

PURCHASING PRACTICES AND DAIRY PRODUCT  
PREFERENCES OF 224 SHOPPERS

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## CHAPTER I

### I N T R O D U C T I O N

The American homemaker spends approximately one-seventh of the family food budget for dairy products. With no other food can the homemaker provide her family the quality and quantity of nutrients per calorie as with dairy products. Speckmann (29) reported that dairy products contribute 12 per cent of the total calories used in the United States, yet provide 76 per cent of the calcium, 44 per cent of the riboflavin, 38 per cent of the phosphorus, 23 per cent of the protein, 12 per cent of the vitamin A, and 19 per cent of the thiamine as well as significant amounts of vitamin D, niacin, and magnesium. However, many studies have reported that the homemaker is unaware of the nutritional value of dairy products.

The nationwide survey of household food consumption in the United States conducted by the United States Department of Agriculture (34) in the spring of 1965 showed that 50 per cent of the diets of the households were rated "good." About 20 per cent of the diets were rated "poor," and approximately

30 per cent of the diets were rated between "poor and good." The diets rated "good" met the Recommended Dietary Allowances set by the Food and Nutrition Board of the National Academy of Science-National Research Council for protein; the two minerals, calcium and iron; and the four vitamins, vitamin A, thiamine, riboflavin, and ascorbic acid. Diets rated "poor" provided less than two-thirds of the allowances for one or more of the previously mentioned nutrients. According to Adelson (1), more diets were rated "poor" in 1965 than in 1955. Decreased use of milk and milk products, vegetables, and fruits was chiefly responsible for the changes in the dietary levels of households in the United States. These foods provide the main sources of calcium, ascorbic acid, and vitamin A.

Increasing numbers of Americans of all age groups have shown a renewal of interest in nutrition which was evidenced by the recent White House Conference on Food, Nutrition, and Health. The Food and Nutrition Board of the National Academy of Science-National Research Council (16) has established recommended dietary allowances for various food nutrients required for maintaining health of persons of all ages.

According to the National Dairy Council (7), the milk group makes a unique contribution to the nutritional well-being of individuals by supplying:

- 1) Over three-fourths of the Nation's calcium requirement.
- 2) Nearly one-fourth of the protein for growth and repair of body tissue.
- 3) About one-seventh of the food energy and vitamin A in the Nation's food supply.
- 4) More than a third of the phosphorous, two-fifths of the riboflavin, and one-fifth of the magnesium requirements.
- 5) Significant quantities of carbohydrates, iron, thiamine, niacin, ascorbic acid, and vitamin D.

Dairy foods, however, must be eaten before the family can gain the nutritional value available from these products. The homemaker is the individual chiefly responsible for spending the money available for food and converting the foods purchased into tasty, nutritionally adequate meals. The present study was undertaken to determine the factors that influence consumer preferences for different dairy products.

## REVIEW OF LITERATURE

### Food Purchasing Practices

Buying food is a task that must be performed frequently, but choosing the place and the time must be a decision of the individual food buyer. The self-service supermarket began to appear in America approximately 20 years ago (20). This self-service supermarket was primarily geared to rapid shopping and has continued to replace the independent grocery store.

Preferred type of store.--A study of nutritional sufficiency and family marketing practices of 94 families living in Ohio was conducted by Metheny, Hunt, and others (23). Study findings revealed that the exclusive use of the supermarket for food shopping was reported by 85 per cent of the families. Two per cent used independent grocery stores, while 13 per cent of the families used both types of grocery stores. A 1966 study conducted by Burgoyne Index, Incorporated (6), of Cincinnati, Ohio, showed that four out of five food shoppers bought in more than one supermarket, but that the average supermarket shopper had a favorite supermarket. The report also indicated that the average multiple supermarket

shopper shops in different supermarkets to satisfy her demand for specials, variety, and quality.

Shetler (27), in 1967, conducted a study of meat purchasing preferences and shopping habits of selected Kansas homemakers. The study indicated that 68 per cent of the shoppers preferred the supermarket for meat shopping. In 1967, Douglas (10) investigated the meat buying preferences and shopping habits of 125 urban homemakers residing in Dallas. The Texas study findings revealed that supermarkets were favored for meat purchasing by 86.4 per cent of the homemakers.

A survey of 107 homemakers residing in Denton, Texas, conducted by Ottenhouse (25) in 1967, indicated that three-fourths of the homemakers participating in the study shopped at supermarkets. Schmolder (26) conducted a study of meat, fruit, and vegetable purchasing preferences and shopping habits of 977 selected homemakers residing either in Kansas, or in the Denton-Dallas area of Texas. Schmolder found that 81 per cent of the 840 homemakers in the overall study preferred the supermarket; 11 per cent, the small home owned grocery store; 2.3 per cent, a salvage or discount store;

4.6 per cent, a meat market; and 1.1 per cent preferred some other type of store for grocery shopping.

Preferred shopping day.--The day of the week chosen for major food shopping is often determined by the date the major wage earner in the household is paid. A second trip to the grocery store may be necessary in order to obtain bread, milk, fresh fruits and vegetables, or some other perishable food item, but the major food shopping is often limited to one shopping trip a week. Grocery stores usually encourage weekend buying with the week days being used to replenish the stock for the weekend rush of trade (15). Lamkin, Hielscher, and Janes (20) investigated food purchasing practices of 283 young families residing in Champaign County, Illinois. The study revealed that the greater number of homemakers, 75 per cent, shopped once a week for major food purchases, either on Friday or Saturday. One-fourth of the respondents shopped less frequently than once a week. In the study by Metheny, Hunt, and others (23), two-thirds of the homemakers purchased groceries once a week. Thirteen per cent shopped weekly but often purchased perishable items daily. Three per cent purchased food daily as the food was needed, while 18 per cent reported an irregular pattern in food purchasing.

Ottenhouse (25) found that 86 per cent of the 107 Denton homemakers participating in the study shopped once a week with Wednesday being the most popular day and Friday the next most popular day for food shopping. Data by Shetler (27) revealed that over half of the 183 Kansas homemakers preferred Thursday, Friday, or Saturday for grocery shopping. Stribling (30) investigated the fruit and vegetable preferences and shopping habits of 138 homemakers residing in McKinney, Texas, in 1967. Saturday was the day most frequently preferred for major grocery shopping.

The Schmolder study (26) indicated that shopping twice a week was reported by 23.3 per cent, once a week by 61.7 per cent, twice a month by 3.8 per cent, and daily by 1.2 per cent by the 733 homemakers that responded to an item concerning frequency of shopping. Wednesday, Friday, Saturday or no special day were the most preferred times for food shopping. A study by Young, Waldner, and Berresford (37) investigated the shopping practices of 315 Syracuse and 331 Rochester, New York, homemakers. The data revealed that the major portion of food shopping in both cities was reported as weekly by 64 per cent of the homemakers residing in Rochester and by 54 per cent of the homemakers living in

Syracuse. Twenty to 30 per cent of the homemakers shopped two or three times a week. Less than 10 per cent of the homemakers had other miscellaneous shopping plans.

Thompson (31) analyzed supermarket shopping habits of 114 shoppers residing in Worcester, Massachusetts, in 1967. Data revealed that homemakers who shopped mainly at one particular store did their major grocery shopping weekly.

Preferred shopping time.--Not only are certain days more popular than other days for grocery shopping, but there are also preferences as to the time of day chosen for food shopping. Data by Stribling (30) revealed that morning was the popular time for food buying, and noon was the least preferred time for shopping as reported by the 138 participating homemakers. Ottenhouse (25) found that 75 per cent of the 107 Denton homemakers liked to shop between 3:00 and 6:00 p. m. Schmolder (26) reported that the time most preferred by the 977 participating homemakers was in the afternoon.

Individuals reported as shoppers.--Metheny, Hunt, and others (23) reported that of the 94 families surveyed, two-thirds of the wives purchased the food for the family. In

24 per cent of the families the husband and wife shopped together when purchasing food. In 7.0 per cent of the families the husband shopped alone; 3.0 per cent of the families were reported to use some other arrangement such as the groceries being ordered by telephone or being purchased by a housekeeper or relative. In 54 per cent of the families, the children accompanied the parents to the grocery store; in 12 per cent of the families, the children were never taken to the grocery store.

Stribling (30) reported the homemaker as the food shopper in 95 of the participating families. In only four families was the husband reported as the food shopper; in 29 families the husband and wife shopped together for groceries.

Use of a budget.--The use of a food budget or spending plan is a means of checking food buying expenditures.

Lamkin, Hielscher, and Janes (20) found that 70 per cent of the homemakers had some kind of a spending plan based upon family income, family needs, and family buying habits. A spending plan was used by a larger proportion of women under 30 years of age, with incomes under \$10,000 and family food

expenditure under \$35.00 a week than by older homemakers over 30 years of age.

The Young, Walder, and Berresford investigation (37) revealed that two-thirds of the homemakers had a specified amount allowed for food each week. Most of the homemakers, however, did not plan meals in advance. The study also indicated that the younger, more educated homemakers with better incomes reported more pre-planning of meals than did the older homemakers. Shetler (27) found that 52 per cent of the participating homemakers residing in Kansas attempted to follow a budget. Ottenhouse (25) reported that 39 per cent of the responding homemakers residing in Denton followed a food budget. The results of the Schmolder study (26) revealed that a budget was usually or sometimes used by 49.6 per cent of the homemakers participating in the study. The percentage of homemakers never using a budget was 50.4 per cent. This study also revealed no significant relationship between formal education or home economics education of the homemaker and the use of a budget.

Use of a shopping list.--Consumer surveys indicate that a written shopping list influences the efficiency of food buying. The results of the Lamkin, Hielscher, and Janes study (20)

indicated that the use of a written shopping list was significantly related to both the education of the homemaker and family size. Homemakers not using a shopping list reported extensive impulsive buying. Fifty-two per cent of the homemakers usually or always prepared a shopping list, either general or specific, for needed items.

Stribling (30) reported that 59 of 134 homemakers residing in McKinney usually prepared a written shopping list. Schmolder (26) found that 52.3 per cent of the 959 participating homemakers surveyed usually prepared a shopping list. Homemakers sometimes preparing a shopping list accounted for 31.9 per cent of the total group. This study indicated that a shopping list was used more often by older homemakers than by young homemakers, and in small towns or rural areas than in large cities or metropolitan areas.

#### Factors Influencing Food Purchasing Practices

Consumer surveys repeatedly reveal that there are many factors which influence the food purchasing practices of the homemaker. Decisions of the American housewife as to what food to buy vary considerably. Mackey, Bowman, and others (21), whose study included a large number of selected consumers

living in Pennsylvania, reported that family size and income, the education and working status of the wife, and the husband's occupation significantly influenced food preferences and buying practices.

Family income.--Income influences the consumption of milk and dairy products. Data from an investigation reported by Mackey, Bowman, and others (21) revealed that family income significantly influenced food buying practices and preferences. Eppright, Fox and others (13) investigated the nutrition knowledge and attitudes of mothers in the North Central region of the United States. Study findings revealed that the calcium content of the diet was influenced by the amount of money spent for food. A study of the dietary sufficiency of preschool children conducted by Metheny, Hunt, and others (23), revealed that the nutrient content of the diets was found to vary with the income of the family. Diets low in nutrient content were found among the lowest income groups. A study of the milk consumption of 191 urban adult women residing in Iowa was reported by Hammill and Burk (18). The study revealed that in low income families the consumption of milk appeared to decrease in homes with children. In

high income families, the use of dairy products tended to increase in homes with children.

Nutritional knowledge of the homemaker.--Much attention is currently being directed to the nutritional improvement of young children as a means of improving the mental and physical quality of society. An eight-year study concerning nutritional knowledge of the homemaker was conducted in New York State by Young, Waldner, and Berresford (37). Study findings revealed that approximately one-fourth of the 331 homemakers residing in Rochester and 315 homemakers living in Syracuse, New York, appeared to have a fair understanding of nutrition as related to the feeding of their families. The study indicated that the homemakers knew more about the nutritional values of meat, fish, and poultry, and of potatoes, fruits, and vegetables, than of other food items in the diet. The greatest need for more nutritional knowledge reported by the homemaker was in regard to ascorbic acid-rich fruits and vegetables; carotene-rich fruits and vegetables; adult need for milk; nutritional value of bread-stuffs and cereals; and the nutritional value of butter and fortified margarine. Nutritional knowledge was greatest among the young, better educated, higher income homemakers.

The younger homemaker appeared to do a more adequate job of feeding her family than did the older homemaker. The authors were of the opinion that the superior level of education of the younger homemaker may account for this difference.

Morse, Clayton, and Cosgrove (22) conducted a study of the nutritional status of 422 children from the seventh, eighth, and ninth grades of the Burlington Public and Parochial Schools in Vermont who volunteered to participate. A total of 238 mothers cooperated by taking a 15-minute nutrition test covering a wide range of practical information on nutrition and diet. The three most difficult questions were concerned with knowledge of nutritional values of foods. The question next most often missed had to do with stability in food processing or functions of food in the body.

The above study also revealed a strong relationship between knowledge of nutrition and the homemaker's attitude toward nutrition. Nutritional knowledge was also found to be related to the homemaker's attitude toward meal planning and, to a lesser degree, to her attitude toward food preparation. The Stribling study (30), conducted to determine

the fruit and vegetable preferences and shopping habits of 138 homemakers residing in McKinney, Texas, revealed that the homemakers with a higher educational level had a greater knowledge of nutrition than other groups investigated.

Women have the primary responsibility for food selection for the family. Their attitudes and nutritional knowledge, therefore, are of utmost importance. Jalso, Burns, and Rivers (19) conducted a study to determine the relationship of food faddist beliefs and practices to age, socio-economic level, educational level, and personality. The sample consisted of 380 subjects living in Central New York State. The study revealed that nutritional opinions and practices were influenced by age rather than by education directly. Subjects who had less nutrition education were concentrated in the older age and lower income groups. Sources of nutritional knowledge used by the individuals considered as food faddist were books, magazines, and newspapers. Both groups reported little use of the radio or television as a major source of nutrition information.

Lamkin, Hielscher, and Janes (20) conducted a study of nutritional sufficiency in the diets of preschool children

living in Champaign County, Illinois. The data revealed that in general the homemaker had only a fragment of nutritional knowledge. Only 54 per cent knew that pasteurization was a requirement for the retail sale of milk in Illinois. A quart of milk per day was still considered to be the correct amount needed for a preschool child. Homemakers had little knowledge of the calcium value of dairy products.

A study conducted by Fox, Fryer, and others (17) of the diets of preschool children living in the North Central Region of the United States reported that the persons from whom the homemaker received nutritional knowledge were: mother or relative, 64 per cent; physician, 60 per cent; friends or neighbors, 29 per cent; home economist, dietitian, or nutritionist, 22 per cent; dentist, 19 per cent; and sales person, 6 per cent. Sources used by the homemaker for nutritional knowledge were: magazines, 63 per cent; newspapers, 48 per cent; books (including cookbooks), 48 per cent; television, 34 per cent; radio, 21 per cent; extension or other government bulletins, 17 per cent; and other sources, 3 per cent. This study also revealed that 75 per cent of the mothers had received some nutrition education through organized classes in nutrition. These classes were reported

as: high school, 51 per cent; junior high school, 34 per cent; youth organizations, 21 per cent; elementary school, 18 per cent; public health or adult education class such as prenatal classes, 2 to 3 per cent.

Family composition.--Children are recognized as having an influence on the foods selected for purchase by the family. Metheny, Hunt, and others (28) reported that 91 per cent of the mothers included in the study reported that their children requested the purchase of certain food items regardless of whether or not the child accompanied the parents to the grocery store. The Lamkin, Hielscher, and Janes investigation (20) revealed that 96 per cent of all the mothers reported that dairy products were requested by their children. Preschool children seemed to influence food-buying decisions as to the kind and quantity of foods purchased. The study by Hammill and Burk (18) revealed that the number of children in the household seemed to have little influence on consumption of milk by mothers in families with either high or low incomes. In high income households the presence of young children, however, appeared to encourage the use of dairy products by the mother. The number of children in the

household had no apparent effect on the amount of ice cream consumed by the mother.

In a recent study conducted in Mississippi, Dickins (9) found that the greatest personal influence on food selection was from members of one's own family. Children were a more important factor of influences than was the husband. Stribling (30) also reported that family preference was considered the most important factor in food selection. The study of meat buying preferences and shopping habits of 235 urban homemakers reported by Douglas (10) revealed that family request was the greatest single influence upon food selection.

The survey of meat purchasing preferences and shopping habits of selected Kansas homemakers conducted by Shetler (27) in 1967 revealed that family request was the factor having the greatest influence on meat purchasing. The Schmolder study (26) also indicated that family request was the greatest factor influencing food purchasing. Trier, Smith, and Shaffer (32) investigated the differences in food buying attitudes of 242 homemakers of various income groups living in Lansing, Michigan. The study revealed that the

more pessimistic and dominating the wife, the more influence her husband had on her food purchasing practices. Those housewives whose food purchases were least influenced by their husbands, however, were those who saw themselves as being relaxed, good natured, friendly, and desirous of making their husbands happy.

Relatives and friends.--The Trier, Smith, and Shaffer (32) study revealed that one-third of the homemakers reported being influenced by friends and relatives in regard to food selection. This study also reported that the better educated and the more dominating the housewife, the greater the possibility of her friends having an influence on her food purchasing habits. Douglas (10) reported that information from friends and relatives influenced food purchasing. Shetler (27) also reported that information from friends and relatives influenced food selection but was of much less influence than family requests.

Advertising and store promotion.--Advertising is widely recognized as an influential factor in informing the family about new products on the market. Some of these advertisements are geared to influence children. The study by Metheny,

Hunt, and others (23) revealed that three-fourths of the mothers indicated that their children requested the purchase of products seen on television.

The Trier, Smith, and Shaffer study (32) indicated that food purchases of one-third of the participating homemakers were influenced by food advertisements seen on television or in cookbooks. One-fourth of the responding homemakers were influenced by food articles in magazines or store displays. Some types of food information or store promotions were reported to influence the homemaker to buy a particular food product. Lamkin, Hielscher, and Janes (20) revealed that newspaper advertising was an important source of food shopping information. Douglas (10) reported that radio and television advertisements influenced food selection. Shetler (27) found that 73.9 per cent of the selected homemakers residing in Hesston, Newton, or Wichita, Kansas were influenced by store advertisements. This study also revealed that women in high income groups were influenced by articles in magazines.

### Dairy Product Trends

Consumption of dairy products.--The nationwide survey by the United States Department of Agriculture (34) conducted

in 1965 revealed a marked decrease in the use of milk and milk products. This decrease was based on the per capita consumption. The National Dairy Council (7) reports that each year one or more dairy products establish a new record in consumer sales. Fluid nonfat and low fat milk and cheese sales were at a record peak last year. Ice cream and other frozen dairy products were also reported at a near record level. Sales of fluid whole milk, butter, fluid cream, evaporated and condensed milk, however, have decreased slightly. The sale of nonfat dry milk and dry whole milk was unchanged in 1969.

Consumption of milk.--A 1961 nutrition survey of 6,200 teenage residents of Greensboro, North Carolina, reported by Edwards, Hogan, and others (11), revealed that 66 per cent of the teenagers consumed two or more cups of milk or milk products. However, 14 per cent of the students consumed no milk at all. Seventy-two per cent of the students enrolled in grades seven and nine consumed three or more servings of milk daily. Intake of milk was lowest in grades 10 and 12. Hammill and Burk (18) investigated the milk consumption of 191 adult women living in urban areas in Iowa. The data revealed that the number of children in the household

seemed to have little influence on the consumption of milk in high income families. The presence of children in low income families, however, seemed to reduce the per person consumption of milk.

An investigation by Lamkin, Hielscher, and Janes (20), conducted in 1966, on the food purchasing practices of young families revealed that the consumption of milk averaged 4.23 quarts per person per week. The milk with 2 per cent fat accounted for half of the fresh fluid milk purchased. Only small quantities of skim, chocolate, and buttermilk were reported purchased. The sale of fluid whole milk was reported to have declined in recent years. The National Dairy Council (7) reported that during 1969 nearly 6.5 billion half-pints of milk were consumed by children participating in the National School Lunch and Special Milk Programs.

Emerson (12) stated that the overall consumption of milk and milk products in 1967 increased with condensed and evaporated milk gaining in popularity. The National Dairy Council (7), however, reports that the sale of evaporated milk declined in 1969. The sale of condensed milk decreased slightly in 1969 with sales averaging 1.8 pounds per person. The sale

of nonfat dry milk through commercial channels, however, remained fairly constant. Over 50 million pounds of dry whole milk were sold in 1969, representing the use of 0.3 of a pound per person. The sale of dry buttermilk has averaged 0.3 of a pound per person during the last four years. Per capita sales of dry malted milk have leveled off since 1965 at 0.1 of a pound.

Consumption of ice cream.--Hammill and Burk (18) conducted a study of the milk consumption of 191 adult women residing in an urban community in Iowa. The data revealed that the number of children in a household in medium and high income families seemed to have no effect on the consumption of ice cream. Lamkin, Hielscher, and Janes (20) reported that in 1966 the consumption of ice cream averaged one and one-half quarts per household per week. The National Dairy Council (7) reported that ice cream and other frozen dairy desserts were consumed at a rate of 21.2 quarts per person in 1969. This organization also reported that Americans consumed an average of 15.2 quarts of ice cream per person, 5.2 quarts of ice cream per capita, and 8 quarts of sherbet per person during the year of 1969.

Consumption of cheese.--The survey by Lamkin, Hielscher, and Janes (20) revealed that the consumption of cheese averaged one and one-half pounds per household per week with half of the total reported as cottage cheese. Emerson (12) indicated that in 1967 the consumption of cheese was gaining in popularity. The National Dairy Council (7) reported the sale of cottage cheese averaged 4.8 pounds per person in 1969. Consumer demand for cheese has been rising during the sixties. According to the National Dairy Council (7), Americans consumed a record setting amount, 10.6 pounds of cheese per person in 1969.

Consumption of butter.--The National Dairy Council (7) reports that the sale of butter through commercial channels averaged 4.7 pounds per person in 1969, which was down 0.2 of a pound from the previous year. The per capita sales of butter have declined about one-third since 1957-59, but the long term decline has tended to level off in recent years. The consumption of butter during 1969 totaled 5.4 pounds per person--4.7 pounds from commercial channels and 0.7 of a pound from government sources.

Contribution of dairy products to the total nutrients.--

Each year the United States Department of Agriculture (34, 22), calculates how much each major food group contributes to the supply of each of 14 nutrients and food energy or calories. Magoon (22) reported the contribution of dairy products, excluding butter, to the diet, in 1957-59, as shown in the chart on page 26. In 1969 the National Dairy Council (7) reported the contribution of dairy products, including butter, to the diet as shown on page 26. According to Magoon (22), by 1970 the contribution of dairy products, excluding butter, had changed slightly as shown in the chart on page 26.

The Magoon report (22) stated that about 85 per cent of the total calories of the average American comes from meat, dairy products, fats and oils, flour and cereal products, and sugar and other sweeteners. The major supply of high quality protein is from meat, poultry and fish, 41.1 per cent; and dairy products, excluding butter, 22.1 per cent. Dairy products also provide 75.8 per cent of the calcium and provide a large part of vitamin D as an additive.

CONTRIBUTION OF DAIRY PRODUCTS TO  
THE TOTAL NUTRIENTS

Nutrients	Contribution of Dairy Foods		
	Per Cent 1957-59	Per Cent 1969	Per Cent 1970
Food Energy	13.5	13.2	11.3
Protein	24.5	22.5	22.1
Fat	16.5		12.7
Carbohydrate	7.7	7.1	6.9
Calcium	76.6	76.3	75.8
Phosphorous	38.8	36.8	36.0
Magnesium	23.3	22.2	21.8
Iron	2.3	2.2	2.3
Vitamins			
Vitamin A Value	12.7	14.4	11.3
Thiamin	10.5	9.9	9.7
Riboflavin	45.3	43.0	42.4
Niacin	2.0	1.7	1.6
Vitamin B <sub>6</sub>	11.3		9.4
Vitamin B <sub>12</sub>	23.9		20.6
Ascorbic Acid	5.2	4.7	4.5

PURPOSES OF THE STUDY

The present study was undertaken to determine some of the factors that influence consumer preferences for certain dairy products and to investigate the shopping habits of 224 homemakers residing in the Golden Triangle of Texas, from Denton to Fort Worth to Dallas. The specific purposes of this study were to determine:

- 1) The dairy purchasing practices and habits of the participating shoppers;
- 2) The preferences of the shoppers regarding milk, cheese, whipping cream, ice cream, cottage cheese, and spreads;
- 3) The shoppers' knowledge of nutrition and dairy products; and
- 4) The relationship of dairy buying practices to size and composition of the family, educational attainment of the husband and wife, family income, home economics education of the shopper, and occupation of the head of the household.

## CHAPTER II

### P L A N   O F   P R O C E D U R E

The present study of dairy buying preferences and shopping habits of 224 selected shoppers was conducted in the Golden Triangle of Texas, from Denton to Fort Worth to Dallas, on the second, third, and fourth Fridays in November, 1970. The personal interview method was used to obtain the data.

The questionnaire was completed by shoppers who were customers at Safeway, Incorporated. Three stores were included in the study: Number 283, University Drive, Denton, Texas; Number 370, Beech and Belnap, Fort Worth, Texas; and Number 152, Lover's Lane and Inwood Drive, Dallas, Texas. Each of the stores was located in an area where high, medium, and low income families were represented by the shoppers.

Denton is located 35 miles north of Dallas with a population of 39,864 people. Denton is primarily a university community being the home of two state universities, Texas Woman's University and North Texas State University. Fort Worth and Dallas are both extremely large metropolitan areas.

Fort Worth is a wholesaling, retailing, and manufacturing city serving much of West Texas and other areas. The leading manufacturing industries are aerospace industries. Dallas is among the leading centers in finance, insurance, and manufacturing in the United States. Dallas has many science-oriented industries including electronics, aerospace, and defense production. Dallas is also a center for women's apparel, furniture, petroleum operations, supplies, motion picture distribution, and many other enterprises.

A questionnaire was designed to obtain information concerning shopping habits and possible factors that influence the consumer's preferences for different dairy products. The sample was selected at random from shoppers at Safeway incorporated, to include shoppers of various income and educational levels. The shoppers were invited to participate in the survey by completing the survey form. The interview method was used to complete the first portion of the survey form which included information concerning shopping habits and dairy buying preferences. Each respondent completed the second portion of the survey form, which included personal data concerning the shopper and his or her family. A total of 234 questionnaires were completed as follows: 116 in

Denton, 57 in Fort Worth, and 61 in Dallas. Of the 234 completed forms, 224 were usable as follows: 112 for Denton, 53 for Fort Worth, and 59 for Dallas.

The survey form used in the present study was designed to obtain information concerning shopping habits and to determine the various factors which influence the consumer's preferences for dairy products. Items concerning the homemaker's source and application of nutritional knowledge in relation to dairy products were also included in the study. Characteristics investigated for their influence on shopping habits and dairy preferences were family size, family income, and the employment status of the homemakers. The following factors concerning the shopper were investigated: employment, age, educational attainment, occupation, and the completion of home economics courses which included the study of food purchasing and principles of milk and cheese cookery.

Current literature of previous research conducted by state and federal government agencies and similar studies reported by various universities were explored to provide guidelines in preparing the instrument. A copy of the survey form, "Shopping Habits and Dairy Buying Preferences of Shoppers," follows.

S H O P P I N G H A B I T S A N D D A I R Y  
B U Y I N G P R E F E R E N C E S O F  
S H O P P E R S

Dear Consumer:

The following is a questionnaire dealing with a number of items related to dairy products and their purchasing, and with some information about the consumer. Dairy products include milk, cheese, whipping cream, dips, butter and margarine, and ice cream.

A. Purchasing Dairy Products

1. How often do you usually shop for dairy products? Please check.

Once a week _____	Two or more _____
Two or more _____	times a month _____
times a week _____	When needed _____

2. On what days of the week do you usually do most of your shopping for dairy products? Check one or more.

Monday _____	Friday _____
Tuesday _____	Saturday _____
Wednesday _____	Sunday _____
Thursday _____	No particular day _____

3. When do you usually shop for food? Please check.

In the morning _____	Late afternoon _____
During the noon hour _____	After 6:00 p.m. _____
Early afternoon _____	No special time _____

4. What kind of frozen dessert does your family prefer? List 1 through 4 in order of preference. (Number 1 as first choice.)

Ice cream _____	Mellorine _____
Ice milk _____	Sherbet _____

5. What kind of milk does your family prefer to drink? List 1 through 6 in order of preference. (Number 1 as first choice.)

Skim milk	_____	Whole milk	_____
Low fat milk (2%)	_____	Chocolate milk	_____
Nonfat dried milk	_____	Buttermilk	_____

6. About how much milk does your family consume in a week? \_\_\_\_\_

With what kind of milk do you usually cook?  
\_\_\_\_\_

7. Which kind of whipping cream does your family prefer? Please check.

Whipping cream	_____	Dry powdered:	
Spray cream topping:		Dream Whip	_____
Lucky Whip	_____	Fluffy Whip	_____
Golden Whip	_____	Frozen:	
Owip	_____	Gold Whip	_____
Whipped Topping	_____	Reddi Whip	_____
		Cool Whip	_____
		Never purchase	_____

8. Which kind of cottage cheese does your family prefer? Please check.

Curd:		Flavored:	
Large curd	_____	Chive	_____
Small curd	_____	Fruit Salad	_____
Dry curd	_____	Garden Salad	_____
Partially creamed	_____	Pineapple	_____
		Never purchase	_____

9. Which kind of dips does your family prefer? Please check one or more.

French Onion	_____	Garlic	_____
Bleu Tang	_____	Clam	_____
Bacon and	_____	Jalapeno	_____
Horseradish	_____	Chili Bean	_____
Mr. Hickory	_____	Never Purchase	_____

10. Which kind of spread for bread does your family prefer? Please check.

Butter:		Margarine:	
Tub	_____	Tub	_____
Stick	_____	Stick:	
Sweet cream	_____	4 sticks to	
Dietetic spread	_____	a pound	_____
		6 sticks to	
		a pound	_____
		Brick	_____
		Patties	_____

11. With which kind of the above spreads do you cook? \_\_\_\_\_
12. Which kind of cheese does your family prefer? Please check one or more.

Hard or semi-hard cheeses:		Soft cheeses:	
Cheddar or American	_____	Cottage	_____
Edam	_____	Cream	_____
Swiss, Emmenthaler,		Neufchatel	_____
or Guyere	_____	Camembert	_____
Roquefort	_____	Brie	_____
Mozzarella	_____	Limburger	_____
Cheese food such as		Liederkrantz	_____
Velveeta	_____	Diet spread	_____
	Never purchase		_____

13. How often do you buy cheese? \_\_\_\_\_

Do you use the cheese for the following?  
Check one or more.

Snacks	_____	Casseroles	_____
Sandwiches	_____	Cooking	_____
Souffles	_____	Salads	_____
Pizza	_____	Other; list	_____

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14. Listed below are statements concerning dairy products. Check as to whether you agree, disagree or are undecided.

	<u>Agree</u>	<u>Disagree</u>	<u>Undecided</u>
Cold temperature is best for whipping of cream.	_____	_____	_____
Milk supplied all the nutrients essential in the diet.	_____	_____	_____
Low or moderate temperatures should be used in the cooking of cheese.	_____	_____	_____
Butter is a good fat for cooking French fries.	_____	_____	_____
Powered milk should be stored under refrigeration following opening of the carton.	_____	_____	_____
Butter has more calories than margarine.	_____	_____	_____
There is little, if any difference in the nutritive value of fortified margarine and butter.	_____	_____	_____
Mellorine has fewer calories than ice cream.	_____	_____	_____
Yogurt has more nutritive value than buttermilk.	_____	_____	_____

15. In what type of store do you do most of your grocery shopping? Please check.

Discount and salvage	_____	Small homeowned	_____
Supermarket	_____	Others; list	_____

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16. Why did you choose this particular store for shopping today? Check one or more.

- Efficient, quick service . . . . . \_\_\_\_\_
- Variety of known brands . . . . . \_\_\_\_\_
- Low prices . . . . . \_\_\_\_\_
- Quality and variety of fresh produce . . . \_\_\_\_\_
- Friendly personnel . . . . . \_\_\_\_\_
- Large selection of frozen foods . . . . . \_\_\_\_\_
- Good meat department . . . . . \_\_\_\_\_
- Delicatessen . . . . . \_\_\_\_\_
- Closeness to home . . . . . \_\_\_\_\_
- Others; list \_\_\_\_\_

17. If a trained home economist were available at this grocery store, what would you like to ask her? Check one or more.

- How to prepare certain foods. \_\_\_\_\_
- What are "good buys" in the store today. \_\_\_\_\_
- Menu suggestions. \_\_\_\_\_
- Nutritive value of certain foods. \_\_\_\_\_
- Others; list \_\_\_\_\_

18. Do you make a shopping list before you shop?

Usually \_\_\_\_\_ Sometimes \_\_\_\_\_ Never \_\_\_\_\_

19. Who usually shops for groceries? Please check.

Wife \_\_\_\_\_ Husband \_\_\_\_\_ Both \_\_\_\_\_

Others; who? \_\_\_\_\_

B. Family Background Information

1. Sex of the respondent. Please check.

Male \_\_\_\_\_ Female \_\_\_\_\_

2. Will you please check your age level?

19 years or less _____	40-49 years _____
20-29 years _____	50-59 years _____
30-39 years _____	60 years or over _____

3. How many members are living in your immediate household including yourself?

Adults (over 18 years)	Children
Male _____	_____ Boys, ages _____
Female _____	_____ Girls, ages _____

4. What is the highest grade in school completed by the woman of the household? \_\_\_\_\_ By the man of the household? \_\_\_\_\_

5. Is the homemaker employed outside the home? Please check.

Yes _____	Full-time _____
No _____	Part-time _____

6. What is the job of the woman of the household? (Homemaker, clerk, secretary, nurse, teacher or other) \_\_\_\_\_

7. What is the job of the man of the household? (Truck driver, clerk, teacher, supervisor, engineer, accountant, doctor, retired, or other) \_\_\_\_\_

8. Which of these groups include your monthly take home pay?

Under \$199 a month _____	\$400 to 499 a month _____
\$200 to 299 a month _____	\$500 to 699 a month _____
\$300 to 399 a month _____	\$700 or over a month _____

9. Did you ever take any home economics? Please check.

None _____	College: _____
Junior high school _____	Major _____
Senior high school _____	Minor _____

Did the course or courses include: Food purchasing? \_\_\_\_\_ Principles of milk and cheese cookery? \_\_\_\_\_

## CHAPTER III

### P R E S E N T A T I O N   O F   D A T A

The present study was designed to investigate the food shopping habits, purchasing preferences for dairy products, nutritional knowledge of the shopper, and factors influencing consumer choices of 224 shoppers residing in the Golden Triangle of Texas, from Denton to Fort Worth to Dallas. The data were collected on the second, third, and fourth Fridays in November, 1970. A questionnaire form was used to obtain the data.

The questionnaire was completed by shoppers at Safeway, Incorporated. Three stores were included in the study: Number 283, University Drive, Denton, Texas; Number 370, Beech and Belnap, Fort Worth, Texas; and Number 152, Lover's Lane and Inwood Drive, Dallas, Texas. The completed questionnaires were utilized to obtain certain information concerning background characteristics of the households and data concerning the various factors being investigated.

## FAMILY CHARACTERISTICS OF THE SHOPPERS

The following characteristics of the participating families were investigated: age of the shopper, family size and composition, formal education of the woman and man of the household, home economics training of the shopper, the employment status of the homemaker, occupation of the wife and of the husband, and monthly income of the family.

### Age of the Shopper

The age of the shopper was investigated. Age was divided into six categories: 19 years of age or less; 20 to 29 years; 30 to 39 years; 40 to 49 years; 50 to 59 years; and 60 years or over, as shown in Table I. The survey included three shoppers 19 years of age or under, 1.34 per cent; 72 shoppers between the ages of 20 and 29 years, 32.14 per cent; 61 between 30 and 39 years, 27.23 per cent; 40 between 40 and 49 years, 17.86 per cent; 22 between 50 and 59 years, 9.82 per cent; and 15 shoppers 60 years of age or over, 6.70 per cent. The largest percentage, over three-fourths of the entire group of shoppers, were between 20 and 49 years of age. Eleven shoppers did not respond to the item concerning age.

TABLE I  
DISTRIBUTION OF 224 SHOPPERS  
ACCORDING TO AGE CATEGORY

Age in Years	Shoppers							
	Denton (N=113)		Fort Worth (N=53)		Dallas (N=58)		Total (N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
	19 years or less	2	1.79	0	0.0	1	1.69	3
20-29 years	41	36.61	15	28.30	16	27.11	72	32.14
30-39 years	30	26.79	14	26.42	17	28.81	61	27.23
40-49 years	23	20.54	11	20.75	6	10.17	40	17.86
50-59 years	6	5.36	8	15.09	8	13.56	22	9.82
60 years or over	5	4.46	3	5.66	7	11.86	15	6.70
No response <sup>1</sup>	5	4.46	2	3.78	4	6.78	11	4.91

<sup>1</sup>Age category was not reported by 11 shoppers.

### Family Size and Composition

Family size was reported by 215 of the participating households. Nine shoppers did not respond to the question concerning family size. Family size was divided into two categories: families of four or less members and families of five or more persons. Responses as to family size are shown in Table II. Of the 215 households for whom family size was indicated, 23.61 per cent of the participants reported a household size of five or more persons, and 75.92 per cent of the respondents listed four or less family members.

The family composition of the 215 households included 777 persons: 464 adults and 313 children of whom 181 were boys and 132 girls (Table III). Of the 313 children, 35.46 per cent were teenagers; 79 or 43.64 per cent of the 313 children were teenage boys and 32 or 24.24 per cent were teenage girls. Forty-eight boys and 42 girls were five years of age or younger (pre-school); and 54 boys and 58 girls were between the ages of six and 12 (elementary school) as shown in Table IV. Slightly more than one-third of the children were teenagers.

TABLE II  
 DISTRIBUTION OF 215 HOUSEHOLDS<sup>1</sup>  
 ACCORDING TO FAMILY SIZE

Family Size	Households							
	Denton		Fort Worth		Dallas		Total	
	(N=110)		(N=52)		(N=53)		(N=215)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
4 or less	84	76.35	37	71.15	43	81.13	164	75.92
5 or more	26	23.64	15	28.85	10	18.87	51	23.61

<sup>1</sup>Family composition was not reported by nine shoppers.

TABLE III  
DISTRIBUTION OF 215 HOUSEHOLDS<sup>1</sup> ACCORDING  
TO FAMILY COMPOSITION

Family Composition	Households							
	Denton		Fort Worth		Dallas		Total	
	(N=389)		(N=193)		(N= 195)		(N=777)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Adults								
Male	116	29.81	53	27.46	62	31.79	231	29.73
Female	116	29.81	60	31.09	57	29.23	233	29.99
Children								
Boys	89	22.89	43	22.28	49	25.13	181	23.19
Girls	68	17.48	37	19.17	27	13.84	132	16.99

<sup>1</sup>Family composition was not reported by nine shoppers.

TABLE IV  
DISTRIBUTION OF 313 CHILDREN ACCORDING  
TO AGE GROUPING

Age Group	Children					
	Boys		Girls		Total	
	(N=181)		(N=132)		(N=313)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Pre-school	48	26.52	42	31.81	90	28.75
Elementary school	54	29.89	58	43.94	112	35.78
Junior or senior high	79	43.64	32	24.24	111	35.46

The family size ranged from a household of one individual to a family of 14. The mean family size was 3.61 persons; the average number of children was 1.45 per household.

### Education of the Shopper

Formal education.--The highest level of formal education completed by the participating shoppers was investigated as well as the formal education of the spouse. Educational level of achievement was divided into five categories: 11th grade or less, high school graduate, some college education, college graduate, and completion of five or more years of college.

In response to the question concerning the highest level of formal education completed by the woman of the household, 19 or 8.48 per cent had less than a high school education, 73 or 32.99 per cent had completed high school, 40 or 17.86 per cent had completed some college, 51 or 22.77 per cent were college graduates, and 16 or 7.14 per cent had completed five or more years of college (Table V).

Of the 178 shoppers responding to the question concerning the highest level of education completed by the man of the household, 16 or 7.14 per cent had less than a high school

TABLE V

DISTRIBUTION OF 224 HOUSEHOLDS ACCORDING TO HIGHEST LEVEL  
OF EDUCATION COMPLETED BY THE WOMAN OF THE HOUSEHOLD

Highest Level of Education Completed	Homemakers							
	Denton (N=112)		Fort Worth (N=53)		Dallas (N=59)		Total (N 224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
	11th grade or less	12	10.71	6	11.32	1	1.69	19
High school	25	22.32	27	50.94	21	35.59	73	32.59
Some college	25	22.32	9	16.98	6	10.17	40	17.86
College graduate	26	23.21	6	11.32	19	32.20	51	22.77
Graduate work	12	10.71	0	0.0	4	6.78	16	7.14
No response <sup>1</sup>	12	10.71	5	9.43	8	13.56	25	11.16

<sup>1</sup>The no responses includes five families with no women living in the household.

education, 59 or 26.34 per cent had completed high school, 27 or 12.05 per cent had completed some college, 53 or 23.66 per cent were college graduates, and 23 or 10.26 per cent had completed five or more years of college (Table VI).

The Fort Worth sample included the largest percentage of women, 11.32 per cent, and men, 13.21 per cent, with less than a high school education. Of the Denton group, 10.71 per cent of the women of the households and 7.14 per cent of the men had not completed high school. The highest percentage of women for whom high school was the highest level of education completed was reported by the participants from Fort Worth, 50.94 per cent; followed by the women from Dallas which included 35.59 per cent. The highest percentage of men for whom the highest level of education completed was high school, was reported by the participants from Fort Worth, 37.74 per cent; followed by the Dallas group, 25.42 per cent. The greatest number of homemakers with some college work but not a college graduate was reported by the participants from Denton, 22.32 per cent; followed by the Fort Worth group, 16.98 per cent. The greatest number of men with some college work but not a college graduate was found for the Denton participants, 13.39 per cent; followed by the Fort Worth group,

TABLE VI  
 DISTRIBUTION OF 224 HOUSEHOLDS ACCORDING TO HIGHEST  
 LEVEL OF EDUCATION COMPLETED BY THE MAN OF THE  
 HOUSEHOLD

Highest Level of Education Completed	Male Head of Household							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
11th grade or less	8	7.14	7	13.21	1	1.69	16	7.14
High school	24	21.43	20	37.74	15	25.42	59	26.34
Some College	15	13.39	6	11.32	6	10.17	27	12.05
College graduate	27	24.11	8	15.09	18	30.51	53	23.66
Graduate work	17	15.18	0	0.0	6	10.17	23	10.26
No response <sup>1</sup>	21	18.75	12	22.64	13	22.03	46	20.53

<sup>1</sup>The no responses included 14 families with no male as head of the household.

11.32 per cent. The highest percentage of women for whom college graduation was the highest level of education completed was found for the Dallas group, 32.20 per cent; followed by the Denton group, 23.21 per cent. The highest percentage of men for whom college graduation was the highest level of education completed was found for the Dallas participants, 30.51 per cent; followed by the Denton group, 24.11 per cent. The greatest number of homemakers with advanced college work was found for the Denton group, 10.71 per cent; followed by the Dallas group, 6.78 per cent. The greatest number of men with advanced college work was found for the Denton participants, 15.18 per cent; followed by the Dallas participants, 10.17 per cent.

The distribution of homemakers according to the highest level of educational achievement was determined for the entire group of participants. The distribution of homemakers was as follows: 8.48 per cent had less than a high school education; 32.59 per cent were high school graduates; 17.86 per cent had completed some college; 22.77 per cent were college graduates; and 7.14 had completed five or more years of college. The distribution of men reported as head of the household, according to the highest level of education

completed was as follows: 7.14 per cent had less than a high school education; 26.34 per cent were high school graduates; 12.05 per cent had completed some college; 23.66 per cent were college graduates; and 10.26 had completed five or more years of college.

In response to the question concerning the highest level of education completed by the man or woman of the household, 218 homes reported a woman present in the home and 180 reported a male head of the household. Based on these above figures, 72.72 per cent of the men and 87.57 per cent of the women had completed at least a high school education. Approximately one-third, 33.00 per cent of the men and 30.73 per cent of the homemakers, had completed at least four years of college.

Home economics education.--Shoppers in the present study were requested to check whether home economics courses had been completed in junior high school, in senior high school, or both, or in college, either as a course, a major, or a minor. Shoppers also checked whether the home economics courses completed had included a study of food purchasing, and/or principles of milk and cheese cookery. A total of 139 of the 224 shoppers participating in the survey had

taken one or more home economics courses; 65.55 per cent of the shoppers reported having taken either junior or senior high school courses or both; and 5.99 per cent reported college courses. Of the 15 or 5.99 per cent of the shoppers reporting completing college courses, five majored and eight minored in home economics. Of the 139 shoppers responding to the question concerning home economics education, 28.33 per cent had received no formal home economics training, as shown in Table VII. The distribution according to responses as shown in Table VII is greater than 100 per cent because some shoppers had completed both high school and college courses in home economics.

The highest percentage of homemakers who had taken no home economics training was reported for Dallas, 32.20 per cent; followed by Fort Worth, 32.08 per cent. The highest percentage of shoppers with junior or senior high school training, or both, was reported for Fort Worth participants, 79.25 per cent; followed by Denton shoppers, 75.90 per cent. The highest percentage of shoppers with college training in home economics was reported for Dallas, 16.93 per cent; followed by Denton, 4.46 per cent.

TABLE VII  
 DISTRIBUTION OF 224 SHOPPERS<sup>1</sup> ACCORDING TO THE EXTENT OF  
 FORMAL HOME ECONOMICS EDUCATION<sup>2</sup>

Home Economics Education	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
None	34	30.35	17	32.08	19	32.20	70	28.33
Junior high	31	27.68	20	37.74	14	23.72	65	26.71
Senior high	54	48.22	22	41.51	21	35.59	97	38.84
College	5	4.46	1	1.89	9	16.93	15	5.99

<sup>1</sup>Home economics education was not reported by 15 shoppers.

<sup>2</sup>Some shoppers checked more than one category.

When shoppers were asked if the home economics courses completed had included a study of food purchasing, 78 of 90 shoppers who checked the item concerning course content responded in the affirmative. The principles of milk and cheese cookery were reported to have been studied by only 59 of 90 shoppers who checked course content. Responses as to food purchasing were as follows: Denton, 37 shoppers; Fort Worth, 23 shoppers; and Dallas, 18 shoppers. Responses as to principles of milk and cheese cookery were as follows: Denton, 25 shoppers; Fort Worth, 20 shoppers, and Dallas, 14 shoppers.

#### Employment of Homemaker

The employment status of the homemaker was investigated. Of the 214 shoppers responding to the question concerning the employment of the homemaker, 52.80 per cent were full-time homemakers, 47.19 per cent were employed outside the home. Of the 83 homemakers who checked the extent of employment, 65.06 per cent indicated full-time employment and 34.93 per cent part-time employment (Table VIII). The largest percentage of full-time homemakers was reported for Dallas, 66.67 per cent; followed by Fort Worth with 59.69 per cent; and Denton, 43.52 per cent. The highest percentage of

TABLE VIII  
 DISTRIBUTION OF 214 HOUSEHOLDS<sup>1</sup> ACCORDING TO  
 EMPLOYMENT OF THE HOMEMAKER

Employment of Homemaker	Homemakers							
	Denton		Fort Worth		Dallas		Total	
	(N=108)		(N=52)		(N=54)		(N=214)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Full-time homemaker	47	43.52	30	57.69	36	66.67	113	52.80
Employed	61	56.48	22	42.31	18	33.33	101	47.19
Full-time	32	61.53	13	92.85	9	52.94	54	65.06
Part-time	29	38.46	1	7.15	8	47.36	29	34.93

<sup>1</sup>Employment status of the homemaker was not reported for 10 households. Of this group, no woman was reported as living in five of the homes.

homemakers working outside the home was reported for Denton, 54.48 per cent; followed by Fort Worth, 42.31 per cent; and Dallas, 33.33 per cent.

All survey forms were not checked as to the extent of employment of the homemaker. Of the 52 Denton homemakers for whom this item was checked, 32 were employed full-time and 20 were employed part-time. Of the 17 Dallas homemakers for whom this item was checked, nine were employed full-time and eight were employed part-time. Of the 14 Fort Worth homemakers for whom this item was checked, 13 were employed full-time with one employed part-time. A little over one-half of the wives were full-time homemakers; approximately one-fourth of the homemakers were employed full-time. The highest percentage of full-time homemakers was reported in the Dallas sample.

#### Occupation of Woman and Man of the Household

Seven categories used for occupational classification were as follows: professional, including technical and managerial positions; skilled, including clerical and sales occupations; semiskilled, including processing occupations, machine trades, bench work occupations and structural work

occupations; unskilled, including farming, fishery, forestry, and related occupations including full-time homemakers; retired; student or armed forces; and self-employed. The Dictionary of Occupational Titles (33) was used as a source of reference in determining classifications. Some combining of classification groups was necessary.

Of the 219 women represented in the study, a little over half were full-time homemakers. Of this group, data concerning type of occupation were available for 180 women. A total of 4.46 per cent of the homemakers were classified as professional workers; 23.21 per cent were skilled workers; 47.77 per cent were unskilled workers; 3.57 per cent were semi-skilled workers, and 1.34 per cent were students (Table IX). Among the 44 households for which this item was not checked were five families with no women living in the household.

A total of 158 shoppers listed the occupation of the man of the household. Of the 224 households represented in the survey, a professional occupation was reported for 19.64 per cent of the husbands; 12.95 per cent were skilled workers; 16.96 per cent were semiskilled workers; 11.17 per cent were unskilled workers; 4.91 per cent were retired; 4.46 per cent

TABLE IX

## DISTRIBUTION ACCORDING TO OCCUPATIONAL CLASSIFICATION

OF WOMAN OR MAN OF HOUSEHOLD AS REPORTED BY

224 SHOPPERS

Occupation	Households			
	Woman		Man	
	Number	Per Cent	Number	Per Cent
Professional	10	4.46	44	19.64
Skilled	52	23.21	29	12.95
Semi-skilled	8	3.57	38	16.96
Unskilled	107	47.77	25	11.17
Retired	0	0.0	11	4.91
Student or Armed forces	3	1.34	10	4.46
Self-employed	0	0.0	1	0.45
No response	44	19.65	66	30.46

<sup>1</sup>No response includes 14 families with no man as head of the household and five families with no woman in the household.

were either students or were serving in the armed forces; and 0.45 per cent of the men who were head of a household were self-employed (Table IX). Among the 66 households for whom this item was not checked were 14 families with no male reported as head of the household.

### Family Income

The total average monthly take home pay for the family was reported by 211 of the 224 participating shoppers. Thirteen or 5.80 per cent of the shoppers in the survey did not respond to the question requesting family income. The survey was conducted in areas where all socioeconomic groups were represented by the participating households.

The monthly income level was divided into six categories: less than \$200 a month, between \$200 and \$299 a month, between \$300 and \$399 a month, between \$400 and \$499 a month, between \$500 and \$699 a month, and \$700 a month and over. The incomes of 45.54 per cent of the responding households were \$700 a month or over. The high level of income reported was not anticipated. This fact, however, is not surprising because of the high level of education of the majority of the participating shoppers. Of the remaining families, 4.02 per

cent reported an income under \$200 a month; 4.46 per cent reported an income of \$200 to \$299 a month; 5.36 per cent an income of \$300 to \$399 a month; 16.07 per cent an income of \$400 to \$499 a month; and 18.75 per cent an income of \$500 to \$699 a month as shown in Table X.

The study was conducted in highly industrialized areas. Nearly one-half, 45.54 per cent, of the families investigated had an income of \$700 a month or over. Dallas included the greatest percentage of families with incomes above \$500 a month and Fort Worth included the greatest percentage of families with incomes less than this amount. The highest percentage of homemakers being employed full-time outside the home was reported in Fort Worth. Fewer of either the men or women of the Fort Worth households than of the Denton or Dallas households reported a college degree. The highest percentage of full-time homemakers was reported by Dallas participants. A higher percentage of this than of the other groups reported a minimum of four years of college. The median income for the families included in the present survey was in the \$500 and \$699 category.

TABLE X  
DISTRIBUTION OF 224 HOUSEHOLDS ACCORDING  
TO FAMILY INCOME

Monthly Income	Households							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N 224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Under \$200	5	4.46	2	3.77	2	3.39	9	4.02
\$200 to \$299	4	3.57	3	5.66	3	5.08	10	4.46
\$300 to \$399	7	6.25	2	3.77	3	5.08	12	5.36
\$400 to \$499	16	14.29	15	28.30	5	8.47	36	16.07
\$500 to \$699	20	17.86	13	24.53	9	15.25	42	18.75
\$700 or over	55	49.11	14	26.42	33	55.93	102	45.54
No response <sup>1</sup>	5	4.46	4	7.54	4	6.78	13	5.80

<sup>1</sup>Family income was not reported by 13 shoppers.

## FOOD SHOPPING HABITS OF THE SHOPPERS

The shopping habits of the participating shoppers were investigated. The number of shopping trips per week for dairy products, shopping days preferred, shopping time preferred, the type of store in which the major shopping was done, criteria used for selecting the store, the use of a shopping list, and individuals reported as the major shopper for the family were recorded on the survey forms.

### Frequency of Shopping

The number of shopping trips for dairy products was investigated. Frequency of shopping was divided into four categories: once a week, two or more times a week, two or more times a month, and as needed. In Denton, 40.18 per cent of the shoppers shopped two or more times a week, 38.39 per cent purchased dairy products once a week, 19.64 per cent purchased dairy products when needed, and 1.79 per cent shopped for dairy products two or more times a month (Table XI). The shoppers in Fort Worth reported as follows: 24.53 per cent shopped for dairy products two or more times a week, 33.96 per cent shopped for dairy products when needed, and 5.66 per cent shopped for dairy products two or more times

TABLE XI  
 RESPONSES OF 224 SHOPPERS AS TO FREQUENCY  
 OF SHOPPING FOR DAIRY PRODUCTS

Frequency of Shopping	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Once a week	43	38.39	19	35.85	17	28.81	79	35.27
Two or more times a week	46	40.18	13	24.53	34	57.63	92	41.07
Two or more times a month	2	1.79	3	5.66	2	3.39	7	3.13
When needed	21	19.64	18	33.96	6	10.17	46	20.54

a month. In Dallas, 57.63 per cent of the shoppers shopped two or more times a week, 28.81 per cent purchased dairy products once a week, 10.17 per cent purchased dairy products when needed, and 3.39 per cent shopped for dairy products two or more times a month.

When responses of the shoppers in the three communities were combined the following results were found: 41.07 per cent shopped for dairy products two or more times a week, 35.27 per cent shopped once a week, 20.54 per cent shopped for dairy products as needed, and 3.13 per cent purchased dairy products two or more times a month.

#### Preferred Shopping Days

The most preferred shopping days for dairy products were investigated. In Denton the most preferred shopping days were Friday, Saturday, Monday, and Wednesday, listed in descending rank order of preference. Shoppers in Fort Worth, in descending rank order, named Friday, Saturday, Wednesday, and Thursday as the most preferred shopping days. The most preferred shopping days in Dallas were Friday, Monday, Saturday, and Thursday, listed in descending rank order of the frequency with which checked.

When data for the three groups were combined, a total of 140 of the 224 shoppers preferred Friday, 46 checked Saturday, 40 chose Monday, 39 marked Wednesday, 33 checked Thursday, 23 selected Tuesday, 16 indicated no particular day, and four checked Sunday. Responses are shown in Table XII.

The percentage of total responses as shown in Table XII is greater than 100 per cent because some shoppers preferred more than one day for shopping. Approximately one-half of the Denton shoppers checked Friday as the preferred shopping day. This was also the preferred day for Fort Worth and Dallas. As previously stated, each of the three surveys were conducted on a Friday.

Ottenhouse (25), in 1967, found that Wednesday and Friday were the most popular days for food shopping. The Shetler study (27) revealed Thursday, Friday, or Saturday were the preferred days for grocery shopping. Stribling (30) found that Saturday was the favored day for food shopping. Data from the Schmolder study (26) revealed that Wednesday, Friday, Saturday, or no special day were the most preferred days for food shopping.

TABLE XII  
 RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO PREFERRED  
 SHOPPING DAY<sup>2</sup>

Day Preferred For Shopping	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=178)		(N=68)		(N=95)		(N=341)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Monday	21	18.75	4	7.55	15	25.42	40	17.86
Tuesday	13	11.61	6	11.32	4	6.78	23	10.27
Wednesday	20	17.86	9	16.98	10	16.95	39	17.41
Thursday	17	15.19	4	7.55	12	20.34	33	14.73
Friday	78	69.65	30	56.61	32	54.23	140	62.50
Saturday	22	19.63	10	18.86	14	23.71	46	20.54
Sunday	1	0.89	0	0.0	3	5.07	4	1.80
No particular day	6	5.36	5	9.43	5	8.47	16	7.14

<sup>1</sup>Preferred shopping day was not reported by one shopper.

<sup>2</sup>The majority of shoppers checked more than one preference.

### Preferred Shopping Time

The most preferred time for food shopping was investigated. In Denton, late afternoon was the time most favored for shopping, followed by morning. Shoppers in Fort Worth preferred the morning for food shopping with early afternoon as a second choice. In Dallas the first preference for food purchasing was morning followed by early afternoon.

The most favored shopping time as checked by the overall group of 223 shoppers checking this item was morning. Late afternoon was the second choice. Of the 223 shoppers responding to this question, 35.27 per cent checked morning as the preferred shopping time, 22.77 per cent marked late afternoon, 21.88 per cent checked early afternoon, 12.95 indicated no special time, 9.82 per cent favored shopping after 6:00 p. m., and 4.02 per cent indicated the noon hour as a preferred time for shopping. Responses are shown in Table XIII. Some shoppers checked more than one preference for time of day for shopping.

### Preferred Type of Store

In the investigation of the type of store preferred by the shoppers, 96.43 per cent of the respondents indicated a

TABLE XIII  
 RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO  
 PREFERRED SHOPPING TIME<sup>2</sup>

Preferred Shopping Time	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=123)		(N=63)		(N=53)		(N=239)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Morning	29	25.89	30	50.85	20	37.74	79	35.27
Noon hour	3	2.68	4	6.78	2	3.77	9	4.02
Early afternoon	23	20.54	14	23.72	12	22.64	49	21.88
Late afternoon	34	30.36	7	11.86	10	18.87	51	22.77
After 6:00 p.m.	17	15.18	1	1.69	4	7.55	22	9.82
No special time	17	15.18	7	11.86	5	9.43	29	12.95

<sup>1</sup>Preferred shopping time was not reported by one shopper.

<sup>2</sup>The majority of shoppers checked more than one preference.

preference for the supermarket for major grocery shopping, 4.02 per cent checked the small homeowned store, and 2.68 per cent chose a salvage or discount store. These findings were similar to those of Douglas (10), Shetler (27), Ottenhouse (25), and Schmolder (26). Four shoppers checked more than one preference for the type of store for major grocery shopping. The responses are shown as follows:

<u>Store Preference</u>	<u>Shoppers</u>	
	<u>Number</u>	<u>Per Cent</u>
Discount or salvage	6	2.68
Supermarket	216	96.43
Small homeowned	9	4.02

#### Criteria Used for Selecting Grocery Store

The reasons for selecting the preferred store for grocery shopping were investigated. This study indicated that the quality of meat and reasonable prices were the primary reasons for store selection. Of the 216 persons responding to this item, 64.74 per cent checked low prices as a basis for store selection and 62.51 per cent indicated that a good meat department was the primary reason for store selection. Other reasons frequently given were as follows: quality and variety of fresh produce, 51.34 per cent; variety of known brands, 50.90 per cent; efficient, quick service, 43.75 per

cent; closeness to home, 42.86 per cent; large selection of frozen foods, 31.70 per cent; delicatessen, 10.72 per cent, as shown in Table XIV. Some shoppers checked more than one category as the reason for selecting the store of choice for major grocery shopping. Eight shoppers did not respond to this question.

The 1966 Burgoyne Index survey (6) investigated the factors which the homemaker considered important in selecting a favorite supermarket. These were as follows: attractiveness and cleanliness of store, better parking facilities, variety and selection of grocery merchandise, low prices on groceries, quality and freshness of meats, good store arrangement--ease of shopping, friendliness of store personnel, convenient location, quality and freshness of fruits and vegetables, fast check-out service, trading stamps, or prize-winning games. Eighty-nine per cent or almost nine out of 10 shoppers interviewed mentioned as their number one choice--one of the following: low prices on groceries, quality and freshness of meats, convenient location, attractiveness and cleanliness of store, variety and a selection of grocery merchandise, and quality and freshness of fruits and vegetables.

TABLE XIV  
 RESPONSES OF 216 SHOPPERS<sup>1</sup> AS TO REASONS  
 FOR STORE SELECTION<sup>2</sup>

Criteria Used For Selecting Grocery Store	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=484)		(N=222)		(N=206)		(N=912)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Efficient, quick service	44	39.29	26	49.06	28	47.45	98	43.75
Variety of known brands	62	55.35	25	47.17	27	45.76	114	50.90
Low prices	85	75.89	31	58.49	29	49.14	145	64.74
Quality and variety of produce	65	58.03	31	58.49	19	32.20	115	51.34
Friendly personnel	59	52.67	25	47.17	25	42.36	109	48.66
Large selection of frozen food	37	33.02	19	35.85	15	25.41	71	31.70
Good meat department	76	67.84	37	67.84	27	45.76	140	62.51
Delicatessen	24	21.42	0	0.0	0	0.0	24	10.72
Close to home	32	28.55	28	52.82	36	61.00	96	42.86

<sup>1</sup>Criteria used in selecting a food store was not reported by eight shoppers.

<sup>2</sup>The majority of shoppers checked more than one criterion.

Thompson (31) reported that shoppers pick the most convenient grocery store when shopping. If the point of departure is home, then the store selected will be the one closest to home. Prices and quality, however, were reported more important factors to consider than convenience of the particular grocery store. Over half of the low-income families mentioned price as a criterion for choosing a grocery store. Eighty-eight per cent of the high-income shoppers mentioned quality as one of the reasons for their selection of a particular store.

The Douglas (10) and Shetler (27) studies found that quality of food was the most important criterion used in the selection of a particular grocery store. Ottenhouse (25) found that reasonable prices was the primary reason for store selection. The Schmolder study (26) was in agreement with the above studies. Other reasons frequently given were as follows: convenient location; variety of choices; and a clean, attractive store.

#### Family Member Reported as the Shopper

The member of the family performing the major food shopping was investigated. In most of the families the

wives assumed the responsibility for the major food shopping, 77.68 per cent. However, in 11.61 per cent of the families the husband and wife shopped together for food and in 7.59 per cent of the households, the husband assumed the major role of food shopper. Of the 222 shoppers responding to this question, two reported the daughter as the major food shopper and two reported other family members as the food shoppers (Table XV). Two shoppers did not respond to the question

#### INTERRELATIONSHIPS OF SELECTED FACTORS

The use of a shopping list was investigated. Of the 223 shoppers responding to this question, 48.21 per cent checked "usually," 40.63 per cent checked "sometimes," and 10.71 per cent checked "never" using a shopping list. The use of a shopping list was not reported by one shopper (Table XVI).

The use of a shopping list was analyzed in relation to family income and age of the shopper using the chi-square technique. Differences were not significant. A higher proportion of older than younger shoppers frequently used a shopping list, but these differences were non-significant (Table XVII). Data concerning the use of a shopping list were analyzed in relation to formal educational achievement

TABLE XV

DISTRIBUTION OF 222 SHOPPERS<sup>1</sup> ACCORDING TO FAMILY

MEMBER RESPONSIBLE FOR FOOD SHOPPING

Family Member Reported As Shopper	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Wife	81	72.32	44	83.02	49	83.05	174	77.68
Husband	7	6.25	6	11.32	4	6.78	17	7.59
Both	21	18.75	1	1.89	4	6.78	26	11.61
Other	2	1.78	1	1.89	2	3.39	5	2.23
No response	1	0.89	1	1.89	0	0.0	2	0.89

<sup>1</sup>Family member responsible for weekly food shopping was not reported by two shoppers.

TABLE XVI  
 RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO USE  
 OF A SHOPPING LIST

Use of Shopping List	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=59)		(N=52)		(N=223)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Usually	53	47.32	35	59.32	20	38.46	108	48.43
Sometimes	45	40.18	21	35.59	25	48.07	91	40.81
Never	14	12.50	3	5.08	7	13.46	24	10.86

<sup>1</sup>Use of a shopping list was not reported by one shopper.

TABLE XVII  
ANALYSIS OF USE OF A SHOPPING LIST IN RELATION  
TO SELECTED FACTORS

Factors	Use of Shopping List			
	Usually	Sometimes	Never	Total
Income level of family				
<\$200-299	8	9	1	18
\$300-499	23	22	5	50
\$500 or over	73	54	17	144
Total	104	85	23	212
$\chi^2 = 8.771; 4d.f; n.s.$				
Age of Shopper				
<19-29 years	37	35	5	77
30-39 years	23	28	9	60
40-49 years	19	12	6	37
50-60 years or over	20	11	3	34
Total	99	86	23	208
$\chi^2 = 7.758; 6d.f; n.s.$				
Education of homemaker				
High school graduate or less	47	35	11	93
Some college	18	19	3	40
College graduate or more	33	26	6	65
Total	98	80	20	198
$\chi^2 = 1.817 4d.f; n.s.$				
Home Economics Education of Shopper				
None	37	21	11	69
Jr. or Sr. high	55	55	13	123
College	11	6	0	17
Total	103	82	24	209
$\chi^2 = 7.2121 4d.f; n.s.$				
Course Content				
Purchasing Principles	32	33	9	74
$\chi^2 = 14.987 2d.f; p < .01$				
Employment Status of Homemaker				
Full-time homemaker	62	23	7	92
Part-time employee	13	13	6	32
Full-time employee	29	23	9	61
Total	104	59	22	185
$\chi^2 = 10.399; 4d.f, p < .01$				

of the homemaker, the extent of home economics education of the shopper, and the inclusion of home economics education, using the chi-square technique. Differences were found to be non-significant as shown in the above mentioned table. The use of a shopping list was analyzed in relation to the inclusion of purchasing principles in the study of home economics using the chi-square technique. A highly significant relationship was found between the use of a shopping list and the inclusion of purchasing principles in the study of home economics ( $p < .01$ ). The use of a shopping list in relation to the homemaker's employment status was analyzed using a chi-square analysis. A highly significant relationship was found between the use of a shopping list and the employment status of the homemaker ( $p < .01$ ).

The homemaker's employment status in relation to the level of formal education was analyzed using a chi-square analysis (Table XVIII). A non-significant relationship was found between the formal educational level and employment status of the homemaker. Responses were divided into five categories for data analysis: 11th grade or less, high school graduate, some college, college graduate, and some advanced college.

TABLE XVIII

ANALYSIS OF EMPLOYMENT STATUS IN RELATION TO THE EXTENT  
OF FORMAL EDUCATION OF THE HOMEMAKER

Factors	Employment Status of Homemaker			
	Full-time Homemaker	Part-time Employment	Full-time Employment	Total
Level of Education				
< High school	12	2	3	17
High school graduate	23	9	18	50
Some college	18	5	11	34
College graduate	28	8	11	47
Advanced work	4	5	6	15
Total	85	29	49	163
$\chi^2 = 9.126; 8d. f, n.s.$				

### FACTORS INFLUENCING FOOD SELECTION

Consumer surveys repeatedly reveal that there are many factors which influence the homemaker's food purchasing practices. Mackey, Bowan, and others (21) reported that family size and income, the wife's education, the wife's working status, and the husband's occupation significantly influenced food preferences. The Douglas study (10) revealed that factors influencing meat purchasing, in descending rank order, were as follows: family requests, information from friends and relatives, radio and television, government bulletins, and stamps and coupons.

Dickins (9) reported that the greatest personal influence on food selection was from members of one's own family with children having the most influence. The Stribling study (30) revealed that family preference was considered the most important factor influencing food selection. Nutritional value was listed as the second most important factor and price was third in importance.

#### Nutritional Knowledge of Shoppers

Nine statements concerning nutritional knowledge were included in the questionnaire. In response to each item,

shoppers checked one of these categories: "agree," "disagree," or "undecided." Responses are shown in Table XIX.

The largest proportion of shoppers knew that cold temperature is best for whipping of cream, 82.33 per cent; that milk does not supply all the nutrients essential in the diet, 56.70 per cent; that low or moderate temperatures should be used in the cooking of cheese, 83.04 per cent; and that butter is not a good fat for use in cooking French fries, 83.93 per cent. The greatest proportion of shoppers knew that butter is not a good fat for use in cooking French fries but may not have known the reason. The smoking point of butter is too low for deep fat frying.

The category "undecided" was combined with the incorrect responses to determine the percentages of individuals not knowing the correct answers. There were five statements for which the greatest proportion of shoppers either checked incorrect responses or lacked adequate knowledge. It is a good practice to store powdered milk under refrigeration following opening of the carton, particularly if the milk is stored for indefinite future use. However, a total of 80.81 per cent of the respondents either disagreed with this statement concerning powdered milk or were undecided as to the

TABLE XIX

RESPONSES OF THE SHOPPERS<sup>1</sup> TO NINE STATEMENTS  
 CONCERNING NUTRITIONAL KNOWLEDGE

Statements	Responses							
	Agree		Disagree		Undecided		No Response	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cold temperature is best for whipping of cream.	184	82.33	20	8.93	17	7.59	3	1.34
Milk supplies all the essential nutrients in the diet.	59	30.80	127	56.70	23	10.27	3	1.34
Low or moderate temperatures should be used in the cooking of cheese.	186	83.04	13	5.84	23	10.27	2	0.89
Butter is a good fat for use in cooking French fries.	10	4.48	188	83.93	23	10.27	3	1.34

<sup>1</sup>Responses to nutritional statements were not checked by four shoppers.

TABLE XIX--Continued

Statements	Responses							
	Agree		Disagree		Undecided		No Response	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Powdered milk should be stored under refrigeration following opening of the carton.	40	17.96	130	58.04	51	22.77	3	1.34
Butter has more calories than margarine.	150	66.97	34	15.18	37	16.52	3	1.34
There is little, if any difference in the nutritive value of fortified margarine and butter.	91	40.63	72	32.14	58	25.89	3	1.34
Mellorine has fewer calories than ice cream.	158	70.54	34	15.18	30	13.44	2	0.89
Yogurt has more nutritive value than butter-milk.	75	33.48	37	16.62	109	48.66	3	1.34

correct response. The fact that there is little, if any difference in the nutritive value of fortified margarine and butter was not known by 58.03 per cent of the participants. A total of 83.98 per cent thought that mellorine has fewer calories than ice cream; 82.14 per cent of the shoppers thought yogurt has more nutritive value than buttermilk; and a total of 83.49 per cent of the participants thought that butter has more calories than margarine. The two statements for which the most shoppers were undecided were: "Yogurt has more nutritive value than buttermilk" and "There is little, if any difference in the nutritive value of fortified margarine and butter" as shown in Table XIX.

The influence of home economics courses completed by the shopper on nutritional knowledge was investigated. The percentage of shoppers checking the "correct" and "incorrect" responses were recorded according to home economics courses completed. Data recorded in the "undecided" category were combined with the "incorrect" responses (Table XX). In response to the statement "Cold temperature is best for whipping of cream," 82.35 per cent of the shoppers having completed no home economics courses checked the correct response, 83.20 per cent of the shoppers having completed

TABLE XX

RESPONSES OF THE SHOPPERS TO NINE STATEMENTS CONCERNING NUTRITIONAL KNOWLEDGE  
 ACCORDING TO LEVEL OF FORMAL HOME ECONOMICS EDUCATION

Statements	None				Jr. or Sr. High				College			
	Correct		Incorrect		Correct		Incorrect		Correct		Incorrect	
	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent	Num- ber	Per Cent
Cold temperature is best for whipping of cream.	56	82.35	12	17.64	104	83.20	21	16.80	11	73.33	4	26.66
Milk supplies all nutrients essential in diet.	39	59.09	27	40.90	71	56.35	55	43.65	11	61.11	7	38.89
Low or moderate temperatures should be used in cooking cheese.	54	80.75	13	19.40	100	84.75	18	15.25	11	68.75	5	31.25
Butter is a good fat for cooking French fries.	53	80.30	13	19.70	108	87.09	16	12.90	14	82.35	3	17.65
Powdered milk should be stored under refrigeration following opening of the carton.	7	10.29	61	79.71	24	22.64	82	77.36	7	43.75	9	56.25
Butter has more calories than margarine.	8	12.12	58	87.88	20	16.26	123	83.73	6	40.00	9	60.00
There is little, if any difference in the nutritive value of fortified margarine and butter.	26	38.81	41	61.19	58	44.96	77	55.04	7	46.67	8	53.03
Mellorine has fewer calories than ice cream.	12	15.79	64	84.21	15	12.50	105	87.50	4	25.00	12	75.00
Yogurt has more nutritive value than buttermilk.	8	12.90	54	87.10	19	14.39	113	85.60	3	20.00	12	80.00

junior or senior high school home economics courses agreed this statement was correct, and 73.33 per cent of the shoppers having completed college home economics courses checked the correct response. It is not known whether the shoppers majoring or minoring in home economics in college had any courses in foods and nutrition because the particular area of the major or minor in home economics was not given.

In response to the question "Low or moderate temperature should be used in the cooking of cheese," 80.75 per cent of the shoppers having completed no home economics courses checked the correct response, 84.75 per cent of the shoppers having completed junior or senior high school home economics courses agreed this statement was correct, and 68.75 per cent of the shoppers having completed college home economics courses checked the correct response. In response to the statement "Butter is a good fat for use in cooking French fries," 30.30 per cent of the shoppers having completed no home economics courses agreed this statement was not true, 87.09 per cent of the shoppers having completed junior or senior high school courses in home economics checked this statement an untrue, and 82.35 per cent of the shoppers having completed college

courses in home economics agreed this statement was false (Table XX).

Shoppers who have completed senior high school and college home economics courses are generally believed to have more nutritional knowledge. In general this was found to be true, but was not true for all statements. The responses of the 210 shoppers checking the nine statements concerning nutritional knowledge were analyzed according to the reported completion or non-completion of home economics courses. The t-test value obtained for data analysis is shown in Table XXI. The completion or non-completion of home economics courses did not significantly affect the mean scores of the shoppers in response to the nine statements. Home economics courses in high school are usually general in nature covering a wide range of subject matter. Much of the specific information in the area of foods and nutrition needed by a competent shopper may not be covered in the courses offered below the college level. Only 15 shoppers indicated having completed college courses in home economics. As previously stated, the author had no way of determining the particular area of home economics in which these 15 shoppers majored.

TABLE XXI  
 ANALYSIS OF NUTRITIONAL KNOWLEDGE  
 IN RELATION TO SELECTED FACTORS

Factors	Nutritional Knowledge			
	Mean	Standard Deviation	t-value	Level of Significance
Home Economics Courses:				
One or more	4.91	1.58	0.8209	n.s.
None	4.73	1.36		
Sex:				
Men	4.23	1.54	2.3580	n.s.
Women	4.87	1.38		

The influence of age of the shoppers on nutritional knowledge was investigated. The percentages of shoppers checking "correct" and "incorrect" responses were recorded. Data recorded in the "undecided" category were combined with and included in the "incorrect" knowledge category (Table XXII). The number of shoppers checking "correct" and "incorrect" responses were recorded according to age of the homemaker.

In response to the statement "Cold temperature is best for whipping of cream," 79.85 per cent of the shoppers under 40 years of age agreed this was true and 86.84 per cent of the shoppers 40 years of age or older checked the correct answer. In response to the statement "Low or moderate temperature should be used in the cooking of cheese," 82.83 per cent of the shoppers under 40 years of age and 82.90 per cent of the shoppers 40 years of age or older checked the correct response for this statement. In response to the statement "Butter is a good fat for use in cooking French fries," 86.57 per cent of the shoppers under 40 years of age and 85.53 per cent of the shoppers 40 years of age or older agreed this statement was true.

The number of shoppers checking responses were recorded according to sex of the shopper. The t-test analysis

TABLE XXII

RESPONSES OF THE SHOPPERS TO NINE STATEMENTS CONCERNING  
NUTRITIONAL KNOWLEDGE ACCORDING TO AGE OF THE SHOPPER

Statements	Age of Shopper							
	Under 40 years				40 years or over			
	Correct		Incorrect		Correct		Incorrect	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cold temperature is best for whipping of cream.	107	79.85	27	20.15	66	86.84	10	13.16
Milk supplies all the nutrients essential in the diet.	81	60.45	53	25.24	42	20.00	34	16.19
Low or moderate temperatures should be used in the cooking of cheese.	111	82.83	23	17.16	63	82.90	13	17.10
Butter is a good fat for use in cooking French fries.	116	86.57	18	13.43	65	85.53	11	14.47

TABLE XXII--Continued

Statements	Age of Shopper							
	Under 40 years				40 years or over			
	Correct		Incorrect		Correct		Incorrect	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Powdered milk should be stored under refrigeration following opening of the carton.	25	18.65	109	81.34	13	17.10	63	82.88
Butter has more calories than margarine.	18	13.43	116	86.56	15	19.73	61	80.26
There is little, if any difference in the nutritive value of fortified margarine and butter.	42	31.34	92	68.66	42	55.26	34	44.74
Mellorine has fewer calories than ice cream.	16	11.94	118	88.06	17	22.38	59	77.63
Yogurt has more nutritive value than butter-milk.	22	16.42	112	83.58	14	18.42	62	81.58

indicated no significant difference in nutritional knowledge between the two groups as shown in Table XXI. The majority of men shoppers answering the nine nutritional questions, however, were highly educated men with the majority having a Ph. D. degree.

#### Information Desired from a Home Economist

Responding shoppers were requested to check information desired from a trained home economist if one were available at the grocery store. Responses of 194 shoppers to the question are shown in Table XXIII. The rank order of the type of information desired by the responding shoppers was as follows: "good buys," 47.77 per cent; menu suggestions, 31.70 per cent; nutritive value of certain foods, 29.01 per cent; and how to prepare certain foods, 24.56 per cent. Help with special diets was desired by one shopper.

#### FAMILY FOOD PREFERENCES FOR DAIRY PRODUCTS

The questionnaire designed for this survey requested information from the participating shoppers as to family food preferences for frozen desserts, milk, whipping cream, cottage cheese, dips, butter and margarine, and cheese. In addition,

TABLE XXIII

RESPONSES OF 196 SHOPPERS<sup>1</sup> AS TO INFORMATION DESIRED  
FROM A HOME ECONOMIST AT THE GROCERY STORE

Information Desired	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=158)		(N=76)		(N=79)		(N=313)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
How to prepare certain foods	26	23.21	15	28.30	14	23.73	55	24.56
What are "good buys" today	53	47.32	23	43.39	31	52.54	107	47.77
Menu suggestions	38	33.93	16	30.18	17	28.81	71	31.70
Nutritive value (certain foods)	35	31.26	12	22.63	17	28.81	64	29.01
None	6	5.36	10	18.87	0	0.0	16	7.14
Special diet	1	.89	0	0.0	0	0.0	1	0.89

<sup>1</sup>Information desired from a home economist at the grocery store was not reported by 28 shoppers.

the participating shoppers were requested to indicate the family milk consumption and frequency of buying cheese.

### Frozen Desserts

The kind of frozen dessert preferred by the family was investigated. Shoppers were requested to rank in order of family preference the frozen desserts listed: ice cream, mellorine, ice milk, and sherbet. The majority of shoppers checked several preferences but failed to rank the preferences. Data were, therefore, combined to include only the preferences checked. In Denton, 86.60 per cent of the shoppers checked ice cream. Equal percentages, 60.72 per cent, checked mellorine and sherbet, while 61.60 per cent marked ice milk as a preferred frozen dessert. Responses of the Fort Worth shoppers indicated 90.57 per cent checked ice cream, 54.72 per cent preferred sherbet, 50.94 per cent preferred ice milk, and 49.05 per cent preferred mellorine as a frozen dessert. In Dallas, 88.13 per cent preferred ice cream, 57.63 per cent checked ice milk, 54.24 per cent marked sherbet, and 49.14 per cent preferred mellorine for frozen desert (Table XXIV).

TABLE XXIV  
 RESPONSES OF 222 SHOPPERS<sup>1</sup> AS TO PREFERRED  
 KIND OF FROZEN DESSERT<sup>2</sup>

Frozen Dessert Preference	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=302)		(N=130)		(N=147)		(N=580)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Ice cream	97	86.60	48	90.57	52	88.13	197	87.95
Mellorine	68	60.72	26	49.05	29	49.14	123	54.91
Sherbet	68	60.72	29	54.72	32	54.24	129	57.59
Ice Milk	69	61.60	27	50.94	34	57.63	130	58.04

<sup>1</sup>Frozen dessert preference was not reported by two shoppers.

<sup>2</sup>The majority of shoppers checked more than one preference.

Of the 222 shoppers responding to this question, 87.95 per cent checked ice cream, 58.04 per cent marked ice milk, 57.59 per cent indicated sherbet, and 54.91 per cent preferred mellorine for frozen dessert. The percentage of total response as shown in Table XXIV is greater than 100 per cent because of the multiple listings of preferred choices for frozen dessert. Ice cream was preferred by the largest percentage of shoppers.

### Milk

The family preference for milk as a beverage was investigated. Shoppers were requested to rank in order of family preference the milk beverages listed. The six kinds of milk listed were whole, chocolate, buttermilk, skim milk, low fat, and nonfat dried milk. The majority of shoppers checked several preferences but failed to rank the preferences checked. Of the 221 shoppers responding to this item, 81.71 per cent preferred whole milk, 67.42 per cent checked low fat milk, 59.69 per cent marked chocolate milk, 49.56 per cent preferred skim milk, and 48.65 per cent preferred nonfat dried milk as a beverage. The percentage of total responses as shown in Table XXV is greater than 100 per cent because of the multiple listing of family preference for milk.

TABLE XXV

RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO PREFERRED MILK  
BEVERAGE FOR FAMILY CONSUMPTION<sup>2</sup>

Milk Preference	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=446)		(N=168)		(N=200)		(N=814)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Whole	96	85.72	44	13.89	43	72.88	183	81.71
Chocolate	72	64.28	27	50.94	28	47.44	127	56.69
Buttermilk	68	60.71	30	56.60	35	59.31	133	59.37
Skim	64	57.14	20	37.74	27	45.75	111	49.56
Low fat (2%)	83	74.10	28	52.84	40	67.77	151	67.42
Nonfat dried	63	56.25	19	35.86	27	47.55	109	48.65

<sup>1</sup>Milk preference was not reported by one shopper.

<sup>2</sup>The majority of shoppers checked more than one preference.

Consumption of milk per household has decreased in the past few years (34). The consumption of milk per household per week ranged from one pint in a household of one person to 120 pints in a household of 14 people which included two parents and 12 children with a monthly income of \$700 or over. Of the 217 shoppers responding to this question the mean consumption of milk per household per week was 17.37 pints. The mean consumption of milk per person per week was 4.83 pints for households reporting both family size and milk consumption. The mean consumption of milk per person per day was 0.7 pint (Table XXVI). This is slightly higher than the 0.6 pint per person reported by the National Dairy Council (7).

The shoppers were requested to list the kind of milk used in cooking. A majority of the group listed more than one kind of milk used in cooking. Of the 200 shoppers responding to this question, 43.87 per cent used whole milk, 15.81 per cent used low fat milk, 13.83 per cent used evaporated, 8.30 per cent used nonfat dry milk, 4.35 per cent used condensed, 2.37 per cent used buttermilk, and each of two families, 0.79 per cent reported the use of either skim milk or cream for cooking, as shown in Table XXVII. The percentage of total responses as shown in Table XXVII is greater than 100 per

TABLE XXVI

RESPONSES OF 217 SHOPPERS<sup>1</sup> AS TO HOUSEHOLD  
CONSUMPTION OF MILK PER WEEK

	Denton	Fort Worth	Dallas	Total Sample
Range	2-96 pints	2-64 pints	1-120 pints	1-120 pints
Mean per household per week	19.73 pints	13.29 pints	19.09 pints	17.37 pints
Mean per person per day	0.8 pints	0.5 pints	0.8 pints	0.7 pints

<sup>1</sup>Consumption of milk was not reported by seven shoppers.

TABLE XXVII  
 RESPONSES OF 200 SHOPPERS<sup>1</sup> AS TO PREFERRED TYPE  
 OF MILK FOR COOKING<sup>2</sup>

Milk Preference	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=116)		(N=62)		(N=74)		(N=252)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Whole	47	40.17	32	51.61	32	43.24	111	43.87
Chocolate	0	0.0	0	0.0	0	0.0	0	0.0
Buttermilk	1	0.85	2	3.22	3	4.05	6	2.37
Skim	0	0.0	0	0.0	2	2.70	2	0.79
Low fat (2%)	22	18.80	10	16.12	8	10.81	40	15.81
Nonfat dried	14	11.96	2	3.22	5	6.75	21	8.30
Evaporated	19	16.23	9	14.52	7	9.45	35	13.83
Condensed	1	.85	2	3.22	8	10.81	11	4.35
Cream	1	.85	1	1.61	0	0.0	2	0.79
No response	11	9.25	4	6.44	9	12.16	24	9.49

<sup>1</sup>Milk preference for cooking was not reported by 24 shoppers.

<sup>2</sup>A few shoppers checked more than one preference.

cent because of the multiple listings of the kind of milk used for cooking.

### Whipping Cream

The type of whipping cream preferred by the family was investigated. A majority of shoppers checked more than one preference. Whipping cream was divided into four categories: whipping cream, dry powdered, frozen, and spray cream topping. Of the 223 shoppers responding to this question, 37.94 per cent preferred whipping cream, 24.38 per cent preferred the frozen products, 16.25 per cent preferred dry powdered, and 11.66 per cent preferred spray cream topping for whipping cream (Table XXVIII). The percentage of total response as shown in Table XXVIII is greater than 100 per cent because of the multiple listings of preferred choices for whipping cream.

Whipping cream was preferred by the larger percentage of shoppers with the frozen product being the next most preferred type of whipping cream. Of the 223 shoppers responding to this question, 29 shoppers reported never purchasing any type of whipping cream.

TABLE XXVIII

RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO PREFERRED  
TYPE OF WHIPPING CREAM<sup>2</sup>

Whipping Cream Preference	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=146)		(N=62)		(N=76)		(N=282)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Whipping cream	53	47.32	22	34.92	32	42.10	107	37.94
Spray cream topping	17	11.64	8	12.62	8	10.52	33	11.66
Dry powdered	33	22.60	9	14.28	4	5.26	46	16.25
Frozen	34	23.28	19	30.15	16	21.05	69	24.38
Never purchase	9	6.16	4	6.35	16	21.05	29	10.24

<sup>1</sup>Whipping cream preference was not reported by one shopper.

<sup>2</sup>The majority of shoppers checked more than one preference.

### Cottage Cheese

The cottage cheese preferences of shoppers were investigated. A majority of shoppers checked more than one preference for cottage cheese. Cottage cheese was divided into two categories: type of curd and type of added flavoring material. Of the 223 shoppers responding to this item, 44.84 per cent of the respondents preferred small curd, 39.02 per cent preferred large curd, 5.93 per cent preferred partially creamed, and 3.14 per cent preferred dry curd for cottage cheese as shown in Table XXIX. The percentage of total responses as shown in Table XXIX is greater than 100 per cent because of the multiple listings of preferences for cottage cheese.

Small curd was the most frequently chosen type of cottage cheese; large curd was the second most frequently selected type of cottage cheese. Three shoppers named low calorie cottage cheese as a family preference although this item was not listed on the survey form. A total of 67 of the respondents checked a flavored cottage cheese as the preference. Listed in descending rank order, the flavor choices were as follows: chive, pineapple, fruit salad, and

TABLE XXIX  
 RESPONSES OF 223 SHOPPERS<sup>1</sup> AS TO PREFERRED  
 TYPE OF COTTAGE CHEESE<sup>2</sup>

Cottage Cheese Preference	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=152)		(N=68)		(N=72)		(N=298)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
<b>Curd:</b>								
Large	49	43.75	17	32.08	21	36.21	87	39.02
Small	45	41.07	25	47.17	29	50.00	100	44.84
Dry	2	1.78	2	3.77	3	5.17	7	3.14
Partially creamed	6	5.36	2	3.77	5	8.62	13	5.93
Flavored	36	32.15	18	33.97	12	20.68	67	28.82
Low Calorie	2	1.79	0	0.0	1	1.72	3	1.35
Never Purchase	14	12.50	4	7.55	2	3.45	20	8.98

<sup>1</sup>Cottage cheese preference was not reported by one shopper.

<sup>2</sup>The majority of shoppers checked more than one preference.

garden salad (Figure 1). Twenty of the participating respondents reported never purchasing cottage cheese.

### Cheese

The kind of cheese preferred by the family was investigated. The majority of shoppers checked more than one preference. Of the 216 shoppers responding to this question, 52.48 per cent preferred hard or semi-hard cheeses, 35.16 per cent preferred soft cheese, 10.63 per cent preferred cheese food, and 0.34 per cent preferred a diet spread as shown in Table XXX. The percentage of total responses as shown in Table XXX is greater than 100 per cent because of the multiple listings of preferred choices for cheese.

The hard and semi-hard cheeses listed by 205 of the respondents as favorites, listed in descending rank order, were as follows: cheddar; Swiss, Emmenthaler, or Gruyere; Mozzarella; and Roquefort (Figure 2). Soft cheeses listed by 197 of the respondents as favorites, listed in descending rank order, were as follows: cottage, cream, Limburger, Neufchatel, Camembert, and Brie (Figure 3). One respondent reported never purchasing cheese.

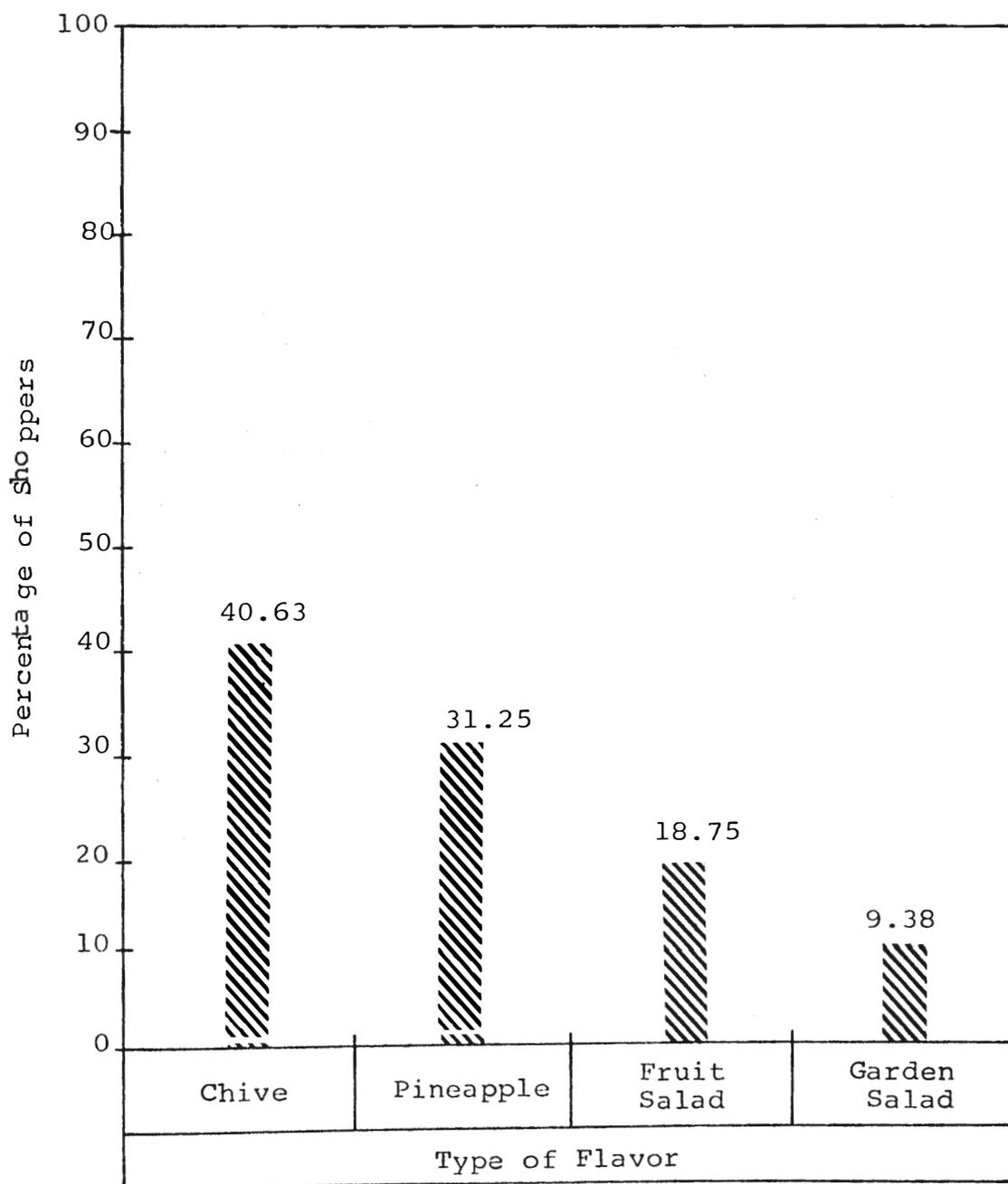


Figure 1

Percentage of Shoppers Preferring  
Each of Four Types of Flavored  
Cottage Cheese

TABLE XXX  
 RESPONSES OF 216 SHOPPERS<sup>1</sup> AS TO  
 PREFERRED TYPE OF CHEESE<sup>2</sup>

Cheese Preference	Shoppers							
	Denton (N=297)		Fort Worth (N=118)		Dallas (N=160)		Total (N=575)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Hard or semi-hard	153	52.14	63	57.63	80	49.38	306	52.48
Cheese food	29	9.57	19	16.10	14	8.64	62	10.63
Soft cheeses	108	35.64	31	26.27	66	40.74	205	35.16
Diet spread	2	0.66	0	0.0	0	0.0	2	0.34

<sup>1</sup>Cheese preference was not reported by eight shoppers.

<sup>2</sup>The majority of shoppers checked more than one preference.

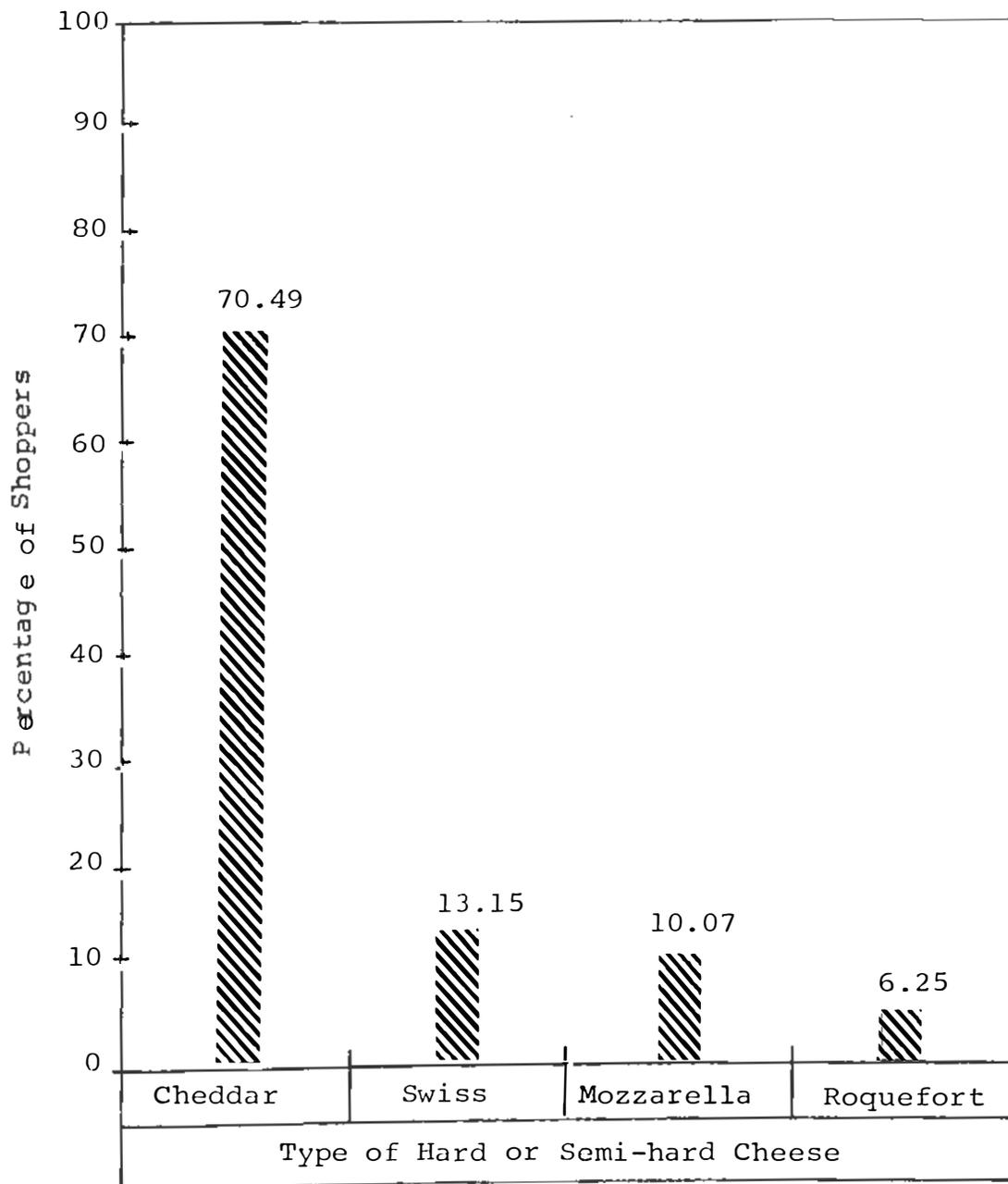


Figure 2  
Percentage of Shoppers Preferring  
Each of Four Types of Hard  
or Semi-hard Cheese

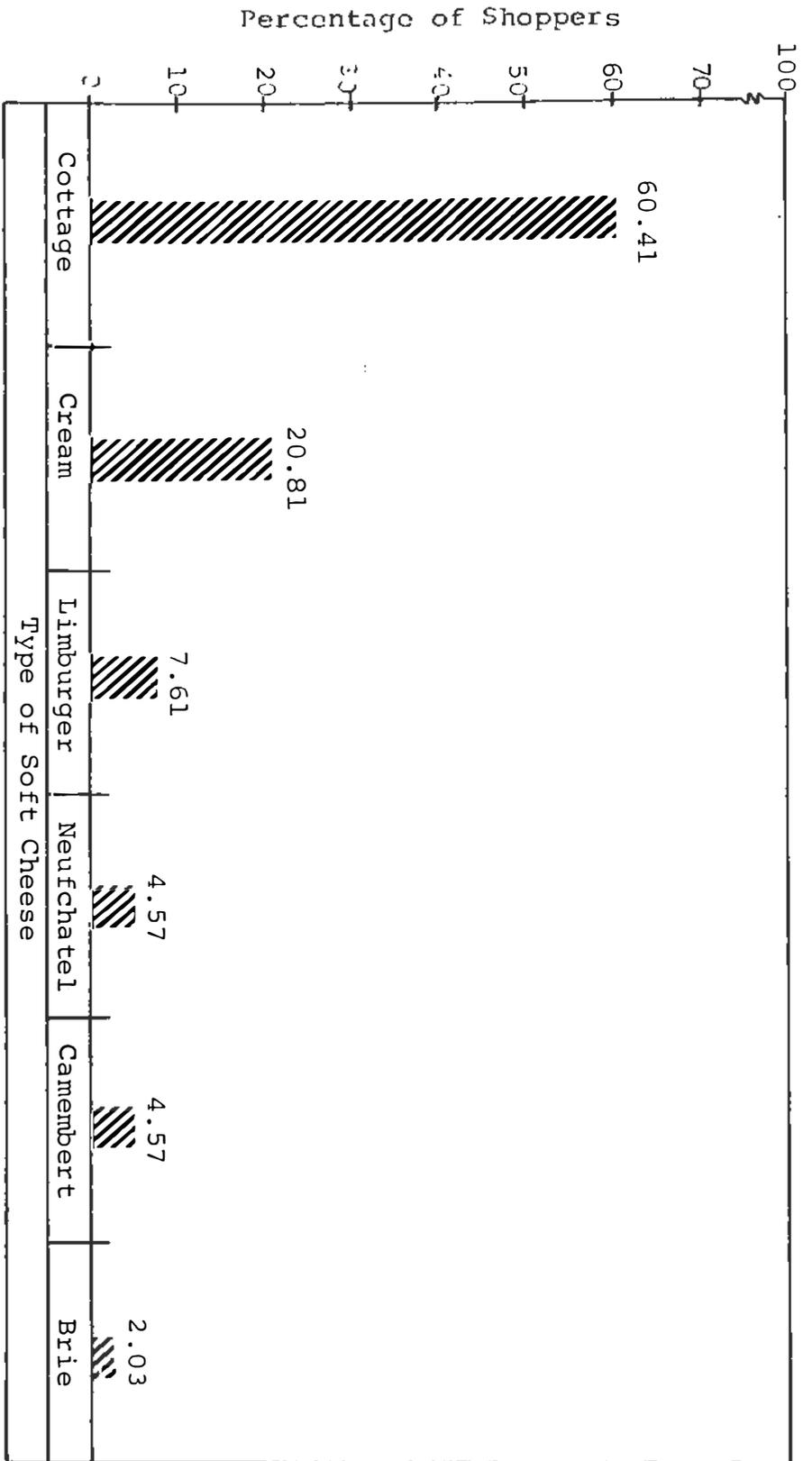


Figure 3

Percentage of Shoppers Preferring Each of Six Types of Soft Cheese

The frequency of purchasing cheese was investigated. Of the 207 shoppers responding to this question, 62.50 per cent of the shoppers purchased cheese once a week; 12.94 per cent, two or more times a week; 10.27 per cent once a month; 5.35 per cent, twice a month; and 1.33 per cent purchased cheese as needed (Table XXXI).

The intended use of the cheese purchased was also investigated. Of the 213 shoppers responding to this item, 76.79 per cent of the shoppers used cheese for snacks, 75.00 per cent for sandwiches, 66.07 per cent for cooking, 59.83 per cent for casseroles, 39.73 per cent for salads, 24.11 per cent for pizza, and 9.83 per cent of the shoppers indicated using cheese for souffles (Table XXXII). The percentage of total responses as shown in Table XXXII is greater than 100 per cent because of the multiple listings of uses for cheese. The most frequently reported uses for cheese were for snacks and sandwiches.

### Dips

The preferences of shoppers for dips were investigated. The questionnaire listed eight varieties of dips offered for sale by the supermarkets selected for the survey. The

TABLE XXXI

RESPONSES OF 224 SHOPPERS AS TO FREQUENCY  
OF PURCHASING CHEESE

Frequency of Purchase	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=112)		(N=53)		(N=59)		(N=224)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Once a week	73	65.18	29	54.72	38	64.41	140	62.50
At least twice a week	14	12.50	7	13.21	8	13.56	29	12.94
Once a month	12	10.71	6	11.32	5	8.47	23	10.27
Twice a month	5	4.46	4	7.55	3	5.08	12	5.35
Never purchase	0	0.0	0	0.0	0	0.0	0	0.0
When needed	3	2.68	0	0.0	0	0.0	3	1.33
No response <sup>1</sup>	5	4.46	7	13.21	5	8.47	17	6.69

<sup>1</sup>Frequency of purchasing cheese was not reported by 17 shoppers.

TABLE XXXII  
 RESPONSES OF 213 SHOPPERS<sup>1</sup> AS TO USE OF  
 CHEESE<sup>2</sup> BY THE HOUSEHOLD

Use of Cheese	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N=420)		(N=176)		(N=183)		(N=787)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Snacks	84	75.00	44	83.02	44	75.58	172	76.79
Sandwiches	92	82.15	43	81.13	33	55.93	168	75.00
Souffles	11	9.82	3	5.67	8	13.54	22	9.83
Pizza	36	32.15	9	16.98	9	15.23	54	24.11
Casseroles	70	62.51	30	71.69	34	57.61	134	59.83
Cooking	72	64.29	30	71.69	38	64.40	148	66.07
Salads	55	45.11	17	32.07	17	28.80	89	39.73

<sup>1</sup>Use of cheese was not reported by 11 shoppers.

<sup>2</sup>The majority of shoppers checked more than one response.

majority of shoppers checked more than one preference. Data revealed that 61.78 per cent of the shoppers responding to this item preferred French onion, 36.00 per cent preferred jalapeno, 20.45 per cent preferred garlic, 16.01 per cent preferred bacon and horseradish, 14.66 per cent preferred chili bean 9.34 per cent preferred clam, 9.33 per cent preferred Blue Tang, and 3.55 per cent preferred Mr. Hickory for dips (Table XXXIII). Thirty-one shoppers reported never purchasing dips.

Over one-half of the respondents (61.78 per cent) reported French Onion as the favorite dip. The percentage of total responses as shown in Table XXXIII is greater than 100 per cent because of the multiple listings of preferences for dips.

#### Butter and Margarine

The preference of shoppers for butter or margarine for table use was investigated. Some shoppers checked more than one preference for table use. Of the 222 shoppers responding to this question, 96.87 per cent preferred margarine, 42.16 per cent preferred butter, and 1.35 per cent preferred dietetic butter or margarine (Table XXXIV). Apparently some

TABLE XXXIII

RESPONSES OF 224 SHOPPERS AS TO PREFERRED

TYPE OF DIP

Dip Preferences	Shoppers							
	Denton (N=202)		Fort Worth (N=95)		Dallas (N=119)		Total (N=417)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
French onion	72	64.29	35	66.04	32	53.33	140	61.78
Blue Tang	6	5.36	6	11.32	9	15.00	21	9.33
Bacon and Horseradish	17	15.19	6	11.32	13	21.67	36	16.01
Mr. Hickory	3	2.68	2	3.77	3	5.00	8	3.55
Garlic	23	20.53	10	18.87	13	21.67	46	20.45
Clam	7	6.25	4	7.54	10	16.67	21	9.34
Jalapeno	45	40.18	17	32.07	19	31.66	81	36.00
Chili bean	14	12.49	12	22.64	7	11.66	33	14.66
Never purchase	15	13.39	3	5.66	13	21.67	31	13.78

TABLE XXXIV

RESPONSES OF 222 SHOPPERS<sup>1</sup> AS TO PREFERENCE FORBUTTER OR MARGARINE<sup>2</sup> FOR TABLE USE

Preferred Spread For Table Use	Shoppers							
	Denton		Fort Worth		Dallas		Total	
	(N-104)		(N=59)		(N-53)		(N-216)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Butter:								
Tub	16	38.75	10	18.87	6	10.16	32	14.39
Stick	14	14.42	11	20.75	18	30.51	43	19.28
Sweet cream	13	12.62	2	3.77	4	6.78	19	8.52
Dietetic	1	1.69	1	0.90	1	1.89	3	1.35
Margarine:								
Tub	33	29.73	24	45.29	16	27.11	73	32.73
4 sticks/pound	54	48.65	24	45.29	29	49.14	107	47.99
6 sticks/pound	9	8.11	4	7.55	4	6.77	17	7.62
Brick	7	6.30	3	5.66	3	5.08	13	5.83
Patties	1	0.90	4	7.55	1	1.69	6	2.20

<sup>1</sup>Spread for bread for table use was not reported by two shoppers.

<sup>2</sup>The majority of shoppers checked more than one preference.

shoppers preferred both butter and margarine. The form of margarine checked by 216 of the respondents as a preference for table use was as follows: four sticks to a pound, 47.99 per cent; tub, 32.73 per cent; six sticks to a pound, 7.62 per cent; bricks, 5.83 per cent; and patties, 2.70 per cent. The form of butter preferred as a spread was as follows: the stick form, 19.28 per cent; butter in a tub, 14.36 per cent; and sweet cream butter, 8.52 per cent.

Only 94 of the 222 shoppers checked a preference for some form of butter. The largest percentage of shoppers reported margarine as the preferred spread for bread for table use. The percentage of total responses as shown in Table XXXIV is greater than 100 per cent because of the multiple listings of preferences for spreads for table use.

The choice of spread for cooking use was investigated. A few shoppers checked more than one spread for cooking. Of the 213 shoppers responding to this question, 85.71 per cent used margarine, 13.84 per cent used butter, and 0.89 per cent used either dietetic butter or dietetic margarine. The preferences as reported are shown below:

<u>Preference</u>	<u>Number</u>	<u>Per cent</u>
Butter	31	13.84
Margarine	192	85.71
Dietetic	2	0.89

The largest percentage of shoppers used margarine for cooking. Margarine was also a choice of the majority of the group for table use.

## CHAPTER IV

### S U M M A R Y, C O N C L U S I O N S A N D R E C O M M E N D A T I O N S

The present study was designed to investigate food shopping habits, purchasing preferences for dairy products, nutritional knowledge of the shopper, and factors influencing consumer choices of 224 shoppers residing in the Golden Triangle of Texas, from Denton to Fort Worth to Dallas. The specific purposes of this study were to determine:

- 1) The dairy purchasing practices and habits of the participating shoppers;
- 2) The preferences of the shoppers regarding milk, cheese, whipping cream, ice cream, cottage cheese, and spreads;
- 3) The shoppers' knowledge of nutrition and dairy products; and
- 4) The relationship of dairy buying practices to size and composition of the family, educational attainment of the husband and wife, family income, home economics education of the shopper, and occupation of the head of the household.

The survey was conducted on the last three Fridays in November, 1970. A questionnaire form was used to obtain

the data. The questionnaire was completed by shoppers at Safeway, Incorporated.

The survey included three shoppers 19 years of age or under, 72 shoppers between the ages of 20 and 29 years, 61 between 30 and 39 years, 40 between 40 and 49 years, 22 between 50 and 59 years, and 15 shoppers 60 years of age or over.

Family size was divided into two categories: families of four or less members and families of five or more persons. Of the 215 households for whom family size was indicated, 23.61 per cent of the participants reported a household size of five or more persons, and 75.92 per cent of the respondents listed four or less family members. Family composition of the 215 households included 777 persons, 464 adults and 313 children of whom 181 were boys and 132 were girls. Of the 313 children 111 were teenagers, 90 were five years of age or younger (pre-school) and 112 were between the ages of six and 12 (elementary school). Family size ranged from a household of one individual to a family of 14. The mean family size was 3.61 persons; the average number of children was 1.45 per household.

The highest level of formal education completed by the participating shoppers as well as the formal education of the spouse was investigated. In response to the highest level of formal education completed by the woman of the household, 19 had completed less than a high school education, 73 had completed high school, 40 had completed some college, 51 were college graduates, and 16 had completed five or more years of college. Of the 178 shoppers responding to the question concerning the highest level of education completed by the man of the household, 16 had less than a high school education, 59 had completed high school, 27 had completed some college, 53 were college graduates, and 23 had completed five or more years of college. In response to the question concerning the highest level of education completed by the man or woman of the household, 72.72 per cent of the men and 87.57 per cent of the women had completed at least a high school education. Approximately one-third, 33.00 per cent of the men and 30.73 per cent of the homemakers, had completed at least four years of college.

Shoppers were requested to check whether home economics courses had been completed in junior high school, in senior high school, or both, or in college, either as a major or a

minor. A total of 139 shoppers had taken one or more home economics courses; 65.55 per cent reported having taken either junior or senior high school courses, or both; and 5.99 per cent reported completing college courses. Five had majored and eight minored in home economics in college. Shoppers also checked whether the home economics courses completed had included a study of food purchasing and/or principles of milk and cheese cookery. The principles of milk and cheese cookery were reported to have been studied by only 59 of 90 shoppers who checked course content. The principles of food purchasing were reported to have been studied by 78 of the 90 shoppers who checked course content.

Shoppers were requested to check the employment status of the homemaker. Of the 214 shoppers responding to the question concerning the employment of the homemaker, 52.80 per cent were full-time homemakers, and 47.19 per cent were employed outside the home. Of the 83 homemakers who checked the extent of employment, 65.06 per cent indicated full-time employment and 34.93 per cent part-time employment.

Shoppers were requested to list the occupation of the woman and man of the household. Of the 219 women represented in the study a little over half were full-time homemakers.

A total of 4.46 per cent of the homemakers were classified as professional workers, 23.21 per cent as skilled workers; 47.77 per cent as unskilled workers; 3.57 per cent as semi-skilled workers; and 1.34 per cent as students. A total of 158 shoppers listed the occupation of the man of the household. A professional occupation was reported for the male head in 19.64 per cent of the households; a skilled worker for 12.95 per cent; a semi-skilled worker for 16.95 per cent; an unskilled worker for 11.17 per cent; a retired worker for 4.91 per cent; a student or serving in the armed forces for 4.46 per cent; and self-employment for 0.45 of the men who were the head of a household.

Shoppers were requested to check the average monthly take home pay for the family. The incomes of 45.54 per cent of the responding households were over \$700 a month. The survey was conducted in areas in which all socioeconomic groups were represented by the participating households. The high level of income reported was not anticipated. This fact, however, is not surprising because of the high level of education of the majority of the participating shoppers. Of the remaining families, 4.02 per cent reported an income under \$200 a month; 4.46 per cent reported an income of \$200 to

\$299 a month; 5.36 per cent an income of \$300 to \$399 a month; 16.07 per cent an income of \$400 to \$499 a month; and 18.75 per cent an income of \$500 to \$699 a month.

The number of shopping trips for dairy products was investigated. Frequency of shopping was divided into four categories: once a week, two or more times a week, two or more times a month, and as needed. In Denton, 40.18 per cent of the shoppers shopped two or more times a week, 38.39 per cent once a week, 19.64 per cent as needed, and 1.79 per cent shopped for dairy products two or more times a month. The shoppers in Fort Worth reported as follows: two or more times a week, 24.53 per cent; when needed, 33.95 per cent; two or more times a month, 5.66 per cent. In Dallas, 57.63 per cent of the shoppers reported shopping two or more times a week, 28.81 per cent once a week, 10.17 per cent as needed, and 3.39 per cent shopped for dairy products two or more times a month. In the total sample, 41.07 per cent shopped for dairy products two or more times a week, 35.27 per cent shopped once a week, 20.54 per cent shopped for dairy products as needed, and 3.13 per cent purchased dairy products two or more times a month.

The most preferred shopping days for dairy products were investigated. In Denton the most preferred shopping days were Friday, Saturday, Monday, and Wednesday, listed in descending rank order of preference. Shoppers in Fort Worth, in descending rank order, named Friday, Saturday, Wednesday, and Thursday as the most preferred shopping days. The most preferred shopping days in Dallas were Friday, Monday, Saturday, and Thursday, listed in descending rank order of frequency with which checked. Of the total group 140 preferred Friday, 46 checked Saturday, 40 chose Monday, 39 marked Wednesday, 33 checked Thursday, 23 selected Tuesday, 16 indicated no particular day, and four checked Sunday. Since data were collected on Friday the responses would be expected to indicate Friday as the most preferred shopping day.

The most preferred time for food shopping was investigated. In Denton the shoppers reported late afternoon followed by morning. Shoppers in Fort Worth preferred the morning with early afternoon as a second choice. In Dallas the first preference for food purchasing was morning followed by early afternoon. The most favored shopping time for the entire sample was morning followed by late afternoon. Of

the entire group, 35.27 per cent checked morning as the preferred shopping time, 22.77 per cent marked late afternoon, 21.88 per cent checked early afternoon, 12.95 per cent indicated no special time, 9.82 per cent favored shopping after 6:00 p. m., and 4.02 per cent indicated the noon hour as a preferred time for shopping.

In the investigation of the type of store preferred by the shoppers, 96.43 per cent of the respondents indicated a preference for the supermarket, 3.02 per cent checked the small homeowned store, and 2.68 per cent chose a salvage or discount store. Although the data were collected in supermarkets, the high preference for the supermarket is in agreement with previous studies.

The criteria used in selecting the preferred store for grocery shopping was investigated. The quality of meat and reasonable prices were the primary reasons for store selection. The 216 persons responding to this question indicated the reasons for selecting the preferred store were as follows: low prices, 64.74 per cent; a good meat department, 62.51 per cent; quality and variety of fresh produce, 51.34 per cent; variety of known brands, 50.90 per cent; efficient, quick service, 43.75 per cent; closeness to home, 42.86 per cent;

large selection of frozen foods, 31.70 per cent; and a delicatessen, 10.72 per cent.

The member of the family performing the major food shopping was investigated. In most of the families the wives assumed the responsibility for the major food shopping, 77.68 per cent. However, in 11.61 per cent of the families the husband and wife shopped together for food and in 7.59 per cent of the households, the husband assumed the major role of the food shopper. Two shoppers reported the daughter as the major food shopper and two reported other family members as the major food shopper.

The use of a shopping list was investigated. Of the 223 shoppers responding to this question, 48.21 per cent checked "usually," 40.63 per cent checked "sometimes," and 10.71 per cent checked "never" using a shopping list. The use of a shopping list was analyzed in relation to family income and age of the shopper using the chi-square technique. Differences were not significant. Data concerning the use of a shopping list were analyzed in relation to formal educational achievement of the homemaker and the extent of home economics education of the shopper using the chi-square technique. Differences were found to be non-significant.

When the use of a shopping list was analyzed in relation to the inclusion of purchasing principles in the study of home economics, a highly significant relationship was found ( $p < .01$ ). A highly significant relationship was found between the use of a shopping list and the employment status of the homemaker ( $p < .01$ ). When the homemaker's employment status in relation to the level of formal education was analyzed a non-significant relationship was found.

Shoppers were requested to check "agree," "disagree," and "undecided," to nine statements concerning nutritional knowledge. The largest proportion of shoppers knew that cold temperature is best for whipping of cream, 82.33 per cent; that milk does not supply all the nutrients essential in the diet, 56.70 per cent; that low or moderate temperatures should be used in the cooking of cheese, 83.04 per cent; and that butter is not a good fat for use in cooking French fries, 83.93 per cent. The greatest proportion of shoppers knew that butter is not a good fat for use in cooking French fries but may not have known the reason. The smoking point of butter is too low for deep fat frying. The "undecided" category was combined with the incorrect responses to determine the percentages of individuals not knowing the correct answers.

There were five statements for which the greatest proportion of shoppers either checked incorrect responses or lacked adequate knowledge. It is a good practice to store powdered milk under refrigeration following opening of the carton, particularly if the milk is stored for indefinite future use. However, a total of 80.81 per cent of the respondents either disagreed with this statement concerning powdered milk or were undecided as to the correct response. The fact that there is little, if any difference in the nutritive value of fortified margarine and butter was not known by 58.03 per cent of the participants. A total of 83.98 per cent thought that mellorine has fewer calories than ice cream; 82.14 per cent of the shoppers thought yogurt has more nutritive value than buttermilk; and a total of 83.49 per cent of the participants thought that butter has more calories than margarine. The two statements for which the most shoppers were undecided were: "Yogurt has more nutritive value than buttermilk" and "There is little if any difference in the nutritive value of fortified margarine and butter."

The influence of home economics courses completed by the shopper on nutritional knowledge was investigated. In response to the statement "Cold temperature is best for

whipping of cream," 82.35 per cent of the shoppers having completed no home economics courses checked the correct response, 83.20 per cent of the shoppers having completed junior or senior high school home economics courses agreed this statement was correct, and 73.33 per cent of the shoppers having completed college home economics courses agreed this statement was correct. It is not known whether the shoppers majoring or minoring in home economics in college had any courses in foods and nutrition because the particular area of the major or minor in home economics was not given. In response to the question "Low or moderate temperature should be used in the cooking of cheese," 80.75 per cent of the shoppers having completed no home economics courses checked the correct response, 84.75 per cent of the shoppers having completed junior or senior high school home economics courses agreed this statement was correct, and 68.75 per cent of the shoppers having completed college home economics courses checked the correct response. In response to the statement "Butter is a good fat for use in cooking French fries," 80.30 per cent of the shoppers having completed no home economics courses agreed this statement was not true; 87.09 per cent of the shoppers having completed junior or senior high school courses in home economics checked this statement as untrue;

and 82.35 per cent of the shoppers having completed college courses in home economics agreed this statement was false.

Responses of the shoppers checking the nine statements concerning nutritional knowledge were analyzed according to the reported completion or non-completion of home economics courses. The t-test analysis revealed that the completion or non-completion of home economics courses did not significantly affect the mean scores of the shoppers in response to the nine statements. Only 15 shoppers indicated having completed college courses in home economics. There was, as previously stated, no way to determine the area of home economics in which these 15 shoppers majored.

The influence of age of the shoppers on nutritional knowledge was investigated. The statements answered correctly by the majority of shoppers 40 years of age or older and shoppers under 40 years of age were as follows: "Cold temperature is best for whipping of cream," 79.85 per cent under 40 years of age and 86.84 per cent 40 years of age or older; "Low or moderate temperature should be used in cooking of cheese," 82.83 per cent under 40 years of age and 82.90 per cent 40 years of age or older; and "Butter is a good fat for use in cooking French fries," 86.57 per cent of those under

40 years of age and 85.53 per cent of those 40 years of age or older.

The number of shoppers checking correct responses were recorded according to sex of the shopper. The t-test analysis indicated no significant difference in nutritional knowledge between the two groups. The majority of men shoppers answering the nine nutritional questions, however, were highly educated men with the majority having a Ph. D. degree.

Shoppers were requested to check information desired from a trained home economist if one were available at the grocery store. The rank order for the type of information desired by the responding shoppers was as follows: "good buys," 47.77 per cent; menu suggestions, 31.70 per cent; nutritive value of certain foods, 29.01 per cent; and how to prepare foods, 24.56 per cent. Help with special diets was desired by one shopper.

The kind of frozen dessert preferred by the family was investigated. In Denton, 86.60 per cent of the shoppers checked ice cream. Equal percentages, 60.72 per cent, checked mellorine and sherbet, while 61.60 per cent marked ice milk as a preferred frozen dessert Responses of the Fort Worth

shoppers indicated 90.57 per cent checked ice cream, 54.72 per cent preferred sherbet, 50.94 per cent preferred ice milk, and 49.05 per cent preferred mellorine as a frozen dessert. In Dallas, 88.13 per cent preferred ice cream, 57.63 per cent checked ice milk, 54.24 per cent marked sherbet, and 49.14 per cent preferred mellorine for frozen dessert. Of the 222 shoppers responding to this question 87.95 per cent checked ice cream, 58.04 per cent marked ice milk, 57.59 per cent indicated sherbet, and 54.91 per cent preferred mellorine for frozen dessert. Ice cream was preferred by the largest percentage of shoppers.

The family preference for milk as a beverage was investigated. Of the 221 shoppers responding to this item, 81.71 per cent preferred whole milk, 67.42 per cent checked low fat milk, 59.69 per cent marked chocolate milk, 49.56 per cent preferred skim milk, and 48.65 per cent preferred nonfat dried milk as a beverage.

Consumption of milk per household per week was investigated. The consumption per household per week ranged from one pint in a household of one person to 120 pints in a household of 14 people which included two parents and 12 children with a monthly income of \$700 or over. The mean

consumption of milk per household per week was 17.37 pints. The mean consumption of milk per person per week was 4.83 pints for households reporting both family size and milk consumption. The mean consumption of milk per person per day was 0.7 pint.

Shoppers were requested to list the kind of milk used in cooking. A majority of the group listed more than one kind. Of the 200 shoppers responding to this question, 43.87 per cent used whole milk, 15.81 per cent used low fat milk, 13.83 per cent used evaporated, 8.30 per cent used nonfat dry milk, 4.35 per cent used condensed, 2.37 per cent, reported the use of either skim milk or cream for cooking.

The type of whipping cream preferred by the family was investigated. A majority of shoppers checked more than one preference. Of the 223 shoppers responding to this question, 37.94 per cent preferred whipping cream, 24.38 per cent preferred the frozen products, 16.25 per cent preferred dry powdered and 11.66 per cent preferred spray cream topping for whipping cream. Twenty-nine of the 223 shoppers responding to this question reported never purchasing any type of whipping cream.

Cottage cheese preferences of the shoppers were investigated. Cottage cheese was divided into two categories: type of curd and type of added flavoring material. A majority of shoppers checked more than one preference for cottage cheese. Of the 223 shoppers responding to this item, 44.84 per cent of the respondents preferred small curd, 39.02 per cent preferred large curd, 5.93 per cent preferred partially creamed, and 3.14 per cent preferred dry curd for cottage cheese. Small curd was the most frequently chosen type of cottage cheese; large curd was the second most frequently selected type of cottage cheese. Three shoppers named low calorie cottage cheese as a family preference although this item was not listed on the survey form. Listed in descending rank order, the flavor choices were as follows: chive, pineapple, fruit salad, and garden salad. Twenty of the participating respondents reported never purchasing cottage cheese.

The kind of cheese preferred by the family was investigated. The majority of shoppers checked more than one preference. Of the 216 shoppers responding to this question, 52.48 per cent preferred hard or semi-hard cheeses, 35.16 per cent preferred soft cheese, 10.63 per cent preferred cheese food, and 0.34 per cent preferred a diet spread. The hard

and semi-hard cheeses listed by the respondents as favorites, in descending rank order, were as follows: cheddar; Swiss, Emmenthaler or Gruyere; Mozzarella; and Roquefort. Favorite soft cheeses listed in descending rank order, were as follows: cottage, cream, Limburger, Neufchatel, Camembert, and Brie. One respondent reported never purchasing cheese.

The frequency of purchasing cheese was investigated. Of the 207 shoppers responding to this question, 62.50 per cent of the shoppers purchased cheese once a week; 12.94 per cent, two or more times a week; 10.27 per cent, once a month; 5.35 per cent, twice a month; and 1.33 per cent purchased cheese as needed.

The intended use of the cheese purchased was also investigated. Of the 213 shoppers responding to this item, 76.79 per cent of the shoppers used cheese for snacks, 75.00 per cent for sandwiches, 66.07 per cent for cooking, 59.83 per cent for casseroles, 39.73 per cent for salads, 24.11 per cent for pizza, and 9.83 per cent indicated using cheese for souffles. The most frequently reported uses for cheese were for snacks and sandwiches.

The preferences of shoppers for dips were investigated. The majority of shoppers checked more than one preference. Data revealed that 61.78 per cent of the shoppers preferred French onion, 36.00 per cent preferred jalapeno, 20.45 per cent preferred garlic, 16.01 per cent preferred bacon and horseradish, 14.66 per cent preferred chili bean, 9.34 per cent preferred clam, 9.33 per cent preferred Blue Tang, and 3.55 per cent preferred Mr. Hickory for dips. Over one-half of the respondents reported French onion as the favorite dip.

The preference of shoppers for butter or margarine for table use was investigated. Some shoppers checked more than one preference. Of the 222 shoppers responding to this question, 96.87 per cent preferred margarine, 42.16 per cent preferred butter, and 1.35 per cent preferred dietetic butter or margarine. Apparently some shoppers preferred both butter and margarine. The form of margarine checked by 216 of the respondents as a preference for table use was as follows: four sticks to a pound, 47.99 per cent; tub, 32.73 per cent; six sticks to a pound, 7.62 per cent; bricks, 5.83 per cent; and patties, 2.70 per cent. The form of butter preferred as a spread was as follows: the stick form, 19.28 per cent; butter in a tub, 14.36 per cent; and sweet cream butter,

8.52 per cent. The largest percentage of shoppers reported margarine as the preferred spread for table use. Only 94 shoppers preferred butter.

The choice of a spread for cooking use was investigated. A few shoppers checked more than one choice for cooking. Of the 213 shoppers responding to this question, 85.71 per cent used margarine, 13.84 per cent used butter, and 0.89 per cent used either dietetic butter or margarine. The largest percentage of shoppers used margarine for cooking. Margarine was also a choice of the majority of the group for table use.

This study gives insight into shopping habits, nutritional knowledge, and dairy product preferences of 224 shoppers residing in the Golden Triangle of Texas, from Denton to Fort Worth to Dallas. There appears to be a definite need for nutrition education programs. The participants reported an inadequate intake of milk. Milk is a fairly expensive item for the food budget but with no other food can the family be provided with the quality and quantity of nutrients per calorie. Shoppers appeared to be unaware that the use of skim milk mixed with equal parts of whole milk for beverage use is a good way to stretch the food dollar. Shoppers also appeared to be unaware that fortified powdered milk can be

used in most recipes without influencing the flavor of the finished product. Fortified powdered milk, therefore, can be an excellent way of stretching the food budget.

Shoppers were unaware that mellorine is not a low-calorie frozen dessert. Mellorine is made with vegetable fat instead of animal fat and usually does not have a lower fat content. The calorie content of either ice cream or mellorine depends upon the amount of fat incorporated into the product. The shoppers reported that they did not know that a cup of yogurt has no more nutritive value than a cup of buttermilk. A cup of yogurt, however, is expensive compared to the cost of a cup of buttermilk.

This study should enable merchants to gain a better idea of the preferred shopping days, preferred shopping time, preferred type of grocery store, and criteria used by consumers for selecting a favorite grocery store. This report also gives the merchants an insight as to consumers' preferences for the following products: frozen dessert, milk, whipping cream, cheese, dips, and butter and margarine. Many consumers have more than one preference for a given dairy product. Further studies of shopping habits and consumer preferences for dairy products would be of value.

Suggestions recommended are as follows:

- 1) Expand nutrition education programs to include more nutrition information and different age groups: young families, teenagers, mature adults, and older adults
- 2) Emphasize increased consumption of milk and milk products;
- 3) Emphasize the principles of milk and cheese cookery; and
- 4) Develop consumer programs dealing with food purchasing principles.

## B I B L I O G R A P H Y

1. Adelson, Sadye. "Changes in Diets of Households, 1955 to 1965." Journal of Home Economics 60: 448-455 (June, 1968).
2. Agricultural Experiment Station. How Homemakers Select Foods. Auburn, Alabama: Agricultural Experiment Station, Auburn University, Bulletin 353 (June, 1964).
3. Barney, Helen and Richard L. D. Morse. "Shopping Compared of Low Income Homemakers and Students." Journal of Home Economics 59: 48-50 (January, 1967).
4. Bell, Carolyn Shaw. Consumer Choice in the American Economy. New York: Random House, 1967.
5. Brown, George Hay. "United States Population 1970." United States Bureau of Census Official Figures. The World Book Yearbook, 1971. Chicago: Field Enterprises Educational Corporation, pp. 525.
6. Burgoyne Index, Incorporated. 1966 Food Shopping Habits Study of Super Market Shoppers, Their Buying Habits and Attitudes. New York: Burgoyne Index, Incorporated, October, 1966.
7. Butz, W. T. How Americans Use Their Dairy Foods. Chicago: National Dairy Council, 1970.
8. Clark, Faith. "Family Food Spending." Journal of the American Dietetic Association 50: 211 (March, 1967).
9. Dickins, Dorothy. Sources of Information Which Influence Homemaker's Food Purchases. Mississippi: Mississippi State University, Agriculture Experiment Station, Home Economics Series No. 2 (May, 1962).
10. Douglas, Blanche Jeyoyce. "Meat Buying Preferences and Shopping Habits of 125 Urban Homemakers." Unpublished Master's thesis, Texas Woman's University, 1967.

11. Edwards, Cecile H., Gaynelle Hogan, Sandra Spahr and Guilford County Nutrition Committee. "Nutrition Survey of 6,200 Teen-Age Youth." Journal of the American Dietetic Association 45: 542-546 (December, 1964).
12. Emerson, Gladys. "Nutritional Status, U. S. A." Journal of Nutrition 91: 51-54 (February, 1967).
13. Eppright, Ercel S., Hazel M. Fox, Beth A. Fryer, Glenna H. Lamkin, and Virginia M Vivian. "Nutritional Knowledge and Attitudes of Mothers." Journal of Home Economics 62: 327-332 (May, 1970).
14. Farley, John U. "Dimensions of Supermarket Choice Patterns." Journal of Marketing Research 5:206-208 (May, 1968).
15. Fitzsimmons, Cleo. Consumer Buying. New York: John Wiley and Sons, Incorporated, 1961.
16. Food and Nutrition Board, NAS-NRC. Recommended Dietary Allowances, Seventh revised edition. Published 1964, National Academy Science-National Research Council, Washington, D. C., 1968.
17. Fox, Hazel M., Beth A. Fryer, Glenna L. Lamkin, Virginia M. Vivian, and Ercel S. Eppright. "Family Environment." Journal of Home Economics 62: 241-244 (April, 1970).
18. Hammill, Anne E., and Marguerite C. Burk. "Children Influence Milk Consumption of Iowa Women." Journal of Home Economics 57: 55-58 (January, 1965).
19. Jalso, Shirley B., Majorie M. Burns, and Jerry M. Rivers. "Nutritional Beliefs and Practices." Journal of the American Dietetic Association 47: 263-268 (December, 1965).
20. Lamkin, Glenna, Mary Louise Hielscher, and Helena B. Janes. "Food Purchasing Practices of Young Families." Journal of Home Economics 62: 598-604 (October, 1970).

21. Mackey, Andrea C., Ferne Bowman, Margaret M. Hard and Mary V. Zaehring. "Food Marketing Research." Journal of Home Economics 60: 107-110 (February, 1970).
22. Magoon, C. E. "Monthly Supply Letter." Washington, D. C.: A publication of the United Fresh Fruit and Vegetable Association (March, 1971).
23. Metheny, Norma Y., Fern E. Hunt, Mary Brown Patton, and Helene Haye. "The Diets of Preschool Children." Journal of Home Economics 54: 297-300 (April, 1962).
24. Morse, Ellen H., Mary M. Clayton, and Lola deG. Cosgrove. "Mothers Nutrition Knowledge." Journal of Home Economics 59: 667-668 (October, 1967).
25. Ottenhouse, Merribel Jane. "Fruit and Vegetable Preferences and Shopping Habits of 107 Homemakers." Unpublished Master's thesis, Texas Woman's University, 1967.
26. Schmolder, Eulalia. "Meat, Fruit, and Vegetable Purchasing Preferences and Shopping Habits of 977 Selected Homemakers." Unpublished Ph. D. dissertation, Texas Woman's University, 1969.
27. Shetler, Mary Lou. "Meat Purchasing Preferences and Shopping Habits of Selected Kansas Homemakers." Unpublished Master's thesis, Texas Woman's University, 1967.
28. Smith, E. V. How Homemakers Select Foods. Auburn Experimental Station, Auburn University, Auburn Alabama Bulletin, No. 353 (June, 1964).
29. Speckman, Elwood W. "Speech at the 43rd Annual Meeting of the National Dairy Council in Richmond Virginia." Journal of the American Dietetic Association 53: 333 (October, 1968).
30. Stribling, Jo Ann. "Fruit and Vegetable Preferences and Shopping Habits of Homemakers." Unpublished Master's thesis, Texas Woman's University, 1967.

31. Thompson, Bryan. "An Analysis of Supermarket Shopping Habits in Worcester, Massachusetts." Journal of Retailing, 43: 17-29 (Fall, 1967).
32. Trier, Howard, Henry Clay Smith, and James Shaffer. "Differences in Food Buying Attitudes of Housewives." Journal of Marketing 43: 66-69 (July, 1960).
33. United States Department of Agriculture. Dictionary of Occupational Titles, 3rd edition. Washington, D. C.: (1965).
34. United States Department of Agriculture. Dietary Levels of Households in the United States, Spring 1965. Washington, D. C.: Agriculture Research Service, July, 1969.
35. Wilson, Mary Margaret and Mina W. Lamb. "Food Beliefs." Journal of Home Economics 60: 115-118 (February, 1968).
36. Wright, Carlton C. Food Buying. New York: John Wiley and Sons, Incorporated, 1961.
37. Young, Charlotte M., Betty Waldner, and Kathleen Berresford. "What the Homemaker Knows About Nutrition." Journal of the American Dietetics Association 32: 214-218 (May, 1956).