. | Chain store dairy merchandisers, handlers, independent store managers and operators of restaurants and other eating establishments. |
|  | Low | Medium | Number of routes operated and number of homes included. | Milk Handler Sales Offices. |

## PUBLIC IMAGE OF MILK

Item
Importance

FAVORABLE PUBLICITY - GENERAL

Industry Sponsored

General News and Releases

| NUTRITION EDUCATION PROGRAMS | General attitudes toward milk may also be shaped by programs of home economists <br> and nutrition specialists. In March, $1971,32,300$ Texas homemakers participated in <br> the expanded nutrition program of the Extension Service foods and nutrition <br> specialists - plus all the mass media. |
| :--- | :--- |

FOOD MODIFICATIONS WITH PUBLICITY

UNFAVORABLE PUBLICITY

## INDUSTRY SPONSORED EDUCATION AND SUPPORT PROGRAM

Overall consumer attitudes toward fluid milk are constantly being modified by all forms of news and publicity in health, diet, and price issues in all media.

Some of these issues may be discussed favorably and clarified in publicity releases of industry groups. The impact of these releases, if handled properly, can have a positive impact on attitudes.

Similar positive effects may result from general news articles on the favorable aspects of milk.

General attitudes toward milk may also be shaped by programs of home economists位信 specialists - plus all the mass media.

Fortification and other processes for protein, minerals, vitamins, etc. increased the belief that "other foods can provide the nutrients of milk", and therefore, "milk is less needed."

The importance of this factor has been noticed in recent years in the controversy over cholesterol, heart disease, DDT and nuclear fallout.

Long term attitudes toward milk may be affected by active education programs. Changes in these programs may affect consumption during a promotion program. In March, 1971, 32,300 Texas homemakers participated in the expanded nutrition program of Extension Service food and nutrition specialists - plus all the mass media.

## PRICE SETTING PROCEDURES AND PRACTICES

Price wars are claimed to upset the consumer with respect to the fair or proper price for milk, and to lead to a poor image of the milk industry.

## NEW OR MODIFIED PRODUCTS WITH PUBLICITY

Sales of skim or low-fat milk increased from 7 to $21 \%$ of fluid sales from 1960 to 1970 while whole milk decreased from 88 to $74 \%$. "Milk" may be "more fattening."

| For Market Sales Evaluation |  | Information <br> Required | Information <br> Source |
| :---: | :---: | :---: | :---: |
| Likely Occurrence | Importance if Occurs |  |  |
| Medium | High | Measure of total publicity and news releases dealing with milk attitude studies. | Market Research |
| Medium | Moderate | Number of publicity releases appearing in the media in the market. | Review of media coverage. |
| Medium | High | Number of publicity releases appearing in the media in the market. | Review of media coverage. |
| Medium | Medium | Measure of Extension and nutrition education efforts. | Extension Home Economists; home economists for utilities |
| High | Medium | Number of publicity releases in market media. | Review of media coverage. |
| Medium | High | Number of publicity releases appearing in the media in the market. | Review of media coverage. |
| Medium | Medium | Measure of educational effort. | Local dairy council; handlers. |
| Medium | Moderate | Frequency and extent of price changes. | Handler Sales Records; Market Research. |
| Medium | Medium | Frequency and extent of sales of new or modified product attitude studies. | Survey of retailers and handlers. |

## CHANGES IN MILK SUPPLY AND MOVEMENT

## Item Importance

| Item | Importance |
| :--- | :--- |
| CHANGES IN MILK SANITARY |  |
| REGULATIONS |  |$\quad$| Can eliminate small distributors and reduce supply area and affect interstate |
| :--- |
| shipments of milk. |


|  | For Market Sales Evaluation |  | Information Required | Information Source |
| :---: | :---: | :---: | :---: | :---: |
|  | Likely Occurrence | Importance if Occurs |  |  |
|  | Low | High | Number of milk suppliers affected and change in quantity of milk sold. | Producer cooperatives. Local and state health authority offices. |
|  | Low | Medium | Nature of action and supply and price changes. | Office of local milk market administrator. Local handlers in the market. |
| - | Low | Medium | Changes in supply sources and volume involved. | Offices of local dairy cooperatives, milk handlers, and retail stores. |
| - | Medium | Low | Source of supply for contract deliveries and quantity. | Offices of the Director of Information at military base located in local market area. |
| - | Low | Medium | Weather data on number of severe weather condition days. | Records from local weather bureau office. Information from local dairy coops and handlers. |
|  | Low | High | Extent and duration of action. | Local dairy coops, handlers, and retail stores. |
| - | Low | High | Number of days in effect and quantity of product involved. | Milk order office, office of county Extension Agent. |
| - | High | Medium | Number of new packages, extent of use. | Market Research and Surveys. |

## MARKETING ACTIVITIES FOR COMPETING BEVERAGES

## Item <br> Importance

CHANGES IN LEVEL AND AMOUNT OF ADVERTISING

## Product Manufacturers

| Soft Drinks | Spent $\$ 97$ million in 1969 or 48 cents per capita. Pepsi Cola increased - <br> Coca Cola increased. |
| :--- | :--- |
| Coffee | Outlay of $\$ 58$ million in 1969 or 29 cents per capita. |
| Tea | Spent $\$ 12$ million in 1969 or 6 cents per capita. |
| Juices | Outlay of $\$ 40$ million in 1969 or 20 cents per capita. |
| Beer and Ales | Chent about $6 \%$ of sales on advertising in $1967-68$. <br> following average result. |
| Retailers in January, 1971, two major markets found |  |
| Soft Drinks | Soft drinks adver tised 20 times. |
| Coffee | Coffee ads appeared 40 times. |
| Tea | Tea included in ads 2 times. |
| Juices | Juices appeared 90 times in food store ads. <br> handle beer. |

## CHANGES IN MERCHANDISING ACTIVITY

| In-Store Displays | Recent test of special display increased sales of unadvertised orange drink <br> by about $360 \%$. Special coffee display increased sales $280 \%$. |
| :--- | :--- |
| Special Promotions | Double stamp or bonus stamps can increase sales up to 5 times usual level. <br> $23 \%$ of supermarkets make use of multiple stamp days. |
| Coupons | Close to 17 billion coupons were used in 1969 by food and drink processors <br> in the U.S. in various sales and consumer incentive programs $81 \%$ of grocery <br> companies use premiums in consumer promotion. |



| High | High | Audit of food store ads in newspapers, television, radio. <br> Record of special door to door circulars by mail or otherwise. | Survey of advertising directors for food chains in local market area. Use of local auditing service to spot and keep records on advertising by retailers in local market area. |
| :---: | :---: | :---: | :---: |
| High | High |  |  |
| High | High |  |  |
| High | High |  |  |


| High | High | Type and number of special <br> promotions, number of stores <br> and products involved. | Food chain product merchand- <br> isers for local market area. |
| :---: | :---: | :---: | :---: |
| High | Moderate | Survey of sample of retail outlets <br> in the market to obtain data. |  |

## Item

## Importance

## PRICE SPECIALS

| Manufacturers | Use of couponing, and cents off deals are increasing for beverages. |
| :--- | :--- |
| Retailers | Competing beverages advertised an average of 45 times per week in <br> January 1971 in two major metropolitan markets surveyed. |

NEW PRODUCT INTRODUCTIONS

| Coffee | Freeze dried coffees introduced. One company spent $\$ 0.51$ million <br> on radio spots alone for their brand. |
| :--- | :--- |
| Tea | Instant and flavored teas increase convenience and can thereby affect <br> frequency of use. |
| Beer | New light beers according to recent reports, scheduled to enter markets <br> in 1977.72 and can appeal to present non-beer drinkers. |

PACKAGING AND PRODUCT AVAILABILITY

Container Sizes
Soft drinks in cans, non-return bottles influence convenience of use.

| Vending Machines | Vending sales, all items, up about $10 \%$ per year since 1965. Soft drink <br> sales through vending machines totaled $\$ 1.3$ billion in 1969. Milk sales <br> were only $\$ 114$ million. Number of soft drink vending machines in U.S. <br> increased $62 \%$ from $1967-69$. |
| :--- | :--- |
| Changes in Number of Retail <br> Food Store Outlets | Total number of retail food stores decreased $11 \%$ according to U.S. <br> Census during $1963-67$. |
| Eating Establishments | Franchise food establishments with limited menus represent increasing <br> share of the market. |



## GOVERNMENTAL PROGRAMS AND ACTIVITIES

## Item Importance

## SUBSIDIZED SCHOOL LUNCH PROGRAM

## CHANGE IN NUMBER MEALS SERVED, BY SEASON

1.6 billion lbs. ( 16 mil. cwt .) of milk per year is used in school lunch program.

Seasonality is a big factor in use through schools. Ex: 354 mil. $1 / 2$ pts. in October but only 40 mil. in August 20 mil. children served in December, 1968 but only 200,000 in July, 1969.

CHANGE IN FOOD STAMP PROGRAM AND SURPLUS COMMODITY DISTRIBUTION

Both food stamp and surplus distribution programs can result in increasing per capita consumption by low income families.

DISASTER RELIEF DISTRIBUTION

SCHOOL BREAKFAST PROGRAMS

## HEAD START PROGRAM

A growing number of children and schools are coming under this program.

As more public school systems adopt this program it will not only result in increased milk consumption by the younger children but also affect the seasonality.

| - | For Market Sales Evaluation |  | Information Required | Information <br> Source |
| :---: | :---: | :---: | :---: | :---: |
|  | Likely Occurrence | Importance if Occurs |  |  |
|  | High | High | Number of schools and number of children involved in subsidized lunch program. | Public and parochial school administration. |
|  | High | High | Number of meals served and volume of milk used. | Public and parochial school administration. |
| - | Medium | Medium | Changes in products available in food stamp program, frequency volume; number of families or persons involved. | Local Food Stamp Office, County Welfare Office. |
| - | Medium | Medium | Duration, number of people and volume distributed. | Local Office of Civil Defense, County Welfare Office. |
|  | High | Medium | Number schools in the program and number children involved, or volume of milk used. | Public and parochial school administration. |
| - | High | Medium | Number of children in the program and number children involved, or volume of milk dispensed. | Public and parochial school administration. |

## ECONOMIC, SOCIAL AND OTHER MARKET CONDITIONS

## Item Importance

## CHANGES IN DISPOSABLE INCOME FROM :

Employment Level in Market Area $\quad$| Employment level in local market area will fluctuate seasonally and over |
| :--- |
| longer periods as basic economic conditions change. Unemployment has |
| increased from $3.5 \%$ to approximately $6 \%$ in the last year in the U.S. |

General Level of Wages and Salaries
Shifts in wage levels reflect changes in income levels. Studies have shown that income and price together account for $52 \%$ of variation in milk consumption.

| Strikes and Work Stoppages, or Overtime | Temporary interruptions in employment can have strong effects on <br> consumption levels of fluid mik through the sudden changes in income <br> which may result. For example, the number of man-days idled due to <br> strikes tripled during the recent strike in the auto industry. |
| :--- | :--- |

## CHANGES IN COST OF LIVING

## CHANGE IN AGE DISTRIBUTION OF POPULATION AND BIRTH RATE

Increases in cost of goods and services cause a readjustment of spending patterns by consumers. Over the last three years general food prices have increased $11 \%$ while prices of fluid milk have increased $7 \%$ at retail.

| CHANGE IN AGE DISTRIBUTION OF POPULATION AND BIRTH RATE | Studies have shown that consumption of milk varies with age and is higher among children. The addition of one child under 4 years of age to a household will increase household milk consumption 1.46 quarts per week. There were 3 million less persons in 1970 under 5 years of age compared with 1960. This is a decline from $11.3 \%$ of the population in 1960 to $8.4 \%$ in 1970. |
| :---: | :---: |
| CHANGES IN ETHNIC GROUPS POPULATION | Blacks and Spanish-speaking people drink less milk. Previous studies indicate that the average white household uses 3.6 quarts of milk more per week than the average colored household. |
| CHANGES IN THE RATIO OF "BLUE COLLAR" TO "WHITE COLLAR" WORKERS | Blue collar workers are much better milk consumers, and are dropping in relation to white collar workers - from 41.4 to $35.5 \%$ of working force from 1960 to 1969. |
| CHANGES IN AWAY-FROM-HOME EATING | Away-from-home eating is increasing. The probability of drinking milk at a meal away from home is only about haff that of a meal at home. The trend is away from fancy restaurants to fast food shops where competing beverages are heavily consumed. |
| MILITARY POPULATION | Changes in military population not only affect milk consumption directly, bu may affect the economy of the area. Records at Bergstrom Air Force Base in Austin show milk sales through comissary amount to 190 pounds and cheese 9 lbs. per capita per year. In addition $1 / 3$ as much cheese $+10 \%$ as much milk is dispensed through mess halls. |



FACTORS AFFECTING CONSUMER SHOPPING HABITS AND MOBILITY
Item
Importance

CHANGES IN PAYROLL PERIOD

NUMBER OF WEEKENDS AND HOLIDAYS IN PERIOD

Payroll periods (singly in combination with other periods) are days of heaviest shopping traffic.

## ADVERSE WEATHER CONDITIONS

In a survey, $51 \%$ of retailers reported Saturday as heaviest shopping day for milk. Number of weekends also affect monthly sales.

Severe weather conditions affecting consumer mobility or consumption habits could result in substitution of other beverages and nonfat dry milk for fluid milk.

## SIZE OF MARKET

Item Importance

## CHANGES IN POPULATION TREND

Number of people and/or number of families in the market will directly affect the level of total milk consumption in the market.

## SHORT TERM CHANGES IN NUMBER OF PEOPLE IN MARKET AREA

Movement of large numbers of people into or out of a market for short periods of time such as colleges, universities, conventions, etc. has a significant impact on total milk consumed in the market.

| For Market Sales Evaluation <br> Importance if Occurs | $\frac{\text { Information }}{\text { Required }}$ | $\begin{aligned} & \text { Information } \\ & \text { Source } \\ & \hline \end{aligned}$ |
| :---: | :---: | :---: |
| Moderate | Number of payroll periods and frequency. | Payroll offices of major employees. |
| Moderate | Variation in number of peak shopping days in period. | Sample of major retailers. |
| Moderate. | Excessive rainfall, or temperature changes. | Weather Bureau records. |
|  |  |  |
| For Market Sales Evaluation <br> Importance if Occurs | $\frac{\text { Information }}{\text { Required }}$ | $\frac{\text { Information }}{\text { Source }}$ |
| Moderate | Changes in number of people and number of families. | Chamber of Commerce; census bureau statistics; universities, colleges. |
| $\underset{\text { High }}{\text { (for duration) }}$ | Number of people in attendance; length of stay; food expenditures. | Colleges, universities, convention bureaus, Chamber of Commerce. |

