

DAIRY SALES DATA AND OTHER DATA NEEDED TO MEASURE EFFECTIVENESS OF DAIRY ADVERTISING

(Including an Inventory of Available Data)

by

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EXECUTIVE SUMMARY

The dairy farmers of the United States now invest, through mandatory assessment, about \$200 million annually in dairy promotion and research activities. About 75 percent or \$150 million is invested in media advertising and other promotion efforts. Effective and efficient evaluation efforts and optimum management strategies are not possible with the data that are currently available.

This report is the result of a thorough evaluation of the data available and the data needed for effective evaluation. The objectives and procedures are presented in Chapter I. The data needed along with the reasons they are needed are presented in Chapter II. An inventory of data currently available is presented in Chapter III with a detailed description of each data series in Appendix C. Suggestions and recommendations for a data base necessary for evaluation are presented in Chapter IV.

The main points presented in the "suggestions" chapter are summarized below. Data of the kind suggested are absolutely necessary for effective and efficient evaluation and for optimum management strategies for the dairy promotion effort. Without an adequate data base effective evaluation is impossible. Without effective evaluation optimum management is not likely. Without optimum management the return to dairy farmers will not be as great as it might be.

The main points of the "suggestions" chapter are:

(1) The evaluation data base must include measures of dairy product promotion, dairy product consumption and "other factors" which influence dairy product consumption.

(2) Currently available public sector consumption data are not adequate for promotion evaluation purposes.

(3) The priority should be to obtain new consumption data measured at the level of the distribution system which is as close to the consumer as possible and encompassing both at-home and away-from-home consumption situations.

(4) New consumption data should be collected for the entire nation and for six major individual market areas.

(5) The new consumption data should be collected in such a way that the variations in the promotion effort and the consumption of various dairy products can be investigated.

(6) In obtaining the new consumption data, monthly observations are essential.

(7) Two approaches are proposed for the collection of new consumption data, a consumer diary panel survey and/or retail food establishment audits.

(8) Generic dairy promotion data should be collected for each of the major promotional activities.

(9) Generic dairy promotion data should be collected in such a manner that the level of expenditures and quality of the effort can be consistently identified.

(10) Generic dairy promotion data should be aggregated at levels that are consistent with the consumption data.

(11) Generic dairy promotion data from various dairy promotion organizations should be collected in a consistent and comparable manner.

(12) Many "other factors" influence consumer purchase behavior and information must be collected on them as well. They are (a) prices of the dairy products, (b) prices of competing products, (c) promotion of competing products, (d) branded promotion of dairy products, (e) population and population characteristics, (f) external factors, and (g) deflation indices.

(13) The evaluation data base is not a substitute for consumer awareness and attitude type tracking studies.

(14) The evaluation models should be considered an important component of the dairy promotion management information system.

(15) Cost efficiency could be achieved through cooperation with other commodity promotion groups.

(16) The public sector should still be looked to as an important source of data and should be encouraged to expand the amount of information on dairy product production and product movement through the distribution system.

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Chapter I

INTRODUCTION

The dairy farmers of the United States currently contribute \$200 million annually to support regional and national promotion and research programs. This current level of support is the consequence of a mandatory assessment of 15 cents per hundredweight of milk marketed by dairy farmers. The mandatory assessment is authorized by The Dairy and Tobacco Adjustment Act of 1983 and implemented through a National Dairy Promotion and Research Order issued by the USDA on March 23, 1984.

The Act and the Order specify that an evaluation of the program under the Order is to be conducted annually. To date attempts to evaluate the effectiveness of the relatively large number of advertising, promotion and research activities have been only partially successful. The National Dairy Promotion and Research Board (NDB), the organization which is responsible for evaluation, and others feel that more reliable data are necessary to effectively and efficiently measure the sales response to dairy promotion efforts.¹

Although analysts have achieved some success in the evaluation of fluid milk promotion, attempts to measure the promotion effectiveness of other dairy products such as cheese have not been successful. It is questionable whether any attempt should be made to evaluate the other promotion efforts, (e.g. the ice cream, butter and calcium campaigns), until a more reliable data base is available.

The Act and Order indicate that the NDB should coordinate their promotion efforts and the promotion efforts of the several other qualified promotion organizations of which there are about 80 (Tauer and Forker). Such coordination will be possible only if an appropriate and reliable data base is available. But even more important, reliable data are necessary in the development of advertising and promotion strategies. The cost of lost opportunities from inadequate knowledge about the advertising and sales relationship is potentially as large as the \$200 million assessment.

The overall purpose of this report is to define the type of data that is necessary for effective evaluation.

OBJECTIVES

This report is designed to satisfy the following objectives:

1. To define the type of sales data, advertising expenditure data and other data important to the ongoing success of the process of evaluation of the effectiveness of generic advertising for milk and dairy products.
2. To develop an inventory, as well as to evaluate the quality of data available from public and commercial sources as to sales of milk and dairy products, advertising expenditures for milk and dairy products, as well as other data

¹ USDA. Report to Congress on the Dairy Promotion Program. July 1, 1986. pp. 12-19.

relating to factors believed to influence the demand for milk and dairy products.

3. To identify data needed but not available, and
4. To explore means of obtaining needed, but not available data, and to evaluate costs of obtaining needed data.

PROCEDURES

The project had three phases which addressed, in sequence, the objectives listed above.

1. Phase I. The data needs.

Three steps were involved in defining the data needed for program evaluation and management. First, a discussion paper was prepared that presented the theoretical bases and practical issues of selecting a data base for program evaluation and program management. This paper was distributed to 36 professionals with a knowledge and understanding of advertising, promotion research, economic analysis, and the dairy industry.

Second, twenty-nine of these individuals participated in one of three workshops sponsored by NDB. Members of the NDB staff and the authors of this report also attended the discussion. (See Appendix A for a list of participants.) Individual participants provided a tremendous amount of additional insight into the issues and made many suggestions for data needs.

Third, the many ideas obtained from the workshops were merged with theory and the authors' understanding of research methodology along with practical considerations to develop a Needs Statement. The statement is Chapter II of this report.

2. Phase II. Inventory of available data.

The list of available data was collected from many individuals. Statistical publications from USDA, the Bureau of Labor Statistics and other public agencies were collected and reviewed. Appropriate data series were identified and analyzed. Persons responsible for the collection and preparation of many of the data series were interviewed to obtain more information about method of collection, reliability and representativeness of data series. In addition, information was obtained from market research firms to determine data currently or potentially available from private firms.

About 60 different data series or sources were identified. Chapter III is a summary statement about the type and quality of the data available from public agencies and from private market research firms. Detailed information about each data series or source is presented in Appendix C.

3. Phase III. Recommendations.

The last phase involved the development of suggestions for the kind and type of dairy sales and other data that should be collected to efficiently and

effectively measure the effectiveness of dairy promotion. This was accomplished by comparing the available data (Chapter III) with the data needed (Chapter II), identifying the gaps and then developing alternative ways to fill the gaps. Quality considerations along with cost and personnel requirements were considered. The recommendations are presented in Chapter IV.

OVERVIEW OF RECOMMENDATIONS

An evaluation data base and a management information system (MIS) are proposed. For the evaluation data base, two approaches are suggested for the collection of dairy product sales data. Both involve private market research firms. One involves the establishment of a diary panel to collect estimates of at-home and away-from-home food purchases. The other involves store audit procedures to collect information on sales through retail food stores and purchases by away-from-home eating establishments. The choice between the two approaches will depend on the results of further discussions with market research firms as to the quality and costs associated with the alternative arrangements. It is suggested that firms be asked to submit formal proposals and bids to fine tune the decision process.

Either of the two approaches will enable the concurrent collection of related variables such as dairy product prices and the prices of competing products. If the diary panel approach is used, information on those consumer characteristics which influence the consumption of milk and dairy products can also be obtained concurrently. However if the store audit approach is used, information on consumer characteristics will need to be collected independently, either through public or private sources.

It is further suggested that the dairy promotion effort be measured in terms of actual expenditures and gross rating points and that this information be collected from the records of the dairy promotion organizations.

Some of the data collected for evaluation should be incorporated into the MIS, which should also include simplified versions of the models used in evaluation research. These models could be used by management to simulate market conditions and consumer reaction to alternative promotion strategies. In addition the MIS should contain information on trends in attitudes and awareness obtained from tracking studies, and data on milk production, dairy product inventories and commercial disappearance of dairy products. These data when combined make the MIS useful for diagnostic and planning purposes.

The recommendations in Chapter IV are designed to provide direction to begin the design of the data collection process. More specific details will by necessity have to be worked out as the process is put in place. The initial data base should be extensive enough to provide the analysts and managers access to information on all the variables that might potentially be useful. With experience, the number of variables or data series can be reduced and refined.

Chapter II

DATA NEEDS

The attempt is not to arrive at a "wish list". Rather, the objectives of this chapter are to define and to develop the justification for the necessary data that may enable more fruitful research on the economics of generic dairy promotion. The justification is presented in the form of a debate. The debate itself is necessary because it facilitates an objective evaluation of the needs, and provides insight into how to satisfy those needs efficiently and effectively. The debate starts with the purpose of the data base.

SECTION 1

The Purpose of the Data Base

Since different usages of data imply different data needs, the first step in identifying the relevant data is to determine who will use the data. Potential user groups include the program managers and the directors of organizations such as the National Dairy Board, United Dairy Industry Association, and local promotion units; policy makers of Congress; the USDA Oversight Committee; researchers from public institutions such as Land Grant Universities; and researchers from the private sector serving as consultants to the dairy industry.

Even though certain basic data would be relevant for all users, differences in the way data are to be used may create the need for additional specialized data sets. As such, all potential needs cannot be anticipated and cannot be met with only one central data base. Given limited resources, priorities must be set regarding the specialized needs of various groups.

If the highest priority is assigned to the needs of the management group, it follows that the major objective of the proposed data base should be to enhance the performance of the current generic dairy promotion program. Specifically, the focus of this project will be to define a data base that will facilitate better decisions by the program managers so as to increase the sales impact of milk and dairy product promotion and, in turn to improve the overall competitive position of the dairy industry within the food and fiber system.

In accomplishing better management of the promotion program, it is essential for program leaders to have access to the information necessary for program design, implementation and coordination. The capability to conduct program performance evaluation and to understand the implications of the findings on modifications of program design are equally important. Thus, the proposed data base should be designed to support program managers in the following activities:

- (1) Strategic planning concerning the design of long-term program effort such as the optimal allocation of program funds across time periods, market areas, dairy products, media options, target audiences, and consumption situations.
- (2) Tactical planning necessary for the implementation of short-term actions such as the choice of advertisement and advertising agency.

- (3) Coordination designed to carry out promotional efforts in a cooperative manner among the various dairy promotional organizations.
- (4) Evaluation of program effectiveness in meeting the overall objective with the goal of indicating needed program modifications.

To support the above activities, it is necessary to establish the relationship between promotion and consumption of milk and dairy products. Accordingly, data on dairy product promotion effort and dairy product consumption are needed. To the extent that consumption is also influenced by economic and social factors, data on these "other factors" are also needed. Moreover, to facilitate efficient data collection and to ensure effective data analyses, the relevant information should be collected at appropriate aggregation levels.

Information on the above three components (promotion, consumption, and "other factors") constitutes an evaluation data base which not only will provide specific support for the evaluation activity [i.e., activity (4)] but will also be helpful for strategic planning, tactical planning, and coordination [i.e. activities (1) to (3)].

In addition to the evaluation data base, the needed data for the first three activities include "market facts" such as consumer attitudes toward dairy products; consumer awareness toward dairy promotion; and economic conditions of the dairy industry, of the media industry, and of the general economy. Furthermore, there is a need for a feedback mechanism to indicate the modifications implied by the evaluation activity. Important items of the feedback mechanism include evaluation models, auxiliary forecasting models for the explanatory variables in the evaluation models, and a set of program policy simulation models. The above three components (evaluation data base, "market facts", and the feedback mechanism) constitute a management information system.

The discussion in this section has defined the objective of the data base and the data needs generated by that objective. A diagrammatic view of the needed data is presented in Figure I. Specific issues which arise in collecting these data will be examined in the subsequent sections:

- Sec. 2: Measurement of the Dairy Product Promotion Efforts
- Sec. 3: Measurement of Dairy Product Consumption
- Sec. 4: Aggregation Dimensions
- Sec. 5: Measurements of "Other Factors" Affecting Dairy Product Consumption
- Sec. 6: Identification of the Management Information System
- Sec. 7: Summary and Conclusions

SECTION 2

Measurement of the Dairy Product Promotion Efforts

In estimating mileage per gallon for a car, the necessary data include not only the total distance traveled, but also the quantity of gasoline used. If the gasoline quality is not standardized (e.g., across brands of gasoline), the estimation procedure must account for variation in quality in order to permit meaningful comparison of the efficiency of cars. Otherwise, the estimation will overstate the efficiency of cars using premium gas.

Figure 1: Components of a Management Information System

EVALUATION DATA BASE

PROMOTION DATA

CONSUMPTION DATA

OTHER FACTORS DATA

AGGREGATION

MARKET FACTS

CONSUMER AWARENESS

CONSUMER ATTITUDE

MEDIA INFORMATION

DAIRY INDUSTRY STATISTICS

GENERAL ECONOMIC CONDITIONS

FEEDBACK MECHANISM

EVALUATION MODELS

AUXILIARY FORECASTING MODELS

POLICY SIMULATION MODELS

By analogy, estimating the effectiveness of a generic dairy promotion program requires data on the quantity and quality of the promotion effort (the "gas") as well as data on the sales of milk (the "distance traveled").

For the purposes of this discussion, the promotion effort is grouped into three program categories: (1) media advertising, (2) special promotion and (3) nutrition education.¹ For each of the three categories of promotional activities, it is essential to find a measure that captures both "quantity" and "quality" dimensions of the effort. The subsections that follow discuss this issue.

2.1. Measurement of Advertising Efforts

There are various approaches to measure advertising effort. For examples, in the case of television advertising, effort can be measured by the total amount of time (e.g., seconds) that a commercial has been aired over the course of a given period. In the case of print advertising, the total number of printed pages might be an appropriate measure of effort. Recalling the analogy, the "quantity" measure of advertising effort can be likened to measuring the efficiency of a car by the gallons of gasoline used. Problems arise, however, if "quality" of the advertising effort varies.

For example, since the size and composition of audience for a daytime television program is quite different from that for prime time television, the sales impact of a thirty-second commercial aired in a daytime program is not likely to be the same as that associated with an identical commercial aired during a prime time program. Likewise, due to differences in readership, a half-page printed advertisement in The New York Times is not likely to result in the same consumer response as compared to an identical advertisement in a local newspaper. These examples show that the "quality" of advertising is a function in part of where and when the advertisement is presented.

In addition to the number and type of targeted consumers reached, quality can also refer to the ability of an advertisement to deliver efficiently the intended message. In this latter case, "quality" depends on the advertisement design. For example, television advertising with vivid colors and a "catchy" theme might be regarded as high quality. For identification purposes, quality of this latter sort will be referred as the intrinsic quality defined as strictly dependent on the content of an advertisement. In contrast, extrinsic quality will be used to describe targeted consumer reach which depends on the exogenous media environment.

2.1.1 Measuring Intrinsic Quality:

Since the design of advertisements changes over time, a relevant question is how to represent the intrinsic quality in the data base. Measures such as the price

¹ Examples of advertising include television advertising, radio advertising, print advertising, and outdoor advertising. Examples of special promotions include couponing and point-of-purchase displays conducted at the retailing outlets. Examples of nutrition education programs include the distribution of educational audio and video tapes to designated targets, nutrition-related advertising in medical and other professional journals, and the distribution of nutrition education projects to schools.

the agency charges for designing an advertisement and the "talent fee per show" paid to the celebrity appearing in the commercial can be used as proxies for intrinsic quality. The assumption is that the production cost of an advertisement is correlated with its intrinsic quality. Another approach is to identify the "theme" associated with each advertisement. This would enable the analyst to capture the effects of various advertisements with specific "theme" orientations. The cost of producing an advertisement and information on the "theme" of the advertisement should be collected and incorporated into the data base.

2.1.2 Measuring Extrinsic Quality:

The amount of money spent on the placement of the advertisement is one possible measure to encompass both the "quantity" and "extrinsic quality" of the advertising. However, if the expenditure is to adequately capture extrinsic quality, the measure must systematically reflect differences in viewer reach. Typically, the advertising agencies provide volume discounts for large customers, especially if large amounts of advertising are purchased at the outset. Price depends on negotiation between those who run and those who place the advertising and the extent of the negotiation depends on the supply and demand conditions of the media industry at the time, leading to a highly variable pricing structure. Thus, expenditure measures alone cannot consistently or adequately take into account the extrinsic quality of advertising.

An alternative measure is a media rating point system such as Gross Rating Points (GRP) and/or Demographic Rating Points (DRP) which incorporate both the reach (a measure of "extrinsic quality") and frequency (a measure of "quantity") of advertising. The measure of media rating points is "physically" precise in the sense that both the quantity and extrinsic quality dimensions of advertising are accounted for.

However, rating points as measures of advertising effort do have limitations. The measure is available only for television and radio. For those advertising programs (i.e., print and outdoor) where no rating system is available, expenditures, perhaps with some additional adjustments for the pricing structure, will be appropriate.²

Another limitation has to do with reliability. The rating of a specific television program, for example, is based on the **forecasted** size of the program audience and, in the case of DRP, its demographic composition as well. Often expectations are not realized. For example, incorrect expectations about the audience appeal of an entertainment program or an unexpected special program aired by a competitive station can reduce the audience size below the forecast. Due to the complexity of the media industry, the magnitude of a realized

² In the case of print advertising, for example, different weights could be assigned to advertisements appearing in various publications according to the number of copies sold and/or demographic composition of the readership. For billboard advertising, an index encompassing the traffic load at the location where the billboard is placed, and the size and the demographic composition of the population of the corresponding market could be used as an extrinsic quality measure.

forecasting error can be rather significant. Hence, the media rating points measure is not as precise a measure of effort as desired.³

To adjust for the discrepancy between anticipated and realized ratings, advertising agencies conduct "post-buy analysis". The resulting "post-buy" GRP and DRP represent the reach and frequency actually delivered over the course of a given time period. In addition, adjustments are made in the billing to arrive at "post-buy" expenditures which should be regarded as an essential part of the data base in order to realize the most realistic measure of the advertising effort.

2.2. Measurement of Promotion Efforts

In addition to the data on the generic dairy advertising, measurement is needed for the special promotional activities such as couponing and point-of-purchase displays. This information is needed since it is possible that these promotion activities complement the generic advertising and, hence, failure to account for the activities will result in a biased estimate of the sales impact of advertising. As for advertising, the quality of various special promotion efforts varies, depending on the practice and nature of specific activities.

For example, coupons can be distributed to potential consumers through various distribution formats such as newspapers, magazines and special delivery "kits". It is well known that coupon redemption rates depend on the distribution format. Therefore, a coupon distributed through a leading women's magazine cannot be considered equivalent to the one appearing in a Wednesday local newspaper. Likewise, it is inappropriate to equate a point-of-purchase strategy of handing out recipes involving the use of dairy products with the posting of convincing messages about the refreshing attributes of milk.

Because of the diversity in the practice and nature of special promotion programs, a standardized scheme for incorporating quality of the activities into effort measurement is difficult. Hence, ad hoc as it might seem, emphasis should be placed on getting a reliable estimate of expenditures and detailed documentation of the activities.⁴ Then, researchers and program managers can use discretion in interpreting the data, depending on the focus of the subsequent studies.

³ A "make good" provision is usually available and can be made effective if the magnitude of the discrepancy is large. According to the current practice, if the realized GRP of a network television program falls short of the expectation by ten percent, the stations will make up the difference whenever possible. Even with the above mentioned provision, reliability problems associated with rating-points measures still exist because of the acceptable ranges of error are rather large (in the case of DRP, the range can be as high as twenty-five percent) and because of the necessary time lag involved in making up the discrepancy.

⁴ For example, in the case of measuring effort on couponing, the required data may include information on expenditures, number of coupons issued, the distribution channel used, the product involved, and/or the frequency of couponing within the course of a period. Special one-time studies are suggested to determine the appropriate evaluation methodology for special promotion programs and its implication on specific data needs.

2.3. Measurement of Nutrition Education Efforts

There are two reasons that data on nutrition education efforts are needed. First, due to the magnitude of expenditures, some understanding of the importance of such programs is essential. Second, since these programs also are intended to enhance consumption of dairy products, their influence on demand needs to be accounted for when evaluating the advertising effort.

Once again, the problem arises on how to account for variation in quality in measuring the effort level. In this case, the diversity of the programs completely rules out standardization. As with special promotion programs, the logical alternative is to obtain reliable estimates of expenditure levels along with detailed activity documentations.⁵

SECTION 3

Measurement of Dairy Product Consumption

To investigate the effect of promotion, precise measures of consumption are also needed. Three tasks of this section are: (1) to determine the point of measurement within the dairy distribution system, (2) to suggest whether the data should be collected at micro (individual consumer) or macro (a group of consumers) levels, and (3) to discuss the importance of collecting both at-home and away-from-home dairy product consumption and to explore major components of each of the two consumption situations.

3.1. Point of Measurement

Consumption can be measured at the consumer level, at the retail level, at the wholesale level, at the manufacturing level, or at the farm level. Data collected at various levels depict different kinds of demand and for each kind the determinants of demand are likely to be different. Thus, the key factor in choosing the appropriate point of measurement for consumption data is to determine the nature of the analysis in which the data will be used, i.e., which kind of demand is of interest? In so doing, explicit consideration of available theory is important. For promotion evaluation, the measure should be as close to the consumer level as possible.

To illustrate, consider advertising. From existing advertising theory (Nelson), the purpose of consumer advertising is to inform or persuade the audience about the desirability of the advertised product. Hence, the **direct** effect of advertising is on consumer purchasing behavior; while there is only a **derived** effect on, say, the farm level demand for the product. As such, most advertising

⁵ For an education program conducted in a classroom type setting, for example, the data might include expenditures, number of students in attendance and length of the course. Alternatively, if the program is conducted through displaying posters in medical clinics, data may include expenditures, size and content of the poster, number of clinics involved, and size as well as nature of the clinics. Special one-time studies are suggested to determine the appropriate evaluation methodology for nutrition education programs and its implication on specific data needs.

evaluation research uses consumer theory as the conceptual frame of reference. Specifically, the point of departure is that consumer demand is a function of advertising as well as other variables, and the impact of advertising on demand is evaluated through examining the estimated empirical equation (e.g., Kinnucan; Ward and McDonald; Forker and Liu).

Because advertising theory adopts consumer theory for evaluation research, the relevant measurement for consumption data should be consumer demand. Estimation of a direct relationship between consumer advertising and farm demand would violate the existing theory of advertising and lead to specification error; using sales figures at the farm level as a surrogate for consumer level consumption would violate consumer theory and lead to measurement error.⁶

Thus, in the context of evaluation research on consumer advertising, the rule of thumb should be to measure consumption as close to the consumer level as feasible.

3.2. Macro Versus Micro Consumption Data

In this discussion, macro data refer to series containing information on the aggregated consumption characteristics of the consuming population. Micro data refer to series containing information on individuals and on the idiosyncrasies of individual consumption patterns.

A major drawback of using macro data as opposed to micro data is the "averaging out" of the consumption impact. This "averaging out" has the effect of reducing the ability of analysts to pinpoint the sales effectiveness of the promotion effort. On the other hand, the "averaging out" of the measurement error inherent to any data collection process is an advantage of macro data. Hence, the choice between macro and micro data cannot be determined a priori; it depends on the focus of the research. Macro data are appropriate if the focus is to obtain insight into the aggregate relationship between promotion and consumption. Micro data are appropriate if the focus is to investigate the impact of individuals' characteristics on the effectiveness of the promotion effort.

3.2.1 Macro Data:

Since a lot of macro consumption-related data can be obtained from governmental sources, major advantages of using public macro consumption data are: (1) relatively low cost and (2) compatibility with data series for "other factors". Also, because they are collected over time, macro consumption data help

⁶ Measurement errors arise because the product under measurement still needs to be shipped and/or further processed through various levels of the distribution channel before it reaches consumers and, hence, the proportion of the product actually consumed out of the measurement depends on the inventories held by the players in the distribution channel and the extent of waste in the process.

describe the dynamic character of the consumption pattern in question, and consequently are well-suited to simulating policy proposals (Tomek).⁷

However, a major drawback of using macro data is that some important consumption determinants cannot be efficiently captured in a time series framework. Specifically, the absence of reliable accompanying time series data on demographic and socioeconomic characteristics presents problems in filtering out the consumption effects of "other factors". Even if such data were available, the "averaging out" of individuals' idiosyncrasies which occurs during aggregation would lower the likelihood of significant discrimination analyses of various impacts of the above mentioned "other factors".

3.2.2 Micro Data:

Since micro data contain information on individual consumers (or households), the data make it possible to do cross sectional analyses across individuals. However, the data can be single- or multiple-period in nature. Micro data obtained from a single-period survey can be used when promotion efforts vary across micro units. But promotion efforts usually do not vary across individuals in any known or predetermined way. In this case, observations over time have to be obtained because the "experiment" is not conducted on a cross sectional basis. Micro data collected over time are usually referred to as consumer panel data.

A major advantage of consumer panel data is the availability of information on each individual consumer or micro unit. This facilitates the pinpointing of the consumption effect of the promotion program. Since observations are multiple-period, the data can provide insight into the underlying dynamics of consuming behavior. In particular, information can be extracted regarding the consumption patterns of population subgroups (e.g., ethnic, age, etc.) and the dynamics of the promotion-consumption relationship for each subgroup can be explored.

Like macro data, consumer panel data are far from perfect. First, since special surveys have to be designed and implemented in obtaining information on micro units, a major drawback of consumer panel data as opposed to public macro data is cost. In coping with cost constraints, the compromises made in the survey

⁷ Macro consumption data can also be obtained from private firms collecting through various levels of the dairy distribution channel, including store-audit data and warehouse shipment data. Further elaboration on various consumption data sources can be found in Chapter III.

procedure may lead to **non-sampling errors** of certain types which have the effect of reducing the reliability of the micro data.⁸

3.3. At-Home and Away-From-Home Consumption

To what consumption situations should the consumption data pertain? Two different situations for dairy product consumption are at-home and away-from-home. Traditionally, consumption measures have focused on at-home consumption and, as a result, so has promotion evaluation research. Indeed, at-home food consumption expenditures historically have been a major part of the total consumer's food budget. Therefore, such a focus was appropriate. However, with increased incomes and labor force participation by more than one member of a household, the value of time for both men and women has increased. Accordingly, consumers are more willing to pay for value-added to their food products as a substitute for their time.

A recent study based on the 1977-78 National Food Consumption Survey found that food away-from-home and convenience foods together took almost sixty percent of the total food dollars expended (Capps, Tedford, and Havlicek). Some of the convenience food items which are fully or partially prepared by commercial food processors and distributors contain dairy products as major ingredients (e.g., cheese in frozen pizzas or TV dinners). For example, almost one-half of the cheese is now consumed away-from-home or as an ingredient in convenience food items (Connor). The increase in the value of households' time also contributed to the "McDonaldization" and the "proliferation of vending machines" of the country which have shifted the away-from-home consumption pattern from mainly full menu restaurants and institutional feeding places oriented to the whole spectrum of eating establishments (Buse).

Since dairy product promotion is likely to influence these newly emerging consumption situations, and since the decisions of consumers on these are interrelated (given limited income), data on the above are also needed. Specifically, not only information on both at-home and away-from-home dairy product consumption has to be collected, but also data for at-home usages should include both the traditionally defined direct consumption and the indirect consumption arising from utilizing those convenience food items which contain dairy products as major ingredients. Moreover, in collecting away-from-home data,

⁸ There are three non-sampling errors which are commonly found in consumer panel data. Noncoverage error refers to the situation in which some unit has no chance of being included in the panel. This can be due to economic constraints or an incorrect population count. The problem associated with noncoverage error is that, over time, the panel sample becomes less representative of the contemporary population in question. Measurement error occurs when incorrect data are collected and used. This can arise from a variety of reasons: recall error caused by memory loss and/or telescoping (e.g., forward shifting of the event in question into the designated time frame); time-in-sample error (i.e., the existence of previous interviews affecting the response of current interview); or item nonresponse error. Unit nonresponse error is the situation in which sampled units fail to respond to the request for an interview. This, in large part, arises from the problem of tracking interviewees over time because of the event such as death, birth, moving, formation, and dissolution of the household units, etc.

there is a need to incorporate consumption from institutional feeding places such as hospitals and schools; full menu restaurants; limited menu and fast food restaurants; vending machines and snack bars.

Data on at-home (direct and indirect) and away-from-home consumption can be obtained through consumer panel surveys.⁹ Extracting information using a consumer panel on direct at-home dairy product consumption can be accomplished by simply asking the question of what and how much are consumed. Extracting information on indirect at-home consumption and on away-from-home consumption, however, requires additional procedures. First, the convenience foods and away-from-home meals that contain dairy products as major ingredients must be identified. Second, a determination must be made of the amount of dairy products contained in them. Third, the quantity of the convenience foods and away-from-home meals consumed should be accounted for, along with the conversion factors that follow from steps one and two. Answers to the first two questions can be obtained through periodic market studies. Information on the last question can be obtained through consumer panel surveys.

There is also the issue of the "matching" problem when consumer panel surveys are used to obtain consumption information. In order not to pose too many questions to the panelists (so as to reduce the non-response rate), it is typical that, instead of using one individual panel for both consumption situations, an away-from-home panel and an at-home panel are used. Thus, in arriving at the total consumption data for the dairy product in question, the dilemma is whether one should add Smith's at-home consumption figure to Jones' or to Spencer's away-from-home consumption figure?¹⁰ If two separate panels are used, then only macro information such as averages of at-home and away-from-home consumption for specific demographic groups can be extracted and meaningfully analyzed.

SECTION 4

Aggregation Dimensions

Appropriate levels of data aggregation facilitate efficient and effective data collection as well as evaluation research. The aggregation dimensions considered here for dairy product promotion and consumption data are time period, product form, target audience, and market area.¹¹

⁹ Alternatively, at-home consumption data can be obtained through auditing retail store sales and away-from-home data through surveying the amount of milk and dairy products purchased by away-from-home eating establishments.

¹⁰ As mentioned before, consumer purchasing decisions on at-home and away-from-home consumption are interrelated because of the limited income. As such, in evaluating the promotion program, the two consumption components have to be either summed up or considered simultaneously. In either approach, the "matching" problem arises if different panels are used for at-home and away-from-home situations.

¹¹ Aggregation dimensions for promotion activity, consumer and consumption situations are discussed in the previous two sections.

It should be noted that since the underlying purpose of the data base is to relate the consumption of dairy products with the promotion effort, data on both consumption and promotion have to be aggregated in the same manner.¹²

4.1. Time Dimension

How often should the consumption and promotion data be collected? A monthly time period is most appropriate for the following two reasons. Most already existing data is reported on a monthly basis and, hence, consumption and promotion data collected monthly would be compatible with a number of already existing data series. More importantly, monthly data would enable the analysts to identify and measure the extent to which there is a carryover effect of the promotion on consumption. Depending on the product the sales response could be immediate or lagged and the carryover effect could be short or long. For example, previous studies indicate a carryover effect of from five to twelve months for fluid milk advertising and a longer period for cheese advertising (Clarke; Kinnucan; Kinnucan and Fearon; Ward).

4.2. Product Dimension

To what dairy products should the consumption and promotion data pertain? Previous research suggests that the effectiveness of the promotion varies among dairy products (Kinnucan; Kinnucan and Fearon). Moreover, it is possible that a specific promotion activity has a positive effect on the consumption of some dairy products while having a negative effect on the consumption of others, as all dairy products are themselves competing against one another. As such, it is argued that data on consumption and promotion should be aggregated in a way that these effects can be investigated.

As specified by the contract of this project, the broad product categories to be identified are fluid milk, cheese, cottage cheese, ice cream, and butter. To investigate the effects of promotion on various individual products within each of the broad categories, subcategories of the following are suggested: whole milk, lowfat milk, and flavored milk for fluid milk; Italian type cheese, American type cheese, other cheese, and processed cheese items for cheese; premium ice cream and regular ice cream for ice cream. No subcategories are suggested for butter or cottage cheese.

4.3. Target Audience Dimension

To what consumer groups should the consumption and promotion data pertain? The issue arises because different consumer groups can respond differently to the same promotion scheme. Also, promotion efforts often are geared toward some specific target audiences. With advertising being solely geared toward young children, for example, it is inappropriate to regard the target as the consuming public as a whole.

¹² To illustrate, suppose for some reason the promotion efforts pertaining to the elderly and other age groups are collected, while milk consumption data are collected only for all consumers as an aggregate. Based on the available data, can the elderly's response to the promotion be determined? The answer is no.

The existing body of literature (e.g., Boehm and Babb; Salathe) contains strong evidence that milk consumption varies widely with age, sex and ethnic backgrounds. It follows that different demographic populations will respond differently to dairy promotion efforts. It is also known that people with different social backgrounds (e.g., those associated with education, occupation) may respond differently to advertising because of differences in their eating habits. Accordingly, to the extent feasible, consumption and promotion data should be collected so that the various consumption effects of promotion associated with important social and demographic groups can be identified.

4.4. Market Dimension

To what geographic areas should the consumption and promotion data pertain? Data for the entire U.S. are necessary to obtain a comprehensive view of the aggregate efficiency of the generic dairy promotion program. On the other hand, local data for smaller geographic areas are needed to facilitate management decisions and overall coordination of the various dairy promotional organizations. Previous research indicates that consumers in some geographical areas respond differently to advertising from consumers in other areas (Thompson, Eiler and Forker).

In determining the scope of market aggregation for local data, two considerations are appropriate. One is the existing availability of the data. The other is the extent to which the scope of aggregation will permit meaningful differentiation of the sales response among local areas. In the first regard, the choice of Federal Milk Order Regions as the basic level of market aggregation is one approach because a number of fluid consumption (sales) related data are already available on an on-going basis through the Federal Milk Marketing Order Administrators. However, this approach does not satisfy the second consideration mentioned because, in general, the Federal Milk Order Regions are not identical to the geographic areas covered by the local promotional organizations.

An alternative which satisfies both considerations reasonably well is the use of major metropolitan areas or Standard Metropolitan Statistical Areas (SMSA). Much of the secondary or public data are collected to represent conditions in SMSA. Also, much of the activity of promotion organizations has been directed toward large cities and programs are different from one city to the other. In addition, major cities each contain large numbers of consumers, represent different geographic areas, and have different economic and social characteristics. All these factors facilitate meaningful evaluation research.

SECTION 5

Measurement of "Other Factors" Affecting Dairy Product Consumption

In Section 2, an analogy was drawn between measuring the efficiency of a car and measuring the efficiency of dairy promotion. However, while the discussion included such factors as distance traveled and the quantity and quality of gasoline, "environmental factors", such as slope of the test ground or weather conditions during the test period, were ignored. In fact, when such factors are not properly accounted for, there will be a bias in estimation. Thus, in this section the

issue of measurement is reconsidered with a specific focus on factors other than promotion which affect milk consumption and which must be taken into account.

The issues which need to be resolved are (1) what are the "other factors" that affect consumption of milk and dairy products, and (2) how can they be measured precisely and efficiently?¹³ For discussion purposes, "other factors" will be sorted into the following categories: economic variables, competing and complementary promotion activities, consumer characteristics, structural variables, inflation indexing variables, and population variables. A priori, it is impossible to determine which factors are essential relative to the dairy product promotion-consumption relationship. Therefore, the initial need, by necessity, is greater than that which will be appropriate eventually. The determination can be made only during the process of actually conducting the promotion evaluation research or through special one-time studies.

5.1. Economic Variables

According to economic theory, a rational consumer, based on his/her available information, achieves as much satisfaction as possible by using given income to select an optimal consumption bundle from a wide range of available products. Hence, an individual's demand for a specific product can be expressed as a function of his/her income, the price of the product, and prices of related products. The model provides direction for identifying economic variables which affect dairy consumption.

5.1.1 Income:

Since income is intended to measure the purchasing power of consumers, it should be expressed on an after-tax basis. It also should include only that portion of the income that is allocated to food items because: (1) evidence suggests that consumer decisions on food and nonfood items are separable and (2) due to data limitation, empirical food demand analyses generally ignore nonfood items (Bieri and de Janvry, p. 5). Thus, unless the evaluation research is conducted in a framework of nonfood-food demand system, income data should be expressed in terms of food expenditures whenever possible.

5.1.2 Prices of Dairy Products:

Price information should be collected for all the dairy product categories discussed in Section 4.2. Also, as prices vary across regions, price information should be collected for each of the market areas as discussed in Section 4.4.

Difficulties can arise, however, with a broad product category (e.g., American cheeses) which involves aggregation of several individual dairy products. In such a case, suitable weights should be assigned to individual prices to produce an unbiased weighted average price for the product category. If quantity is to be used as the weight, information on the sales (for the market area in question) of the individual components of the product category must be obtained.

¹³ Another important issue is data aggregation. Since consistent aggregation across all data is necessary, readers are referred to Section 4 of this chapter.

5.1.3 Prices of Related Products:

Identifying a set of closely related competing or complementary foods for dairy products is difficult. For example, if fluid milk is regarded as a refreshing beverage, then it competes against soft drinks, fruit juices, coffee, and tea. On the other hand, if it is considered primarily as a source of nutrients, then the major competitors are products such as beef and poultry which include similar nutrients as milk (e.g., protein). But, to the extent that income determines consumption, all products compete against one another for the limited consumer dollars.

This illustrates the need for informed and subjective judgements in identifying substitutes and complements of dairy products. The task requires balancing cost considerations against the need to be exhaustive in identifying relevant variables. In accomplishing this, the focus to the extent feasible should be on obtaining prices or price indices for broad product groups, rather than on individual food items. Accordingly, the following products or product groups are suggested as substitutes or complements for dairy products:

Potential substitutes or complements for fluid milk and soft drinks, fruit juices, coffee, tea, major meat products, and breakfast cereals. The meats group can be regarded as either a substitute or complement of cheese and yogurt, depending on the specific meat product in question. Imitation cheese is also considered a substitute for cheese. For cottage cheese, major salad type vegetables and fruits can be considered complements. With respect to butter, the major competing products are other spreads like margarine and cooking oil. Some bakery and dessert products (e.g., frozen desserts and novelties) can be considered substitutes for ice cream. Accordingly, prices or price indices for the above listed items should be collected.

Finally, since away-from-home consumption of milk and dairy products in part depends on the cost of eating out and since indirect at-home usage of dairy products in part depends on prices of the convenience foods, the collection of some indices that measure the general price level of food eaten away-from-home and the cost of convenience foods need to be considered.

5.2. Competing and Complementary Promotion Activities

Information on prices and attributes of products play an important role in consumption patterns. Promotion provides this information. In fact, consumption has been postulated as a direct function of promotion activity (e.g., Stigler and Becker). In the case of dairy products, both dairy promotion activity and promotion of competing and complementary products are of interest. A detailed discussion on measuring generic dairy promotion effort can be found in Section 2. But to evaluate dairy product promotion, data are also needed for: (1) branded dairy product promotion, (2) generic and branded promotion of competing foods (e.g., beef, pork, soft drinks, and orange juice) and complementary foods (e.g., cereals), and (3) dairy-related promotion advanced by retail food stores and away-from-home food-service establishments.

5.3. Consumer Characteristics

To account for differences in consumer preferences, social and demographic factors pertaining to individuals often are used. Likewise, social and demographic

factors pertaining to regions are used to explain consumption variation across regions.

Detailed information on individual (or household) characteristics need to be obtained if consumption data are collected from consumer surveys. Factors that influence consumption according to previous studies include age and sex composition of a household; family size and number of wage earners; marital status; occupation and education backgrounds; and racial origin (Boehm and Babb; Salathe). If consumption data are not collected from consumer surveys, the consumer characteristic information will need to be collected from public data sources for the market areas in question.

5.4. Structural Variables

It is a commonly held belief that events external to the dairy industry can cause significant changes in the consumption of milk and dairy products. Some external events which shock the demand system can cause only a temporary change in consumption while others cause permanent changes. Examples of temporary shocks include the outbreak of disease, product tampering, radioactive fallout from a nuclear accident, or seasonal employment variation. An example of a less dramatic, but perhaps more permanent shock, is the change in health concerns. As the population becomes more health conscious, developments in medical-nutritional knowledge are likely to have significant impacts on the consumption of dairy products.

Some system should be set in place to monitor external events that might provide temporary or permanent shocks to food and dairy product consumption.

5.5. Inflation Indexing Variables

To remove inflation from income and price data, national and regional consumer price indices need to be included in the evaluation data base. Economic theory and demand analysis assume that as incomes increase consumption will remain the same as long as prices increase at the same rate as income. Accordingly, incomes and prices need to be measured in "real" (inflation-free) terms.

For compatibility, expenditure data on promotion also should be measured in real terms. For example, different inflation indices to deflate media advertising expenditures pertaining to television, radio, print, and outdoor are needed. Also, the indices need to be collected for the entire U.S. and for each of the specified market areas because media costs vary in different ways in markets across the nation.

Indices for deflating expenditures on special promotion programs and nutrition education programs are problematic because no standard operational procedures exist for those programs. Take the nutrition education program as an example. For those educational activities which are labor intensive, expenditures should be deflated by a wage index measuring the change in wage rate over time. On the other hand, for those educational activities which rely heavily on printed materials, inflation indices based on printing or paper costs may be more appropriate. Furthermore, when educational activities are both labor and paper intensive, a composite index may be more appropriate. As such, customized indices

may be necessary for certain key special promotion and nutrition education activities.

5.6. Population Variables

Population statistics are needed for evaluation research for two reasons. First, the consumption associated with a specific geographic area under consideration depends in part on the number of consumers dwelling in the area. Second, even though the ideal would be to measure both promotion effort and dairy consumption for exactly the same audience, consistency between the geographic boundaries for the promotion effort data and the consumption data may not be achievable.¹⁴

Hence, to take into account the number of consumers dwelling within the area in question and to allow for data compatibility between promotion and consumption, it is necessary to express the data on a per capita basis, which calls for information on population figures for the defined consumption and promotion areas. Moreover, when the promotional activity is targeted (e.g. toward pregnant women), the population data must be disaggregated to account for the target audience. Finally, since different promotional schemes (e.g., television vs. radio advertising; media advertising vs. couponing) have different coverage areas, the relevant population data need to be collected for each promotional scheme.

SECTION 6

Identification of the Management Information System

Evaluation research can provide insight into the effectiveness of the promotion programs which, in turn, can provide the basis for good management decisions. A good decision is a considered choice based on a rational interpretation of the available information; conceptually, the better the information the better the decision.

The management decisions considered here are: (1) strategic planning concerning the long-term design of program effort allocation essential to the achievement of the overall program objective; (2) tactical planning concerning the implementation of short-term actions essential to the achievement of the strategic plans; (3) program coordination among various dairy promotional organizations in an effort to facilitate the overall effectiveness of the strategic and tactical plans and; (4) program modification designed to incorporate newly updated information into the strategic plans as defined in (1).

The above sequence of decision making can be regarded as an iterative process with the newly updated information periodically coming from evaluation research. As discussed in Section 1, and diagrammatically illustrated in Figure I, the management information system (MIS) should consist of an evaluation data base, a set of "market facts", and a "feedback" mechanism. The discussion that follows

¹⁴ In the case of television advertising, for example, a media coverage area may not be the same as the consumption area in question, depending on where the television station is located.

focuses on the relationship among the three components of the MIS and suggests major ingredients of each component. The list is not exhaustive.

6.1. The Evaluation Data Base

The evaluation data base contains a large volume of information on dairy product promotion efforts, dairy product consumption and "other factors" which also influence consumption. The evaluation data base enables analysts to assess the effectiveness of the promotion program, which provides information that can be incorporated into the "feedback mechanism" and serve as the basis for the iterative decision making process (see 6.2). The evaluation data base is directly useful to management because it contains current information on the trends of important factors such as dairy product consumption, dairy product prices, the price of competing products, promotion of competing products, and consumer characteristics. But the large volume of data must be organized so that it is "user friendly" to the managers; that is, data for evaluation purposes should be further aggregated and summarized so that the essential information is readily available through interactive computer systems.

6.2. The "Market Facts"

"Market Facts" refer to those types of management information that facilitate day-to-day implementation of program activities. To facilitate the choice of advertising agency, for example, "facts" about the competitive structure of the advertising industry and about the past performance of major advertising agencies should be collected. To facilitate the choice of advertisement design, "facts" about consumer attitudes toward dairy products and about consumer awareness to specific dairy promotion activities should be collected. To facilitate coordination among the various dairy promotion organizations, "facts" about the planned promotional expenditures and about the corresponding allocation schemes should be shared among units through the establishment of an "information clearing house."

There exist other "market facts" which not only are useful for short-term management decisions but also complement the evaluation data base for assessing program effectiveness. For example, the commercial disappearance figures associated with various dairy products can be used to extract information on the general consumption trend of dairy products to facilitate management decisions. They can also be used, along with other data, to assess the impact of the promotion program on farm level demand for milk and, hence, the impact of the program on the well-being of dairy farmers.

6.3. The "Feedback Mechanism"

Long-term strategic goals and short-term tactical plans are established initially, perhaps arbitrarily, at the beginning of a promotion program to satisfy overall program objectives. As the program progresses, evaluations are conducted to determine whether the overall program objectives are met. From the evaluation effort, new knowledge regarding the working of the promotion program is gained. This provides the basis for an iterative decision making process.

To evaluate the performance of the program, evaluation models that quantitatively summarize the relationship between the promotion and consumption of dairy products can be developed. The development of an evaluation model can

be viewed as having three stages; model building, model application and model updating. The first and the last stages require substantial technical knowledge of econometrics and statistics, placing them in the domain of specialized researchers. The second stage, model application, requires ingenuity and intuition regarding the goals and constraints of the program. The program managers must play a central role in the task of model application.

For efficient and effective model application by management, the most updated version of the evaluation model should be placed in the MIS in a "simplified" and "user friendly" format. In addition, auxiliary forecasting models which provide reliable projections of the explanatory variables in the evaluation models are needed. A prediction of the available program funds which is a function of milk production should also be incorporated in MIS. These forecasting models can be obtained readily by utilizing available statistical time series forecasting software. Finally, to make MIS complete, program policy simulation models should be established and set up on-line. Using efficient application software, these enable program managers to ask "what if" questions and obtain reliable answers.

SECTION 7

Summary and Conclusions

The following conclusions emerge concerning the data needed for efficient and effective evaluation and management of the dairy advertising and promotion activities.

Data on dairy product promotion are needed and should include measures of the advertising program, the special promotional programs, and the nutrition education program. The measurements should take into account not only the quantity but also the quality of the effort; quality considerations should include the design of the promotion itself (intrinsic quality) and the number of targeted consumers reached by the promotion (extrinsic quality). Intrinsic quality can be included in the data base by collecting information on production cost and theme identification of specific advertisements. "Post-buy" expenditures and "post-buy" gross rating points are needed to account for extrinsic quality.

Data on dairy product consumption are needed and measurement should occur as close to the consumer level as possible. Data can be collected at a macro level (e.g., nation, region or state) or at a micro level (e.g. household or individual), depending on the focus of the evaluation research. In either case, it is necessary to obtain measures of dairy product consumption for both at-home and away-from-home eating situations.

Promotion and consumption data need to be aggregated in the appropriate dimension of time, product form, target audience, and market area. Since the underlying purpose of the data base is to relate the promotion efforts with the consumption of milk, the level of aggregation for all four dimensions should be consistent for both the promotion and consumption data.

Data on other factors that also influence dairy product consumption are needed. These other factors include relevant economic variables, competing and complementary promotion activities, consumer characteristics, structural variables,

inflation indices, and population. A priori, it is impossible to determine which factors are essential to understanding the dairy product promotion-consumption relationship. Therefore, the initial need, by necessity, is greater than that which will be appropriate eventually. The determination can be made only during the process of actually conducting the promotion evaluation research or through special one-time studies.

The evaluation data along with the models developed for promotion evaluation should be considered important components of a dairy promotion management information system (MIS). The MIS can be designed to support a sequence of iterative decision making processes which involve long-term strategic planning, short-term tactical planning, coordination among the various dairy promotion organizations, program performance evaluation, and revision of the strategic and tactical plans, given evaluation results. The MIS should contain an evaluation data base, a set of "market facts", and a "feedback mechanism".

Chapter III

INVENTORY OF AVAILABLE DATA

The purpose of the inventory is to establish the availability of the major types of data relevant to the efficient evaluation and management of the advertising and promotion efforts of the dairy promotion program.

Data have been gathered through a variety of public agencies' publications, private organizations, and from personal contacts. While not every available data source has been included, an effort has been made to include the most useful and appropriate data sources currently available. By providing exact citations and names of contact people, sources can be located and additional information can be obtained by interested parties.

The following types of data have been gathered, summarized, and included in the inventory: time-series data sets including dairy product production, commercial disappearance, stocks in cold storage, and fluid milk usage in Federal Market Order Areas (all published by the USDA); time-series price data as published by the Bureau of Labor Statistics and other government agencies; population statistics (Bureau of the Census), per capita food consumption (USDA), and information about market research firms.¹

In this chapter a brief summary of each of the generally available data sources and their relationship to data needs is provided, along with an evaluative statement about how well they satisfy the data needs for dairy product promotion evaluation. A detailed description of each individual data series, in the case of data from public agencies, is presented in Appendix C. Also in this same appendix is a detailed description of the data and the services available, along with the name of a contact person, for each of the several market research firms that have the ability to provide the kind of data needed for promotion evaluation.

SECTION 1

Measures of Dairy Promotion Effort

1.1. Private Sources

"Leading National Advertisers, Inc." (LNA) publishes a report "Ad \$ Summary". LNA and another firm, Broadcast Advertisers Reports, Inc. (BAR), estimate the advertising expenditures of corporations and promotion organizations on network radio, network television, spot television, cable television, outdoor advertising, magazines, and newspaper supplements (the Sunday magazine section). Amounts spent on specific promotional brand campaigns or generic advertising are provided. Dairy promotion groups are among those listed, including "American Dairy Association", and the "National Dairy Promotion and Research Board".

¹ The authors and Cornell University do not endorse any firm by including their name in this publication. They are listed and included merely for the purpose of describing the types and kinds of data available from private sources. As no endorsement is intended through inclusion, no criticism is intended through exclusion.

Quarterly reports are published and can be subscribed to, or customized information may be purchased. Information can be obtained for radio and television expenditures on a weekly, monthly, or quarterly basis, with reports for individual cities available for spot television only. Expenditures for advertisements in specific magazines or supplements can also be purchased. Advertising dollars spent by an organization for a specific product or campaign such as a butter or cheese promotion can be purchased for any of the media forms as well.

This data source has several advantages over in-house collection procedures of the dairy promotion organizations. First, it circumvents the difficulty of collecting post-buy analyses from each of the various dairy promotion units. Second, it is available on a timely basis, and can be specified narrowly in terms of a brand or product class. Third, the network advertising is based on a continuous monitoring of actual advertisements. In addition, this is virtually the only source of data for advertising expenditures on branded products.

Disadvantages include the following: data are primarily national, and the advertising expenditures are estimated based on a separately determined rate per unit of advertising time (or impressions or circulation, depending on the media) which might or might not be equal to the actual costs. Also, for most spot television markets the estimates are based on a one-week viewing per month, rather than continuous monitoring. However, in the six largest spot television markets (Los Angeles, New York, Chicago, Philadelphia, Dallas, and Atlanta) spot television markets are monitored each day of the year. One additional disadvantage with respect to dairy product advertising is the lack of information on the quality of the advertising. The numbers only reflect the quantity of advertising and the estimated expenditures which were made for that quantity.

Another private firm which can provide advertising analysis of competitors is "Burrelle's Press Clipping Service". This firm uses 10,000 daily and weekly newspapers from the U.S. and abroad, as well as 6,000 trade and consumer magazines in their press clipping service. As an offshoot of this service, Burrelle's will provide an analysis and accounting of any print advertisements featured in the materials they read. Information is available concerning the specifics of the advertisements including an estimate of their cost, the frequency of their appearance, the circulation of the newspaper or magazine the ad appeared in, the ad size, position, specific products featured, etc. Reports are available on a monthly or quarterly basis, with clients designating the types of information to be presented in the reports.

The primary disadvantage of these data is that it is only available for print advertising, with no comparable services generated by Burrelle's for advertising in the other media. Also, only specific advertisers or types of products as specified by the client are provided, so with a category as broad as dairy products, an advertiser of a competing product or of a branded dairy item might be overlooked by the client, and thus not reported by Burrelle's. Advantages of these data are the coverage of newspapers and magazines offered by Burrelle's, and the ability to customize the reports.

1.2. Dairy Promotion Organizations' Records

While not able to provide data on brand advertising, the dairy promotion organizations can provide the most comprehensive and detailed measure of the generic dairy promotion effort. Each organization receives invoices of charges and a statement of advertisements placed by the advertising firms. In addition, a post-buy analysis is conducted, usually quarterly, to confirm that the purchased amounts of advertising were actually delivered. The agencies placing the advertisements receive adjustments from the media for discrepancies between the planned and the actual advertising.

Advantages of this system of data collection for the dairy product promotion effort are several. First, the data collection system would be in-house; information about the quality of the data could be specified and controlled. Second, information concerning the "extrinsic" quality of the advertising could be determined in terms of gross rating points (GRP) or demographic rating points (DRP) for television or radio campaigns. This is a system used by the television and radio industries to assign a numerical value to advertising effort based on the estimated number of viewers or listeners, as well as the number of times the company or brand advertises during a particular time period. DRPs measure the reach and frequency for a particular demographic segment of the viewing or listening audience.²

The primary difficulty with using this in-house procedure is the need for coordination, cooperation and the sharing of information among all of the dairy promotion organizations.

SECTION 2

Measures of the Consumption of Dairy Products

Actual consumption is difficult to measure. Measures of either purchases by consumers or sales or purchases made by firms in the food distribution system are often used to provide estimates or proxies for consumption.

The closest measure to actual food consumption by specific individuals comes from surveys such as the "Nationwide Food Consumption Survey" (NFCS), or the "National Health and Nutrition Examination Survey" (NHANES). These studies involve a large number of comprehensive interviews which provide detailed socio-economic, nutrition, and health information from participants nationwide. Since these surveys are very expensive to administer, they are conducted approximately every ten years by public agencies.

Details from these studies are usually at the individual consumer level, with data on personal food consumption over a 24- to 72-hour period. Here, the emphasis is usually on nutrition issues, and precise measurements of nutrient

² These GRPs and DRPs, once estimated for each time spot, are then used by radio and television industries as a means of pricing advertising time based on these audience factors. These rating point systems reconcile the frequency and the reach of advertising, and provide a measure of quantity adjusted for "extrinsic" quality.

intake, and the information may include data on both at-home and away-from-home consumption.

On a slightly more aggregated scale are consumer purchase data. Several private market research firms have established panels of consumers with known demographics which provide data on a weekly or monthly basis. Public agencies such as the Bureau of Labor Statistics (BLS) and the Bureau of the Census also conduct household surveys, some on an annual basis, to determine household characteristics and consumption patterns. While most of the market research firm's panels report solely on purchases for at-home consumption, at least one private firm has an established panel which reports specifically on away-from-home meal occasions (NPD's "Crest" diary panel).

On an even more aggregated scale are data collected from retail food stores. This procedure measures the sales of specific items or groups of items by store customers. This technique can provide estimates of sales for a market area, a region, or the U.S. Prior to the advent of scanner technology, data were collected manually from individual supermarkets. Now, however, information is more often gathered from electronic bar-code scanners and thus available directly from the stores' computers. From another angle, one private firm collects information on away-from-home consumption by estimating purchases made by food service establishments ("Food Service Research and Marketing, Inc.").

Movement of items out of food warehouses is an alternative to measuring retail food store sales. This measurement is available on a weekly or monthly basis, and is only slightly more removed from consumers than retail food store sales.

The most aggregate measure of "consumption" of dairy products is commercial disappearance, which is compiled by the Economic Research Service (ERS) of the USDA. This is a measure of the amount of dairy products which "disappear" over a month's period of time. The "disappearance" data represent the quantity of the product that enters the food distribution system each month from production, imports, and storage, adjusted for net purchases by the government.

An evaluation of the data available for each of these levels of aggregation follows, starting with the level furthest from the consumer.

2.1. Commercial Disappearance (USDA)

The "total milk" commercial disappearance data, (total milk here refers to milk used for all purposes on a milk-equivalent milkfat basis), are calculated by USDA's Economic Research Service (ERS). Most of the data used by the ERS in this series are collected by the National Agricultural Statistics Service (NASS) of the USDA.

Total production of milk for the past month is determined, and any farm use of that milk is subtracted. The fluid milk equivalents of cheese, butter, and evaporated and condensed milk being held in warehouses at the beginning of the month are added to this production figure, along with dairy products imported during the month. This becomes a total supply figure. From this are subtracted the stocks of butter, cheese, and evaporated and condensed milk held in warehouses at the end of the month. Also subtracted are net government removals which

include Commodity Credit Corporation (CCC) purchases minus any of these products which were sold and returned to the distribution system during the month.

The figure determined by this equation is termed "commercial disappearance" and is used as a primary indicator of dairy product sales, representing the total sales of milk in all product forms during the month. Due to the various data sources used in this compilation and the nationwide movement of dairy products during the month, only national estimates are available.

Besides "total milk", commercial disappearance estimates are calculated separately for butter, cheese, canned milk, and nonfat dry milk, using the same type of formula. Commercial disappearance estimates are provided for frozen products as well (which includes ice cream, ice milk, and milk sherbet), by using the monthly production estimates as a direct proxy for disappearance. For frozen products this is reasonable, as these items normally move quickly into the retail channel with insignificant inventory or import volume.

Commercial disappearance is an important data series and is a reasonable indicator of aggregate sales at the wholesale level for a given month. It is valuable primarily as a measure of trends in milk utilization patterns, as it provides estimates of month-to-month and year-to-year changes in the aggregate sales of milk for all commercial purposes, as well as an estimate of the sales of the major manufactured dairy product items for the 48 contiguous states. The data are collected in a systematic and reliable manner by responsible government agencies. The series has been consistently calculated for many years, and continued availability can be expected.

However, this measure is not precise enough to be efficient or useful in the evaluation of the dairy promotion effort, due to its distance in the distribution system from consumers. Month-to-month changes in stocks and usage rates of dairy products occur in the "pipeline" as products move from the manufacturing plant or cold storage to possibly another manufacturing plant, to the retail supermarket or restaurant, and then to the consumer. These changes in usage or stocks after products leave the manufacturer or cold storage are not accounted for in commercial disappearance, making it an imprecise measure of consumption at the consumer level.

2.2. Fluid Milk Sales in Federal Market Order Areas

"Federal Milk Market Order Statistics" are published monthly by the Dairy Division of the Agricultural Marketing Service, USDA, and provide data on the volume of packaged sales of fluid milk products in federal order marketing areas.

Included are sales in each of the areas by milk handlers regulated under their respective orders, by handlers regulated under other orders, by partially regulated handlers, and by producer handlers. Regulated milk handlers operating in federal market order areas are required to report the usage of all milk received each month. These reports are then audited, which provides a rather precise measure of sales in each of the federal marketing order areas.

These estimates of fluid milk sales in the federal market order areas have been used successfully in the evaluation of the impact of fluid milk advertising.³ This data series also can provide a reliable monthly estimate of U.S. total fluid milk sales if combined with similarly reliable state data on fluid milk usage, especially for California and part of Virginia (these two areas are not covered by a federal marketing order and thus are not included in the "Federal Milk Market Order Statistics"). Unfortunately, comparable sales estimates for manufactured dairy products (butter, cheese, ice cream, etc.) are not available from Federal Market Order Statistics.

2.3. Warehouse Removal Information

Warehouses maintain records (usually computerized) of shipments to individual supermarkets or chains of supermarkets. These records are purchased by some private firms as a method of estimating sales of items within specific stores, chains of stores, or market areas. This type of information is one step closer to the consumer level than commercial disappearance, but is still not at the household level. These data are records of purchases by stores, rather than those of consumers.

One private firm, SAMI, specializes in gathering data from warehouses and retail food store operators, which they use to estimate volume movement across the U.S. Information is available for both dairy and non-dairy items, although many dairy items omit the warehousing step and are delivered directly to stores. Thus, a substantial volume of important dairy products is not included in this measure.

Dairy products which are included in SAMI categories are butter, butter/margarine blends, natural cheese, processed cheese, cream cheese, frozen and refrigerated yogurt, nonfat dry milk, evaporated and condensed milk, and sterilized and shelf stable milks.

2.4. Food Store Audits

Estimates of sales of individual items or groups of items by food stores to consumers are determined by several private market research firms. Store audit data can be collected manually, or electronically from store scanners. Either collection method provides a record of all products in a certain category or brand which were purchased from the store during a specified period of time. Weekly, four-week, monthly, semi-annual, and annual summaries are usually available. A sample of stores can be selected to represent a particular market area or the whole U.S.

Most firms already collect information on several or most dairy product items, as well as other food categories normally handled by food stores. The client can purchase reports on specific product items or categories on a continuing basis. One of the important advantages of this collection method is the ability to simultaneously collect both retail price and quantity data for dairy products and

³ Arthur D. Little, Inc. study, "Econometric Analyses of the Effect of Generic Advertising on Fluid Milk, Cheese, and Butter Demand", as reported in "The Report to Congress on the Dairy Promotion Program", July 1986, and "Econometric Analysis of Fluid Milk Advertising" by R. Ward and B. Dixon, February 1987.

for competing product categories. This source provides a wealth of detail and can often be accessed through on-line information systems.

In using this source of data, however, it must be recognized that most firms collect only from stores with sales volume above some specified level; and for scanner data, some dairy and meat products, especially random weight items, are not coded. In addition, this source measures only at-home consumption of dairy products. Also, for scanner data, it may be difficult to obtain representative information for the New York City urban area, as few large supermarkets with scanning equipment exist in Manhattan or in some of the surrounding communities. Scanner data collected for the New York City area therefore, are more likely to reflect suburban consumers' purchase behavior. This problem may also exist in other major metropolitan areas where consumers living in the cities themselves do not routinely shop in supermarkets equipped with scanners.

2.5. USDA Per Capita Food Consumption

Estimates of per capita consumption of individual dairy products are published annually by the ERS in "Food Consumption, Prices, and Expenditures". Data on per capita food consumption, per capita nutrients available, and the supply and utilization of food products are provided. Specific food and beverage items are used, with per capita data from the previous 20 years as a comparison.

Dairy foods include "plain whole milk", "cream and other specialties", "other milk beverages", butter, American cheese, "other cheese," cottage cheese, whole and skim condensed and evaporated milk, ice cream, sherbet, "other frozen products", nonfat dry milk, dried whole milk, dried buttermilk, and "other dried milk products". Consumption is based on civilian population and given in pounds per year consumed.

Advantages of this series are the detailed information about food and beverage items, and the unbroken series of past estimates. Disadvantages are the annual and national nature of the data, which preclude its use in local or regional analysis, or analysis which requires more frequent data points. Overall, this data series is useful as an indicator of trends in dairy consumption patterns over time; but as an annual national series, it is not precise or frequent enough to provide a basis for the effective evaluation of the promotion effort.

2.6. Consumer Diary Panels

Several market research firms maintain household or consumer panels that can provide periodic (usually monthly but sometimes weekly) estimates of consumer purchases. Most of these panels are designed to be demographically representative of a specific market area or region in the U.S., and to provide an estimate of U.S. consumption patterns.

Paper diaries of household purchases are completed by panel members on a continuing basis, returning completed diaries to the firm on a specified schedule, usually each week or month. These diaries contain detailed questions for certain categories of items which are to be filled out by the consumer for each item she or he purchases in that category (i.e. frozen juices, cheese, cough and cold remedies, etc.). Respondents are usually compensated for their cooperation and may remain on a panel for an indefinite length of time.

An important advantage of a diary panel is the knowledge obtained about panel members' social and economic characteristics and their purchases. Another advantage is the ability to determine product price and volume purchased, as well as any sales incentives, such as coupons, which are used with the purchase. This information is usually obtained for each product category, and would provide data for both dairy products and competing products. The general detail of the purchase information and the ability to customize the diaries are other advantages, along with the ability to capture purchases made from every type outlet, not only from supermarkets of a specified size level.

Items to be concerned about in using a diary panel include the representativeness of the sample, panel turnover rates, and panelists' error in filling out the diaries. Also, most diary panels obtain purchase information about food for at-home consumption only. Therefore, the process does not provide a measure of away-from-home consumption.

A few private firms operate panels where purchases of the panel members are recorded at the food store. Each panel member has a magnetic ID card which triggers supermarket scanners to store the panelist's data in a special file. A. C. Nielsen ("Scantrak") and Information Resources, Inc. ("InfoScan") are two firms which operate this type of panel. As with the paper diaries, social and demographic characteristics of each panel member are recorded. Many panels of this type also involve some control over or measure of media exposure. Thus conceptually, one can link advertising exposure directly to the purchase behavior of individual consumers or households.

Advantages of the "scanner" panel include the ability (as with a diary panel) to determine price and quantity data for both dairy goods and competing goods as purchased by the panelist. Also, as the information is scanned directly at the supermarket, data may be more accurate and less subject to panelists' errors. "Scanner" panels are not a source of or a basis for larger market area sales' estimates, however, because they are usually not maintained in large metropolitan areas. Also, not all products have UPC scanner codes (notably fresh meats and some random weight cheeses), which may prevent getting a complete set of data for some product categories. Another disadvantage is that data are recorded only from participating supermarkets with scanners, so that items bought at smaller grocery stores or convenience outlets will not be included. Lastly, as with most diary panels and store audit collection processes, only sales volume for at-home consumption is obtained.

2.7. Data Sources for Away-From-Home Consumption

Only a limited amount of information on food consumption away-from-home is collected by public agencies or even by private firms. The Bureau of Labor Statistics (BLS) does report price indices each month for "Lunch", "Dinner", and "Other Meals and Snacks" eaten away-from-home, but these are obviously quite aggregated in terms of food items, and are also only available for a "U.S. City Average", rather than for specific cities or regions.

At least one private source collects away-from-home food consumption data using a diary panel (the NPD Group's "Crest" panel). This firm operates a separate panel for away-from-home consumption, so the participants do not report any at-

home consumption. Each household in this panel records all occasions of food consumption in a restaurant type situation during four two-week periods each year. Data from this source include the total meal price, type of restaurant, and general descriptions of foods ordered by each group member. Social and economic characteristics of each household are also known. Although this survey provides useful information about away-from-home eating behavior, it does not provide, in its present format, direct estimates of the volume or quantity of dairy products consumed.

Another company collects away-from-home consumption information by surveying restaurant and institutional food service managers, rather than consumers. Using this technique, amounts of dairy products or competing products purchased by a restaurant over a specified time period can be obtained and used as a proxy for consumption. The firm that uses this method of data collection is "Food Service Research and Marketing".

This second type of data collection has two primary advantages over a diary panel. First, it provides a direct measure of the volume of dairy products purchased and used as ingredients, as well as the volume of dairy items consumed directly by consumers at food service establishments. Second, the survey sample is considered to be representative of the various restaurants, fast food establishments (including national and regional chains), schools, hospitals, and colleges; all of which serve food including dairy products. Diary panels of away-from-home consumption typically include only restaurants or fast food outlets.

SECTION 3

Measures of Other Factors Affecting Dairy Product Consumption

3.1. Dairy Product Prices

If a diary panel or store audit technique is used to collect dairy product sales data, dairy product price data can be collected concurrently. However, some dairy product price data are also available from other sources, both public and private. Of these alternate sources, those which are included in the inventory are summarized below.

3.2. Consumer Price Index (CPI)

The Bureau of Labor Statistics' "CPI" is a monthly and annual publication and includes price indices for most major consumption items, including dairy products. A "U.S. City Average" price index is supplied for a large variety of specific products including fresh whole milk and cream, other fresh milk and cream, butter, cheese, ice cream, and "other dairy products". Less specific price indices are available for individual cities and regions as well.

The CPI indices are considered reliable and are used by analysts for many purposes. They are useful as indicators of trends in price patterns, as the series is collected in a rigorous and relatively consistent manner. However, it is not clear whether these data are precise enough or sensitive enough to short-term price changes to be efficient in the evaluation of dairy product promotion.

3.3. Retail Prices Published by the Bureau of Labor Statistics (BLS)

The BLS, which publishes the CPI, also reports average prices for fluid milk (whole, lowfat, and skim), butter, ice cream, yogurt, natural cheese, and processed cheese. These price estimates are available for the four U.S. census regions and for a "U.S. City Average". These prices, which provide the basis for the calculation of the price indices, have been used in promotion evaluation and although not as precise as desired, can be useful.

3.4. Retail Whole Milk Prices Collected by Federal Market Order Administrators

The Federal Milk Market Order Administrators collect retail whole milk prices each month in 33 selected cities nationwide (note: the number of cities reported has varied over time). These prices are gathered according to a specified methodology from three outlets in each city, with the three prices being averaged. Average prices for gallon and half-gallon containers are available. Although the collection process is reasonably well defined and consistent across cities and through time, these average prices are based on very small sample sizes. Also, only whole milk prices are collected, so that lowfat milk and other dairy products are not included. This series is not published, but is available from AMS/USDA.

3.5. Retail Fluid Milk Prices Collected by the International Association of Milk Control Agencies (IAMCA)

Another source for dairy prices is the IAMCA. This association, through its members in state milk control agencies, collects price data monthly in 56 cities in 25 states; prices have been gathered since 1974. Prices are collected for each of the major milk types in each of the main container size and material types (i.e. plastic gallons, paper half-gallons, etc.). Data are collected by either a member of the IAMCA, or by an individual or group concerned with maintaining a consistent time series of retail milk prices.

Both a range of prices and a prevailing price are reported for each city, including several cities not currently in the market administrators' survey. Also, price estimates are available for more specific sizes, and types of milk, including two-percent and lowfat milk than in the market administrators' survey.

Although these data are not published, they are available from the IAMCA. The main concern with this price series is the apparent lack of control over the collection processes. Each member or group which collects the prices may follow some general guidelines, but overall there is no consistency or standardization of collection procedures. Although the series appears to be reliable, there is no assurance that it is.

3.6. Prices Paid to Milk Producers as Reported in the Federal Milk Market Order Statistics

The minimum uniform price (or blend price) paid to producers and the minimum price for each class usage are determined and enforced by the Federal Order Administrators. These monthly prices are reported in the "Federal Milk Market Order Statistics" for regions and individual federal market areas, and are standardized for milk with 3.5 percent butterfat. However, since this is a

wholesale level price, it is not a useful measure of dairy product prices for promotion evaluation purposes.

3.7. Retail Prices Collected by Burgoyne, Inc.

Burgoyne, Inc., a private market research firm, was selected by the United Dairy Industry Association (UDIA) in 1979 to provide estimates of milk product prices for specific areas; nine metropolitan markets were selected. Prices were collected every four weeks for whole and lowfat milk, Coca-Cola, and Pepsi-Cola, and have been used in models designed to evaluate fluid milk advertising.⁴ However, these data have limited usefulness due to the small number of items priced.

SECTION 4

Competing Product Prices (Retail)

If a dairy panel or store audit procedure is used to collect dairy product volume and prices, it is possible to collect concurrently the prices of a selected list of competing products. Thus, to the extent that dairy product prices are available from these sources, prices for most competing products are also available.

Similarly, just as the CPI is a useful source of price information on dairy products, price estimates for some competing products are available in the form of indices from the CPI, and in the form of average prices as reported by the BLS. These indices or price estimates have all of the strengths and weaknesses as described in earlier sections of this report for data from the BLS. This is also true concerning the advantages and disadvantages of using store audits or dairy panels to obtain data for competing products.

SECTION 5

Competing Product and Branded Dairy Product Advertising Efforts

Estimates of the levels of advertising expenditures for competing products (i.e. beverages, meats, etc.) and for branded dairy products (i.e. "Velveeta", "Borden's" Sour Cream, etc.), are available from reports by LNA/BAR. The media available and report formats are the same as for generic advertising estimates obtained from LNA/BAR, as discussed above. The same advantages and disadvantages also apply.

SECTION 6

Population Data

While major enumerations of the U.S. population are conducted only once every ten years, smaller surveys of population, income, and household composition are conducted by the Bureau of the Census either annually or on a continuing basis. These provide data for annual adjustments to the decennial census. Individual states also often collect and report their own population on an annual

⁴ These data were used in the "Fluid Milk Model" by Arthur D. Little, Inc. as reported in "The Report to Congress on the Dairy Promotion Program", July 1986.

basis, along with social and economic indicators, and these may supply more detailed information for specific locations such as counties, cities or districts.

6.1. Population Estimates from the Bureau of the Census

Estimates of the total civilian population including those living in institutions, college dormitories, or military barracks are available annually. Each year's county estimate is based on the previous year's estimate, adjusted for births, deaths, and migration in and out of the county. Population estimates for specific urban areas such as Standard Metropolitan Statistical Areas (SMSA) are also available. In addition to the count of residents in each county, population characteristics such as the number living in various types of households, the number who rent or own their homes, or who have children in their household are also available from the annual "Household and Family Characteristics" report, published by the Bureau of the Census.

6.2. Private Market Research Firms

Private research firms use the census' population estimates for sample design and also for expanding survey results to obtain an area or market wide estimate for the total population. In addition, some private firms will provide estimates for specific market areas or target audiences as specified by clients. The use of such a firm might be the most cost effective way to obtain the necessary population estimates or population characteristics for specific locations not normally compiled by the census.

SECTION 7

Income, Age, and Ethnic Composition

7.1. Bureau of the Census

If diary panels are used to collect consumption data, the social and economic characteristics of the panel are known. This information can then be used directly in promotion evaluation. If other sources of consumption data are used, however, then demographic data from the Bureau of the Census will have to be employed.

The Bureau of the Census annually estimates per capita income of individuals and families. Specific estimates are provided for different regions, ethnic groups, occupations, sex, household groups, and ages. The detailed data from the Bureau of the Census are official and reliable, with rigorous collection procedures. However, the time lag between the collection and the publication of the data is quite long, often one to two years. In addition, the detailed income data are only available on a national basis, although income disaggregated according to ethnic background is available for the four census regions.

A more frequent income series is published by the Council of Economic Advisors in "Economic Indicators".⁵ Per capita disposable personal income is

⁵ "Economic Indicators", prepared by the Council of Economic Advisors, U.S. Government Printing Office, Washington, DC.

available on a quarterly basis, in current dollars and as a function of a base year. These incomes are seasonally adjusted and are also available on a national level only. As this income series is provided quarterly, it is more useful in analysis than annual data.

7.2. Private Sources

As with population data, private market research firms can often provide information on income, age, ethnic composition, and other socio-economic variables for specific markets. While private market firms may make use of census data for standard population's statistics, they may also generate their own through their sampling techniques. Thus, if a private market research firm is used to collect data, the same firm may provide specific demographic information for the market areas used in the data collection.

SECTION 8

External Factors

Other factors, sometimes known as "shock" variables also need to be tracked for dairy promotion evaluation. These factors, which could include such diverse areas as product tampering, food poisoning, nutrition discoveries, or events in the business world, can be monitored through a news service or a press clipping service. Private firms offer these services, which may include clippings of articles or portions of articles from newspapers, magazines, news wires, and television and radio transcripts. Data are usually reported on a very timely basis, with some companies providing mailings every day. Data can also be quite customized by the client, according to media to be searched, the regions or cities to be included, key words to be searched for, etc. The primary difficulty in using this service for dairy promotion evaluation is the large number of related topics and the problem of distilling these subjects into a few key words.

SECTION 9

Summary

As a conclusion, data currently available from public and private sources are adequate to meet some but not all of the needs for dairy promotion evaluation. To fully meet these needs, new data series will need to be designed and collected specifically for dairy promotion evaluation. Currently available data include information series on dairy product production, producer deliveries, the supply and utilization of milk, storage, the value of milk produced in each state, and milk and dairy product prices. Some of these series can be used in dairy promotion evaluation; others provide auxiliary data which can be used for other purposes.

Data series important in promotion evaluation are described in detail in Appendix C. The series are categorized for quick reference in Table 3.1.

**Table 3.1 A Summary Table of Data Available by Category,
Source, and Aggregation Level***

Title/Source	Aggregation Level	Page No.
Measures of Dairy Promotion Effort		
1) "Ad \$ Summary" (Leading National Advertisers (LNA))	C	91
2) "Advertising Analysis" (Burrelle's)	C	182
3) Organization Records (Dairy Promotion Organizations)	C	--
Measures of Dairy Product Consumption		
1) Commercial Disappearance (ERS/USDA)	N	61-78
2) "Fluid Milk Sales" (AMS/USDA)	FMMOA	80
3) Warehouse Removal Information (SAMI, Inc.)	C	204
4) Store Audit Data (Nielsen, IRI, etc.)	C	177-209
5) Per Capita Consumption (ERS/USDA)	N	89
6) Consumer Dairy Panels (Nielsen, IRI, etc.)	C	177-209
7) Away-From-Home Consumption (FR&M, NPD)	C	185/201
Dairy Product Prices		
1) Consumer Price Index (BLS)	N/R	95
2) Average Retail Prices (BLS)	R	98
3) Retail Whole Milk Prices (AMS/USDA)	FMMOA	101
4) Retail Fluid Milk Prices (IAMCA)	CI	103
5) Prices Paid to Producers (AMS/USDA)	FMMOA	86
6) Retail Prices Collected for the UDIA (Burgoyne)	CI	106
7) Store Audit Data (Nielsen, IRI, etc.)	C	177-209
8) Consumer Dairy Panels (Nielsen, IRI, etc.)	C	177-209
Competing or Substitute Product Prices		
1) Consumer Price Index (BLS)	N/CI	95
2) Average Retail Prices (BLS)	R	98
3) Store Audit Data (Nielsen, IRI, etc.)	C	177-209
4) Consumer Dairy Panels (Nielsen, IRI, etc.)	C	177-209
Measurements of Advertising for Competing Products		
1) "Ad \$ Summary" (Leading National Advertisers (LNA))	C	91
2) "Advertising Analysis" (Burrelle's)	C	182
Measurements of Advertising for Branded Dairy Products		
1) "Ad \$ Summary" (Leading National Advertisers (LNA))	C	91
2) "Advertising Analysis" (Burrelle's)	C	182

(Continued)

Title/Source	Aggregation Level	Page No.
Demographic Information		
1) Population Estimates (Census Bureau)	CO	108
2) Household Characteristics (Market Research Firms)	C	177-209
Public Data		
1) Commercial Disappearance (ERS/USDA) (fluid milk and manufactured products)	N	61-78
2) Federal Milk Market Order Statistics (AMS/USDA) (fluid milk only)	FMMOA	80-86
3) Stocks of Dairy Products in Cold Storage (NASS/USDA) (cheese, butter, cream)	R	167
4) Dairy Products Production (NASS/USDA) (fluid milk and manufactured products)	N/S	110-160
5) Consumer Price Index (BLS)	N/CI	95
6) Average Retail Prices (BLS)	N/R	98
7) Per Capita Food Consumption (ERS/USDA)	N	89
8) Population Estimates by Counties (Census Bureau)	CO	108

* The data series listed here are detailed at length in Appendix C - "Inventory of Available Data".

N = National information only
R = Regional information provided (region definitions depend upon the data series)
C = Data is customized by a firm for a client
CO = County level information is provided
S = State level information is provided
CI = City or metropolitan area level information is provided (cities represented depend upon the data series)
FMMOA = Information is based on Federal Milk Marketing Order Areas

Chapter IV

SUGGESTIONS FOR DATA BASE

An appropriately designed evaluation data base is essential for the effective and efficient evaluation and management of the dairy promotion effort. The evaluation data base and the models that will be developed to determine the relationship between the promotion effort and the dairy product sales should both be part of a Management Information System to enable and manage the nation's dairy promotion and research efforts.

The recommendations in this Chapter are derived from a comparison of the data needed to evaluate the promotion effort (Chapter II) and the inventory of available data (Chapter III). They are designed to fill the gap between needed data and available data. They are specific in terms of the kind of data that need to be in the data base. The recommendations provide guidance on the source of currently available data and on the kinds of firms that might be asked to provide new data. The recommendations should provide a basis for putting together the appropriate evaluation data base and will provide some guidance on the integration of the evaluation data base into a management information system.

The recommendations are as follows:

1. The Evaluation Data Base Must Include Measures of Dairy Product Promotion, Dairy Product Consumption, and "Other Factors" which Influence Dairy Product Consumption

To evaluate the effectiveness of the generic dairy promotion program, an estimate has to be made of the relationship between dairy product consumption (sales) and the promotion effort. Quantifying the consumption-promotion relationship requires reliable data on both variables. To the extent that consumption is or can be influenced by economic conditions and social characteristics of consumers, data on these "other factors" also are essential for determining the net consumption effect of promotion.

2. Currently Available Public Sector Consumption Data are not Adequate for Promotion Evaluation Purposes

The dairy sales and consumption data currently available from the public sector are not adequate for efficient quantification of the relationship between the various dairy product promotion programs and the sales of the products. However, some of the public data such as "commercial disappearance" can be used as an indicator of trends in national sales patterns. The Federal Order Statistics on fluid milk usage can provide a basis for partial evaluation of the fluid milk promotion effort.

3. The Priority Should be to Obtain New Consumption Data Measured at the Level of the Distribution System which is as Close to the Consumer as Possible, and Encompassing both At-Home and Away-From-Home Consumption Situations

Since current public data sources for the consumption (sales) of milk and dairy products are not completely adequate for promotion evaluation, new consumption data are necessary. To minimize the discrepancy between the

collected figures and the actual consumption, the point of measurement should be close, in the distribution system, to consumers. Data obtained from consumer panel surveys or retail food establishment audits are as close to actual consumption figures as feasible.

In generating new data, both at-home and away-from-home consumption situations have to be accounted for. In addition, both the "direct" usage of milk and dairy products and the "indirect" usage arising from the consumption of food items that contain dairy products as major ingredients must be included in the consumption measures.

4. The New Consumption Data Should be Collected for the Entire Nation and for Individual Market Areas

To obtain a comprehensive view of the aggregate efficiency of the promotion program, data pertaining to the U.S. as a whole are needed.

On the other hand, since various markets in the U.S. receive different levels and types of promotion activity, and since it has been observed that different market areas respond differently even to the same promotion scheme, it is essential that consumption data be obtained for some specific market areas. The variation that exists across market areas will also provide the basis for more efficient estimates of the consumption-promotion relationships. To begin with, it is suggested that data be collected on six major market areas: Los Angeles, Dallas, Chicago, Atlanta, New York City, and Philadelphia. These six markets contain large numbers of consumers; represent different geographical areas; and have different economic and social characteristics. If the experience of using data from the six market areas is positive then it might be appropriate to expand the number of market areas involved.

5. The New Consumption Data Should be Collected in Such a Way that the Variations in the Promotion Effort on the Consumption of Various Dairy Products can be Investigated

The major dairy product categories identified initially as important were fluid milk, cheese, cottage cheese, ice cream, and butter. Due to their high level of aggregation, however, the resulting data from this aggregation scheme cannot be used to identify the variations in the relationship between promotion and the consumption of some of the important components of these product categories.¹

It is suggested that as a minimum the following product subcategories be identified: whole milk, lowfat milk, and flavored milk for fluid milk; Italian type cheese, American type cheese, other cheese, and processed cheese items for cheese; and premium ice cream and regular ice cream for ice cream.

¹ For example, some advertising may be more effective in increasing the sales of lowfat milk or Italian cheese rather than whole milk or American cheese. It is important to have a measure of these differential impacts.

6. In Obtaining the New Consumption Data, Monthly Observations are Essential

It is essential that monthly data be collected. Almost all previous research indicates that consumers respond to dairy promotion in a relatively short period of time after the occurrence. In addition, there is a carry-over effect that might last for a relatively short or a relatively long period of time, depending on the product in question and on the type of promotion scheme used. Hence, short term measures are necessary to capture the short-term effects and the carry-over effects. Data of a longer time frame such as quarterly, semi-annual, or annual will not provide an efficient measure of the sales response.

7. Two Approaches are Proposed for the Collection of New Consumption Data, a Consumer Diary Panel Survey and/or Retail Food Establishment Audits

A. Consumer Diary Panel Surveys:

This approach involves the use of a diary panel to obtain information directly from consumers on the purchases of milk and dairy products for at-home and away-from-home consumption situations.

The at-home consumption part of the questionnaire should include information on actual purchases of the specified dairy products and a selected list of convenience food items that contain dairy products as major ingredients.² Convenience foods containing cheese are the most important, of course. For the purpose of choosing suitable conversion factors which enable the calculation of the quantity of dairy products contained in the purchased convenience food items, information on the brand name and package size of the food items should be obtained.

As for the away-from-home counterpart, the needed information includes the quantity of milk and dairy products consumed directly in their original forms (e.g., a six-ounce glass of lowfat milk) and of a selected list of away-from-home meals that contain milk and dairy products as ingredients.³ Similar to the at-home convenience foods consumption case, information on the type of eating establishment should be solicited for the purposes of adopting suitable conversion factors.⁴

A single panel is preferred for this micro data to cover both at-home and away-from-home consumption situations because of the interdependence between the consumers' decisions. But a single panel approach might be impractical. If two

² A selected list of convenience foods which contain relatively large amounts of dairy products is presented in Appendix E.

³ A selected list of away-from-home meals which contain relatively large amounts of milk and dairy products is presented in Appendix F.

⁴ The conversion factors for convenience food items and for away-from-home meals should be obtained and periodically updated through special surveys. For precision purposes, convenience foods and away-from-home meals should be grouped into several categories by brand name and/or type of eating establishment and the conversion factors developed accordingly.

panels are used, one for at-home and one for away-from-home consumption information, the data should be purchased at the macro level or as aggregate data to avoid the problem of illogically matching the consumption of one individual to that of another in the subsequent data analysis.

The sample design for the panel(s) should provide a statistically reliable estimate of the consumption of each product category for each of the six market areas and for the entire country. Quality control of the process will be very important. Special attention will need to be given to the make-up of the panel to make sure it is representative of the market area, and that the representativeness is maintained over time. The process should also ensure that the panel members provide reasonably accurate and factual information.

B. Retail Food Establishment Audits:

The second approach involves the use of sales or purchase records of retail food establishments (i.e., consumer food stores and different types of away-from-home eating establishments).

Historically, food store audits have been manual. With the advent of scanner technology much of these data are collected electronically, directly from the computer records of the individual food stores. To obtain precise estimates of at-home usage, the scanning data should include information on actual purchases of specified milk and dairy products as well as a selected list of convenience food items that contain dairy products as major ingredients. Information on the brand name and package size of the scanned convenience food items should also be obtained for the purpose of choosing suitable conversion factors.

As for the away-from-home counterpart, consumption information can be obtained by surveying various types of away-from-home eating establishments regarding purchases of milk and dairy products for the purposes of serving the patrons either directly in original form or indirectly as ingredients. Since the resulting measures represent total inputs to the away-from-home eating establishments, rather than the away-from-home meals consumed, the use of conversion factors is not necessary. However, since the figures are purchase data of the surveyed eating establishment, rather than those of the patrons, the measures are proxies for away-from-home consumption.

Consumption measures from this second approach should be purchased as aggregate data as the accompanying individual consumer (micro) characteristic information is not available.

The sample design for this approach should also yield statistically reliable estimates of total consumption of each of the dairy product categories for each of the six market areas and for the entire country. The surveyed units in the sample should be representative of all the stores and eating establishments in the market areas and their customers should be representative of all consumers in the market areas. If this latter is impossible then the characteristics of the customers should be known so that appropriate adjustments can be made to project the sample data to a market area estimate. As in the diary panel, quality control in the collection process will be essential.

8. Generic Dairy Promotion Data Should be Collected for Each of the Major Promotional Activities

To evaluate without bias the sales impact of a specific promotion activity, it is essential that all dairy product promotion efforts in specific market areas and in the entire United States be identified and accounted for. The most accurate and efficient way to collect these data will be from the records of the dairy promotion organizations.

Separate data should be collected for each media (television, radio, print, and billboard), each campaign (fluid milk adult, fluid milk teens, cheese, calcium, butter, etc.), each type commercial (theme), each target audience, and each market area. In addition, dollar expenditures should be obtained on special promotion efforts (e.g., coupons and point-of-purchase activities), and on nutrition education program efforts.

9. Generic Dairy Promotion Data Should be Collected in Such a Manner that the Level of Expenditures and the Quality of the Effort can be Consistently Identified

The advertising effort should be measured in two ways, in terms of dollar expenditures and gross rating points (GRP's). In addition each theme should be identified and the cost of developing the theme accounted for.

Since quality of advertising varies, a quantity measure, such as the total seconds of air time, is not an adequate reflection of promotion effort. Two dimensions of quality need to be considered. One should reflect the effectiveness of the commercial in delivering the intended message (intrinsic quality). The other should measure the viewership of the commercial (extrinsic quality).

The identification of the production costs and the theme of each commercial or campaign could be used as a proxy measure of intrinsic quality. The GRP measure is a composite measure which encompasses both quantity and extrinsic quality. The dollar expenditure on advertising is also a composite measure which measures quantity and extrinsic quality. But the expenditure measure is influenced by other factors such as the competitive situation for advertising time and the size of the market.

10. Generic Dairy Promotion Data Should be Aggregated at Levels that are Consistent with the Consumption Data

Since the underlying purpose of the evaluation data base is to relate the consumption of dairy products to the promotion efforts, data on both consumption and promotion have to be aggregated in a consistent manner. Both data series need to use the same definition for time period, product forms, target audiences, and market areas.

11. Generic Dairy Promotion Data from Various Dairy Promotion Organizations Should be Collected in a Consistent and Comparable Manner

Advertising expenditure data and gross rating point data for media advertising are available in the records of the promotion organizations that pay for the placement of the advertisements. To facilitate efficiencies in evaluation, these data need to be recorded and collected in a uniform and consistent manner. It is

essential for effective evaluation that a system be established among the many promotion organizations for sharing these data. A form that is designed to collect such data is suggested and can be found in Appendix B.

12. Many "Other Factors" Influence Consumer Purchase Behavior and Information must be Collected on them as Well

A. Prices of the Dairy Products:

The most efficient way to collect dairy product prices will be from the diary panel and/or store audit surveys. The prices of the dairy products for at-home consumption can be obtained from the product label or sales slips or from the store records. For evaluation, the analyst will need a weighted average price corresponding to each of the quantity estimates of each dairy product group as discussed above.

Obtaining a price estimate for the dairy product items consumed away-from-home will be more difficult. We suggest as a proxy the use of an index of the cost of meals eaten away-from-home. One known index is the index for the cost of meals eaten out published as a part of the CPI. The alternative is to develop a "cost of eating out" index concurrent with collecting the dairy product consumption information in the meals away-from-home portion of the diary panel survey.

It is further suggested that the "CPI Index of Dairy Product Prices" be used as a check on the reliability of the price information collected through the diary panels or the store audit process.

B. Prices of Competing Products:

The products that are normally considered competitive with dairy products are:

For fluid milk: soft drinks, juices and coffee/tea
For cheese: imitation cheese and meat
For butter: margarine and cooking oils
For ice cream: frozen desserts and pastries
For cottage cheese: salad type vegetables and fruits

Prices or price indexes should be obtained for each competing product or product category concurrent with the collection of the dairy product data through the diary panel or store audit process. It is suggested that focus be placed on broad product categories, rather than on individual food items. However, for certain products where prices for each brand or item in the product group tend to move together, a single product or brand could be selected to represent the group.

C. Promotion of Competing Products:

Information on the amount of advertising conducted by competing commodity groups and by firms selling competing products are available from such firms as LNA/BAR. The total dollar expenditures for each product category can be estimated from their quarterly reports. Monthly data can be obtained in the form of customized reports.

D. Branded Promotion of Dairy Products:

An estimate of branded advertising expenditures on dairy products needs to be obtained and can also be obtained from LNA/BAR reports. The reports contain information on advertising expenditures by companies for specific dairy products, with an estimate for television for the entire U.S. and each of the six market areas. Radio advertising estimates are available only for the U.S. total.

E. Population and Population Characteristics:

Estimates of population and population characteristics for the entire U.S. and the various market areas are also necessary. Annual estimates of population and population characteristics are available from reports of the Bureau of Census, monthly estimates to the extent required will have to be extrapolated. Characteristics of the population can also be obtained from the diary panel if that is the method of collecting dairy product consumption data. If the food establishment audit method is used, then the census data are the appropriate source of population characteristics.

The consumer characteristics that are important are age, sex, racial origin, number and type of households, family size, number of wage earners, marital status, occupation, and education.

F. External Events:

The data base should somehow include information on the important external (macro) events which might cause significant changes in the consumption of milk and dairy products. Examples of these include outbreaks of disease, product tampering, and related medical and nutritional issues which receive widespread publicity. It is suggested that a clipping service be employed to report news items that contain key words for topics that might have short- or long-term impacts on the consumption of milk and dairy products. A suggested list of key words is provided in Appendix D.

G. Deflators:

To make adjustments in product prices and promotion expenditures over time, across market areas, and across various promotion activities, the database must also include relevant inflation indices. The two most important ones are the Consumer Price Index and the Media Cost Index. These should be collected for the U.S. and for the six market areas. For the Consumer Price, both the "All Foods CPI" and the "General CPI" will be useful. For the Media Cost, separate indices should be obtained for television, radio, print, and outdoor for each of the market areas.

13. The Evaluation Data Base is not a Substitute for Consumer Awareness and Attitude Type Tracking Studies

The evaluation data base being suggested should not be considered a substitute for tracking studies used to determine product attitude and advertising awareness of consumers. The information that comes from such studies is important to the assessment of alternative promotion schemes. This information

enables management to make program adjustments in response to observed changes in consumer attitudes toward dairy products. The studies also provide a measure of the degree to which the promotion campaign is being observed and remembered by viewers. The evaluation data base is necessary because the tracking studies do not provide a quantitative measure of the actual sales response.

14. The Evaluation Models Should be Considered an Important Component of the Dairy Promotion Management Information System

The evaluation models are important components of the feedback mechanism of MIS. Other components include "auxiliary forecasting models" to predict the value of explanatory variables in the evaluation models, and a set of "program policy simulation models".

The models, coupled with the current evaluation data, will be valuable in explaining observed changes in dairy product consumption and, hence, useful in providing insight toward necessary program modifications. All of the models can be used to answer "what if" questions such as "if we do this, what will likely happen in the market place?" Answers to "what if" questions provide insight about the appropriate level of expenditures on specific programs and facilitates the determination of optimal allocations of funds across time periods, promotion activities, market areas, dairy products, and target audiences.

15. Cost Efficiency Could be Achieved through Cooperation with Other Commodity Promotion Groups

It should be obvious that the data problem of the dairy promotion group is or will be somewhat the same as that for other commodity promotion groups as well. From an efficiency point of view, it can be argued that substantial economies could be realized if the various commodity promotion groups were to cooperate and share in the costs of the development and maintenance of a comprehensive food consumption data base. Such a data base could be used effectively by analysts to construct a demand system for all commodities involved in commodity promotion programs. This would enable one to determine not only the direct effects of promoting a particular product on the sales of that product, but would also enable the analyst to determine the cross commodity implications. This would make it possible to obtain a more precise evaluation of the dairy promotion program and assist in making better management decisions.

16. The Public Sector Should Still be Looked to as an Important Source of Data and Should be Encouraged to Expand the Amount of Information on Dairy Product Production and Product Movement through the Distribution System

The public sector has the reputation of being able to develop, establish and maintain efficient data collection processes that yield unbiased estimates. Since the dairy product promotion activities are authorized by public legislation, it would seem appropriate and perhaps even necessary that the public sector ensure that the data used in evaluating this effort be objective.

The history of the public sector in collecting data on agricultural product movement and prices has been to collect data close to the production end of the distribution system. These data are useful in evaluating farm policy and in

making firm level management decisions. However, farm or processing level data are not particularly useful in the evaluation of commodity promotion programs.⁵

⁵ Consumer level data on product movements would also provide the basis for a better understanding of the dynamic nature of food demand and the basis for better farm and food policy.

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APPENDIX A

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APPENDIX B
PROMOTION EFFORT REPORT

PROMOTION ORGANIZATION _____

ADDRESS _____

REPORT FOR THE MONTH OF _____, 19____

I. TOTAL AMOUNT BUDGETED FOR THE MONTH

A. Television advertising	\$ _____
B. Radio advertising	\$ _____
C. Print advertising	\$ _____
D. Outdoor advertising	\$ _____
E. Promotion	\$ _____
F. Nutrition education	\$ _____
 TOTAL	 \$ _____

II. Description of theme, product and target audience for each advertising program during the month included in I above.

<u>Theme</u>	<u>Product(s)</u>	<u>Target audience</u>
A. _____	_____	_____
B. _____	_____	_____
C. _____	_____	_____

III. TELEVISION ADVERTISING EFFORT BY Theme/Product and Market Area. Also get DRP's

<u>Theme/product</u>	<u>Market area</u>	<u>Expenditures</u>	<u>GRP's</u>
A. _____	_____	\$ _____	_____
B. _____	_____	\$ _____	_____
C. _____	_____	\$ _____	_____
D. _____	_____	\$ _____	_____
 TOTALS*		 \$ _____	_____

* This total should equal the amount for television advertising above on line I.A.

IV. RADIO ADVERTISING EFFORT BY Theme/Product, and Market Area.
Also get DRP's

	<u>Theme/product</u>	<u>Market area</u>	<u>Expenditures</u>	<u>GRP's</u>
A.	_____	_____	\$ _____	_____
B.	_____	_____	\$ _____	_____
C.	_____	_____	\$ _____	_____
D.	_____	_____	\$ _____	_____
	TOTALS*		\$ _____	_____

* This total should equal the amount on line I.B. above.

V. PRINT ADVERTISING EFFORT BY Theme/Product and Market Area

	<u>Theme/product</u>	<u>Market area</u>	<u>Expenditures</u>	<u>Units</u>
A.	_____	_____	\$ _____	_____
B.	_____	_____	\$ _____	_____
C.	_____	_____	\$ _____	_____
D.	_____	_____	\$ _____	_____
	TOTALS*		\$ _____	_____

* This total should equal the amount on line I.C. above.

VI. OUTDOOR ADVERTISING EFFORT BY Theme/Product, and Market Area

	<u>Theme/product</u>	<u>Market area</u>	<u>Expenditures</u>
A.	_____	_____	\$ _____
B.	_____	_____	\$ _____
	TOTALS*		\$ _____

* This total should equal the amount on line I.D. above.

VII. PROMOTION EFFORT BY Type of Promotion (coupons, samples, point-of-purchase, etc.)

	<u>Type of promotion</u>	<u>Market area</u>	<u>Expenditures</u>
A.	_____	_____	\$ _____
B.	_____	_____	\$ _____
	TOTALS*		\$ _____

* This total should equal the amount on line I.E. above.

VIII. NUTRITION EDUCATION BY Type of Program, and Target Audience.

	<u>Type of Program</u>	<u>Target Audience</u>	<u>Expenditures</u>
A.	_____	_____	\$ _____
B.	_____	_____	\$ _____
C.	_____	_____	\$ _____
TOTAL*			\$ _____

* This total should equal the amount on line I.F. above.

Date _____

Person completing form

NOTE: A second form will be used to collect post-buy analysis information for television advertising.

APPENDIX C

INVENTORY OF AVAILABLE DATA

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DATA INVENTORY

PRODUCT:

Total Milk on a Milkfat Basis, Commercial Disappearance and its Components.

NAME OF DATA SERIES:

"Commercial Disappearance: Total Milk on a Milkfat Basis".

SOURCE:

Annual and quarterly data on production, farm use, marketings, beginning commercial stocks, imports, total supply, ending commercial stocks, net removals, and commercial disappearance are from the "Dairy Situation and Outlook", published quarterly, with annual summaries. Economic Research Service, USDA, Washington, DC.

Current monthly data on total milk production, milk per cow, numbers of cows, government stocks, commercial stocks, imports, and commercial disappearance are from "Agricultural Outlook", published monthly. Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

The annual and quarterly reports present the data as billion pounds of milk on a milkfat basis, while the monthly data are given in million pounds units.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data are reported on an annual and quarterly basis in the "Dairy Situation and Outlook" report, published quarterly. The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data with annual summaries for the three previous years are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

The quarterly and annual reports provide information on total production of milk, farm use, marketings, beginning commercial stocks, imports, total supply, ending commercial stocks, net removals, actual commercial disappearance, and percent change from previous period. These data are reported as annual totals for the five previous years, with quarterly totals for the previous year and the available quarters of the current year.

The monthly reports provide information on total milk production, milk per cow and number of milk cows in the U.S., both commercial and government stocks for the beginning of the month, amount of imports, and commercial disappearance of milk equivalent. The data are reported for the previous six months, as well as for a month a year ago for comparison purposes. Also given are the annual totals for each of these categories for the previous three years. The beginning stocks and imports are listed on a milk-equivalent, fat basis. Milk equivalents are calculated through the use of factors which tell the amount of whole milk at 3.5 percent butter fat it would take to produce a certain amount of a manufactured dairy product, such as butter or Cheddar cheese.

Total milk production, marketings, imports, beginning and ending stocks, and net removals are all components of commercial disappearance and are used in its calculation.

DATA COLLECTION METHODS:

Data on the total U.S. milk production and the total number of milk cows are gathered through a series of monthly nonprobability mail surveys to producers in the 21 largest dairy states. Quarterly surveys are sent to the remaining 29 states. The National Agricultural Statistics Service (NASS) gathers these production data working with the state's Departments of Agriculture in each state. This production information is available in the monthly "Milk Production" report, published by NASS.

Total milk production is estimated by multiplying the estimated number of milk cows in each state by the estimated monthly production per cow, using the trends from the 21 states reporting monthly to estimate production in the other 29. Each of the 50 states report their estimates of milk production quarterly.

Data on dairy products imported into the U.S. are gathered from the census, through customs, monthly, and added to the U.S. production figure after being converted into whole milk equivalents. Also added to production are the beginning commercial stocks of all dairy products, after they have been transformed into milk equivalents. Included are fluid milk products and the milk equivalents of both manufactured products held in cold storage, and products held by the manufacturers in storage, such as nonfat dry milk and canned milk. The stocks of products held in cold storage such as cheese and butter are determined through a monthly enumeration by NASS of all public and private warehouses not affiliated with the military which normally hold goods for at least 30 days. Stocks of dried and canned milk are reported by the manufacturers which produce them. Pipeline stocks of manufactured dairy products held in either grocery warehouses prior to

DATA INVENTORY

shelving or in manufacturer's warehouses to be used as an ingredient in food manufacture or in the making of processed cheese are not included in these stock estimates.

Net removals are then subtracted from this combined figure of production, imports, and stocks, all listed in whole milk equivalent form. These removals consist of dairy products removed each month from the market through USDA programs, minus any subsequent sales of those products. These too are converted using the factors to a whole milk equivalent basis. This net removal information is available through the Agricultural Stabilization and Conservation Service (ASCS) on a monthly basis. Ending commercial stocks of all dairy products are also subtracted, with these gathered in the same way as the beginning stocks. The ending stocks in one month are thus the beginning stocks for the next month.

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks is the commercial disappearance of "total milk" for that month. This should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and pipeline stocks are taken into consideration.

DATA INVENTORY

PRODUCT:

U.S. Butter Commercial Disappearance.

NAME OF THE DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of butter are available from the "Dairy Situation and Outlook Report", published quarterly by the Economic Research Service, USDA, Washington, DC.

Monthly reports of the commercial disappearance of butter are available from "Agricultural Outlook" published monthly by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million pounds of butter.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of butter are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data which includes annual summaries for the three years previous are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

The monthly reports provide data on the national commercial disappearance of butter for each of the previous six months to provide comparison information. For further comparisons, the annual total commercial disappearance of butter is also provided for each of the previous three years, along with the monthly disappearance a year ago to date. These monthly reports also provide the production of butter and the beginning stocks of butter, along with the commercial disappearance, for both the monthly periods and for the annual totals. This production and stocks information is not found in the "Dairy Situation and Outlook" reports.

The "Dairy Situation and Outlook Report" gives information for each quarter of the previous three years and the previous quarters of the current year, while the annual "Yearbook" also gives the annual total butter disappearance for each of the 13 years before those for which quarterly data are given.

Commercial disappearance is calculated by first determining total U.S. production of butter, and then adding to that beginning stocks and the amount of butter imported into the U.S. From this compilation is subtracted ending stocks and net removals of butter, to arrive at the commercial disappearance figure.

DATA COLLECTION METHODS:

Data on the monthly production of butter are collected by the National Agricultural Statistics Service (NASS) and reported in their monthly "Dairy Products" report. This production information is gathered monthly by state surveys, through an enumeration of all plants manufacturing butter in each state as no states have a large number of butter manufacturing plants. The production figure of butter for each month can be found in "Agricultural Outlook", published monthly. Import data on manufactured dairy products including butter, imported into the U.S., are gathered from the census through customs monthly, and added to the production figures. The butter equivalent of imported butteroil is included in this import figure.

Also added to production is beginning commercial stocks of butter. This information is gathered from the "Cold Storage" report also gathered monthly by NASS, and covers butter held in public or private warehouses for 30 days or more. This beginning stocks figure of butter for each month can also be found in "Agricultural Outlook". Pipeline stocks of butter either in grocery warehouses prior to shelving or in manufacturers' warehouses to be used as an ingredient in food processing are not included in these stock estimates.

Net removals of butter by USDA programs are subtracted from this combined figure of production, imports and stocks. The removals consist of butter purchased each month on a delivery basis minus any sales back into the distribution system. This information comes from the Agricultural Stabilization and Conservation Service (ASCS). Ending commercial stocks of butter are also subtracted, with these gathered from the same sources as the beginning stocks. Thus, the ending stocks of butter in one month are the beginning stocks in the next.

DATA INVENTORY

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks, is the commercial disappearance of butter for that month. This should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and "pipeline" stocks are taken into account.

DATA INVENTORY

PRODUCT:

U.S. American Cheese Commercial Disappearance, (includes Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack cheeses). Processed cheese is not included.

NAME OF DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of American cheese are available from the "Dairy Situation and Outlook Report", published quarterly by the Economic Research Service, USDA, Washington, DC.

Current monthly reports of the commercial disappearance of American cheese are available from "Agricultural Outlook" published monthly by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million pounds of American type cheeses.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of American cheese are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data which includes annual summaries for the three years previous are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

These sources provide information on the U.S. commercial disappearance of American cheese. American cheese includes Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack cheese. Processed cheese is not included in the commercial disappearance figures, only natural cheeses are tabulated. Commercial disappearance is calculated by adding current production of American cheese to beginning stocks and imports, and subtracting net removals and ending stocks.

The annual and quarterly reports both list the commercial disappearance data, including the American cheese information, in a table with the disappearance of all manufactured dairy product categories. The monthly information published in "Agricultural Outlook" also provides estimates of the production of American cheese and the beginning stocks of American cheese, as well as the commercial disappearance, for the monthly and annual totals. This production and stocks information is not found in the "Dairy Situation and Outlook" reports.

The "Dairy Situation and Outlook Report" gives the commercial disappearance estimates of American cheese for each quarter of the previous three years and the previous quarters of the current year, while the annual "Yearbook" also gives the annual commercial disappearance for each of the 13 years before those for which quarterly data are currently published.

DATA COLLECTION METHODS:

Monthly production information on American type cheeses is gathered by the National Agricultural Statistics Service (NASS) and reported in their monthly "Dairy Products" report. This production information is gathered each month by state surveys, either through an enumeration of all plants manufacturing dairy products in that state or through a stratified sampling plan which surveys most or all of the main plants and a sample of the smaller plants. The production figure of American cheese for each month can be found in "Agricultural Outlook", published monthly.

Import data on manufactured dairy products including American cheese, imported into the U.S., are gathered from the census through customs each month, and added to the production figures. Also added to production is beginning commercial stocks of American cheese. This information is gathered from the "Cold Storage" report gathered monthly by NASS, and covers American cheese held in public or private warehouses for 30 days or more. This beginning stocks figure of American cheese for each month can be found in "Agricultural Outlook". Pipeline stocks of American cheese either in grocery warehouses prior to shelving, or in manufacturers' warehouses to be used as an ingredient in food manufacture or in processed cheese are not included in these stock estimates.

Net removals are then subtracted from this combined figure of production, imports, and stocks. The removals consist of American cheese purchased each month on a delivery basis minus any sales back into the distribution system, with the information coming from the Agricultural Stabilization and Conservation Service (ASCS). Ending commercial stocks of American cheese are also subtracted, with these gathered from the same sources as the beginning stocks. Thus, the

DATA INVENTORY

ending stocks of American cheese in one month are the beginning stocks in the next.

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks, is the commercial disappearance of American cheese for that month. This should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and "pipeline" stocks are taken into consideration.

DATA INVENTORY

PRODUCT:

U.S. "Other" Cheese Commercial Disappearance, (includes Swiss, Muenster, brick, Limburger, mozzarella, Parmesan, Romano, provolone, ricotta, cream, Neufchatel, blue, part skim, and all other types of cheese, excluding American and processed types).

NAME OF THE DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of "Other" cheese are available from the "Dairy Situation and Outlook Report", published quarterly by the Economic Research Service, USDA, Washington, DC.

Monthly reports of the commercial disappearance of "Other" cheese are available from "Agricultural Outlook" published each month by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million pounds of cheese.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of "Other" cheese are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data which includes annual summaries for the three years previous are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

These sources provide information on the U.S. commercial disappearance of "Other" cheese. "Other" cheese includes Swiss, Muenster, brick, Limburger, mozzarella, Parmesan, Romano, provolone, ricotta, cream, Neufchatel, blue, part skim, and all other types of cheese, excluding American type cheeses. Processed or cottage cheese is not included in the commercial disappearance figures, only natural aged cheeses are tabulated.

Commercial disappearance is calculated by determining the total production of these cheeses and adding to that the figures for beginning stocks and imported cheeses of these types. Ending stocks and net removals are subtracted from this compilation to arrive at commercial disappearance.

The annual and quarterly reports list the commercial disappearance data, including the "Other" cheese information, in a table with the disappearance of all manufactured dairy products. Both sources give information for each quarter of the previous three years and the previous quarters of the current year, while the annual "Yearbook" also gives the annual total "Other" cheese disappearance for each of the 13 years before those for which quarterly data are given.

The monthly "Agricultural Outlook" reports provide data on the national commercial disappearance of "Other" cheese for each of the previous six months to provide comparison information. For further comparisons, the annual total commercial disappearance of "Other" cheese is also provided for each of the previous three years, along with the monthly disappearance a year ago. "Agricultural Outlook" also provides the production and beginning stocks of "Other" cheese, as well as the commercial disappearance, for the monthly and the annual totals. This production and stocks information is not found in the "Dairy Situation and Outlook" reports.

DATA COLLECTION METHODS:

Data on the monthly production of "Other" cheese are gathered by the National Agricultural Statistics Service (NASS) and reported in their monthly "Dairy Products" report. This production information for each of the cheeses in the "Other" category is gathered by state surveys, either through an enumeration of all plants manufacturing dairy products in that state or through a stratified sampling plan which surveys most or all of the main plants and a sample of the smaller plants.

Import data on manufactured dairy products including "Other" cheese, imported into the U.S., are gathered from the census through customs monthly, and added to the production figures. Also added to production is beginning commercial stocks of "Other" cheese. This information is obtained from the "Cold Storage" report which is also gathered by NASS each month, and covers "Other" cheese held in public or private warehouses for 30 days or more. The "Cold Storage" report disaggregates "Other" cheese into Swiss and "Other Natural Cheese". These two figures are added for the total "Other" cheese reported as being held in cold storage. Pipeline stocks of "Other" cheese either in grocery warehouses prior to shelving, or in manufacturers' warehouses to be used as an ingredient in food manufacture or in processed cheese are not included in these stock estimates.

DATA INVENTORY

Net removals are then subtracted from this combined figure of production, imports, and stocks. The removals consist of "Other" cheese purchased each month on a delivery basis minus any sales back into the distribution system, with the information coming from the Agricultural Stabilization and Conservation Service (ASCS). Ending commercial stocks of "Other" cheese are also subtracted, with these gathered from the same sources as the beginning stocks. Thus, the ending stocks of "Other" cheese in one month are the beginning stocks in the next.

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks, is the commercial disappearance of "Other" cheese for that month. This figure should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and "pipeline" stocks are taken into account.

DATA INVENTORY

PRODUCT:

U.S. Frozen Products Commercial Disappearance, (includes ice cream, hard and soft ice milk, and milk sherbet). Mellorine, and water ices are excluded.

NAME OF DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of frozen products are the "Dairy Situation and Outlook Report, published quarterly by the Economic Research Service, USDA, Washington, DC.

Monthly reports of the production of frozen products (which is the same as commercial disappearance for this class of goods) are available from "Agricultural Outlook" published each month by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million gallons of frozen dairy desserts.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of frozen products are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data which includes annual summaries for the three years previous are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

These sources provide information on the U.S. commercial disappearance of frozen dairy dessert products, including ice cream, hard and soft ice milk, and milk sherbet. Mellorine and water ices are not included in this calculation. For frozen products, commercial disappearance is the same as production, as stocks, imports, and net removals are not significant factors usually for these type of products. Thus, the production figure for frozen products is used as a proxy for commercial disappearance, with no other calculations being performed.

The annual and quarterly "Dairy Situation and Outlook Reports" each list the commercial disappearance (or production) data, including the frozen products information, in a table with the disappearance of all manufactured dairy product categories. Both sources give information for each quarter of the previous three years and the previous quarters of the current year, while the annual "Yearbook" also gives the annual total frozen products disappearance for each of the 13 years before those for which quarterly data are given.

The monthly "Agricultural Outlook" provides the production of frozen products, both for the monthly and the annual totals, as this is the same as commercial disappearance for this product category. Data are presented for the national monthly production (or commercial disappearance) of frozen products for each of the previous six months as well as the annual production of frozen products for each of the previous three years, and the monthly production for a year ago to date.

DATA COLLECTION METHODS:

For frozen dairy dessert products, the commercial disappearance estimates are identical to the production information, which is gathered by the National Agricultural Statistics Service (NASS) and reported in their monthly "Dairy Products" report. This production information is gathered each month by state surveys, either through an enumeration of all plants manufacturing dairy products in that state or through a stratified sampling plan which surveys most or all of the main plants and a sample of the smaller plants. This production estimate then becomes the commercial disappearance figure for that month. The reason that production data are used here as a proxy for commercial disappearance is due to the nature of these products. For frozen dairy dessert items; stocks held in inventory, net removals, and imports are not usually significant factors in the distribution system of these products, due to their perishability and the ensuing short lag period between production and consumption.

DATA INVENTORY

PRODUCT:

U.S. Nonfat Dry Milk Commercial Disappearance, (for human food only).

NAME OF DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of nonfat dry milk are available from the "Dairy Situation and Outlook Report", published quarterly by the Economic Research Service, USDA, Washington, DC.

Monthly reports of the commercial disappearance of nonfat dry milk are available from "Agricultural Outlook" published each month by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million pounds of nonfat dried milk.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of nonfat dry milk are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer. Monthly data, which includes annual summaries for the three years previous, are published each month in the "Agricultural Outlook" report.

DATA INVENTORY

DESCRIPTION:

These sources provide information on the U.S. commercial disappearance of nonfat dry milk, intended for human consumption. Nonfat dried products intended for animal feed are not included in commercial disappearance. Commercial disappearance is calculated by first determining total U.S. production of nonfat dry milk, and then adding to that beginning stocks and any imports into the U.S. From this compilation is subtracted ending stocks and net removals of nonfat dry milk, to arrive at the commercial disappearance figure.

The annual and quarterly "Dairy Situation and Outlook" reports each list the commercial disappearance data, including the nonfat dry milk information, in a table with the disappearance of all manufactured dairy products. Each source publishes information by quarter for the previous three years as well as the current year, while the annual "Yearbook" provides the annual total nonfat dry milk disappearance for each of the 13 years before those for which quarterly data are given.

The monthly "Agricultural Outlook" reports provide data on the monthly national commercial disappearance of nonfat dry milk for each of the previous six months, as well as the annual commercial disappearance for the previous three years, and the monthly disappearance for a year ago to date. The monthly source also provides the production and the beginning stocks estimates for nonfat dry milk. This production and stocks information is not found in the "Dairy Situation and Outlook" reports.

DATA COLLECTION METHODS:

Data on the monthly production of nonfat dry milk are gathered by the National Agricultural Statistics Service (NASS) and reported in their monthly "Dairy Products" report. This production information is gathered each month by state surveys, either through an enumeration of all plants manufacturing dairy products in that state or through a stratified sampling plan which surveys most or all of the main plants and a sample of the smaller plants.

Import data on manufactured dairy products, including nonfat dry milk imported into the U.S., are gathered from the census through customs monthly, and added to the production figures. Also added to production are the beginning commercial stocks of nonfat dry milk. This information is gathered from the manufacturers who report on their inventories each month. Some "pipeline" stocks of nonfat dry milk exist, either in grocery warehouses prior to shelving or in manufacturers' warehouses to be used as an ingredient in food processing, and these are not included in the stock estimates.

Net removals are then subtracted from this combined figure of production, imports and stocks. The removals consist of nonfat dry milk purchased each month on a delivery basis minus any sales back into the distribution system, with this information coming from the Agricultural Stabilization and Conservation Service (ASCS). Ending commercial stocks of nonfat dry milk are also subtracted, with these gathered from the same sources as the beginning stocks. Thus, the ending stocks of nonfat dry milk in one month are the beginning stocks in the next.

DATA INVENTORY

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks, is the commercial disappearance of nonfat dry milk for that month. This should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and "pipeline" stocks are taken into account.

DATA INVENTORY

PRODUCT:

U.S. Canned Milk Commercial Disappearance.

NAME OF DATA SERIES:

"Commercial Disappearance: Selected Manufactured Dairy Products".

SOURCE:

Annual and quarterly data for the U.S. on the commercial disappearance of canned milk are available from the "Dairy Situation and Outlook Report", published quarterly by the Economic Research Service, USDA, Washington, DC.

CONTACT:

James Miller
Economic Research Service
USDA
202-786-1830

UNIT OF MEASURE:

Million pounds of canned milk.

GEOGRAPHIC AREAS COVERED:

Data reported represent the total commercial disappearance from all states in the U.S., including Alaska and Hawaii.

FREQUENCY OF REPORTING:

Data on the commercial disappearance of canned milk are reported on an annual and quarterly basis in the "Dairy Situation and Outlook Report". The annual "Dairy Situation and Outlook Report Yearbook" edition is published each Summer.

DESCRIPTION:

These sources provide information on the U.S. commercial disappearance of canned milk products, which include bulk sweetened condensed whole and skim milk, bulk unsweetened condensed whole and skim milk, and evaporated and condensed whole milk packaged as case goods. Commercial disappearance is calculated by first determining total U.S. production of these canned milk products, and then adding to that the beginning stocks and any imports into the

DATA INVENTORY

U.S. From this compilation is subtracted ending stocks and net removals of canned milk, to arrive at the commercial disappearance figure.

The annual and quarterly "Dairy Situation and Outlook" reports each list the commercial disappearance data, including the canned milk information, in a table with the disappearance of all manufactured dairy products, with annual and quarterly totals. Both sources give information by quarters for the previous three years and for the current year, while the annual "Yearbook" also gives the annual total canned milk disappearance for each of the 13 years before those for which quarterly data are currently published.

DATA COLLECTION METHODS:

Data on the monthly canned milk production are gathered by the National Agricultural Statistics Service (NASS) and reported in their "Dairy Products" report each month. This production information is gathered monthly by state surveys, either through an enumeration of all plants manufacturing dairy products in that state or through a stratified sampling plan which surveys most or all of the main plants and a sample of the smaller plants.

Import data on manufactured dairy products, including canned milk imported into the U.S., are gathered from the census through customs each month, and added to the production figures. Also added to production are the beginning commercial stocks of canned milk. This information is gathered from the manufacturers who report on their stocks held in inventory each month. Some "pipeline" stocks of canned milk exist, either in grocery warehouses prior to shelving or in manufacturers' warehouses to be used as an ingredient in food processing, and these are not included in the stock estimates.

Net removals are then subtracted from this combined figure of production, imports and stocks. The removals consist of canned milk purchased each month on a delivery basis minus any sales back into the distribution system, with this information provided by the Agricultural Stabilization and Conservation Service (ASCS). Ending commercial stocks of canned milk are also subtracted, with these gathered from the same sources as the beginning stocks. Thus, the ending stocks of canned milk in one month are the beginning stocks in the next.

The figure left after subtracting ending stocks and net removals from production, imports, and beginning stocks, is the commercial disappearance of canned milk for that month. This should not be used as a proxy for consumption, however, unless the effects of exports, government donations, and "pipeline" stocks are taken into account.

DATA INVENTORY

PRODUCT:

Fluid Milk Sales

NAME OF DATA SERIES:

"Whole Milk and Lowfat and Skim Milk Items Sold in Marketing Areas Defined by Federal Milk Orders".

SOURCE:

Annual data by region are from the "Federal Milk Order Market Statistics, Summary" (annual). Statistical Bulletin, Agricultural Marketing Service, Dairy Division, USDA, Washington, DC. This is usually published each Summer.

Current monthly data by region are available in "Federal Milk Order Market Statistics", published each month. Agricultural Marketing Service, Dairy Division, USDA, Washington, DC.

CONTACT:

John Rourke
Agricultural Marketing Service, Dairy Division
USDA
202-382-9352

UNIT OF MEASURE:

Thousand pounds of milk.

GEOGRAPHIC AREAS COVERED:

Both the annual and monthly summaries provide data for each of the Federal Milk Marketing Order Areas, and also the regional totals. These eight regions and the marketing areas within the regions are:

North Atlantic: New England, New York-New Jersey, and Middle Atlantic.

South Atlantic: Georgia, Alabama-West Florida, Upper Florida, Tampa Bay, and Southeastern Florida.

East North Central: Michigan Upper Peninsula, Southern Michigan, Eastern Ohio-Western Pennsylvania, Ohio Valley, Indiana, Chicago Regional, Central Illinois, Southern Illinois, and Louisville-Lexington-Evansville.

West North Central: Upper Midwest, Eastern South Dakota-Black Hills, Iowa, Nebraska-Western Iowa, and Greater Kansas City.

DATA INVENTORY

East South Central: Tennessee Valley, Nashville, Paducah, and Memphis.

West South Central: Central Arkansas, Southwest Plains, Texas Panhandle, Lubbock-Plainview, Texas, Greater Louisiana, and New Orleans-Mississippi.

Mountain: Eastern Colorado, Western Colorado, Southwestern Idaho-Eastern Oregon, Great Basin, Lake Mead, Central Arizona, and Rio Grande Valley.

Pacific: Puget Sound-Inland and Oregon-Washington.

Note that not all of the U.S. is covered by these market order areas, with California, North and South Carolina, Maine, and parts of Virginia being the largest exceptions.

FREQUENCY OF REPORTING:

Data are available each month for sales of whole, lowfat, and skim milk fluid items. These estimates for each of the marketing areas and also for the regions as a whole are available from the "Federal Milk Order Market Statistics" report published monthly.

The annual data provide more detailed information concerning the type of products sold in each area (i.e. 2% lowfat milk, or skim milk with solids added, rather than simply category totals). These data are presented as estimates of annual sales for each of the previous two years, rather than for a single month, as provided in the monthly reports. The annual series is available in the "Federal Milk Order Market Statistics, Summary", published in the Summer.

DESCRIPTION:

These sources provide estimates of the total volume of packaged fluid milk being sold in each area covered by a Federal Milk Marketing Order on a monthly and annual basis. Sales data are given separately for whole milk items and for lowfat and skim milk items, as well as in a combined total.

In the annual summary, a sales figure is estimated for each marketing area for the previous year. This provides separate annual sales figures for whole milk and flavored whole milk products. Lowfat and skim milk items are also reported, and are disaggregated into the following categories: "2% Lowfat Milk-Plain", "2% Lowfat Milk-Milk Solids Added", "1% Lowfat Milk-Plain", "1% Lowfat Milk-Milk Solids Added", "Skim Milk-Plain", "Skim Milk-Milk Solids Added", "Flavored Lowfat and Skim Milk Products", and "Buttermilk". Sales figures for the previous two years are provided for each of these fluid milk categories for each marketing area. The percent butterfat for each of these product categories in each marketing area is also provided.

The monthly reports provide sales data for only the two broad categories of "Whole Milk Items" and "Lowfat and Skim Milk Items". A third category combines the two into a "Total Fluid Milk Items" group. These reports provide sales data for the month of the report as well as the percent change from the same month a year

DATA INVENTORY

ago and the percent change for the year to date, as compared with that same period from the previous year.

DATA COLLECTION METHODS:

All handlers in each marketing area are required to file monthly reports, including the amount of milk received from each source and the quantity used in each form. The butterfat content of the milk used in each form or product is also required to be reported. Those who are required to report their receipts include; handlers regulated under their area's Federal Milk Marketing Order, handlers regulated under other orders, partially regulated handlers, and producer-handlers. Milk received directly from farms or from other plants is also reported to include all milk processed by each handler.

The Market Administrator in each market receives these monthly reports, and from them determines the marketing area's sales data, which are used to compile the regional and national totals. An auditor also examines each handlers' books for the previous month, to determine that the self-reports were accurate, and the producers paid as required. Revisions are made if it is deemed necessary.

DATA INVENTORY

PRODUCT:

U.S. Fluid Milk Deliveries.

NAME OF DATA SERIES:

"Total Producer Deliveries of Milk and Producer Deliveries Used in Class I by Handlers Regulated Under Federal Orders, By Marketing Area".

SOURCE:

Annual data by region are from the "Federal Milk Order Market Statistics, Summary" (annual). Statistical Bulletin, Agricultural Marketing Service, Dairy Division, USDA, Washington, DC. This is usually published each Summer.

Current monthly data by region are available in "Federal Milk Order Market Statistics", published each month. Agricultural Marketing Service, Dairy Division, USDA, Washington, DC.

CONTACT:

John Rourke
Agricultural Marketing Service, Dairy Division
USDA
202-382-9352

UNIT OF MEASURE:

Thousand pounds of milk.

GEOGRAPHIC AREAS COVERED:

Both the annual and monthly summaries provide data for each of the Federal Milk Marketing Order Areas, and also the regional totals. These eight regions and the marketing areas within the regions are:

North Atlantic: New England, New York-New Jersey, and Middle Atlantic.

South Atlantic: Georgia, Alabama-West Florida, Upper Florida, Tampa Bay, and Southeastern Florida.

East North Central: Michigan Upper Peninsula, Southern Michigan, Eastern Ohio-Western Pennsylvania, Ohio Valley, Indiana, Chicago Regional, Central Illinois, Southern Illinois, and Louisville-Lexington-Evansville.

West North Central: Upper Midwest, Eastern South Dakota-Black Hills, Iowa, Nebraska-Western Iowa, and Greater Kansas City.

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East South Central: Tennessee Valley, Nashville, Paducah, and Memphis.

West South Central: Central Arkansas, Southwest Plains, Texas Panhandle, Lubbock-Plainview, Texas, Greater Louisiana, and New Orleans-Mississippi.

Mountain: Eastern Colorado, Western Colorado, Southwestern Idaho-Eastern Oregon, Great Basin, Lake Mead, Central Arizona, and Rio Grande Valley.

Pacific: Puget Sound-Inland and Oregon-Washington.

FREQUENCY OF REPORTING:

Data are available each month for total producer deliveries and Class I utilization during the period from the first of the year through the latest month being reported, which normally lags about four months from the current month. These estimates for each of the marketing areas and also for the regions as a whole are available from the "Federal Milk Order Market Statistics" report published monthly.

The annual data cover the same information, but provide information for each of previous two years, rather than only a portion of the year as provided in the monthly reports. This annual series is available in the "Federal Milk Order Market Statistics, Summary", published annually in the Summer.

DESCRIPTION:

These sources provide estimates of both total producer deliveries of fluid milk and the amount of Class I deliveries alone, in the regions covered by Federal Milk Marketing Orders. Data are given for total producer deliveries, producer deliveries used in Class I, and the percentage of total deliveries used each year in Class I utilization.

In the annual summary, a total is given for each region for total deliveries and for the deliveries used in Class I, with the average percent of milk utilized in Class I in that region also calculated. Percent changes between years are also provided as an average figure for the region as a whole. A total figure is given for all of the marketing areas unaffected by major changes in compilation over the two-year period. These are referred to as comparable markets, and the total figures can be compared across the two-year period. A total for all market areas, including those with major changes in them, is also calculated. Average percentage changes between years for each of these totals are given, both for total producer deliveries and for deliveries used in Class I. Average percentages of the milk in both the comparable market total and the all-area total used in Class I are listed here as well.

The monthly reports list the same information, but from the first of the current year to the latest month being reported, along with information from the previous year for the same period being reported.

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DATA COLLECTION METHODS:

These figures are collected by market administrators monthly, from handlers' reports of all milk received by them and the quantity used in each form. The volume and amount of butterfat used for each form of milk or manufactured product must be reported. Data are then totaled for each marketing area, for each region, and for the total of all regions. Later, an auditor, sent by the market administrator, visits each handler's plant, where the books and receipts of the plant's operation are examined to determine whether the milk was used in accordance to the earlier self-reports, and verify the data.

DATA INVENTORY

PRODUCT:

Fluid Milk, U.S.

NAME OF DATA SERIES:

"Federal Milk Order Class I Prices, by Marketing Area".

SOURCE:

Data by month and by marketing area for the previous year are from "Federal Milk Order Market Statistics: Summary", published each Summer. Statistical Bulletin, Agricultural Marketing Service, Dairy Division, USDA, Washington, DC.

Data by marketing area for the current month are from "Federal Milk Order Market Statistics", published monthly by the Agricultural Marketing Service, Dairy Division, USDA, Washington, DC.

CONTACT:

John Rourke
Agricultural Marketing Service, Dairy Division
USDA
202-382-9352

UNIT OF MEASURE:

Dollars per 100 pounds of milk with 3.5 percent butterfat.

GEOGRAPHIC AREAS COVERED:

Both the monthly and annual reports provide data for eight U.S. regions, disaggregated into marketing areas. These eight regions and their marketing areas are:

North Atlantic: New England, New York-New Jersey, Middle Atlantic.

South Atlantic: Georgia, Alabama-West Florida, Upper Florida, Tampa Bay, Southeastern Florida.

East North Central: Michigan Upper Peninsula, Southern Michigan, Eastern Ohio-Western Pennsylvania, Ohio Valley, Indiana, Chicago Regional, Central Illinois, Southern Illinois, Louisville-Lexington-Evansville.

West North Central: Upper Midwest, Eastern South Dakota, Iowa, Nebraska-Western Iowa, Greater Kansas City.

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East South Central: Tennessee Valley, Nashville, Paducah, Memphis.

West South Central: Central Arkansas, Southwest Plains, Texas Panhandle, Lubbock-Plainview, Texas, Greater Louisiana, New Orleans-Mississippi.

Mountain: Eastern Colorado, Western Colorado, Southwestern Idaho-Eastern Oregon, Great Basin, Lake Mead, Central Arizona, Rio Grande Valley.

Pacific: Puget Sound-Inland, Oregon-Washington.

Note that not all of the U.S. is covered by these market order areas, with California, North and South Carolina, Maine, and parts of Virginia being the largest exceptions.

FREQUENCY OF REPORTING:

Monthly data for the current month and the same month a year ago are available from the "Federal Milk Order Market Statistics", while data for each month of the previous year are available from the "Federal Milk Order Market Statistics, Summary", published each Summer. The monthly reports include the blend price and Class II and III in the same table as Class I prices, to allow for comparison across the different classes.

DESCRIPTION:

The annual summaries provide data on Class I prices for each Federal Milk Marketing Order Area, and also as an average for each region. Data are given for each month and as a yearly average for each of the marketing areas.

In both the monthly and annual reports, a market average figure is calculated for the marketing areas which had no substantial changes during the course of the year. This is termed a "comparable market average" and allows for comparisons over the two-year period of the report by including only those market areas which have had no large structural changes during the past year. An "all-market" average figure for all of the marketing areas is also calculated.

Prices are reported for 100 pounds of milk at 3.5 percent butterfat for the major city in the marketing area. These major cities are listed for each marketing area in the same source as this data, in the footnotes. These prices are the minimum Class I prices, based on the Minnesota-Wisconsin price with a differential added on for each marketing area.

DATA COLLECTION METHODS:

All handlers in each marketing area are required to file monthly reports, including the amount of milk received from each source and the quantity used in each form. The butterfat content of the milk used in each form or product is also required to be reported. Milk received directly from farms or from other plants is also reported separately to include all milk processed by each handler. The Market Administrator in each market receives these monthly reports, and from them

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determines for each handler what the minimum blend price will be to pay the producers. The class prices are set administratively by the Market Administrators based on the language of each order.

From this information is compiled area, regional, and national data. An auditor is also sent each month, after these preliminary computations, to examine each handlers' books for that period and determine if the self-reports were accurate, and the producers paid as required. Revisions are made if it is deemed necessary.

DATA INVENTORY

PRODUCT:

Per Capita Consumption of All Fluid and Manufactured Dairy Products.

NAME OF DATA SERIES:

"Dairy Products, Per Capita Food Consumption".

SOURCE:

Data for annual national per capita consumption are from "Food Consumption, Prices and Expenditures", published annually at the end of the year. Economic Research Service Statistical Bulletin, USDA, Washington, DC.

CONTACT:

James Blaylock
National Economics Division, Economic Research Service
USDA
202-786-1866

UNIT OF MEASURE:

Pounds of dairy foods consumed per person, in the United States for one year. Civilian population is used to calculate consumption for all dairy products other than fluid milk and cream, which use U.S. resident population.

GEOGRAPHIC AREAS COVERED:

The annual report provides information on per capita consumption on a national basis only, including data from all 50 states.

FREQUENCY OF REPORTING:

Annual per capita consumption data for the previous 20 years are available in "Food Consumption, Prices, and Expenditures", published annually in December.

DESCRIPTION:

This series provides an estimate of the per capita consumption of 17 dairy food categories. Those 17 categories are; "Plain Whole Milk", "Cream and Specialties" which includes cream, eggnog, sour cream and dips, "Other Beverage Milks", which includes buttermilk, lowfat and skim and yogurt, "Butter", "American Cheese", "Other Cheeses", "Cottage Cheese", "Condensed and Evaporated Whole Milk", "Condensed and Evaporated Skim Milk", "Ice Cream", "Sherbet", "Ice Milk", "Other Frozen Products" which includes Mellorine and frozen yogurt since 1981,

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"Nonfat Dry Milk", "Dry Whole Milk", "Dry Buttermilk", and "Other Dry Products" which includes dry whey, and until 1979, malted milk.

Further disaggregation is provided for cheese, with per capita consumption information for "Cheddar Cheese", "Other American Cheeses" which includes Colby, washed curd, stirred curd, Monterey, and Jack, "Provolone", "Romano", "Parmesan", "Mozzarella", "Ricotta", "Other Italian Type Cheeses", "Swiss" including imports of Gruyere and Emmenthaler, "Brick", "Muenster", "Cream and Neufchatel Cheeses", "Blue" which includes Gorgonzola, "Edam and Gouda", "Other Miscellaneous Type Cheeses", "Processed Cheese", and "Processed Cheese Food and Spread".

DATA COLLECTION METHODS:

Data are derived from production and marketing estimates by adding production and imports to beginning stocks, for a total supply figure. Exports and military usage and ending stocks are subtracted to arrive at total civilian disappearance which is divided by the civilian population to arrive at a per capita figure. Pounds of food are multiplied by conversion factors to arrive at retail weight figures, which allow for trimming, marketing, and shrinkage. No estimates for food lost to spoilage, or inedible waste, etc., are subtracted from these consumption estimates.

Production of fluid and manufactured dairy products is gathered by the National Agricultural Statistical Service (NASS), which surveys milk producers and dairy product manufacturers each month. Import data are collected by the census through customs, also on a monthly basis. Stocks information comes either from refrigerated warehouses or from manufacturers, depending on the product. NASS also collects and reports these data on stocks held in inventory.

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PRODUCT:

Corporate Advertising Expenditures by Media Type.

NAME OF DATA SERIES:

"Ad \$ Summary".

SOURCE:

Data by quarters for individual corporations, with annual summaries, are from "BAR/LNA Multi-Media Service" compiled and published by Leading National Advertisers, Inc.

CONTACTS:

Kyra Koury, Director Marketing and Sales
Leading National Advertisers, Inc.
136 Madison Avenue
New York, NY 10016
212-725-2700

Robin Deegan, Customer Service
Broadcast Advertisers Reports, Inc.
800 Second Avenue
New York, NY 10017
212-682-8500

UNIT OF MEASURE:

Thousand dollars spent on each media by a company or a brand, during the year-to-date.

GEOGRAPHIC AREAS COVERED:

The quarterly reports and annual summaries provide estimates of the advertising expenditures in the seven media categories of the top 1,000 corporations in the U.S., ranked according to their total expenditures. No regional or state breakdowns are given.

FREQUENCY OF REPORTING:

Estimates of the advertising dollars spent by each corporation during the year-to-date are provided in the quarterly and annual "Ad \$ Summary".

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DESCRIPTION:

This source provides an estimate of the advertising dollars spent during the year-to-date by the top 1,000 companies ranked according to the total dollars each spent in the seven major media areas (magazines, newspaper supplements, network television, spot television, cable television, network radio, and outdoor advertising). Total advertising expenditures of the top 10, top 25, top 50, etc. companies are given both as the total of all advertising media, and the total those corporations spent on each of the seven individual media sources. Also estimated separately are the expenditures of the 100 leading corporations in each of these seven media areas.

Another way companies are listed is by the various brands that each of these 1,000 corporations have. These brands are listed alphabetically, with their parent companies listed alongside. For each individual brand, the estimated total advertising expenditures are given, with the media or media each brand utilized. This brand information is available for both the current quarter and for the year-to-date.

This information can be used to estimate the dollars spent either on total advertising or on any of the seven media types by a specific company (providing it is one of the 1,000 top companies in regard to advertising expenditures). Also, the top 100 companies in each of the seven media are given, along with estimates of their expenditures in all seven media areas, so one can determine which companies spend the most on advertising, and in which areas.

The last section of this report which lists all the brands alphabetically along with their parent companies, may be the most useful, as it provides estimates of each brand's total advertising, as well as which media were used. It does not detail the amounts spent in each media, however, merely listing those media employed by each brand. As this section is listed alphabetically, rather than by the size of their advertising expenditures, it makes an easy reference to determine estimates of individual brand advertising dollars. Not only brands are listed, but also commodity boards, associations, and service companies, with their various promotional activities or services treated as individual brands since each has its own advertising accounts. Thus, the advertising expenditures of the American Dairy Association are provided, separated out by campaign, such as butter promotion, cheese promotion, etc. This is also a source of information on competitor's advertising expenditures, as almost all companies with major advertising accounts are represented. This can be quite valuable information, and is difficult to obtain from other sources.

Other, more customized, reports are available from The Broadcast Advertisers Reports Inc. (BAR) and Leading National Advertisers Inc. (LNA). BAR can provide estimates of expenditures on television and network radio advertising on a weekly, monthly, or quarterly basis, either for all advertising or for a select range of products, such as dairy foods.

For the spot television advertising, expenditures can be estimated for each of the 75 top markets in the U.S., which contain a total of 319 television stations, many of which are network affiliates. These markets include New York, Los Angeles, Chicago, Philadelphia, Atlanta, and Dallas. Network television and radio, and cable television advertising estimates would all be necessarily national in

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nature, with no regional breakdowns available, due to the data collection methods. Some past data for the television and radio advertising estimates are also available for use in analysis.

LNA which gathers the magazine and newspaper supplement advertising data can supply customized reports on which magazine specific advertising was run in. Newspaper supplements are publications such as "Parade" or the "New York Times Magazine", most often found in the Sunday edition.

DATA COLLECTION METHODS:

BAR gathers the estimates of expenditures for television (network, spot, and cable) and network radio advertising, which are then copyrighted and supplied to LNA. LNA assimilates these data into the total report. LNA is responsible for the collection of the newspaper supplement, magazine, and outdoor advertising estimates.

For the magazine and newspaper supplement expenditure estimates, publishers for 151 major U.S. magazine and newspaper supplements provide LNA with their national copy and regional tearsheets. LNA then examines the copy for advertising, and bases estimated costs for each ad on rates supplied by the magazine publishers depending on colors used, size, and if the ads were used nationally or in a regional edition.

Outdoor advertising is estimated from markets with over 100,000 in population. Only national advertisers are represented, with the gross sales of those selling the advertising being used as the estimates of the expenditures for that advertising. "LNA Outdoor Advertising Expenditure Service" prepares and calculates this portion of the report.

For the network broadcasts, BAR monitors each broadcast minute of ABC, NBC, and CBS, seven days a week, using audio magnetic tape. This creates a log of all network activity. A commercial rate for each television program is estimated monthly according to the ratings each show has received, and this rate per minute is applied to each commercial aired during that program. Totals for each brand or parent company are then calculated across all three networks, to determine an estimate of total network television expenditures.

For the spot television estimates, BAR uses 319 television stations in the national top 75 markets. Stations in New York, Atlanta, Chicago, Los Angeles, Dallas, and Philadelphia are monitored each day, with the stations in the remaining 69 markets being checked one week out of each month. BAR uses industry sources to determine a composite for the commercial rates for each station. These composites are generated for each minute of the broadcasting day, and applied to each commercial aired. For those stations monitored only one week per month, the one week estimates are projected for the rest of the month. For the six markets monitored daily, the rates are applied to each commercial shown for each day of the month. A total for each brand and parent company which advertised on spot television is then calculated by combining figures from all 75 markets.

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Cable television is monitored on six networks: CBN, CNN, ESPN, MTV, USA, and WTBS. These are monitored 24 hours a day from the satellite broadcasts and recorded on magnetic tape. All commercial and program activity is monitored, with rates for each program or time period being estimated by BAR. These rates are then applied to all commercials aired, with totals calculated across the six cable networks.

BAR also monitors network radio programming produced by seven network radio companies: ABC, CBS, NBC, United Stations, Mutual, Satellite Music, and Transtar. These companies have a combined total of 17 networks on the air (ABC has seven, CBS has two, NBC has three, and United Stations has two, Mutual, Satellite Music, and Transtar each have one network). BAR monitors each broadcast minute of these 17 networks, along with any additional programming the station receives pre-recorded. A log is kept of programming and commercials, with the estimated rate for each time of day or program applied to all commercials aired during that period. A total estimate of advertising across all networks is then calculated for each brand and parent company.

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PRODUCT:

Consumer Price Indices for Food and Beverages Consumed at Home.

NAME OF THE DATA SERIES:

"Consumer Price Index for All Urban Consumers: Selected Areas, Food at Home Expenditure Categories", and "Consumer Price Index for All Urban Consumers: Food Expenditure Categories, U.S. City Average".

SOURCE:

Monthly data are published in the "CPI Detailed Report". Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.

CONTACT:

Floyd Rabel
Bureau of Labor Statistics
202-272-5173

UNIT OF MEASURE:

An index of consumer prices for food and other consumer expenditures.

GEOGRAPHIC AREAS COVERED:

Depending on the specific index, the "Consumer Price Index" (CPI) provides monthly food expenditure price indices for several different segments of the country; including a "U.S. City Average", 28 individual selected cities, four U.S. regions (Northeast, North Central, South, and West), and five population classes (over 4,000,000, 1,250,000 - 4,000,000, 385,000 - 1,250,000, 75,000 - 385,000, and less than 75,000). Indices are also provided for the cross-classification of each region with each population size group.

The 28 selected cities are: Anchorage, Atlanta, Baltimore, Boston, Buffalo, Chicago-Northwestern IN, Cincinnati-KY-IN, Cleveland, Dallas-Ft. Worth, Denver-Boulder, Detroit, Honolulu, Houston, Kansas City-Kansas, Los Angeles-Long Beach-Anaheim, Miami, Milwaukee, Minneapolis-St. Paul-Wisconsin, New York City-Northeastern NJ, Northeast PA, Philadelphia-NJ, Pittsburgh, Portland, OR-WA, St. Louis-IL, San Diego, San Francisco-Oakland, Seattle-Everett, WA, and Washington, DC-MD-VA.

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FREQUENCY OF REPORTING:

CPI "Detailed Reports" are published each month, and provide data on the current price indices including selected food and beverage categories. There is usually a one- to two-month lag between the reporting month and publication.

DESCRIPTION:

One series of price indices for "total food at home" includes the following five food categories: cereals and bakery products, meats (includes red meats, poultry, fish, and eggs), dairy products, fruits and vegetables, and "other foods at home". This series provides price indices for these food categories for the 28 individual selected cities, or for a cross-classification of four U.S. regions with five population size classes, or for an average of all U.S. cities. No comparisons to previous months or years are given in this series.

Another series in the "CPI Detailed Report" gives price indices for more specific food items (i.e. dairy products are listed separately as fresh whole milk, other fresh milk and cream, butter, cheese, ice cream and related products, and other processed dairy products). This series is only available for a "U.S. City Average", however, with no city size or regional specification provided. This series provides price indices for each food item listed for the month of record and the month previous, as well as the percent change from a year ago. This same series is also available as a seasonally adjusted index, although not all items are changed in this manner. Food away-from-home, (aggregated into the broad categories of "Lunch", "Dinner", and "Other Meals and Snacks"), and alcoholic beverages are also included in this series. These items are also listed in a third index specifically for some of the largest cities, but not in the index of the 28 cities mentioned above.

Two sets of most of these series are published in each CPI "Detailed Report", one for "all urban consumers", and the other for "urban wage earners and clerical workers". Each has identical formats. "All urban consumers", which is a new group designation by the Bureau of Labor Statistics, is designed to cover approximately 80 percent of the U.S. non-institutionalized civilian population. Workers included in this group which were formerly excluded, include professional, technical and managerial employees, also part-time workers, and those who are self-employed, retired, or unemployed. "Urban wage earners and clerical workers" is the traditional group for which the CPI was designed and includes approximately 40 percent of the total U.S. civilian population.

DATA COLLECTION METHODS:

The CPI is based on a fixed "market basket" of goods, where the ratio of the cost of this bundle of goods at this month's prices compared to the actual cost of the items in the base month is the CPI (a Laspeyres index). The same quantity of goods are measured each month, so that the changes in the indices reflect only price changes. Prices of food are obtained each month in 85 urban locations, geographically dispersed across the U.S., and are collected by Bureau of Labor Statistics (BLS) field representatives. The number of stores sampled per city or region depends on the population of the area. Stores are selected using periodic survey results showing where residents of each area purchase food, gas, apparel,

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etc. Each food item and size is originally chosen by probability, according to its frequency of use. Once an item is chosen, however, it is specified, so that the same item is priced each month from a particular store. This aids in ensuring that accurate price changes are reflected in the CPI.

Prices from each area are converted to a normalized basis (ounces, usually), as not exactly the same items are priced across the country. While the exact items need to be priced from month-to-month in each individual area, items across areas may be slightly different, such as size or type of container. Each month is divided into three pricing periods of six business days each, with an equal proportion of the sample being priced each month, to allow for differences in prices as the month progresses. Also, each type of store is included in each pricing period to avoid biases from including only certain types of stores in each period. Prices for a specific store are obtained during the same pricing period each month, however, so a constant amount of time has occurred between each price check.

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PRODUCT:

Average Retail Prices for Whole, Lowfat, and Skim Milks, Butter, Ice Cream, Yogurt, Processed Cheese, and Natural Cheese.

NAME OF DATA SERIES:

"Average Retail Prices for Selected Products, United States City Average and Four Regions, January to Date".

SOURCE:

Monthly data by region and product are available in "Federal Milk Order Market Statistics" published monthly. Agricultural Marketing Service, Dairy Division, USDA, Washington, DC.

This series (covering all items, not just dairy products) is also published monthly in the "CPI Detailed Report". Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.

CONTACT:

Floyd Rabel
Bureau of Labor Statistics
202-272-5173

UNIT OF MEASURE:

Dollars per unit of product.

GEOGRAPHIC AREAS COVERED:

Retail price data are provided for the four U.S. Census regions, and as an average for the U.S. as a whole. The four regions are: the Northeast, North Central, South, and West.

FREQUENCY OF REPORTING:

Estimates of average retail prices for selected dairy products are published in the "Federal Milk Order Market Statistics" each month. These estimates are listed for each month of the current year-to-date, with a two-month lag.

DESCRIPTION:

This series provides an estimate of the average retail price for a single unit of each selected dairy product in the four regions and in the U.S. as a whole. The

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specific dairy products used to determine these prices are: half-gallons of whole, lowfat, and skim milks, one pound of Grade AA salted stick butter, a half-gallon of bulk prepackaged regular ice cream, a half-pint of natural fruit flavored yogurt, a pound of processed American type cheese in any size or type of package, and a pound of any variety of natural Cheddar cheese in any size or type of package, (this could be smoked, mild, sharp, etc.).

In each individual store sampled, the same brand, size, and type of product is priced each month. Some items are not available in all outlets sampled or are only available in differing packages, however, so that not enough observations may be obtained for identical products in any one package size in a region. This results in an average price being "Not Available", perhaps only for a month, sometimes indefinitely. Checks are made periodically to determine if enough price observations are now available for these items, and they are included if a statistically significant sample size can be obtained.

DATA COLLECTION METHODS:

The "Average Retail Price" data are a subsample of the prices of food and non-food items gathered to determine the "Consumer Price Index for All Urban Consumers" (CPI-U). Due to this, the data collection methods for the "Average Retail Price" series are identical to those for collecting data for the CPI.

Food prices are collected each month from each of 87 "primary sampling units" (PSUs), which is the term used to designate a county or a group of counties with similar economic and demographic conditions. Each PSU then is either a SMSA like Boston, Detroit, or San Francisco, or else a group of smaller cities such as Allentown - Bethlehem - Easton, Pennsylvania. Cities or groups of cities are determined through a probability sampling plan which is based on city size, percent change in population between 1960-1970, the major industry, percent nonwhite, and the percent urban. Currently, about 80 percent of the population is represented by PSUs; with families in isolated rural areas, and those in the military or institutionalized being excluded.

Stores within these cities are picked according to a full probability sampling plan designed using data from a "point of purchase" survey of 23,000 households to determine where they shopped. This sample includes all types of outlets where the selected products are sold. Currently, 2,300 food store outlets are sampled. This includes chain stores, independently owned stores, convenience and dairy stores, etc. Numbers of outlets actually sampled in each city depend on the cities' population, ranging from 100 to only a few. Each year, 20 percent of the outlet sample is redrawn to allow different outlets to be chosen. The list of cities or PSUs sampled is usually revised every 10 to 15 years.

Months are divided into three pricing periods of six business days each, with approximately one-third of the outlets sampled each month. All items from the same outlet are priced during the same six-day period. Retail price data are collected from these stores each month by staff members of the Bureau of Labor Statistics which has eight regional offices in the U.S. They have specifications for each product to be checked, and they go to the same stores each month and determine the price of the same product.

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The same quantity of a product is sampled from a store each month, (i.e. a quart of whole milk), but this same size item is not necessarily priced in all stores or in all cities. In this case, the prices are normalized by converting them all to price per ounce. If the product is on sale at that time, its price is recorded as always, and figured into the average price for the region. As the sample sizes are already very small, missing items in even a few outlets or cities can result in too few prices to be statistically significant. The average price for each region and for the U.S. as a whole are determined by weighting the average price for each city by its population, and using this weighted figure to determine regional and U.S. average prices.

DATA INVENTORY

PRODUCT:

Fluid Whole Milk.

NAME OF DATA SERIES:

"Retail Milk Prices Reported by Market Administrators".

SOURCE:

"Retail Milk Prices Reported by Market Administrators: A Summary and Analysis". Program Analysis Report 84-3, by John Rourke and John Wetterau. Dairy Division, Agricultural Marketing Service, USDA, Washington, DC.

CONTACT:

John Rourke
Agricultural Marketing Service, Dairy Division
USDA
202-382-9352

UNIT OF MEASURE:

Dollars per unit of milk.

GEOGRAPHIC AREAS COVERED:

Thirty-three selected cities nationwide: Atlanta, GA, Baltimore, MD, Boise, ID, Boston, MA, Carbondale, IL, Chicago, IL, Cincinnati, OH, Cleveland, OH, Dallas, TX, Denver, CO, Detroit, MI, Harrisburg, PA, Hartford, CT, Houston, TX, Indianapolis, IN, Kansas City, MO, Louisville, KY, Miami, FL, Milwaukee, WI, Minneapolis, MN, Montgomery, AL, Nashville, TN, New Orleans, LA, Oklahoma City, OK, Philadelphia, PA, Phoenix, AZ, Pittsburgh, PA, Portland, OR, St. Louis, MO, San Antonio, TX, Seattle, WA, Spokane, WA, and Washington, DC.

FREQUENCY OF MEASURE:

Monthly with annual reports, (not published).

DESCRIPTION:

Data on retail whole milk prices are gathered monthly in the 33 selected cities for use in research. While the prices are gathered each month, they are only reported in the "Market Administrators' Annual Report" to the director of the Dairy Division. Neither the monthly records nor the annual report are published, but the data may be available for research purposes, depending on the

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circumstances. The prices for each city indicate the general price level and changes over time in that city, but should not be used to compare different areas or cities, due to differences in brands and pricing policies in the various market areas.

DATA COLLECTION METHODS:

Data are collected by the Market Administrators in 33 selected cities across the U.S. between the 1st and 10th of each month, excluding Fridays and weekends. The largest food retailing chain in the city, the second largest food retailing chain, and the largest dairy or convenience store in the city are surveyed, with the same stores being used each month for consistency. Prices are checked for the most common brand of whole milk only, in either plastic or paper gallon and half-gallon containers. An average of the three store prices for each city is calculated and reported. The choice of stores and chains for the survey is based on estimated whole milk sales in the metropolitan area. Sale or special prices are excluded from the survey.

DATA INVENTORY

PRODUCT:

Fluid Whole, Lowfat, and Skim Milk Prices.

NAME OF DATA SERIES:

"Supermarket Milk Price Survey Summary".

SOURCE:

Monthly data by market and milk type are available through Ron Pearce from the International Association of Milk Control Agencies (IAMCA), Albany, NY.

CONTACT:

Ron Pearce
Secretary and Treasurer of the IAMCA
New York State Department Agriculture and Markets
Albany, NY 12235
518-457-6773

UNIT OF MEASURE:

Cents per unit of fluid milk.

GEOGRAPHIC AREAS COVERED:

The reports currently provide data on retail fluid milk prices in 56 selected cities in 25 states nationwide. The 56 cities are: Phoenix, AZ, Los Angeles, CA, Sacramento, CA, San Francisco, CA, Denver, CO, Dalton, GA, Honolulu, HI, Cedar Rapids, IA, Council Bluffs, IA, Des Moines, IA, Augusta, ME, Bangor, ME, Lewiston, ME, Portland, ME, Worcester, MA, Duluth, MN, Mankato, MN, Minneapolis/St. Paul, MN, Moorhead, MN, Statewide, MT, Omaha, NB, Elko, NV, Las Vegas, NV, Reno, NV, North Jersey, NJ, South Jersey, NJ, Albany, NY, New York City, NY, Rochester, NY, Syracuse, NY, Asheville, NC, Charlotte, NC, Greensboro, NC, Raleigh, NC, Bismarck, ND, Dickinson, ND, Fargo, ND, Grand Forks, ND, Oklahoma City, OK, Tulsa, OK, Portland, OR, Salem, OR, Altoona/Johnstown, PA, Harrisburg, PA, Philadelphia, PA, Pittsburgh, PA, San Juan, PR, Charleston, SC, Columbia, SC, Greenville, SC, Provo, UT, Eastern, VA, Southwest, VA, Western, VA, Seattle, WA, and Madison, WI.

FREQUENCY OF REPORTING:

Fluid milk prices in each of these markets for the previous month are available in the "Supermarket Milk Price Survey Summary". This can be obtained from the contact person. The reports are not published publicly and must be obtained through a representative of the IAMCA.

DATA INVENTORY

DESCRIPTION:

This series provides an estimate of the average and "prevailing price" for whole, lowfat, and skim milk in a variety of size and type containers. Data are gathered monthly through the IAMCA in 56 cities nationally, including Honolulu, Hawaii and San Juan, Puerto Rico. A variety of individuals and institutions collect the data, as not all states are members of the IAMCA. In states where this is the case, it is often a researcher with an interest in maintaining a continuous price series who is responsible for collecting the data. As a result, data collection methods and standards vary widely between cities sampled.

A range of prices and a "prevailing price" are obtained in each city for whole, lowfat, and skim milk, in paper quart containers, and paper and plastic half-gallon and gallon containers. In many markets, of course, at least one of these size and type container combinations is not available for sampling. The "prevailing price" is defined as the price which is most frequently observed for each type and size of milk during the reporting period in each city. This is used rather than a weighted average or another mechanism.

The Class I price for 3.5 percent butterfat milk in that market is also given in the price series data set, along with the minimum butterfat requirement for whole milk in that state. These last two figures are only shown in the whole milk section of the summary, and are not repeated in the lowfat and skim sections. The Class I price also includes a premium in many states, which is noted in the reports. The section of the report dealing with lowfat milk lists the percentages of fat contained in the milk defined as lowfat in that city or state. In many areas, two sets of data are gathered for each city, with one giving prices for milk with 1.5 to 2.0 percent butterfat, and another set of prices for milk with 0.5 to 1.0 percent butterfat. Thus, for some cities, price information is available for whole milk, 2.0 percent milk, 1.0 percent milk, and skim milk, all in the various sizes and types of containers.

DATE COLLECTION METHODS:

Data have been collected since May of 1974, in up to five cities in any one state. Not all states which participate in the price survey are IAMCA members, but have individuals or groups which are interested in maintaining a fluid milk price series. Each month, the IAMCA headquarters in New Jersey sends out a report to the cooperating group or individual in each city to be completed and returned. Data are collected during the first part of each month, checking only prices in supermarkets; no convenience or dairy stores are sampled. This price information is then submitted to the IAMCA for compilation. A report summarizing the price information gathered from each city is generated monthly, with no annual summaries.

As a variety of individuals and groups collect the data in each state, little real control or standardization of the data collection methods is exercised by the IAMCA. If a state is a member of the IAMCA, someone associated with them is responsible for the data collection in each city, but in states not members of the IAMCA, almost anyone may actually collect the data. In either case, it is up to

DATA INVENTORY

these individual collectors of the data to determine stores to be selected and sampling techniques, although precision and the importance of the data are stressed in the IAMCA recommendations.

Data are examined in New Jersey before they are published, to determine if they are consistent with earlier reports, but no formal audits are undertaken. The same stores in each city are normally sampled each month, although no reports of the stores utilized or collection methods are sent on to the IAMCA, only the relevant price information for that period.

While little actual control is maintained over data collection, prices determined for half-gallons of whole milk match the Consumer Price Index prices for whole milk almost exactly, validating the results. Those who do the collecting are themselves usually users of the data and thus have a self-interest in an ongoing and accurate data series.

DATA INVENTORY

PRODUCT:

Whole and Lowfat Fluid Milk Prices.

NAME OF DATA SERIES:

"Selected Milk Products Price Check".

SOURCE:

Michael Wenning, Vice President
Midwestern Client Services
Burgoyne, Inc.
309 Vine Street
Cincinnati, OH 45202
513-621-8940

CONTACT:

Karen Roepken
United Dairy Industry Association
312-696-1860

UNIT OF MEASURE:

Dollars per unit of milk.

GEOGRAPHIC AREAS COVERED:

Nine markets were selected: Atlanta, Baltimore-Washington/Philadelphia, Boston, Denver, Detroit, Houston-Dallas/Ft. Worth, Kansas City, Minneapolis/St. Paul, and Miami.

FREQUENCY OF MEASURE:

Prices are determined in each of these markets every four weeks (in 1986, two of the intervals were widened to six weeks).

DESCRIPTION:

In 1979, the United Dairy Industry Association (UDIA) contracted with Burgoyne, Inc., a market research firm, to conduct retail price checks on selected cola and fluid milk products. Originally, the checks were to be done as a series of "waves" every four weeks in eight markets (Minneapolis/St. Paul was later added as the ninth market). The items were priced between Wednesday and Friday of each four-week period for a total of 13 waves per year. The products to be checked

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were whole and lowfat milk in gallon and half-gallon containers, for a total of four milk products to be checked each wave. No skim milk, sweet Acidophilus milk, flavored milk, or buttermilk were included in the price checks. Six package types of Coca-Cola, and Pepsi-Cola were also priced, and the shelf facings allotted to each milk or cola were recorded.

DATA COLLECTION METHODS:

Each of the nine markets contain 38 to 43 individual stores for a total 330 stores. The waves were begun in May of 1979 and were continued in this fashion through 1985, with Minneapolis/St. Paul being added as a ninth market sometime during this period, bringing the total number of stores to 371.

Each milk and cola item was checked for its presence in the stores, and the shelf price and the number of facings it occupied. The store samples in six of the eight markets were selected using Burgoyne's "Top Two Volume Strata Food Stores" which resulted in samples identical to SAMI markets. In the Houston-Dallas/Ft. Worth and Baltimore-Washington/Philadelphia markets, however, four SAMI markets had to be custom designed to fit these groupings.

In 1986, some changes in this basic plan were made by UDIA. They decided to drop one wave and report prices only 12 times a year, with 10 four-week waves and two six-week waves. Also, the cola checks were eliminated, along with the milk checks on gallon containers. Thus, only half-gallon containers of whole and lowfat milk are now being monitored. The same nine markets were retained. By December 1986, 95 waves should be completed. Formal reports are issued by Burgoyne, Inc. approximately one month following the completion of each wave. Data are provided on a store-by-store basis, with information on the products' distribution, average retail price, and the average number of shelf facings.

DATA INVENTORY

PRODUCT:

Population Estimates for all U.S. Counties and County Equivalents.

NAME OF DATA SERIES:

"Provisional Estimates of the Population of Counties".

SOURCE:

Annual estimates of state and county populations are made each July under the title of "Current Population Reports - Local Population Estimates, Series P-26". This is a publication of the Bureau of the Census, U.S. Department of Commerce, Washington, DC. These reports are issued each August for the previous year.

UNIT OF MEASURE:

Number of persons estimated to be living in each county or state.

GEOGRAPHIC AREAS COVERED:

These reports include population estimates for all U.S. counties and county equivalents, listed alphabetically by state, and by counties within each state.

FREQUENCY OF REPORTING:

These population reports are compiled annually, to provide estimates of current county and state populations between the ten-year census collections. Currently, there is a 13-month lag from when the estimates are made until they are published, (i.e. the July 1985 figures were issued in August of 1986).

DESCRIPTION:

This report provides an estimate of the population for the previous year for each state in the U.S., and for each county or county equivalent within those states. Also given are the latest census estimates for each state and county, and the difference between the current population and the census, both in numbers and percentages. These reports include persons living in institutions, military personnel living in barracks, college students in dormitories, and immigration into the country, including illegal aliens. The census figures given as a comparison reflect any revisions or updating which the census has undergone between its collection and the publication of these later population estimates.

DATA COLLECTION METHODS:

The primary method used to determine these population estimates between census collections involves using administrative records such as tax data, birth and death statistics, and Medicare information. The tax data are used to determine which residents changed counties during the past year. Medicare information provides residence data on persons over 65 years of age. Independent estimates are used to determine components such as numbers institutionalized, living in college dorms or in military barracks, etc.

States cooperating with the Bureau of the Census sometimes calculate their own population estimates which are then averaged with the Bureau of the Census estimations for a final estimation. These state-prepared estimations may be gathered through the records approach used by the Census, or through alternative methods involving the ratios of population change or driver's license address changes.

PRODUCT:

All Milk Produced, and Its Value According to How It was Used.

NAME OF DATA SERIES:

"U.S. Marketings, Income and Value of Milk Production: by States".

SOURCE:

"Milk Production, Disposition, and Income, Summary" National Agricultural Statistics Service (NASS), Agricultural Statistics Board, USDA, Washington, DC. This is published each Spring.

CONTACT:

John Rourke
Agricultural Marketing Service
USDA
202-382-9352

UNITS OF MEASURE:

This series reports milk produced in million pound units and cash receipts in dollar, and 1,000 dollar units.

GEOGRAPHIC AREAS COVERED:

The annual report provides data on the quantities of milk distributed and the cash receipts received for those quantities for each state, including Alaska and Hawaii.

FREQUENCY OF REPORTING:

These data are reported as annual totals only.

DESCRIPTION:

This series provides estimates for each state on the quantity of milk sold to plants and dealers per state, percent of that milk which is fluid grade, price per 100 pounds, and the cash receipts for that milk. Also given for each state is the quantity of milk sold directly to consumers, the price per quart, and the cash receipts from these sales. The combined amount of this milk sold either to plants or direct to consumers is given for each state, along with the average price per hundred pounds of milk, and per pound of milkfat.

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Also accounted for in each state are the amounts of milk used where produced as either fluid milk and cream or as farm produced butter. The value of this milk used on the farm is added to the gross producer income, which includes the cash receipts from marketings. The total value of all milk produced is the average returns per 100 pounds of the milk and cream marketed, plus the value of milk fed to calves. Totals or averages for the U.S. as a whole are also provided for each of the data categories.

This series accounts for milk and its respective value whether sold to dealers, sold directly to consumers, or used on the farm for human consumption. Total production is not available in this series as the amount of milk fed to calves is not given, although its value is included in the total "Value of Milk Produced".

DATA COLLECTION METHODS:

Data on the total U.S. milk production and the total number of milk cows are gathered through a series of monthly nonprobability mail surveys to producers in the 21 largest dairy states. Quarterly surveys are sent to the remaining 29 states. NASS gathers these production data working with the state's Departments of Agriculture in each state. This information for both the individual states' production and the total production for either the 21 states or the U.S., depending on number of states reporting their production that month, is available in the monthly "Milk Production" report. The annual "Milk Production, Disposition, and Income" report, reports the total U.S. milk production by state for the previous year. Both of these reports are published by NASS.

Producers to be surveyed in each state are determined by the state, using stratified sampling techniques, so proportionally more large farms are sampled each month than small ones. The same producers are surveyed either for the quarter or for the year. Total milk production is estimated by multiplying the estimated number of milk cows in each state by the estimated monthly production per cow using the trends from the 21 states reporting monthly to estimate production in the other 29. Four times yearly, all 50 states report their estimates of milk production.

Checks on the estimations include state milk commission reports on plant receipts of milk, reported monthly. Also used are the receipts directly from the plants receiving milk. These are compared to the receipts from one month ago and one year ago as well, for checks on trending and consistency.

Data on milk used where produced are gathered from the October and April milk production surveys. Producers are asked to estimate the quantities of milk produced the previous day that were used to feed calves or set aside for human consumption on the farm. This is transformed into a percentage of production. A weighted average of this figure, according to the size of the producers, for October and April is applied to the annual milk production estimate.

Milk sold to plants and dealers is usually estimated from receipts from annual plant surveys. Production of manufactured dairy products also may be used if complete data are not available for the annual plant survey. Some states have requirements for monthly reporting of receipts, through state regulatory agencies or by Federal Milk Marketing Order administrators.

DATA INVENTORY

PRODUCT:

Butter Production.

NAME OF DATA SERIES:

"Butter; Production by States, by Months, and Annual".

SOURCE:

Data by state and by month, with annual totals, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Monthly national data are from "Dairy Products" (published each month). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand pounds of butter produced.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national production of butter each month. The annual "Dairy Product Summary" disaggregates this national butter production into states, for states with three or more plants producing butter, and where no one plant is responsible for over 65 percent of that state's total butter production.

The 22 states which have three or more plants currently producing butter are: California, Idaho, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, and Wisconsin.

FREQUENCY OF REPORTING:

The monthly "Dairy Products" reports consist of a total U.S. butter production figure for two and three months before and for a year-ago-to-date, (i.e. the September 1986 report gives U.S. figures for June and July 1986, and July 1985).

DATA INVENTORY

The annual "Dairy Product Summary" provides data for each month of the previous year for the U.S. as a whole and for each individual state listed above.

DESCRIPTION:

These sources provide an estimate of the total butter production in the U.S. on a monthly and annual basis, and also the disaggregated production of each of the individual states where butter is produced in at least three plants. States which have less than three butter plants or where one plant produces over 65 percent of the butter in that state are aggregated into an "other" category, to avoid disclosure of an individual plant's production.

The monthly reports compare current production with production the month and the year before. These monthly reports are based on the estimates gathered from manufacturers at the close of each month.

In the annual reports, total production for the states and the U.S. is provided along with totals from the previous year as a comparison. The number of plants in each state and the total number of plants in the U.S. are given for that year and the previous year as well.

Butter is a hardened fat product made from the butterfat of cows' milk. By law it must contain a minimum of 80 percent milkfat. It is available in both salted and unsalted varieties, with the salt acting both as a flavoring and a preservative. Butter is used in cooking and baking, and as a spread on bread products. It has a sweet, delicate flavor, and is normally quite firm, unless it has been mixed or whipped with air or other spreads.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with cooperation from the states' Departments of Agriculture, and the dairy manufacturing plants in each state. Questionnaires are designed by NASS, and mailed under the aegis of the state Department of Agriculture. The questionnaires are customized for each state but not for each manufacturer, by including only those questions which pertain to the type of dairy products manufactured in that state. The questions themselves are the same for each state, to avoid bias, with the only difference being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary.

The same questionnaire is sent to all producers of manufactured dairy products in a single state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports.

As the number of butter manufacturing plants in any one state is fairly small, all plants in each butter producing state are asked to provide their butter production figures on a regular basis. A few plants are sampled quarterly or annually, but overall, the butter production reports represent a monthly

DATA INVENTORY

enumeration rather than a sample, as is the case with some of the other manufactured dairy products.

At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

PRODUCT CATEGORY:

U.S. Natural Cheese Production.

PRODUCTS INCLUDED:

All natural cheeses produced in the U.S., including Cheddar, Muenster, brick, blue, Swiss, cream, mozzarella, other Italian types, and other American types.

PRODUCTS EXCLUDED:

Processed cheeses and cottage cheeses. These are reported separately in their own categories.

SOURCES:

Data by state and by month for the previous year are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Current monthly national data are from "Dairy Products" (published each month). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand pounds of cheese produced.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national production of natural cheeses for each month. The annual "Dairy Products Summary" publishes production data for individual states where no one plant produces over 65 percent of any one type of cheese in that state and which have three or more plants producing natural cheese. States which produce natural cheese in less than three plants or which have one plant producing over 65 percent of a particular type of cheese in that state are grouped together into an "Other" category to avoid disclosure of an individual plant's production.

DATA INVENTORY

FREQUENCY OF REPORTING:

Monthly national production of the seven categories of natural cheese, (American type, Swiss, brick and Muenster, cream and Neufchatel, blue, mozzarella, and the other Italian types,) is available in the "Dairy Products" report, published each month. These monthly reports consist of a total U.S. figure for two and three months before and for a year-ago-to-date, (i.e. the September 1986 report gives U.S. production figures for June and July 1986, and July 1985). The percentage of current production as compared to production the month before and the year before is also given. Monthly reports are based on the estimates gathered from manufacturers at the close of each month.

The annual "Dairy Products Summary" provides data for each month of the previous year and data for each state where that particular type of cheese is produced in over three plants. Annual totals for each of these states and for the U.S. as a whole are also provided in these summaries.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with the cooperation of the states' Departments of Agriculture and the dairy manufacturing plants in each state. Questionnaires are designed by NASS and mailed under the aegis of the states' Department of Agriculture. The questionnaires are customized for each state, by including only those questions which pertain to the types of dairy products manufactured in that state. The questions themselves are the same for each state, with the only differences being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary.

In states with only a few dairy manufacturing plants, all plants in the state report their production. States with a larger number of plants are sampled using a stratified system, so that all larger plants are sampled, along with a certain percentage of the smaller size plants. In these states, about 70 percent of plants are sampled, accounting for 75 to 90 percent of the total production in that state.

The same questionnaire is sent to all producers of manufactured dairy products in the state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports. Water ices are included in the production report, however, if they are manufactured in a plant also producing manufactured dairy products. At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

Cheese is reported as it is produced, before any aging process, if necessary, is undertaken. The volume of cheese reported as produced each month represents the total production of that specific type of cheese in either an individual state or nationally, from all commercial dairy production plants. At this point it has not yet entered the distribution system, and its next destination could either be a retail

DATA INVENTORY

grocery warehouse or outlet, a food processor, or a commercial foodservice establishment.

All cheese made from milk is reported as natural cheese, regardless of whether it will be used in making processed cheese or not. Processed cheese is reported separately, using the weight of the total product, not the weight of the natural cheese used in its manufacture. Double counting is avoided as processed cheese and natural cheese are kept in separate categories, with no total figure for the two being generated.

DATA INVENTORY

SPECIFIC CHEESE:

Blue and Gorgonzola Cheese Production.

PRODUCTS INCLUDED:

All natural blue and Gorgonzola cheeses produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Blue Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of blue and Gorgonzola cheeses for the month. The annual "Dairy Products Summary" publishes data for individual states where no one plant produces over 65 percent of these cheeses in that state and which have three or more plants producing blue or Gorgonzola cheese. Wisconsin is currently the only state with three or more plants producing blue and Gorgonzola cheeses.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total blue and Gorgonzola cheese production in the U.S. on a monthly and annual basis. No reports of blue cheese production alone are provided, with both the monthly and annual reports including Gorgonzola production as well.

DATA INVENTORY

Blue cheese is an aged cheese incubated with specific mold cultures which impart the characteristic taste and blue-veined appearance. It is a crumbly cheese most commonly used in salad dressings. Roquefort cheese is a particular type of blue cheese which is manufactured in France from ewes' milk and aged in caves. Gorgonzola originated in Italy and is green-veined rather than blue. Like blue cheese, however, Gorgonzola has a rather sharp characteristic flavor, with a creamier texture than blue cheese. Both blue and Gorgonzola cheeses have a composition of around 29 percent fat, with European blues having slightly higher fat contents, and 29 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Brick Cheese Production.

PRODUCTS INCLUDED:

All natural brick cheese produced in the U.S., plus all Muenster cheese production, which is included with brick cheese production in the monthly reports but not in the annual report.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Brick Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of brick and Muenster cheeses for the month. The annual "Dairy Products Summary" publishes data for individual states where no one plant produces over 65 percent of the brick cheese in that state and which have three or more plants producing brick cheese.

Two states have three or more plants producing brick cheese: Virginia and Wisconsin. (The production information for Muenster cheese is listed separately in the annual "Dairy Products Summary".)

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

DESCRIPTION:

This series provides an estimate of the total brick cheese production in the U.S. on a monthly and annual basis. Brick is a flavorful, relatively soft cheese, native to the U.S. Its composition is usually around 30 percent fat and 30 percent solids, not fat. It is used most often for eating out of hand.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Cheddar Cheese Production.

PRODUCTS INCLUDED:

All Cheddar cheese produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Cheddar Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of all "American Type" cheeses, (including Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack cheeses).

The annual "Dairy Products Summary" publishes data for individual states where no one plant produces over 65 percent of the Cheddar cheese in that state and which have three or more plants producing Cheddar cheese. Cheddar cheese production is reported separately in the annual summary.

Fourteen states have three or more plants producing Cheddar cheese: California, Idaho, Kansas, Kentucky, Minnesota, Mississippi, New York, North Dakota, Ohio, South Dakota, Utah, Virginia, Washington, and Wisconsin. (The production information for the other "American Type" cheeses is listed separately for each type of cheese in the annual "Dairy Products Summary".)

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

DESCRIPTION:

This series provides an estimate of the total Cheddar cheese production in the U.S. on an annual and monthly basis. Only the total combined production of all the "American Types" of cheese are available in the monthly reports, but production for each month of the previous year is included in the annual summary.

Cheddar cheese originated in England, although it is now seen as a very typical "American Type" cheese. Cheddar cheese is usually aged four to twelve months, with a sharper flavor and dryer texture appearing as the aging continues. American Cheddars have a somewhat waxy, firm texture, and are used in all aspects of cooking, and for eating out of hand. Both white and yellow Cheddars are manufactured, with white Cheddar more common in the Northeastern U.S.

Cheddar cheese has a composition of around 32 percent fat, and 31 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Cream Cheese Production.

PRODUCTS INCLUDED:

All cream cheese produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Cream Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of cream cheese for the month. The annual "Dairy Products Summary" publishes data for individual states where no one plant produces over 65 percent of the cream cheese in that state and which have three or more plants producing cream cheese.

Two states have three or more plants producing cream cheese: California, and New York.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total cream cheese production in the U.S. on a monthly and annual basis.

DATA INVENTORY

Cream cheese is a fresh, uncured, American cheese. It has a very mild flavor and soft spreadable texture which encourages its use as a spread on breads, or as a component of dips and sauces. Cream cheese has a composition of around 34 percent fat, and 16 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Mozzarella Cheese Production.

PRODUCTS INCLUDED:

All natural mozzarella, and cheeses which are similar to mozzarella, produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Mozzarella and Similar; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the combined national production of mozzarella and similar type cheeses for the month. The annual "Dairy Products Summary" publishes data for individual states where no one plant produces over 65 percent of the mozzarella cheese in that state and which have three or more plants producing mozzarella cheese or similar type cheese.

Seven states have three or more plants producing mozzarella cheese: California, Illinois, Nebraska, New York, Pennsylvania, Washington, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

DESCRIPTION:

This series provides an estimate of the total mozzarella and similar cheese production in the U.S. on a monthly and annual basis.

Mozzarella is a fresh, mild, relatively soft cheese, originally native to Italy. Its composition is usually between 18 and 24 percent fat, depending on its moisture content, and 28 to 29 percent solids, not fat. It is used primarily on pizza and in other Italian type foods, as well as eaten out of hand. It has excellent melting qualities and is classified as an "Italian Type" cheese.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Muenster Cheese Production.

PRODUCTS INCLUDED:

All Muenster cheese produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Muenster Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national combined production of Muenster and brick cheeses for the month.

Muenster cheese production alone is published in the annual "Dairy Products Summary", which also publishes brick cheese production separately. This annual summary publishes data for individual states where no one plant produces over 65 percent of the Muenster cheese in that state and which have three or more plants producing Muenster.

Two states have three or more plants producing Muenster cheese: Illinois, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total Muenster cheese production in the U.S. on a monthly and annual basis. Note that monthly "Dairy Products" reports include brick cheese production with the Muenster production. The annual summary, however, reports Muenster production alone, for each month of the previous year.

Muenster cheese is a mild, slightly soft cheese, originating in the Alsace region of France. It has a firm moist texture, and a distinctive soft orange rind.

Muenster cheese has a composition of around 29 percent fat, and 28 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

"Other American Types" Cheese Production.

PRODUCTS INCLUDED:

All Colby, washed curd, stirred curd, Monterey, and Jack cheese produced in the U.S.

SOURCES:

Data on this category of cheese production are only available in the annual "Dairy Products Summary". See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Other American Varieties of Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the combined national production of all "American Type" cheeses for the month, including Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack cheeses. Note that Cheddar cheese production is included in the monthly "Dairy Products" reports.

"Other American Types" cheese production without Cheddar production is reported only in the annual "Dairy Product Summary". These annual summaries publish data for individual states where no one plant produces over 65 percent of the "Other American Types" of cheese in that state, and which have three or more plants producing these cheeses.

Eleven states have three or more plants producing these "Other American Types" of cheese (excluding Cheddar production): California, Idaho, Indiana, Kentucky, Minnesota, New York, Ohio, South Dakota, Utah, Virginia, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total production of "Other American Types" of cheese in the U.S. on an annual and monthly basis. Only the total production of all the "American Types" of cheese, including Cheddar production, is available in the monthly reports, however, production of "Other American Types" of cheese is available for each month of the previous year in the annual summary.

These "Other American Types" of cheese are all related to Cheddar cheese and are manufactured very similarly. All seem to be American in origin, and are somewhat softer, moister, and milder than Cheddar. These "Other American Types" usually have a slightly soft, moist texture, and are used in all aspects of cooking and for eating out of hand.

"Other American Types" of cheese usually have a composition of around 32 percent fat, and 31 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

"Other Italian Types" Cheese Production.

PRODUCTS INCLUDED:

All provolone, Romano, Parmesan, ricotta, and other Italian type soft and hard cheeses produced in the U.S. Mozzarella cheese is excluded from this category.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Other Italian Type Cheeses; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the combined national production of all "Other Italian Type" cheeses for the month. Note that mozzarella cheese production is reported separately in these reports.

The annual "Dairy Products Summary" publishes production data for "Other Italian Type" cheeses for individual states where no one plant produces over 65 percent of the "Other Italian Types" of cheese in that state and which have three or more plants producing these cheeses. Mozzarella cheese production is reported separately in the annual "Dairy Products Summary", just as in the monthly reports.

Six states have three or more plants producing "Other Italian Type" of cheeses: California, Illinois, Nebraska, New York, Pennsylvania, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total production of "Other Italian Type" cheeses in the U.S. on a monthly and an annual basis.

These "Other Italian Types" of cheeses consist of several different varieties of cheese associated with each other primarily by their origins in Italy and in Italian cookery. Provolone was originally manufactured from water-buffalo milk, but now, especially in the U.S., it is made exclusively with cows' milk. The American version is usually consumed younger and hence milder and softer than in Italy, and it has a firm moist texture ideal for melting. When aged for longer periods, however, it is also used in Italy for grating.

Parmesan and Romano are both used typically as very hard cheeses for grating only. These cheeses are usually aged between 10 and 18 months, and have a very hard, dry, granular consistency. They are most often seen in the U.S. already grated and mixed together as a convenience product to be added as a topping to pasta. Due to these cheeses' very low moisture content, they are stable and have a prolonged shelf-life, although flavor does diminish if held after grating for long periods.

Ricotta is a quite different type of cheese, also very important in Italian cuisine. Ricotta is a fresh, soft, moist, unripened cheese; very similar in taste and texture to unsalted cottage cheese. It is used as a filling in lasagna, manicotti, and desserts such as filled pancakes and cheesecakes.

Provolone usually has a fat content of 27 percent with around 31 percent solids, not fat. Parmesan is composed of 25 percent fat, with 34 percent solids, not fat. Romano typically has slightly less fat, 24 percent, and considerably more solids, not fat, up to 53 percent. Ricotta, a very high moisture cheese, has a fat content of 13 percent, with 15 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

PRODUCT:

U.S. Processed Cheese Production.

PRODUCTS INCLUDED:

Processed cheese, processed cheese food and cheese food spreads, and cold pack processed cheeses.

SOURCE:

Annual data are from "Dairy Products Summary" (annual). National Agricultural Statistics Service, Agricultural Statistics Board, USDA, Washington, DC. This is published each Spring. No monthly data are published, and the monthly "Dairy Products" reports do not include this series.

NAME OF DATA SERIES:

"Cheese, Processed Cheese Foods and Spreads, and Cold Pack: Production, United States".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The annual "Dairy Products Summary" provides national data on processed cheese products production. No individual state data are included.

FREQUENCY OF REPORTING:

Annual national data for the production of processed cheese, processed cheese food and spreads, cold pack cheese food and spreads, and total processed cheese production are available in the "Dairy Products Summary" published each Spring. No monthly reports are published.

DESCRIPTION:

This source provides information on the total national production of processed cheese products for the previous year, excluding spreads manufactured from Neufchatel and cream cheeses. This total combined production figure is disaggregated into the national production of processed cheese, processed cheese food and cheese spread, and cold pack cheese food and cheese spread. Figures are given for the number of plants in the U.S. producing each of these types of processed cheeses during the year. A total of all plants in the U.S. producing these type of cheese products is also reported, (there is usually some overlap, with the same plants producing two or more types of these cheese products).

Data in each summary are given for the current year, and also for the seven years previous, to provide comparisons on plant and production changes for each type of processed cheese items produced in the U.S. annually.

Processed cheese is made through the pasteurization, emulsification, and blending of different natural cheeses, with no other ingredients added. Processed cheese foods and spreads have higher moisture contents from the addition of milk, cream, or whey, with spreads having higher moisture than cheese foods. Nonfat milk solids, and condiments used as flavorings may also be added. Cold pack cheese foods and spreads are similar, but they are not heated before packaging. This results in a more flavorful cheese, but often one with a shorter shelf life as well.

DATA COLLECTION METHODS:

Data on processed cheese products' production are reported on an annual basis, rather than monthly, as is the case with other manufactured dairy products. This is due in part to the fact that processed cheese is a second stage product, made using natural cheese and other items. Plants which manufacture processed cheese items often do not produce the natural cheese used in the production of the processed cheese, and do not manufacture any other dairy products besides processed cheese. Thus, these plants are not among those dairy manufacturing plants normally surveyed each month by the National Agricultural Statistics Service (NASS) to determine dairy product production each month.

To determine the production of processed cheese items from these plants, an annual survey by NASS is conducted each May. Plants which do manufacture other dairy products beside processed cheese are asked to include their production of processed cheese in their monthly reports, although these data are not published.

Data are not published by state, due to the small number of plants producing these items in any one state. It is against NASS policy to release information which could lead to the disclosure of an individual plant's production.

DATA INVENTORY

SPECIFIC CHEESE:

Swiss Cheese Production.

PRODUCTS INCLUDED:

All natural Swiss cheese produced in the U.S.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Swiss Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national production of Swiss cheese for the month. The annual "Dairy Products Summary" publishes production data for individual states where no one plant produces over 65 percent of the Swiss cheese in that state and which have three or more plants producing Swiss cheese.

Four states have three or more plants producing Swiss cheese: Ohio, Pennsylvania, Utah, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total Swiss cheese production in the U.S. on a monthly and annual basis.

DATA INVENTORY

Swiss cheese is native to Switzerland, where it is called Emmental. Known for its holes or "eyes" which are produced by gas expansion, Swiss cheese is a relatively mild cheese, with a pronounced nutty flavor. It has a firm, fairly dry texture, which makes for excellent slicing. It is often produced in large rounds, which can weigh over two hundred pounds. Swiss cheese is usually aged six to ten months to allow the flavor and texture to develop.

Its composition averages 31 percent fat and 34 percent solids, not fat.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

All U.S. Cheese Production Other than Cottage or Processed Cheese.

PRODUCTS INCLUDED:

This series includes Cheddar, Colby, washed curd, stirred curd, Monterey, Jack, brick, Muenster, Swiss, blue, Gorgonzola, cream, Neufchatel, mozzarella, provolone, Romano, Parmesan, ricotta, and other type cheeses.

SOURCES:

See the "U.S. Natural Cheese Production" sheet.

NAME OF THE DATA SERIES:

"Total Cheese, Excluding Cottage Cheese; Production by States, by Months, and Annual".

CONTACT:

See the "U.S. Natural Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Natural Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of these combined cheeses for the month. Only cottage cheese and processed cheese production are not included. The annual "Dairy Products Summary" disaggregates this "Total Cheese" production into states, for states with three or more plants producing any of these cheeses and where no one plant in a state is responsible for over 65 percent of the production of these cheeses in that state.

The 27 states which have three or more plants producing these cheeses are: Arkansas, California, Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Natural Cheese Production" sheet.

DESCRIPTION:

These sources provide information on the combined "Total Cheese" production in the U.S. on an annual and a monthly basis. "Total Cheese" production includes Cheddar, Colby, washed curd, stirred curd, Monterey, Jack, brick, Muenster, Swiss, blue, Gorgonzola, cream, Neufchatel, mozzarella, provolone, Romano, Parmesan, ricotta, and other cheeses. Only cottage and processed cheeses are excluded.

States which produce these type of cheeses in less than three plants or where one plant produces over 65 percent of these cheeses in that state are aggregated into an "other" category, to account for all U.S. cheese production and also to avoid disclosure of an individual plant's production.

DATA COLLECTION METHODS:

See the "U.S. Natural Cheese Production" sheet.

DATA INVENTORY

PRODUCT CATEGORY:

U.S. Cottage Cheese Production.

PRODUCTS INCLUDED:

Creamed cottage cheese, (milkfat content 4.0 percent or more) and lowfat cottage cheese (milkfat less than 4.0 percent, including full-skim type).

SOURCES:

Data by state and by month, for the previous year, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Current monthly national data are from "Dairy Products" (monthly report). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand pounds of cottage cheese produced.

FREQUENCY OF REPORTING:

Monthly national production of creamed and lowfat cottage cheese is available in the "Dairy Products" report. These monthly reports consist of a total U.S. figure for cottage cheese production for two and three months prior, and for a year-ago-to-date, (i.e. the September 1986 report gives U.S. figures for June and July 1986, and July 1985). The percentage of current production as compared to production the month before and the year before is also given. Monthly reports are based on the estimates gathered from manufacturers at the close of each month.

The annual "Dairy Products Summary" provides data for each month of the previous year for each state where creamed or lowfat cottage cheese is produced in three or more plants and for the U.S. Annual totals for each of these states and for the U.S. are also provided in these summaries.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with the cooperation of the states' Departments of Agriculture. Questionnaires are designed by NASS and mailed under the aegis of the state Department of Agriculture. The questionnaires are customized for each state, by including only the questions pertaining to the type of dairy products manufactured in that state. The questions themselves are the same for each state, to avoid bias, with the only differences being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary. In states with only a few dairy manufacturing plants, all plants in the state report their production. States with a larger number of plants are sampled using a stratified system, so that all larger plants are sampled, along with a certain percentage of the smaller size plants. In these states, about 70 percent of plants are sampled, accounting for 75 to 90 percent of the total production in that state.

The same questionnaire is sent to all producers of manufactured dairy products in the state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports. Water ices are included in the production report, however, if they are manufactured in a plant also producing manufactured dairy products. At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

The volume of cottage cheese reported as produced that month represents the total production of either lowfat or creamed cottage cheese for an individual state, or the nation, from all commercial dairy production plants. At this point, the cottage cheese is ready to enter the distribution system, where its next destination could be a retail grocery outlet, a food processor for further manipulation, or a foodservice outlet. Cottage cheese production is a separate category from the other natural cheeses, and is not included in production figures with the other cheeses. Total cheese figures include only "aged" cheeses, no processed cheese or cottage cheese.

DATA INVENTORY

SPECIFIC CHEESE:

Creamed cottage cheese production.

PRODUCTS INCLUDED:

All cottage cheese with a milkfat content of four percent or more.

SOURCE:

See the "U.S. Cottage Cheese Production" sheet.

NAME OF DATA SERIES:

Creamed Cottage Cheese; Production by States, by Months, and Annual.

CONTACT:

See the "U.S. Cottage Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Cottage Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of creamed cottage cheese for the month. The annual "Dairy Products Summary" disaggregates this national production into states, for those states which have three or more plants producing creamed cottage cheese and where no one plant is responsible for over 65 percent of the state's creamed cottage cheese production.

Twenty-seven states have three or more plants currently producing creamed cottage cheese: Alabama, California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Missouri, Montana, Nebraska, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Cottage Cheese Production" sheet.

DATA INVENTORY

DESCRIPTION:

This series provides an estimate of the total creamed cottage cheese production in the U.S. on a monthly and annual basis, and also the production of the individual states listed above.

Cottage cheese is a "fresh" cheese which means it undergoes no aging or ripening process and is meant to be consumed soon after its manufacture. It is a soft white cheese usually made from skim milk, with varying degrees of moisture and curd size. It is usually bland in flavor, with a slightly meaty texture, and is often mixed with fruits or vegetables to form a salad.

Creamed cottage cheese is created by the addition of a dressing which contains butterfat, cream, and salt, to the dry curds. This adds moisture and fat to the cheese. Creamed cottage cheese is required by law to contain a minimum of four percent butterfat, with a maximum moisture level of 80 percent.

DATA COLLECTION METHODS:

See the "U.S. Cottage Cheese Production" sheet.

DATA INVENTORY

SPECIFIC CHEESE:

Lowfat Cottage Cheese Production.

PRODUCTS INCLUDED:

All cottage cheese produced in the U.S. with a milkfat of less than four percent.

SOURCE:

See the "U.S. Cottage Cheese Production" sheet.

NAME OF DATA SERIES:

Lowfat Cottage Cheese; Production by States, by Months, and Annual.

CONTACT:

See the "U.S. Cottage Cheese Production" sheet.

UNIT OF MEASURE:

See the "U.S. Cottage Cheese Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of lowfat cottage cheese for the month. The annual "Dairy Products Summary" disaggregates this monthly total production into states, for those states which currently produce lowfat cottage cheese in three or more plants, and where no one plant is responsible for over 65 percent of the total state production of lowfat cottage cheese.

Twenty-one states have three or more plants currently producing lowfat cottage cheese: Alabama, California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Missouri, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Washington, and Wisconsin.

FREQUENCY OF REPORTING:

See the "U.S. Cottage Cheese Production" sheet.

DESCRIPTION:

This series provides an estimate of the total lowfat cottage cheese production in the U.S., on a monthly and annual basis, and also the production of those individual states listed above on a monthly basis for the previous year.

Lowfat cottage cheese is essentially the same as creamed cottage cheese, other than the fat content of the dressing used in the finished product. Both are white, soft, moist cheeses with varying curd sizes. Cottage cheese is a "fresh" cheese meaning it has no ripening or aging process, and should be consumed soon after its manufacture. It has mild flavor, with a somewhat meaty texture, and is often combined with fruits or vegetables to form a salad. The advantage of lowfat cottage cheese is the lowered fat and calorie levels which make it a food often eaten by those concerned with their diet.

Lowfat cottage cheese is created by adding a dressing of butterfat, cream, and salt to dry curds, exactly like the process for making creamed cottage cheese, but the dressing for lowfat cottage cheese has a lower overall fat content. Lowfat cottage cheese is required to have a butterfat content of less than four percent to be labeled as "lowfat", with a maximum moisture content of 80 percent.

DATA COLLECTION METHODS:

See the "U.S. Cottage Cheese Production" sheet.

DATA INVENTORY

PRODUCT CATEGORY:

U.S. Frozen Dairy Desserts Production.

PRODUCTS INCLUDED:

All ice cream, ice milk, and milk sherbet produced in the U.S. Depending on the states where produced these categories may also include soft-serve ice milk, freezer-made milkshake, freezer-made "milk drink", substandard frozen dessert, and substandard ice cream.

PRODUCTS EXCLUDED:

Mellorine (a frozen dessert made with fats and oils other than milkfat), frozen yogurt, and water ices.

SOURCES:

Data by state and by month, with annual totals, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Monthly national data are from "Dairy Products" (monthly reports). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand gallons of frozen dairy dessert produced.

FREQUENCY OF REPORTING:

National total production of ice cream, soft ice milk, hard ice milk, and milk sherbet for the month is available in the "Dairy Products" reports, published each month. These monthly reports consist of a total U.S. figure for two and three months before and for a month a year ago, (i.e. the September 1986 report gives U.S. figures for June and July 1986, and July 1985). The percentage of current production as compared to production the month before and the year before is also given. Monthly reports are based on estimates gathered from manufacturers at the close of each month.

The annual "Dairy Products Summary" published each Spring provides data for each month of the previous year for each individual state where one or more of these frozen dessert products are produced in three or more plants. National total production is also given by month, as well as annual totals for each state and the U.S. The number of plants in each state and the total for the U.S. are given for that year and the year previous. Annual production figures for each state and for the U.S. are also given for that year and for the year previous, for comparison purposes. All state figures plus the "other" category are added, for the U.S. total figure.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with cooperation from the states' Departments of Agriculture, and the dairy manufacturing plants in each state. Questionnaires are designed by NASS, and mailed under the aegis of the state Department of Agriculture. The questionnaires are customized for each state, by including only those questions which pertain to the type of dairy products manufactured in that state. The questions themselves are the same for each state, to avoid bias, with the only difference being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary.

In states with only a few dairy manufacturing plants, all plants in the state report their production. States with a larger number of plants are sampled using a stratified system, so that all larger plants are sampled, along with a certain percentage of the smaller size plants. In these states, about 70 percent of plants are sampled, accounting for 75 to 90 percent of the total production in that state. Trends are extrapolated from those states sampled and applied to the remaining plants for the monthly estimates.

The same questionnaire is sent to all producers of manufactured dairy products in the state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports. Water ices are included in the "Dairy Products" report, however, if they are manufactured in a plant also producing manufactured dairy products. At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

Frozen products are reported as they are produced, representing the total production of that type of frozen dairy dessert in either an individual state or nationally, from all commercial dairy production plants. At this stage, it has not yet entered the distribution system and its next destination could be either a commercial or institutional foodservice establishment, a retail grocery warehouse, or possibly a food processor to repackage the frozen desserts as novelties or incorporate them into more elaborate frozen desserts, such as ice cream cakes. As frozen desserts are not usually stored as stocks for long periods of time, and imports are negligible, these production figures are also used as the commercial

DATA INVENTORY

disappearance estimation for frozen products, due to the unique characteristics of these items.

SPECIFIC FROZEN DESSERT:

Ice Cream Production.

SOURCE:

See "U.S. Frozen Dairy Desserts Production" sheet.

NAME OF DATA SERIES:

"Ice Cream, Total Production by States, by Months, and Annual".

CONTACT:

See "U.S. Frozen Dairy Desserts Production" sheet.

UNIT OF MEASURE:

See "U.S. Frozen Dairy Desserts Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly reports provide data on the total national production of ice cream for the month. The annual summaries also disaggregate this ice cream production into states, for states with three or more plants producing it and where no individual plant produces over 65 percent of the ice cream in that state.

Thirty-eight states have three or more plants currently producing ice cream: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin.

FREQUENCY OF REPORTING:

See "U.S. Frozen Dairy Desserts Production" sheet.

DESCRIPTION:

This series provides an estimate of the total ice cream production in the U.S. on a monthly and annual basis. Monthly estimates are available for individual states where ice cream is produced in at least three plants. Ice cream is a creamy sweetened frozen dessert product with a minimum of eight to ten percent butterfat and sixteen to twenty percent milk solids which are not fat.

DATA INVENTORY

This series does not include the production of hard and soft ice milk, milk sherbet, Mellorine, ice cream and ice milk mixes, and water ices which are each reported as separate items in the **"Dairy Products"** reports.

DATA COLLECTION METHODS:

See **"U.S. Frozen Dairy Desserts Production"** sheet.

SPECIFIC FROZEN DESSERT:

Ice Milk Production.

SOURCE:

See "U.S. Frozen Dairy Desserts Production" sheet.

NAME OF DATA SERIES:

"Ice Milk Total; Production by States, by Months, and Annual".

CONTACT:

See "U.S. Frozen Dairy Desserts Production" sheet.

UNIT OF MEASURE:

See "U.S. Frozen Dairy Desserts Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of ice milk for the month, including both soft and hard varieties, and freezer-made milkshakes. The annual "Dairy Products Summary" disaggregates this total ice milk production into states, for states with three or more plants producing it, and where no one plant produces over 65 percent of the ice milk produced in that state.

Forty-two states have three or more plants currently producing ice milk: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin.

FREQUENCY OF REPORTING:

See "U.S. Frozen Dairy Desserts Production" sheet.

DESCRIPTION:

This series provides an estimate of the total ice milk production in the U.S. on a monthly and annual basis. Ice milk is a frozen dairy dessert product with a minimum of two to seven percent butterfat and twelve to fifteen percent milk

DATA INVENTORY

solids which are not fat, depending on individual state's requirements. Soft ice milk often has less fat and more milk solids, not fat, than hard ice milk. It is served from a freezer at a slightly higher temperature than hard ice milk is served at, to produce the softer texture. The difference between ice milk and ice cream lies primarily in the lower fat content of ice milk.

DATA COLLECTION METHODS:

See "U.S. Frozen Dairy Desserts Production" sheet.

SPECIFIC FROZEN DESSERT:

Hard Ice Milk Production.

SOURCE:

See "U.S. Frozen Dairy Desserts Production" sheet.

NAME OF DATA SERIES:

"Ice Milk, Hard; Production by States, by Months, and Annual".

CONTACT:

See "U.S. Frozen Dairy Desserts Production" sheet.

UNIT OF MEASURE:

See "U.S. Frozen Dairy Desserts Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of hardened ice milk for the month. The annual "Dairy Products Summary" disaggregates this total hard ice milk production into states, for states with three or more plants producing it, and where no individual plant produces over 65 percent of the hard ice milk in the state.

Thirty-four states have three or more plants currently producing hardened ice milk: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Montana, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin.

FREQUENCY OF REPORTING:

See "U.S. Frozen Dairy Desserts Production" sheet.

DESCRIPTION:

This series provides an estimate of the total hard ice milk production in the U.S. on a monthly and annual basis. Hard ice milk is a frozen dairy dessert product with a minimum of two to seven percent butterfat and twelve to fifteen percent milk solids which are not fat, depending on individual state's requirements. It is sweetened and frozen like ice cream, and has a similar consistency and

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texture, although it will be less rich and dense usually, due to the lowered amount of milkfat and solids, not fat.

DATA COLLECTION METHODS:

See "U.S. Frozen Dairy Desserts Production" sheet.

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SPECIFIC FROZEN DESSERT:

Soft Ice Milk Production.

SOURCE:

See "U.S. Frozen Dairy Desserts Production" sheet.

NAME OF DATA SERIES:

"Ice Milk, Soft; Production by States, by Months, and Annual".

CONTACT:

See "U.S. Frozen Dairy Desserts Production" sheet.

UNIT OF MEASURE:

See "U.S. Frozen Dairy Desserts Production" sheet.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the total national production of soft ice milk for the month, including freezer-made milkshakes. The annual "Dairy Products Summary" disaggregates this soft ice milk production into states, for states with three or more plants producing it, and where no individual plant is responsible for over 65 percent of the soft ice milk produced in that state.

Thirty-seven states have three or more plants currently producing soft ice milk: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin.

FREQUENCY OF REPORTING:

See "U.S. Frozen Dairy Desserts Production" sheet.

DESCRIPTION:

This series provides an estimate of the soft ice milk production in the U.S. on a monthly and annual basis. Ice milk in general is a frozen dairy dessert product with a minimum of two to seven percent butterfat and twelve to fifteen percent milk solids which are not fat, depending on individual state's requirements. Soft ice milk often has slightly less fat and more milk solids, not fat, than hard ice

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milk. It is served from a freezer at a slightly higher temperature than hard ice milk, to produce the softer texture.

Almost all "soft-serve" products are ice milk rather than ice cream. Freezer-made milkshakes are usually based on a mix, which is then mixed and dispensed from the freezer the same as "soft-serve" ice milk. This mix is normally low in milkfat, and high in solids, not fat, relative to either ice milk or ice cream.

DATA COLLECTION METHODS:

See "U.S. Frozen Dairy Desserts Production" sheet.

DATA INVENTORY

PRODUCT:

Evaporated and Condensed Whole Milk Production (case goods, not bulk).

NAME OF THE DATA SERIES:

"Evaporated and Condensed Whole Milk, Case Goods; Production by States, by Months, and Annual".

SOURCE:

Data by state and by month, with annual totals, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Monthly national data are from "Dairy Products" (published each month). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand pounds of canned milk produced.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national production of evaporated and condensed whole milk for the month, packed as case goods. The annual "Dairy Product Summary" disaggregates this evaporated and condensed whole milk production into states, for any states with three or more plants producing these items and where no one plant is responsible for over 65 percent of the production of canned or condensed milk in the state. Currently, no states have three or more plants producing either evaporated or condensed whole milk in case lots, although Ohio did have until 1985.

FREQUENCY OF REPORTING:

Monthly national total production of evaporated or condensed whole milk in case lots is available in the "Dairy Products" report, published each month. These reports consist of a total U.S. figure for two and three months before and for a

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month a year ago, (i.e. the September 1986 report gives U.S. figures for June and July 1986, and July 1985).

The annual "Dairy Products Summary" provides an estimate of the individual production of canned and evaporated milk for any state where it is produced in three or more plants, and also the U.S. production, for each month of the preceding year with annual totals.

DESCRIPTION:

These sources provide information on the total production of evaporated and condensed whole milk in case lots in the U.S. on a monthly and annual basis. Currently, the production of evaporated and condensed whole milk, produced in case lots, occurs either in states with less than three plants, or where one plant in a state produces over 65 percent of the evaporated or condensed milk in that state. When this is the case, the entire production figure is attributed to the "other" category to avoid possible disclosure of an individual plant's production.

The annual "Dairy Products Summary" lists the number of plants in each state (if any states were reported individually) and in the "other" category for the current year and the year previous. Any state production figures plus the production from the "other" category are added to arrive at the U.S. total figure.

The monthly "Dairy Products" reports include the percentage of current production as compared to production the month before and the year before. These monthly reports are based on the estimates gathered from manufacturers at the close of each month.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with cooperation from the states' Departments of Agriculture, and the dairy manufacturing plants in each state. Questionnaires are designed by NASS, and mailed under the aegis of the state Department of Agriculture. The questionnaires are customized for each state, by including only those questions which pertain to the type of dairy products manufactured in that state. The questions themselves are the same for each state, to avoid bias, with the only difference being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary.

In states with only a few dairy manufacturing plants, all plants in the state report their production. States with a larger number of plants are sampled using a stratified system, so that all larger plants are sampled, along with a certain percentage of the smaller size plants. In these states, about 70 percent of plants are sampled, accounting for 75 to 90 percent of the total production in that state.

The same questionnaire is sent to all producers of manufactured dairy products in the state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports. Water ices are included in the "Dairy Products"

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report, however, if they are manufactured in a plant also producing manufactured dairy products. At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

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PRODUCT:

Nonfat Dry Milk Production (for use as human food only).

NAME OF DATA SERIES:

"Nonfat Dry Milk for Human Food; Production by States, by Months, and Annual".

SOURCE:

Data by state and by month, with annual totals, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Monthly national data are from "Dairy Products" (published each month). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Thousand pounds of nonfat dried milk which is produced for human food.

GEOGRAPHIC AREAS COVERED:

The monthly "Dairy Products" reports provide data on the national amount of nonfat dry milk intended for use as human food produced for the month. The annual "Dairy Product Summary" disaggregates this nonfat dry milk production into states, for states with three or more plants producing it, and where no one plant is responsible for the production of over 65 percent of the nonfat dry milk produced for human food in that state.

The ten states which have three or more plants currently producing nonfat dry milk for human consumption are: California, Idaho, Iowa, Michigan, Minnesota, New York, North Dakota, Ohio, Pennsylvania, and Wisconsin.

FREQUENCY OF REPORTING:

Monthly national total production of nonfat dry milk is available in the "Dairy Products" report, published each month. These reports consist of a total U.S. figure for two and three months before and for a month a year ago, (i.e. the September 1986 report gives U.S. figures for June and July 1986, and July 1985).

An annual total for the production of nonfat dry milk, both for each state where it is produced in three or more plants and for the U.S., as well as totals for each month of the preceding year, is available in the "Dairy Product Summary" published each Spring.

DESCRIPTION:

These sources provide information on the total U.S. production of nonfat dry milk intended for human food, on a monthly and annual basis. Also provided is the disaggregated production of each of the individual states where nonfat dry milk for human use is produced in at least three plants. States which produce nonfat dry milk in less than three plants or where one plant in a state produces over 65 percent of the nonfat dry milk in that state are aggregated into an "other" category, to avoid possible disclosure of an individual plant's production.

The percentage of current production as compared to production the month before and the year before is provided in the monthly reports. These reports are based on estimates gathered from manufacturers at the close of each month.

The annual summary lists the number of plants in each state and the total for the U.S. for that year and the year previous. Annual production figures for each state and for the U.S. are also given for that year and for the year previous, for comparison purposes. All state figures plus the "other" category are added for the U.S. total figure.

DATA COLLECTION METHODS:

Data are collected by the National Agricultural Statistics Service (NASS), with cooperation from the states' Departments of Agriculture, and the dairy manufacturing plants in each state. Questionnaires are designed by NASS, and mailed under the aegis of the state Department of Agriculture. The questionnaires are customized for each state, by including only those questions which pertain to the type of dairy products manufactured in that state. The questions themselves are the same for each state, to avoid bias, with the only difference being which questions are asked in each state. Data are also gathered by telephone and personal interview when necessary.

In states with only a few dairy manufacturing plants, all plants in the state report their production. States with a larger number of plants are sampled using a stratified system, so that all larger plants are sampled, along with a certain percentage of the smaller size plants. In these states, about 70 percent of plants are sampled, accounting for 75 to 90 percent of the total production in that state.

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The same questionnaire is sent to all producers of manufactured dairy products in the state, covering butter, frozen products, cheese, cottage cheese, and condensed and dried milk products. Yogurt is not included as a manufactured product. All cultured products are considered fluid and reported in the Federal Milk Marketing Order reports. Water ices are included in the "**Dairy Products**" report, however, if they are manufactured in a plant also producing manufactured dairy products. At the end of each month, producers fill in the quantities of each product that they manufactured during that month. An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance is good, and revisions are few.

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PRODUCT:

Fluid Milk and Manufactured Dairy Products.

NAME OF DATA SERIES:

"Supply and Utilization of Milk, U.S."

SOURCE:

"Milk Production, Disposition, and Income: Summary". National Agricultural Statistics Service, Agricultural Statistics Board, USDA, Washington, DC. Published each Spring.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Million pounds of milk.

GEOGRAPHIC AREAS COVERED:

The reports for the supply and utilization of the annual milk production are national, including production from each of the 50 states. No regional or state reports of utilization are available.

FREQUENCY OF MEASURE:

As this report includes utilization of all milk produced in the previous year, it is published annually only. However, it has been proposed to discontinue this data series as the factors used to convert manufactured dairy products to milkfat equivalents are outdated, with no funds currently available to revise them. If this is the case, 1986 will be the last available report in this series.

DESCRIPTION:

Information is given for the previous three years' milk production, net imports of ingredients, and net changes in storage cream. These are added to give a total supply, on a milk equivalent basis, for each of the three years. Both net imports of ingredients and net changes in storage cream are given in a whole milk equivalent basis (milkfat basis). Cream is reported as it moves out of storage, with

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a negative number indicating a net movement into storage. Fluid and plastic cream, which is an extremely high-fat cream, are each included.

Utilization of this total milk supply is disaggregated into the following manufactured dairy product groups: creamery butter, butter from whey cream, American cheese, other cheese, creamed cottage cheese, evaporated sweetened condensed milk, unsweetened bulk condensed milk, sweetened bulk condensed milk, dry whole milk, ice cream and other frozen dairy products, butter and condensed milk used in ice cream, and other manufactured products. This category for other manufactured products includes dry cream, malted milk powder, part-skim dried milk, dry or concentrated ice cream mix, dehydrated butter fat, and any other products using milkfat.

The butter, (creamery, and whey cream), ice cream, and any butter or condensed milk used in ice cream, are all given as whole milk equivalents. The milk equivalent of butter from whey cream is subtracted from the milk equivalent of creamery butter to get a net milk equivalent. This is also done for ice cream by subtracting the milk equivalent of the butter and condensed milk used in ice cream from the milk equivalent of ice cream and frozen products to yield another net milk equivalent. These two net milk equivalents are added to the pounds of all the other manufactured dairy products for a total of all manufactured products in milk equivalent.

Also listed in this table are the pounds of milk available as fluid. This is given as milk sold by dealers, and milk sold by producers directly to consumers. Added together, a figure is produced for the total milk available for fluid products. Amounts of milk used where produced are recorded, both by the amounts fed to calves, and by the amounts consumed by producers as fluid milk, cream, or farm churned butter, for a total of milk used by producers.

Adding the total milk equivalent used in manufactured products, the total available for fluid products, and the total used by producers results in a complete utilization figure. The difference between this and the total supply figure is a residual, accounting for miscellaneous uses, and inaccuracies in production and utilization figures.

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PRODUCT:

Milk as Utilized by Farmers.

NAME OF DATA SOURCE:

"Milk: Quantities Used and Marketed by Farmers, United States".

SOURCE:

"Milk Production, Disposition, and Income", National Agricultural Statistics Service (NASS), Agricultural Statistics Board, USDA. Published annually in the Spring.

CONTACT:

Daniel Buckner
National Agricultural Statistics Service
USDA
202-447-4448

UNIT OF MEASURE:

Million pounds of milk.

GEOGRAPHIC AREAS COVERED:

The annual report provides data on the yearly totals of milk utilized in each of the 50 states, as well as totals for each category for the U.S.

FREQUENCY OF REPORTING:

Data for each state and for the U.S. as a whole are published annually.

DESCRIPTION:

Information is provided on milk used on farms where produced, and milk marketed by producers. Milk used on farms is categorized as milk fed to calves or milk consumed on the farm as fluid milk or cream. Milk marketed is disaggregated into whole milk sold to plants and dealers, and milk sold directly to consumers. A total figure is given as well, for all milk produced, combining milk used by producers and milk sold to plants and dealers.

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DATA COLLECTION METHODS:

Data are gathered through a series of monthly nonprobability mail surveys of the 33 largest dairy states. Quarterly surveys are sent to the remaining 17 states. Total milk production is estimated by multiplying the estimated number of milk cows by the estimated monthly production per cow. Checks on the estimations include state milk commission reports on plant receipts of milk, usually reported monthly. Also used are the receipts directly from the plants receiving milk. These are compared to the receipts from one month ago and one year ago as well, for checks on trending and consistency.

Data on milk used where produced are gathered from the October and April milk production surveys. Producers are asked to estimate the quantities of milk produced the previous day that were used to feed calves or set aside for human consumption on the farm. This is transformed into a percentage of production. A weighted average of this figure, according to the size of the producers, for October and April, is applied to the annual milk production estimate.

Milk sold to plants and dealers is usually estimated from receipts from annual plant surveys. Production of manufactured dairy products also may be used if complete data are not available for the annual plant survey. Some states have requirements for these monthly receipts, through state regulatory agencies or by Federal Milk Marketing Order administrators.

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PRODUCT:

U.S. Dairy Products Held in Cold Storage.

PRODUCTS INCLUDED:

Butter, natural American cheese, natural Swiss cheese, "other" natural cheese, cream, and evaporated and condensed milk.

NAME OF DATA SERIES:

"Stocks in Cold Storage - by Regions".

SOURCES:

Data by region and by month are from "Cold Storage Summary" (annual). Agricultural Reporting Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Current data for regions are from the "Cold Storage" report, (monthly). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Bernie Albrecht
National Agricultural Statistics Service
USDA
202-382-9185

UNIT OF MEASURE:

Thousand pounds of dairy products held in cold storage.

GEOGRAPHIC AREAS COVERED:

The monthly and annual reports divide the U.S. into nine regions, covering 48 states. These regions and the states encompassed by each are:

New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Middle Atlantic: New York, New Jersey, Pennsylvania.

East North Central: Ohio, Indiana, Illinois, Michigan, and Wisconsin.

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West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida.

East South Central: Kentucky, Tennessee, Alabama, and Mississippi.

West South Central: Arkansas, Louisiana, Oklahoma, and Texas.

Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada.

Pacific: Washington, Oregon, and California.

FREQUENCY OF REPORTING:

Current monthly regional data on the amount of dairy products held in refrigerated warehouses at the end of each of the two previous months are available from the "Cold Storage" report. These same figures are available in the annual "Cold Storage Summary" report, which covers each month of the previous year by region.

DESCRIPTION:

Data are given for the stocks of dairy products in all warehouses in each region, and for the total held in the U.S. The data for these reports consist of information on the end of month stocks of dairy products held in cold storage. This information is gathered from records of refrigerated warehouses which normally hold commodities for at least 30 days.

The monthly reports for the U.S. totals separate out the amount of butter and American cheese held that is government owned, but the regional figures for each month concern only the total amount of products held for each region, regardless of ownership. The amount of the total stock in public warehouses is also given as a subtotal in the monthly reports, but not in the annual summary.

Also available in the monthly reports is a figure for the amount of dairy products held a year-ago-to-date, for comparison purposes. Percent change in the stocks held from the previous month and previous year are given as well.

DATA COLLECTION METHODS:

Information is gathered from public and private storage facilities, but not those connected with the military. Warehouses such as manufacturers' or grocers' where products are normally held for less than thirty days are also not included in this data set.

The warehouses are surveyed at the end of each month by the state offices of the National Agricultural Statistics Service (NASS). The survey is an

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enumeration, using both mail questionnaires and telephone surveying to determine the amount of dairy products held during that month. The same warehouses are contacted each month. These stock figures are then used in the determination of the commercial disappearance of total milk and manufactured dairy products, with the ending stock of the previous month being a proxy for the beginning stock of the current month.

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PRODUCT:

Type and Form of Butter Production.

NAME OF DATA SERIES:

Butter Packaging Survey; Production by States, by Months, and Annual. (Preliminary, due to the data having not yet been published.)

SOURCE:

(Preliminary, but this is the proposed method of publication.) Data by state and by month, with annual totals, are from "Dairy Products Summary" (annual). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC. This is published each Spring.

Monthly national data are from "Dairy Products" (monthly reports). Agricultural Statistics Board, National Agricultural Statistics Service, USDA, Washington, DC.

CONTACT:

Paul Hurt
National Agricultural Statistics Service
USDA
202-447-3238

UNIT OF MEASURE:

Thousand pounds of butter produced and packaged.

GEOGRAPHIC AREAS COVERED:

The monthly reports provide data on the total national production of butter in the various forms and packages. The annual "Dairy Products Summary" disaggregates this national butter form production into states, for states with three or more plants producing or printing butter, and where no one plant is responsible for over 65 percent of the state's butter production. States with less than three plants or where one plant dominates butter production or printing are grouped together into an "other" category to avoid the possible disclosure of an individual plant's production.

The 22 states which have three or more plants currently manufacturing butter are: California, Idaho, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, and Wisconsin. As this butter packaging survey also includes butter printing plants

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which do not necessarily manufacture butter, additional states may be listed when the annual report is published in the Spring of 1988.

FREQUENCY OF REPORTING

Monthly national total production of butter in each of its forms and packages is available in the "Dairy Products" report. These monthly reports consist of a total U.S. production figure for each form or package of butter for two and three months before and for a year-ago-to-date. The percentage of current production in each of the various forms as compared to production the month before and the year before is also given. However, as this a new series with the first data compiled in January, 1987, year-ago-to-date data will necessarily not be available until 1988. The reports are based on estimates gathered from butter manufacturers and printers at the close of each month.

The annual "Dairy Products Summary" provides data for each month of the previous year for each of the individual states listed above. Annual state and national totals are also shown.

DESCRIPTION:

These sources provide an estimate of the total butter production in each of the forms and packages commonly produced in the U.S. on a monthly and annual basis.

The "Butter Packaging Survey" is administered by the National Agricultural Statistics Service (NASS) with assistance and cooperation from the American Butter Institute. Butter manufacturers already participate in the NASS butter production data base, which gathers information on total butter produced in individual states and the U.S. This second survey is intended to show the initial disposition of that total butter production.

The packaging survey begins by asking whether the plant both manufactures and prints butter, or specializes in one function or the other. Also determined is the total amount of butter processed over the previous month, including butter produced, purchased, or taken from storage. The survey next asks how this total amount of butter was marketed (i.e. bulk packed, printed, stored, or used in other products). Of the butter that was printed, it is asked how much was printed in each form (i.e. quarters, solid pounds, individual pats, tubs, etc.). Any butter which was printed for government use is singled out here as well. Lastly, the disposition of the bulk packaged butter is determined, with the amount noted going to each of several destinations (i.e. other butter plants for printing, wholesalers, food processors, institutions, or the Commodity Credit Corporation (CCC)).

This survey is designed to be an indicator of the various markets for butter and their sizes. It can be completed easily from existing plant records and should provide valuable data over time. As an example, knowing the amount of butter sold as individual pats or sold bulk to foodservice operations may reveal the extent of the market for butter in the away-from-home market, and the potential to expand that market.

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DATA COLLECTION METHODS:

Data are collected for this survey using the same techniques as used for the dairy products' production reports. NASS collects the data with cooperation from the states' Departments of Agriculture, and the dairy manufacturing plants in each state. Cooperation has also been obtained from the manufacturers through the American Butter Institute. Questionnaires are mailed under the aegis of the state Department of Agriculture at the end of each month, and are the same for each state. Data are also gathered by telephone and personal interview when necessary. As the number of butter manufacturing and printing plants in any state is fairly small, all plants in each state report their production, and the forms it was produced and distributed in. A few plants are sampled on a quarterly or annual basis, but overall, the butter production reports represent a monthly enumeration rather than a sample.

An annual summary is also sent to each plant to allow them to make any revisions or fill in any months which they originally failed to report. Overall, compliance should be good, as is normally the case with the production reports.

DATA INVENTORY

PRODUCT:

Total Milk Production in New York State.

NAME OF DATA SERIES:

"Dairy Briefs"

SOURCE:

Monthly data for New York State milk production are available in the "New York Crop and Livestock Report", Division of Statistics, New York Department of Agriculture and Markets, Albany, NY, published each month.

CONTACT:

Glen Sutter
New York State Department of Agriculture and Markets
Albany, NY 12235
518-457-5570

UNIT OF MEASURE:

Milk production is measured in million pounds.

GEOGRAPHIC AREAS COVERED:

The reports provide information on milk production statistics for New York State alone, and also for the group of 21 major dairy producing states which are surveyed monthly in the determination of U.S. milk production by the National Agricultural Statistics Service (NASS).

FREQUENCY OF MEASURE:

The "New York Crop and Livestock Report" is published monthly, giving milk production data for the two previous months, and for a year-ago-to-date, for comparison purposes. No annual summaries of New York State milk production are given. However, the May issue focuses on dairy production and discusses the past year's total milk production relative to other years and to U.S. production.

DESCRIPTION:

This series provides an estimate of New York State's total milk production on a monthly basis. This figure represents all milk produced in New York State

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for that month, including fluid and commercial grades, and milk sold directly to the consumer or used on the farm.

Also provided are figures for the monthly milk production per cow in New York, the total number of producing milk cows in New York, the number of freshenings per 100 head of those cows monthly, and the amount of grain fed per cow. All of these figures are also provided as totals for the group of 21 major dairy states which are surveyed monthly by NASS. These 21 states, including New York, account for over 85 percent of the total U.S. milk production each month.

DATA COLLECTION METHODS:

Data on the total New York State milk production and the number of currently producing dairy cattle are collected through a series of monthly nonprobability mail surveys to producers in the 21 largest dairy states. Quarterly surveys are sent to the remaining 29 states. NASS gathers these production data working with the Departments of Agriculture in each state.

Producers to be surveyed in each state are determined by the state, using stratified sampling techniques, so that proportionally more large farms are sampled each month than small ones. The same producers are surveyed either for the quarter or for the year. Total milk production is estimated by multiplying the estimated number of milk cows in each state by the estimated monthly production per cow using the trends from the 21 states reporting monthly to estimate production in the other 29. Each quarter, all 50 states report their estimates of milk production.

Checks on the estimations include monthly state milk commission reports on plant receipts of milk. Also used are the receipts obtained directly from the plants receiving milk. These are compared to the receipts from a month ago and a year ago to observe trending and consistency.

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PRODUCT:

Fluid Whole, Lowfat, and Skim Milks, Half-and-Half, Yogurt, and Other Class I Products.

NAME OF DATA SERIES:

"Sales of California Class I Milk Products, by Month".

SOURCE:

Data for each month of the previous year are available from "California Dairy Industry Statistics", published annually. Division of Marketing Services, Milk Stabilization Branch, California Dept. of Food and Agriculture, Sacramento, CA.

Monthly data for the current year are from the "Dairy Information Bulletin", published monthly by the California Crop and Livestock Reporting Service, Sacramento, CA. However, these figures represent only those Class I products sold in California, and are therefore slightly lower than the monthly figures presented in the annual reports which include Class I products produced in California and sold outside the state.

CONTACT:

Elton Brooks
Senior Agricultural Economist
California Dept. of Food and Agriculture
916-445-7600

UNIT OF MEASURE:

Gallons or thousands of gallons of Class I milk products.

GEOGRAPHIC AREAS COVERED:

The annual report provides information on the total sales of California Class I milk products. No breakdown of areas within the state is given. The monthly "Dairy Information Bulletin" provides data disaggregated into the San Francisco Bay area, the Valley Counties, Southern California, and the remainder of the state. These monthly reports include only the amount of products sold within the state of California, however, while the annual reports include sales of these products outside the state as well.

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FREQUENCY OF REPORTING:

The annual "California Dairy Industry Statistics" provides data on California Class I milk products sold during each month of the previous year. The monthly "Dairy Information Bulletin" provides data on only those products sold within the state, for each month of the current year, with approximately a two-month lag between the current month and the month of reporting.

DESCRIPTION:

This series provides estimates of sales of selected California Class I milk products. Data are available for whole, lowfat, skim, half-and-half, yogurt, and "Other Class I Products" for each month of the current year-to-date, (lagged by two months), and for each month of the previous year. Data on sales of whole, lowfat, skim, and half-and-half are available separately for three major areas of California: San Francisco Bay, the Valley Counties, and Southern California. A figure for the remainder of the state is also given, to allow summing up to a state total. The percent change of sales between the month of reporting and a year-ago-to-date is given for each of these Class I products as well, along with the total Class I sales for each month.

The "Other Class I Milk Products" include such items as Acidophilus milk, flavored milks, lactose reduced milks, milk drinks, and kefir, a yogurt-like product.

DATA COLLECTION METHODS:

The data for the monthly reports are collected from approximately 800 California milk dealers who are involved in the pooling of fluid milk. Class I milk sold in and out of California is reported by these dealers. As they pool fluid grade milk with manufacturing grade milk, they are required to report their usage of Class I milk. The sales reports can then be cross-checked with the Class I usage reports as a verification measure.

NAME OF FIRM:

A.C. Nielsen

CONTACT:

Michael J. Spindler, Vice President
Marketing Research Group, USA
Nielsen Plaza
Northbrook, IL 60062-6288
312-498-6300

SERVICES PROVIDED:

Consumer sales data from supermarket scanners, research on factors influencing sales, newspaper monitoring, coupon redemption information, 1,600 sample stores, gross rating points for television commercials, promotion evaluation, impact of retailer ads and displays, insertion of test commercials, control of the retail environment, and consumer panels.

DESCRIPTION:

Nielsen's "Scantrack U.S." is a supermarket scanning service providing data from 1,600 stores in 25 major metropolitan areas across the U.S. This allows clients to analyze specific marketing strategies or campaigns on a sales area basis. The 25 metropolitan areas covered are: Atlanta, Boston, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Indianapolis, Jacksonville/Orlando, Kansas City, Los Angeles, Miami, Milwaukee, Minneapolis, Nashville, New York, Philadelphia, Pittsburgh, Portland, St. Louis, San Diego, San Francisco, and Seattle.

All stores in the sample do over four million dollars in business annually, and together represent over 70 percent of the national grocery sales volume. The data are designed to be projectable nationally for all large volume supermarkets with over four million dollars in annual sales. All items with UPC codes are included in the reports, with data available on private label, generics, and direct store delivered items, such as dairy products. Customized analysis or sales areas are also available.

Reports are made on a weekly basis and are updated weekly, with an on-line data access system clients can use with either Nielsen designed software or the SAS statistical package. Downloading information to a PC is also available for easier access, along with customized hard copies. As the data are quite timely, sales response can be tied directly to any special pricing or promotional activity going on at the time.

"Scantrack Plus" is a Nielsen service designed to work with the "Scantrack U.S." database to evaluate the effect of manufacturers' promotional efforts; including couponing, in-store displays, and retail support. This is done through a combination of services designed to measure the effect of promotions (both a

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retailer or manufacturer's own promotions and those of competitors' as well) on consumer sales patterns. Information on coupons, refund offers, samples, sweepstakes, etc. is collected; including the product being promoted, area covered, beginning and ending dates, method of distribution, number of people exposed, and average value of coupons or refunds. Gross rating points for television advertising evaluation are also included to incorporate the effect of commercials on consumer sales. Retailer television commercials are monitored to estimate their effect as well.

Other outside factors which can effect sales, such as weather conditions, unemployment rates, timing of pay schedules and government assistance, and demographic profiles of each market, are also monitored on a continuing basis. This set of information is available for each of the 25 major markets used in the "Scantrack U.S." service, and comes in the form of monthly reports which are based on weekly data.

Nielsen's "National Food Index" (NFI) uses the scanning database from these same 25 major markets to monitor product movement within the stores on a weekly basis. This service uses the scanning data as well as information on distribution, inventory turns, day's supply of product, and out of stocks, to assist marketing, sales, and promotion managers. By combining scanner sales data with traditional observation and store audit data, more information is available on a weekly basis. Stores can also be grouped together on specific criteria for analysis; including tracking and comparing consumer promotions with other marketing activities, or monitoring the seasonality of inventory depletion.

"ERIM Testsight" is another Nielsen product, designed to provide a more comprehensive test marketing system. This system combines monitoring of television viewing by panelists, the ability to insert test commercials, and in-store observation. Through these systems and the monitoring of grocery and drugstore purchases made by the test panelists who have computerized ID cards, clients can determine the effects of their marketing strategies on consumer purchasing behavior.

Nielsen now has the capability to insert test commercials into the viewing of sample households without requiring that all panelists be subscribers to a cable system. These homes are given an electronic device to mount on their televisions which monitors and records their viewing and can insert with test commercials at pre-specified times without the household's knowledge. By not requiring cable television for test commercial insertion, a more representative sample is theorized to result, both geographically and demographically.

Currently, Nielsen has two test market sites which provide this combination of services ("ERIM TestSight"); Springfield, Missouri, and Sioux Falls, South Dakota. Both of these areas are said to have demographics very similar to the nation as a whole. Twenty-five hundred households in each city are in the Nielsen test panel, with 2,000 of them having the commercial insertion device on their televisions. The remaining 500 serve as a control group. All 2,500 households are given ID cards to be used at local supermarkets or drugstores which have scanning devices.

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By using these ID cards, information is automatically collected; including the items purchased, the time, the price, if it was a trial purchase, a repeat purchase, if a special price was offered, or if a coupon was used. Information on household composition and socio-economic variables for each household are also known, and can be linked with their purchases. Households can also be matched on categories such as brand penetration, stores shopped, or demographics, to create control groups. Store conditions are monitored and can be experimented with according to the client's marketing strategy. All of these factors give advertisers control over marketing factors while observing the effects on panelists' purchasing behavior.

DATA INVENTORY

NAME OF FIRM:

Burgoyne, Inc.

CONTACT:

Paul C. Lubin, Account Executive
ConsumerViews Division
One North Broadway
White Plains, NY 10601
914-949-3214

SERVICES PROVIDED:

Consultation on, and execution of survey research, in-store testing using conventional auditing or scanner data, product pickup to deliver samples of specific products, an in-store observation system to report on retail selling conditions, product sales information using scanner data, and demographic information on store trading areas.

DESCRIPTION:

The emphasis is on custom designed research tailored to the client's needs. A range of services in five major divisions are offered for the clients to choose from in meeting their research requirements.

The "ConsumerViews" division specializes in data collection through survey research; including telephone interviews, store intercept or mall interviewing, focus groups, and personal or executive interviews. Types of surveys performed include concept testing, package and promotion tests, advertising awareness, brand usage, attitude, and image tests, and product and trade studies.

The "Burgoyne Observation System" provides detailed information about the treatment of a product at the retail level, either the company's own product or that of a competitor. This in-store observation and reporting service provides data on factors such as the number of facings being used for the product, how facings are allotted by the store, evidence of point of purchase materials being used, products which are out of stock, etc. Over 200 markets are covered, with the timing of the observations determined by the client. The reports are computer generated and can be put on data tapes.

The "Product Pick Up" service enables a product (any amount), either the company's own or a competitors', to be delivered from a store or warehouse in any market. Refrigerated or frozen products are also available, with guaranteed arrival. Personnel are available in 300 markets to facilitate the process.

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"In-Store Audits" are available on a custom basis, with information on sales, market share, distribution, pricing, merchandising, etc. Coverage choices include ADI, SAMI, or DMA, with measurements at weekly to bi-monthly intervals. Statistical analysis and reports can be generated as hard copy, tape, or diskette. Field agencies are located in over 300 cities for supervision purposes.

"In-Store Tests" provide a controlled testing environment for such tests as paired replicate, Latin square, controlled test markets, or promotion tests. Scanner data from their **"Scan-a-Test"** system is available in 20 markets, with back data available for some products. Demographic analysis is also available for store trading areas, covering 25 demographic factors.

DATA INVENTORY

NAME OF THE FIRM:

Burrelle's Press Clipping Service

CONTACT:

Anthony Minick, Account Executive
75 East Northfield Road
Livingston, NJ 07039
201-992-6600

SERVICES PROVIDED:

Newspaper and magazine clipping services, radio and television news transcripts, wire service reports, data base searches, media directories, and advertising analysis for print media.

DESCRIPTION:

Burrelle's "Press and Wire Service Clippings" provides data from 15,000 publications, including newspapers, consumer and trade magazines, and trade newsletters. Special interest publications include Black, Spanish language, college and university, and religious sources, as well as Canadian, Latin American, and European publications. Data can be collected for a city, region, state, the U.S., or worldwide. Along with the "clippings", other information which can be purchased includes the total size of the article, an estimation of the relative cost of an equivalent amount of advertising space, circulation information for the publication, the subject and editorial slant of the article, summary of the article's content, the article's title and author, number, color, and sizes of any accompanying photographs, the type of article, and the number of times the "keyword" was mentioned.

"NewsClip Analysis Service" is a method designed by Burrelle's to sort and organize the clippings produced by their researchers. By using computers, it is possible to focus on particular aspects of a large number of clippings. These reports can be used to judge the response of the public to new products or corporate news. Computer graphics are also available as an addition to the reports, making the analysis more visual.

Electronic media coverage of radio and television consists of monitoring network, cable, and public broadcasting stations. Broadcasts monitored regularly include primarily news, political, current events, and financial programming.

Cable television is gathered from Cable News Network (CNN), CBN, ESPN, FNN, Learning Channel, Lifetime, the Nashville Network, and USA. Local television programming is monitored in 73 cities across the U.S., and local radio broadcasts are obtained from 12 stations in New York City, Chicago, Los Angeles, and San Francisco. Radio networks monitored include ABC, CBS, CNN, UPI, AP,

National Public Radio, Copley Wireless Flash, and the Mutual Broadcasting System. Transcripts of interest from the AP, UPI, Dow Jones, and Reuters wire services are available as well.

Data from television or radio broadcasts are available in the form of transcripts of the portion of the program of interest to the client. Video cassettes of television broadcasts can be obtained if requested within 31 days after they are aired on network, cable, or local programming. However, this service is only available for programs shown in New York City, Washington, Boston, Hartford, Chicago, Los Angeles, San Francisco, or San Diego. Audio tapes of network radio broadcasts are also available for up to 14 days following a particular program. Specific programs which are to be aired in cities other than these eight can also be taped with advance notice.

"NewsExpress" is a service that provides articles and television transcripts customized for each client on a same-day basis. Early morning editions from each of the top twenty daily newspapers provide full-text articles which are facsimiled to clients by 9:00 AM on a daily basis. Television transcripts from the previous evening's news are also included as are any pertinent magazine articles. The television transcripts are gathered from the networks and local New York City stations, and include news and public affairs programming. Clients specify the areas of urgent interest to them, so that all reports are customized. Reports may include editorials, commentaries, stories, letters, and financial and business news.

The "Information Search Service" provides historical data through a computerized data base retrieval system. This information includes data from the 1970s forward, and provides either "full-text" access, or abstracts. The data bases utilized by Burrelle's are "NEXIS", Dow Jones, "DIALOG", "VU/TEXT", and "Info Globe". Newspapers, trade and consumer journals, wire services, and medical publications provide the data for these services.

"Advertising Analysis Service" specializes in monitoring and analyzing competitors' print advertising. As print media are already scanned daily for news clippings, advertising is monitored concurrently. Information is available for ads which run in any U.S. daily, weekly, and Sunday newspaper, as well as most trade, consumer, or professionally oriented magazines. Reports for specific corporations' advertising may be obtained on a monthly, quarterly, or cumulative basis. It is not clear if past data is available from this service. Variables used to analyze the advertisements are specified by the client. Types of data available include the name of the advertiser, the date the advertisement appeared, frequency of the ad, circulation of the publication, estimated cost of the ad, products advertised (including brand and price), ad size and position, and the retailer's name.

"Media Directories" for five specific areas (New York, New Jersey, Pennsylvania, Maryland/Delaware/Washington, DC, and New England), and three special interest groups (women, American Blacks, and Hispanics) are published by Burrelle's. These publications include information on both print and broadcast media and are designed to provide data for the most efficient use of public

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relations' news releases. Media included here are network, cable, and local television stations, radio, wire services, newspapers (including college publications), magazines, and ownership groups. The types of information published for each of these media are contact names, deadline dates, network affiliations, "on-air" times or frequency of publication, and editorial focus.

DATA INVENTORY

NAME OF FIRM:

Foodservice Research and Marketing
(Division of Data Development Corporation)

CONTACT:

Richard Hare, President
600 Third Avenue
New York, NY 10016
212-867-2440

SERVICES PROVIDED:

A data base of restaurants and institutions in the U.S., segmented by type, which is designed to provide category volume and share of the market for any given food products. Customized research on the foodservice industry, based on the same survey techniques used in building the data base, is also available.

DESCRIPTION:

"MarketScore" is the primary service offered by Foodservice Research and Marketing (FR&M), and is a comprehensive data base built on the results of a 1986 telephone survey of 1,000 restaurants of all types in the U.S. The survey was designed to be a more representative sample of the entire U.S. restaurant universe than previously collected, and to avoid geographic or restaurant "type" biases. FR&M also plans to repeat the survey on a periodic basis to provide information over time.

"MarketScore" developed a classification system for all restaurants in the U.S.: "Fast Food-National Chains", "Local Fast Food", "Casual-National Chains", "Quick Service-Local", "Table/Booth-Local", "Theme/Specialty-National Chains", "Local Dinner House", and "Fine Dining". This classification system allows a more specific disaggregation of eating establishments than other segmentation methods, and less confusion as to which category a particular restaurant fits into. Previously, the Census of Retail Trade relied on only three categories ("Restaurant", "Refreshment Place", and "Cafeteria"), which did not adequately cover or segment the wide spectrum of eating establishments available today. The Bureau of the Census, U.S. Department of Agriculture, National Academy of Sciences, and the International Foodservice Manufacturer's Association (IFMA) are all currently considering adopting this restaurant classification system for their own use.

Information which can be obtained using "MarketScore" includes "Product Usage by Meal" (items specifically of interest to dairy research include any cheese, coffee by form and brand, any soft drinks, colas by brand and type, desserts, juices, and any sandwiches). Other specific products and groups of products are also available in this fashion. Another category of data available is "Restaurant Characteristics" which includes annual dollar sales of food and beverages, location, patron profiles, restaurant style, types of dishes offered, etc.

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"MarketScore" can be subscribed to on an annual basis for an approximate annual fee of \$7,000. Services provided include the number of units and purchase value of all the types of foods mentioned above in each of the eight different restaurant segments (this is also available in tabular form). This information highlights the share of the total restaurant market each segment has, the type of products they use, and the operating characteristics of each restaurant type. Customized applications of these data can also be obtained from "MarketScore", for further insight into specific aspects of various restaurant segments.

A brief sketch of the methodology that was employed in this "MarketScore" survey follows. A telephone survey format was chosen, due to the ability to gather a more representative sample and a fairly good response rate, especially with vigorous "follow-ups". Several directories covering all restaurants were obtained, with one being chosen as the most comprehensive and accurate as determined through independent means.

Trained executive interviewers used a computer program to enter responses directly into a terminal. The use of the computer program was designed to eliminate interviewer errors and mistyping. Of 1,644 interviews attempted, 1,000 were completed; a completion rate of 61 percent. One thousand interviews is thought to provide a ± 2.3 percent reliability rate. Twenty-five percent of the interviews were also verified to assist in ensuring accuracy.

Results from the interviews were used to determine the eight restaurant segments and provide the raw data for "MarketScore". Defining the restaurant segmentation classification system involved comparing Census of Retail Trade documents, focus group interviews, trade studies, and information from the National Restaurant Association Library. Initially, restaurants were categorized according to similarities rather than by specific variables, and only later were the segments grouped together and named according to the key characteristics of each category.

A "universe" of 263,000 restaurants in the U.S. was determined by FR&M, and this was confirmed by a 1982 Census of Retail Trade estimate of 258,584. As the "MarketScore" survey used a sample of 1,000 restaurants, multiplying the survey results by 263 provides an estimate which can be compared to national totals from other studies. Comparisons of "MarketScore's" restaurant sales data to IFMA's sales estimates were within 2.3 percent, but "MarketScore's" estimates were 17 percent larger than the Census of Retail Trade sales estimates. This in part may be due to deliberate under-reporting of sales to a government agency, and the different sampling procedures used by the Census and FR&M. Total sales estimates are said to be similar for "MarketScore" and the NPD group's "Crest" data, however. "MarketScore" is said to be projectable and reproducible, either for the U.S. or for smaller segments, down to the county level.

Customized foodservice research using many of the same techniques as "MarketScore" can also be provided. A data base of institutional types of feeding sites has been compiled, including hotels, motels, colleges, hospitals, nursing homes, and schools, as well as foodservice distributors. This, in addition to the restaurant data base gathered for "MarketScore", provides a comprehensive foodservice "universe" from which to draw samples for specific custom surveying and analysis.

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Thus, information is available for the entire away-from-home market, including both restaurant and institutional users. Sample composition and survey design can be customized, with mail, telephone, or personal interviewing available. Foodservice interviewers are trained specifically for this particular field. Focus groups are also available for qualitative research.

DATA INVENTORY

NAME OF THE FIRM:

Information Resources, Inc. (IRI)

CONTACT:

Hugh Anderson, Director
30 Old Kings Highway South
Darien, CT 06820
203-656-0770

SERVICES PROVIDED:

Scanner-based supermarket and drug store sales data, accompanied by household panel data, an on-line data base of sales data, test marketing with the capability to validate television advertising effectiveness, and linking television viewing to purchase behavior.

DESCRIPTION:

"InfoScan", IRI's supermarket data base service is currently available in 31 geographic markets nationwide, covering over 700 supermarkets. The service is projected to be in 2,000 stores in 53 markets by 1988. A panel of 50,000 households is used in conjunction with these scanner data, so individual household purchase patterns can be determined. Both large and small metro areas are covered, with data available on-line 8 to 10 days after the end of each week. Regular reports are provided every four weeks, with all information tracked on a weekly basis, and are available as hard copy, magnetic tape, or on floppy disks. Two years back data is also available for analysis.

The 31 specific market areas covered by "InfoScan" at this time are: New York, NY, Los Angeles, CA, Chicago, IL, Philadelphia, PA, San Francisco, CA, Detroit, MI, Boston, MA, Houston, TX, Dallas/Ft. Worth, TX, Cleveland, OH, Miami/Ft. Lauderdale, FL, Pittsburgh, PA, St. Louis, MO, Atlanta, GA, Baltimore/Washington, DC, Minneapolis, MN, Seattle/Tacoma, WA, San Diego, CA, Tampa/St. Petersburg, FL, Denver, CO, Cincinnati/Dayton, OH, Phoenix/Tucson, AZ, Milwaukee, WI, Kansas City, MO, New Orleans, LA, Salt Lake City, UT, Oklahoma City, OK, Memphis, TN, Birmingham, AL, Albany, NY, and Raleigh/Durham/Winston-Salem/Greensboro, NC.

Special features of the system include the ability to track trial versus repeat purchases, store loyalty, effectiveness of price changes or promotional activities on sales, and total grocery basket expenditures by panelists. All supermarkets in the panelists' shopping area are scanner equipped, (many of which were installed by IRI). This allows tracking of the stores' overall sales as well as information on the purchasing behavior of each individual household in the panel. Each household receives a computerized ID card which automatically records their purchases and demographic information at any store which has scanning equipment.

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Each regular four-week report includes product sales, market share, feature ad activity, presence of display, price paid, percent of households buying, and coupon redemption. IRI also has a computerized workstation package which can be accessed on a PC and is specifically designed for the analysis of "InfoScan" data by clients.

IRI's "Promoter" computer system uses the scanner data base, including information from "InfoScan" to estimate the effectiveness of promotional activities. It does this by combining factory shipment and consumer sales data, with store environment information including promotional activity from both supermarkets and drug stores. Another segment of the data used is information gathered from "InfoScan's" 50,000 household panelists and television viewing data from 7,500 households. In this way, data from the manufacturer, retailer, and consumer are each utilized in an on-line model for determining promotional strategy and effectiveness.

"Behaviorscan" is IRI's flagship test marketing system, with test markets in Visalia, CA, Pittsfield, MA, Rome, GA, Williamsport, PA, Eau Claire, WI, Marion, IN, Midland, TX, and Grand Junction, CO. Each of these eight markets has its primary supermarkets and drugstores equipped with scanners, so virtually all purchases are monitored. A panel of 3,000 households in each market is tracked through computer ID cards. Panel participation is over 70 percent, due to the minimal work required of panelists.

Almost all in-store variables such as price, product placement, displays or features, can be controlled. Television test advertising can be inserted into regular programming and directed at specific groups of households, through a specialized cable and broadcasting system. Print promotion in local newspapers or in customized editions of several "women's" magazines is also available as are direct coupon mailings or product samples. Coupon redemption is tracked, with each household's recorded separately. Through these systems of cooperation, most aspects of the marketing environment can be controlled and tested in some way.

While the television cut in system does utilize cable, it differs from the standard "split-cable" method in that a special broadcast with the test advertising is beamed to selected households whose televisions are equipped with an electronic switching device which cuts in the test advertising over the regular commercial which is being aired. The advantage of this system is that any household can be selected to view the test advertising, so that households can be matched on a variety of conditions. Different groups of households can comprise the test and control groups for each advertising test, to aid in ensuring unbiased results. A computer also monitors which homes viewed the test advertising so that viewing can be compared to grocery and drugstore purchases. The store the panelist shopped in and the time of purchase are also included in each household's data base.

The "Marketing Fact Book" is a subscription data base compiled from the "BehaviorScan" records of product movement and consumer purchases from the eight test markets. Over 500 hundred categories of grocery and drug store items are monitored, with numerous brands in each. Prices, couponing, and the in-store

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environment are recorded. Data are available on-line within two weeks, with two years of historical data also on-line. IRI's **"Prompt"** system is an interactive system of data retrieval for use with both panel data and store movement information. Hard copy quarterly and annual reports include summary purchase statistics for all categories and brands. Television viewing patterns of the sample households are also available. General television monitoring occurs in 5,000 panel households as well, to determine whether the television was turned on at a particular time, and which channel it was tuned to, for every five seconds of the broadcasting day.

"Assessor FT" is a new modeling system by IRI which combines volumetric models with a preference structure model. A modular approach provides some cost efficiencies and lets clients test their product at any stage in development. Concept tests are given to panel households in the eight test markets utilized for **"BehaviorScan"**. As these households have had their purchases tracked in the past, their purchase behavior is already quantified to some degree, and consumer response can be estimated using their replies to the concept test. Each of the eight cities are used for each test to avoid geographic biases.

DATA INVENTORY

NAME OF FIRM:

Majers

CONTACT:

Durwood S. Snead, Vice President and General Manager
150 Interstate North, Suite 250
Atlanta, GA 30339
404-955-4500

SERVICES PROVIDED:

Supermarket scanner data, in-store testing of promotions and sales designs, a "Feature Ad" data base, a consumer print promotion data base, observations of in-store conditions, promotion and advertising testing and evaluation, and trade promotion management seminars.

DESCRIPTION:

Majers "Grocery Ad Book" is a weekly publication which includes actual feature advertisements from 220 chains of supermarkets nationwide. It can be used to make comparisons across time (back issues are available), or across chains, or regions. It demonstrates the retail prices and promotional activities advertised by 1,000 local retailers in 100 U.S. markets. Additionally, two annual promotional issues are published, which feature the major promotion themes used throughout the year, and the major holiday promotional themes in use. The "Grocery Ad Book" must be purchased on a subscription basis.

Majers' "Mastertrack" is an integrated service designed to combine feature advertising information with in-store display data. Promotions are reported and evaluated by either account, category, or individual brand, including resulting shifts in market share and volume. Retail Grocery Inventory Service (RGIS) is a service employed by Majers which provides store audit data for 2,000 supermarkets across the US. This information includes in-store condition data, and is integrated with Majers "Feature Ad" data base to cover both promotion and display activities in the retail supermarkets.

Two types of reports are generated by the "Mastertrack" service. One is the "Detail Report" which describes both feature and in-store display activity by account, for each brand in a specific product category. The second type of report is a "Market/National Trend Report" which summarizes retailer support for key brands within a product category. Information for specific promotional campaigns is also available, with data on the numbers of retailers featuring or displaying a product (or both), total amount of retailer support by volume sold, average featured prices of an item, number of items in each display, etc.

Majers "Instant Replay" service combines the data bases which are used in "Mastertrack" and integrates them on-line to allow clients to generate reports and

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analyze data on a customized basis. Majers has specially designed software for these applications, including a graphics package. These data bases provide a range of timely information with quick access and the ability to draw conclusions from a more complete data source.

One of the data bases is **"Feature Ad"** which includes the grocery advertisements used in the **"Grocery Ad Book"** and **"Mastertrack"**, as well as items featured by drug, liquor, general, and mass merchandisers across the U.S. This service has on-line the last seven days of feature advertising in each of these areas and covers up to 88 percent of retail volume from 100 markets.

Another data base incorporated is **"Consumer Promotion"**. This includes print promotions such as coupons, refunds, or sweepstakes offers which are published either in newspapers, magazines, free-standing inserts, or direct mail. Data are gathered in 55 markets which cover almost 50 percent of grocery and drug store sales, including 38 million households. Coupons which are sent in packets by an agent such as **"Product Movers"** or **Carol Wright** are also tracked by Majers under this system.

Like **"Mastertrack"**, two types of **"Consumer Promotion"** reports are provided, one of which is a **"Detail Report"**. This is available at the market and product category level and provides information on the promotion vehicle (newspaper, magazine, insert, direct mail, etc.), circulation of the vehicle, day of week the promotion appeared, what specific size and brand of item the promotion applies to, the value of the coupon or the nature of the promotion, and the expiration date of the promotion event.

The second type of **"Consumer Promotion"** report provided is a **"Trend Report"** which compares a company's promotional activities with those of their competitors. This type of information includes total circulation of coupons and the share of this circulation going to competitors, circulation of coupons by days of week, especially Sunday, size of ads for coupons and size of competitors' advertising, and the number of coupon "events" both for a company and their competitors.

"Display and Shelf Management" is the third data base integrated into this **"Instant Replay"** system. These are the data collected by RGIS for Majers and consist of in-store observations of store conditions and retail displays in 2,000 supermarkets. These in-store displays and features are then matched against the **"Feature Ad"** reports to determine amount of retailer execution.

"Total Retail Item Movement" (TRIM) is a Majers' service which uses supermarket scanning data to assess the impact that changes in marketing or advertising and promotion have on consumer purchase behavior. Currently, 750 stores from a variety of supermarket chains in 32 states provide scanning data on a weekly basis. These data are used in conjunction with the on-going data bases previously described in **"Controlled Store Testing"**. By matching supermarkets into

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panels, store conditions can be altered in one set of stores and not in others, and the resulting affect on consumer purchases recorded through scanning data. As store conditions and promotions are being monitored concurrently, a better understanding and degree of control over the test conditions is said to be maintained.

DATA INVENTORY

NAME OF FIRM:

Mapes and Ross

CONTACT:

Peter C. Lenz, Project Director
Research Park
176 Wall Street
Princeton, New Jersey 08540
609-924-8600

SERVICES PROVIDED:

Television, radio, and magazine advertisement testing and evaluation.

DESCRIPTION:

Television commercials are tested by recruiting participants to view a regularly scheduled prime-time television show or movie, normally on a UHF or an independent station. A cash drawing is used as an incentive for participation. During this recruitment phase, brand preferences within categories are determined with the participants mentioning brands rather than the interviewer, (to avoid future bias toward any brands). The test commercial is inserted into a regular commercial break in the television program, usually within the first half-hour. The day after the show has aired, a follow-up phone call is made to the participant to determine commercial recall, and any changes in brand preference.

Testing is conducted on a weekly basis in three syndicated cities; Philadelphia, Kansas City, and Portland. Over 50 other cities are available on a custom basis. Sample sizes are usually 200 of either sex or 250 of both sexes. Data results can be obtained within six working days, with final reports mailed two weeks later. Commercials can be tested in storyboard form, or on a rough or finished basis. Testimony of all participants is provided, along with their perception of the main idea of the commercial. Demographics are also provided, including category usership, and brand bought last. Presentations designed to provide more in-depth creative guidance are also available.

Radio commercial testing is provided similarly to television testing. Participants are recruited to listen to a regularly scheduled radio program into which a test commercial will be inserted. The purported purpose of the study is to "improve radio listening". At this time, questions are asked concerning brand preferences in certain categories. Again, no brand names are mentioned except by the participants, so this should not bias later brand preference testing. The follow-up interview again solicits unaided brand preferences, and then mentions six brand names of commercials aired during the program for recall purposes. As is done with the television viewers, detailed questions are asked concerning commercials which listeners claim to remember, to ascertain if the recall is a valid one. Sample sizes of at least 150 are recommended.

Advertising in magazines can also be tested using this basic methodology. Cities used for standard samples are suburban New York, Providence, Detroit, Tampa, Fort Worth, and San Diego. Cities available on a custom basis are suburban Philadelphia, Atlanta, Miami, Birmingham, Peoria, and Fresno. Readers are recruited by door-to-door contacts. To be eligible, however, they must have read at least two of the last four issues of magazines in the category being tested, (i.e. women's, news weekly, etc.). The reasoning given for the testing is "to make magazines more interesting". Brand preferences are determined by the same methods as used for television and radio, and are gathered before the test magazine issue is given to the participant. Once the magazine has been placed in a household, an appointment is made to recontact by telephone the next day. The magazine is supposed to be read in a "normal" fashion with no indication of an advertising test.

New ads which are not normally in print yet are "tipped in" to a magazine by Mapes and Ross prior to giving it to the test households. In this way, the test advertisements are indistinguishable from regular ads in that edition of the magazine. All ads being tested are presented to half of the participants in the first half of the magazine, and for the rest of the households in the last half of the magazine. "Women's service" magazines currently being used for this service include Ladies' Home Journal, McCall's, Redbook, Good Housekeeping, Family Circle, and Woman's Day. If the only ads being tested are to be "tipped in", Mapes and Ross will select the publication; however, if the test ad is currently being run in one of these magazines, then that will be the magazine used. The sample size is 150 households. Custom studies can also be done for ads in news magazines, men's magazines, or special interest publications.

DATA INVENTORY

NAME OF FIRM:

Mail Diary Panel (MDP)

CONTACT:

Edward R Appel, President
524 South Avenue, East
Cranford, NJ 07016
201-276-6631

SERVICES PROVIDED:

Purchase and consumption data of a limited number of grocery, drugstore, and household items through mail diaries.

DESCRIPTION:

Purchase data are collected from diaries completed monthly by 5,000 households from nine regions of the country. Using census data, households are matched demographically to the U.S. as a whole on the demographic factors of homemaker age, household income, family size, and population density. Weights are used to bring sample distributions into line with national demographics.

Purchase information available on a monthly basis includes total market and brand share information, brand switching, repeat purchases, and demographics of purchasers. Consumer information includes demographics on who uses the product, the quantity normally used, frequency, timing, location, and purpose for which it is used. Data collected for all product categories in the diary include: date purchased, brand name, form, flavor, quantity, price, size, if product was being promoted at time of purchase, type of store, who purchased, and for what purpose. Flexibility of the diary format is stressed, depending on the client's product or products.

The monthly reports provide incidence of purchase, purchase frequency, average purchase size and price, market share by all types of outlets, and by specific outlet type, percentage of the product sold on promotion, repeat purchases and the amount of brandswitching, purchases disaggregated by day of week, and by heavy and light purchasing, age and sex of the purchaser and of the user, price/volume and price/switching analysis, and demographic evaluation.

Data have been collected since 1969, with panelists rewarded through points, which may be redeemed for gifts. Seventy percent return the diary each month; after failing to return a diary for three consecutive months, a household is dropped from the panel. Overall, attrition is 15 percent, with new households being continually recruited to maintain demographic representation.

DATA INVENTORY

NAME OF FIRM:

Market Facts, Inc.

CONTACT:

Robert Saladoff, Associate Study Director
1730 Pennsylvania Ave., NW
Washington, DC 20006
202-737-0890

SERVICES PROVIDED:

Consumer mail panels, telephone interviewing, mall interviews, focus groups, store auditing in test markets, new product testing, consulting for marketing strategies, and mathematical and statistical analysis.

DESCRIPTION:

Market Facts' "Consumer Mail Panel" consists of over 220,000 households in the U.S. and 20,000 households in Canada. Consumer surveys and in-home product tests can be conducted either among nationally representative sample groups or on custom designed samples based on specific needs. Response rates range from 70 to 85 percent. Samples of households headed by both single males or single females are also available.

The "National Telephone Center" designed for telephone interviewing, is based in Chicago and operates 14 hours a day, seven days per week. One hundred WATS line interviewing stations are available. Computer administered questionnaires can be used, or interviews with direct entry of data into CRTs. Samples can be generated from Market Facts' reference sources, as their "Consumer Mail Panel" participants are required to agree in advance to also participate in any telephone interviews administered by Market Facts. Other sources for samples include random digit dialing, or client provided directories. A national telephone probability sample is also available. Interviewers are trained for interviews of various market segments, with close supervision and quality control being stressed.

Market Facts' "Consumer Opinion Forum" conducts shopping mall interviews in six major malls across the U.S. Mall sites are Buena Park, California, Charlotte, North Carolina, Aurora, Illinois, Ocean, New Jersey, Baytown, Texas, and Littleton, Colorado. All malls have at least three major department stores and cover more than 1.2 million square feet. A facility for interviewing is present in each mall and consists of personal interview rooms and booths, a kitchen equipped for taste or equipment testing, display areas designed to simulate store displays, and conference rooms. Videotape equipment is available for commercial testing, and to record consumer reactions, along with a children's play area, one-way consumer observation facilities, vanity areas for product testing, and computerized interview capabilities with immediate analysis. Each facility has a manager and supervisor, and a trained interview staff.

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The "National Field Interviewing" division has 300 sampling areas, including all major cities in the U.S. and Canada. Interviewers are professionally trained, and validation is accomplished as interviews are completed. The "National Telephone Center" division is used for the validation process. Questionnaire design is stressed, to achieve valid and reliable data. The sampling frame is based on national probability, and was designed by Dr. W. Edward Deming, specifically for consumer research studies. It can be expanded or contracted to meet individual clients' needs. Other sampling techniques such as cluster and systematic sampling are also available.

"The Qualitative Group" is the name Market Facts gives to its focus group division. These focus groups are used to collect data on concept research, product development, and advertising evaluation. Focus groups can be configured in many ways such as traditional sessions, smaller mini-groups, or groups solely for recall purposes. Several hundred of these groups are held annually, with participants custom tailored for specific needs. Techniques include fact finding, non-directive approaches, and attitude determination.

The "Marketest" division provides store auditing in test markets. Types of outlets available for test markets include grocery, drug, convenience, mass merchandising, hardware, and automotive stores. Test markets are geographically dispersed, with custom market areas also available. Cities used for "Marketest" are Fresno, CA, Spokane, WA, Wichita, KS, Little Rock, AK, Ft. Wayne, IN, Erie, PA, Syracuse, NY, Binghamton, NY, Tucson, AZ, Charleston, SC, Grand Rapids, MI, Austin, TX, Lexington, KY, and Green Bay, WI. Auditors visit stores at least twice each week to ensure control over store conditions. Both independent and chain stores are included in test market activities. Print and television advertising, coupons, store displays, and price features are all available as variables for new product testing or merchandising experimentation. Retail audits can also be performed using no controls over market conditions, to determine market share under "real world" situations.

The "Strategy Group" provides client management and consultation for marketing strategies. Goals include assisting clients to understand market needs and purchasing ability, determining the market's perceptions of the client's strengths and weaknesses, and what is valued in products or services. Various types of analyses are available including multivariate, cluster and trade-off methodologies. Research is designed to assist clients in competing both in the U.S. and in foreign markets.

Market Facts' "Decision Systems Group" uses mathematical and statistical analysis, including trade-off, market segmentation, factor, cluster, and regression analysis to assist in client decision making. A system of examining the accuracy and usefulness of market research itself is an ongoing project, entitled "Research on Research". Data from this project are available at no charge, as a service to the industry.

NAME OF FIRM:

MRCA Information Services

CONTACT:

Richard M. Ludin, Group Marketing Director
2215 Sanders Road
Northbrook, IL 60062
312-480-9600

SERVICES PROVIDED:

A consumer diary panel with an on-line data base of consumer purchase patterns and related demographic factors.

DESCRIPTION:

MRCA's "National Consumer Panel" is a weekly mail diary panel of 7,500 households nationwide. Panelists are specifically selected to represent different demographic and geographic classifications; including race, age of household members, single member households, children, rural vs. suburban vs. urban, etc. This panel is nationally projectable, and can be differentiated by region or demographic grouping. The panel is maintained continuously over time, with new panelists selected for similar demographic characteristics to minimize the effect of attrition on the data quality. Panelists are compensated by MRCA and not by any particular manufacturer, to avoid biasing purchase behavior.

Product classes used in the diary include health and beauty aids, and personal products, as well as food and beverage categories. Panelists record purchase information whenever a product is bought which is in one of the diary's product categories. Information recorded in each diary includes the brand of the item purchased, the type or flavor, size of package, number of packages bought, price, type of store purchased at, and any coupons or sales incentives. UPC codes are also reported by the panelists if they appear on the item. These UPC codes can then be used to verify the accuracy of the participant's diary entry.

Each panel household completes and returns a diary to MRCA weekly for timely data collection and aggregation. Reports are available on a monthly or quarterly basis, based on specific categories of interest to the client.

Questions which can be answered by diary panel data include what non-buyers of a particular brand or product are buying instead, which brands heavy product-category buyers purchase, if a household is loyal to sales incentives such as coupons or discounts or loyal to a particular brand or flavor, are trial buyers of a new product making repeat purchases, what is the demographic profile of buyers or non-buyers, etc. This type of information can be determined on a weekly basis, with the demographics of each household contained in the diaries and in their computerized data record. In this way, purchases from all store types (not just

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those with UPC scanners) can be monitored, and purchases tied in directly with consumer profiles.

"DYANA" is the MRCA on-line computer system which lets clients directly analyze the data themselves to determine relationships specifically for their product. The type of information on-line includes specific purchase data, purchases of households over time, or volume of households buying vs. volume of households buying competing products. "DYANAgraf" is a complementary system which formats this same information using graphics for presentations and an easier understanding of market effects.

DATA INVENTORY

NAME OF FIRM:

The NPD Group

CONTACT:

Bill Lucas, Vice President
Client Service
900 West Shore Road
Port Washington, NY 11050
516-625-0700

SERVICES PROVIDED:

National and test market diary panels, food consumption panels, away-from-home food purchase information, scanner panels, electronic monthly retail audits, mail panels, telephone interviewing, confidential surveys of major manufacturers, consumer behavior models, test market simulations, market and nutritional segmentation models, promotional effectiveness analysis, and demographic analysis.

DESCRIPTION:

NPD's "Packaged Goods Diary Panel Research" provides diary panels on a national level (two panels of 6,500 families each), and for local markets (40 panels of 1,000 families each). Also available is a national panel of 1,500 "non-families" consisting mainly of single person households. Households are matched on size, income, age of female head, and census region; and classified according to a number of demographic variables. The purchase information is projectable regionally and nationally, and includes brand share by outlet, number of households buying, penetration, purchase frequency, average price paid, and the outlet where the item was purchased.

Panelists record all purchases over the month which fall into the product categories listed in the diary. About 50 product categories are tracked each month in the national panels, with 20 in the local diary panels. Over 200 product categories in the consumer packaged goods area are available overall. Panelists remain in the diary panel group indefinitely, with an 85 percent annual retention rate. Prizes and incentives are used to assist in maintaining the sample. New members are drawn from participants with similar demographic characteristics to maintain the sample integrity.

The smaller local-market panels can be used to test alternative marketing strategies, and determine more quickly the percent of repeat purchases, allowing for earlier forecasts of final sales levels. These small markets may also be split into demographically matched segments, to act as control groups if marketing experimentation is being tried.

"CREST" (Chain Restaurant Eating-Out Share Trend) is a service designed to estimate away-from-home food purchases. It is based on data collected from a

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standing panel of 10,000 family households and 2,800 singles. These 12,800 households are nationally representative and are divided into 13 groups of 985 households each. These groups are matched geographically and demographically by income, age of the head of household, household size, and gender for the single member households. Each group reports all away-from-home food occasions during a specific two-week period four times a year. Thus, all 12,800 households report on a quarterly basis, and the data can be aggregated to determine away-from-home purchasing patterns for a single household for eight weeks of the year. This is, of course, dependent on the household consistently reporting for each of the four quarters.

Households that drop from the panel are replaced using a stratified sampling plan that ensures continued representation and overall sample size. Stratification of the entire sample is based on census region, income, family size, age of the housewife, and urban or non-urban. Additional socio-economic data is available on each household and is updated each May. Projections for similar type family groups can be made nationally, and are based on factors derived from census information.

Information for each meal occasion includes type of restaurant, the meal eaten, day of week, total bill, size of tip (if any), how the meal was paid for, if a coupon was used, and what foods were eaten, (up to six items, for each of up to seven family members). The information is grouped on data tapes, with each family having an observation for each meal occasion. If a family reports no away-from-home meals within their two-week period, an observation is still noted with the family's specific identification code and all demographic and socio-economic information, and a zero for the meal occasion. Data can be disaggregated into the age and sex of each family member, and the types of food consumed by each. Specific target groups such as families with working women can be identified and their purchasing patterns identified also.

Data have been collected from September 1975. The USDA/ESCS has purchased 11 quarters of this data, from September, 1975 to May, 1978.

"Marketrax" is a service designed to test consumer marketing programs and promotions; including coupons, samples, "POP" displays, new products, pricing strategies, etc. There are samples of 2,500 households in Los Angeles and St. Louis, and 3,000 in New York. The panelists are recruited while physically in a store of a specific chain of supermarkets in each of these cities (eight Ralphs stores in Los Angeles, nine Schnucks stores in St. Louis, and six Waldbaums and six Shoprite stores in New York), with only those consumers who claim a 90+ percent loyalty to that specific store and chain being recruited.

All stores are also equipped with scanners to record panelists' purchases. Panelists are matched demographically to the area, and given computer ID cards which are to be used for any purchases in that store. The ID cards record the date, time, UPC code, quantity, and price of each item purchased, (items must be UPC coded). Panelist's coupons are also collected at the checkout counter. By limiting consumers to one store only in a specific chain, more control over store conditions is provided. These panels can then be divided to form a test and a control group to determine the effectiveness of different promotional strategies.

"ESP" (Estimating Sales Potential) is a NPD system of predicting sales performance, designed to be used prior to a full scale test market. It combines a model based on past experience with new product trials from diary panels. Products are placed in a few trial stores in one of NPD's test market cities, and panelist's diaries are watched to determine purchase of the specific item. Forecasts of future sales are then generated on a monthly and annual basis. This system can be used to test concepts, early tests in a few stores, or full scale test markets. Projection accuracy has been within 10 percent of actual market performance.

"National Food Consumption Panels" are specialized diary panels. Through "usage panels" at-home food preparation and consumption patterns can be determined, which provides in-depth data on which consumers purchase and consume specific products, and how the consumers use them. Purchase and consumption data can also be merged to provide information on certain types of consumers, (i.e. heavy snack product users) for specialized analysis.

"Nutritional Segmentation" is a service which relates consumers' food purchase patterns with their households' overall attitudes concerning nutrition.

"Consumer Behavior Models" analyzes components of consumer purchasing such as brand shifting, trial and repeat purchases, the frequency of purchase, and demographics, and uses these to estimate future consumer behavior under specific marketing conditions.

"Preference Structure Analysis" is a system designed to use actual consumer purchasing information gained through diary panel research to model market segmentation. It determines product characteristics, and estimates their rank of importance in consumer purchase decision making.

"Geodemography, Lifestyle, and Media Classification" uses techniques such as PRIZM which defines various socio-economic groups within zip code areas to analyze consumer purchase behavior. Also used are lifestyle indicators such as VALS, and media patterns.

As an overview, the **"HTI Custom Research Division"** of NPD provides customized research for packaged and non-packaged goods, emphasizing mail and telephone techniques. The **"NPD Packaged Goods Division"** tracks purchasing and consumption of packaged goods including food. The **"NPD Mathematical Models Division"** develops models for marketing purposes, and the **"NPD CREST Division"** tracks and analyzes foodservice and restaurant trends based on diary panels.

DATA INVENTORY

NAME OF FIRM:

SAMI

CONTACT:

Richard Hopkins
Time and Life Building
Rockefeller Center
New York, NY 10020
212-522-5836

SERVICES PROVIDED:

Supermarket and drug store product-movement and distribution information gathered from warehouse removal data. Dry groceries, frozen foods, household supplies, health and beauty aids, and some refrigerated items are available. Scanner services are also available, for all items with UPC codes, including dairy products. Market areas may be segmented by ethnic groups or by Areas of Dominant Influence (ADIs).

DESCRIPTION:

SAMI's supermarket database is available for 54 large markets nationwide, covering 88 percent of U.S. food store sales. Drug store items are monitored in 36 of these same markets, covering 74 percent of U.S. sales. By the end of 1987, drug store sales should be covered in all 54 of the SAMI food store markets. Coverage in each market is estimated to be 75 percent, with the markets designed to reflect the distribution patterns of wholesalers within each market area. Shipments to stores which are outside of a wholesalers market area are noted by the wholesaler and deleted by SAMI from the records.

Data are gathered by SAMI by using warehouses' order books to note all items stored in each warehouse. Each size, brand, or flavor of an item is given a specific code by SAMI and recorded on magnetic tape. SAMI's data base includes data on 468 categories of goods covering 27,000 brands and 220,000 specific items. Every four weeks, SAMI records the movement of these items out of each warehouse, and notes any new items which a warehouse has begun stocking. Dollar volume for each product moved during the period is calculated by multiplying the retail price of the item by the volume sold. The retail price which is used can either be the price on the fourth Friday of each period, or the price each day for the item. If using the latter method, this price is then multiplied by the amount shipped to a store on that day only. Records of four-week reports for the last two and one-quarter years are kept on line for historical data analysis.

Dairy and competing products categories which are recorded by SAMI include: natural cheese, processed cheese, cream cheese, butter, margarine, butter/margarine blends, yogurt, frozen yogurt, yogurt products, frozen, refrigerated, and canned juices, coffee, tea, cocoa, instant breakfast mixes, evaporated and condensed milk, powdered milk, coffee creamer, sterilized/shelf

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stable milk, regular and diet soft drinks, soft drink mixes, and bottled water. The soft drinks reported by SAMI, however, are only those which go through a warehousing process; no items which are delivered directly to stores such as milk, bread, fresh meat, and some soft drinks are included in this data set. Data on product movement and dollar share are provided for all brands or items within a given category, so that comparisons can be made.

As compensation for providing these figures, food store wholesalers are given customized reports every four weeks which detail their position in the market area. Special reports which list branded products not carried by them but by at least three other wholesalers in the market area, and products for which the wholesaler has a particularly high percent share of the market are given to each participating wholesaler every 12 weeks. Food store operators and distributors also receive a percentage of SAMI's revenue as well as the informational reports for their participation in SAMI.

Food manufacturers and food store operators receive basically similar reports with each containing product descriptions, size, number to a case, number of cases moved, dollar share of the category by each item, number of food store operators who handle each item, and dates for new or discontinued items. Reports available include charts, "executive reviews", "market resumes", "brand trend reports", "basic reports" for individual markets, and "ranking reports".

Differences between the reports are that only an individual food store operator sees the movement figures for her own store, while manufacturer's reports show aggregate store movements. Manufacturer's reports include retail price data, dollar share of brand for brands with several items, and information on dollar volume per item, none of which food store operators receive.

Information on manufacturers' consumer promotions such as cents off or a special pack is specifically noted, so the effect on overall sales of the item and sales of other competing items within the category can be determined.

The 54 SAMI market areas are: Albany/Schenectady/Troy, Atlanta, Boston/Providence, Baltimore/Washington, Birmingham/Montgomery/Huntsville, Buffalo/Rochester, Charleston/Huntington, Charleston/Savannah, Charlotte, Chicago, Cincinnati/Dayton/Columbus, Cleveland, Dallas/Ft. Worth, Denver, Detroit, El Paso/Albuquerque/Lubbock, Grand Rapids/Kalamazoo, Houston, Indianapolis, Green Bay, Greenville/Spartanburg/Asheville, Kansas City, Hartford/New Haven/Springfield, Jacksonville/Orlando/Tampa, Los Angeles/San Diego, Louisville/Lexington, Memphis/Little Rock, Miami, Milwaukee, Minneapolis/St. Paul, Nashville/Knoxville, New Orleans, New York, Norfolk/Richmond, Oklahoma City/Tulsa, Omaha/Des Moines, Peoria/Springfield, Philadelphia, Phoenix/Tucson, Pittsburgh, Portland, ME/Concord, Portland, OR, Quad Cities, Raleigh/Greensboro/Winston-Salem, Salt Lake City/Boise, San Antonio/Corpus Christi, San Francisco, Scranton/Wilkes Barre, Seattle/Tacoma, Shreveport/Jackson, Spokane/Yakima, St. Louis, Syracuse, and Wichita. These marketing areas are used by SAMI in a number of their other services as well, including "SAMSCAN", "SARDI", and "Market Segmentation".

Data from SAMI markets are projectable to the entire market area, including stores not participating in SAMI. These data can also be projected to a specific region or area specified by a client. National data use all of the SAMI

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markets which are then projected to include non-SAMI distributors and food store operators. Over 100,000 grocery and convenience stores are used in the sample, including both large and small operations. Twenty-four thousand of these are supermarkets which have annual sales volumes of over one million dollars each.

Several different report formats and customizations are available, depending on the business the purchaser is in, the amount of detail required, and the type of format desired. Special custom reports for several markets or a new product introduction can also be prepared. Quarterly reports and presentations covering movements and trends in all SAMI categories can be subscribed to as well. Many reports can be compiled within three weeks from the end of the four-week reporting cycle.

"SAMSCAN" is another service provided by SAMI which gives manufacturers scanner data on product movement in stores with one million annual dollar volume or more. Data are provided in four-week reports which provide information on a weekly basis for all SAMI categories, as well as direct store delivered items such as soft drinks, beer, dairy products, ice cream, etc. Data are also available on-line within 48 hours of the reports' compilations. All brands and items within a category are included in each report, to provide comparison information. In-store promotions and displays, and retailer advertising, as well as manufacturers' promotions are also monitored by SAMI to provide background information on sales.

Data on retail price, percent share and dollar volume for the category, and distribution of any item in 500 categories are compiled. Past data for 65 weeks are retained on-line, for time series analysis.

"SARDI" (SAMI Retail Distribution Index) is a system of reporting product distribution nationally, or for a specific SAMI market, or for a specific chain of food stores or a wholesaler, or for a geographic or store size segment. It is based on a sample of 7,000 retail grocery stores with the data supplied by food distributors who also participate with SAMI. Data are provided for a cross-section of each SAMI market area and are statistically reliable and projectable. Reports are available for any of the 54 SAMI markets, on a monthly, quarterly, or annual basis, determined by the manufacturer's needs. Reports are usually available within five weeks of the end of the reporting period.

Each distributor who chooses to participate in SARDI provides a list of all stores and their sales volumes which are serviced from his or her warehouse. SAMI uses this list to select stores which reflect the distributor's business accurately in the market area. The distributor then provides information every four weeks on the brands and items supplied to these selected stores during the period. This distribution information is projected to estimate the availability of products in all stores served by that wholesaler in the marketing area. Stores can be disaggregated into key accounts, Areas of Dominant Influence (ADI), or four different store size categories.

Stores served by wholesalers are updated annually to ensure the representativeness of the sample. Wholesalers are given a percentage of the generated revenue as compensation. Back data for 24 weeks are available for

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comparisons of changes over time. SARDI "market reports" detail the availability of all items in a category in participating retail stores. SAMI/SARDI "brand trend reports" provide data on the distribution, sales volume per distribution location, and share of the category by combining SAMI volume data with SARDI distribution information

The measure used to represent distribution in the SARDI reports is "all-commodity volume in stores stocking the product". As a small percentage of stores in a marketing area may be responsible for a majority of the sales volume, percent of total stores is not used as a measure. This all-commodity volume is given for three previous four-week periods. This provides a distribution history for each item, so manufacturers can determine if their product is moving, and in how many stores.

Reports can be customized by the manufacturer for specific brands of goods within a category, or for different categories. Product size or type can also be used to customize reports, so that more exact comparisons can be made with competing products. A minimum of three brands within a category is required by SARDI for a single report.

"Market Segmentation" is a service which takes 26 SAMI market areas and segments them into geographic and/or ethnic subdivisions. Thirty-four hundred stores are in the sample, each with over one million in sales annually. The sample is designed to statistically represent each participating food operator in the market area, both by store size and the segment of the market. Projections are also made to include the volume of sales handled by food operators not participating in SAMI. The segments should add to the total of the marketing area, with a few exceptions due to smaller stores being excluded, or stores in areas not included in the geographic segmentation. ADIs which measure television coverage are often used to divide the market areas into geographical segments.

Seventeen market areas have large ethnic populations, and these are used to determine the product movement and distribution within an ethnic population as compared with the non-ethnic group in the same marketing area. These market areas contain 58 percent of the U.S. black population and 74 percent of the U.S. Hispanic population. A total of over 2,600 stores are sampled in these areas. The number of stores in each of these ethnic market areas is given, along with the percent of the total population which is black and/or Hispanic, in a SAMI reference guide.

Twenty-one markets (many of them also used in the ethnic segmentation service) have differentiated geographical features or more than one ADI within their boundaries, and are used for comparing product distribution across these type of segments. These 21 market areas have a total of 49 segments within them, most of these being ADI's. Each segment has an average of 60 stores which are sampled, for a total of 2,800 stores in the 21 markets. The separation of geographic market segments within each market is given in the SAMI reference guide as well, along with the number of stores sampled in each segment.

The geographical or ethnic segmentation of market areas provides less expensive evaluation, as it can be done on a smaller scale, and more factual specific information for a localized region, due to the large number of stores

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sampled in each marketing area. Reports generated are usually in the same formats and provide the same types of information as the traditional SAMI/SARDI data, only in this case they are differentiated by either geography or ethnic background. In this way, reports which are normally generated for a marketing area by itself can now be separated into two or three reports, one for each market segment, providing more specific information for smaller market areas.

NAME OF THE FIRM:

The Test Marketing Group (TMG)

CONTACT:

E. Katherine St. Cyr, Vice President
Regional Manager
140 South Dearborn
Chicago, IL 60603
312-782-9713

SERVICES PROVIDED:

Five test markets with scanner data, panels of 2,500 households in each market, split-channel cable capability, print testing, focus groups, coupon redemption information, custom test markets, and an early market forecasting system for new product introductions.

DESCRIPTION:

"Test-Ready Markets" are five areas TMG currently uses as complete test markets in the cities of Boise, Idaho, Orlando, Florida, the Quad Cities in Illinois and Iowa, Evansville, Indiana, and Portland, Maine. Four of the test markets are large B county markets, (Orlando is an A county), with population demographics both representative of the region and of the nation as a whole. Scanner data from stores handling 90 percent of the retail grocery and drug outlet volume in each market are available, for the purchases of panel members, through the use of computer ID cards.

All panel members are cable subscribers and can receive split-channel testing of television commercials. Meters in each home also determine what, if anything, is being watched on the household's primary television at all times during the viewing day, to allow comparisons between viewing and purchasing patterns. Each panel can be further split according to demographics and shopping behavior into two similar groups of 1,250 each for use in split-channel testing, allowing for a control group in the same market or to test two alternative advertising formats.

The store environments are controlled by TMG; and in-store testing or promotion (such as product placement, new product displays, product facing changes, or in-store sampling) can be arranged and monitored for its effect on the purchase behavior of the panelists, or on the store's sales in total. Print advertising in either newspapers or magazines can also be tested in the five test market cities.

Custom test markets utilizing many of these same services can be set up in almost any U.S. marketplace. Currently, over 250 markets nationwide have been used by TMG as test market situations.

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"CouponTrac", "Coupon CustomTrac", and "Coupon AccuRate" are three services which TMG provides to aid in determining the effects of couponing on customer behavior. "CouponTrac" is a syndicated service which provides category information for individual product brands, and analyzes redemption and mis-redemption of coupons, along with coupon values, the timing of redemption, and comparisons of coupons redeemed among competing brands within a category. This service uses store level data and is not associated with TMG's panel households.

"Coupon CustomTrac", however, makes use of the individual household coupon redemption information and can answer more specific client questions. Panelists from the "Test-Ready Markets" have their coupons segregated at the check-out counter according to the panelist's ID number. The coupons are then sent to TMG personnel who add the redemption information to each panelist's purchase record. This provides a connection between couponing and the household demographic and purchase data of each panelist. Using this database can provide information on the effectiveness of a couponing strategy, a more detailed demographic profile of panelists using specific coupons, and if couponing has resulted in brand switching.

"Coupon AccuRate" is a system involving testing of different couponing strategies by using two matched groups from the panels in one or more test market cities. In this way effectiveness of different strategies can be evaluated using markets which are matched across most other demographic and marketing characteristics. Custom analysis can be performed to determine the effects of each of the techniques, and measure the incremental difference between them.

"Early Marketcast" is another TMG system designed to allow earlier, more accurate forecasts of new product success rates. This is done by encouraging accelerated first trials of products through coupons good for that day only or special pricing in certain selected retail stores. Those who purchase the product during this initial period are asked to divulge certain demographic information while still in the store. They are later recontacted and questioned about the product's use and satisfaction. Certain of these respondents are then asked to participate in a diary panel to determine repeat trials. Three different categories of goods are asked for on the diary panel to avoid biasing the panelists toward the product being tested.

This test market procedure encourages earlier initial buying and faster repeat purchases than normal test marketing methods, and provides detailed purchase information quickly about actual product users. A forecast of a new product's performance can usually be made within 32 weeks of introduction in the retail outlets. This "Early MarketCast" system can be performed in either the current test markets, or on a custom basis in a city or a region.

APPENDIX D

EXTERNAL EVENTS, KEY WORDS

This is a list of "key words" which could be provided to a press clipping service. These words are chosen to represent ideas or events which might "shock" the behavior patterns of consumers, relative to dairy products.

Listeria
Salmonella
Cholesterol
Calcium
Protein
Saturated Fat
Unsaturated Fat
Dairy Products
Ice Cream
Yogurt
Milk
Butter
Margarine
Cheese
Food Poisoning
Food Tampering
Butterfat
Osteoporosis

APPENDIX E

"CONVENIENCE" FOODS WHICH COULD CONTAIN SIGNIFICANT AMOUNTS OF DAIRY PRODUCTS

Italian Foods

Frozen Pizza
Frozen Entrees (i.e. Lasagna, Cheese Ravioli, Manicotti, Stuffed Shells, Veal
Parmesan)
Canned Pasta (especially Cheese Ravioli)

Mexican Foods

Frozen Entrees (i.e. Cheese Enchiladas, Burritos, Combination Dinners)
Cheese Sauce for Nachos (often canned)

Miscellaneous Items

Canned Cream or Cheese Soups (possibly dried soups of these types as well)
Macaroni and Cheese Mixes
Dips and Spreads consisting of Cream or Processed Cheeses
Canned or Refrigerated Puddings and Custards
Frozen Vegetables in Cheese Sauce

APPENDIX F

FOODS SERVED IN AWAY-FROM-HOME SETTINGS WHICH COULD CONTAIN SIGNIFICANT AMOUNTS OF DAIRY PRODUCTS

Sandwiches

- Cheeseburgers
- Ham and Cheese
- Beef and Cheese
- "Philly Steak"
- Grilled Cheese
- Fried Fish (depending on the establishment)
- Breakfast Sandwiches (depending on the sandwich, and the establishment)
- Submarine or Hero

Mexican Foods

- Enchiladas (especially Cheese Enchiladas)
- Burritos
- Tacos
- Tostados
- Chilies Relenios
- Nachos

Italian Foods

- Pizza
- Lasagna
- Stuffed Shells
- Eggplant Parmesan
- Manicotti
- Cheese Ravioli
- Veal Parmesan

Miscellaneous Entrees

- Macaroni and Cheese
- Quiche (depending on the type)
- Chicken or Veal Cordon Bleu
- Blintzes or Blini
- Cream Soups
- Cheese Soup
- Fried Cheese Sticks or Nuggets
- Bagels with Cream Cheese
- Omelets (depending on filling)

Dessert or Beverage Items

Pudding
Custard
Ice Cream Pies
Cheesecake
Milkshakes or Malted
Yogurt "Smoothies"