



ALABAMA URBAN HOMEMAKERS

AND

MILK

PRODUCTS

what they know about

how they use

what they think about

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IMPLICATIONS of the STUDY

A contrasting story of problems and opportunities is told by results of the study reported here. First, there is the industry's problem of selling consumers on the value and desirability of milk products. On the other hand, the findings point to opportunities for increased consumption of milk and milk products by effective promotional programs.

Per capita milk consumption during the past few years has been relatively constant at best, and in some cases it has declined. Much of the overall change has been the result of a drop in consumption of milk as a beverage. Use of milk and milk products in some forms of cooking has decreased, but it has increased in others. There appears to have been an increase in use of milk and milk products for family desserts and snacks in recent years. Especially has this been true with ice cream and frozen dairy desserts.

Almost every urban home in Alabama used some milk products each week. Although milk was a familiar product to all homemakers, not all had the same level of knowledge or the same attitude about the value or varied uses of milk products. Findings of this study imply that increased per capita consumption of milk products can be expected to occur only slowly. The dairy industry must use all its resources to hold its present level and make gains where possible. If this is done, increasing population using the same per capita whole milk equivalents will provide an overall expansion of the dairy product market. Development of methods to alter present homemaker and teenager attitudes regarding milk products is essential as a part of holding per capita consumption at present levels.

If use of milk products, or of any other food group, is to be developed in non-user family groups or expanded in the user groups, promotional and educational efforts directed at each of these consumer groups seem desirable. The high users of dairy products usually have an ample food budget and some choice in the foods they buy. They may use nutritionally adequate amounts of dairy foods but within a restricted range. This group is susceptible to new foods and often searches the market for them. Promotional efforts to expand the market within these consumers can be made through newspapers, magazines, social groups, and television. Such efforts could give information about new forms of dairy foods, new ways to use all cheeses, gourmet recipes, and the nutritional advantages of low calorie forms of milk for older persons.

The low user of dairy products may do so from choice or because of low per capita income, which causes homemakers to feel that milk as a beverage is too expensive for her family. Stretching the food dollar is highly important to this group. Homemakers want to feed their families properly, but many have inadequate information about the less expensive but nutritionally important foods and how to use them.

Newspapers, magazines, and television are often unavailable or unused as sources of food information by shoppers who are low users of dairy products. Level of reading ability is likely to be low and time short, and fear of wasting food money may be a deterrent to the purchase of unfamiliar foods. Promotional and educational efforts directed toward this group need to use more radio and in-store media. Homemakers who are low users of dairy products, especially those just starting their homemaking years, can be reached if approaches are aimed at solving their problems in food purchasing rather than selling more of a particular commodity.

Homemakers with limited food budgets need to see and taste unfamiliar foods, to be told how they may be incorporated into their present food pattern, and to be taught how to construct nutritionally adequate meals with limited food funds. They should be encouraged to accept new foods or forms of foods that can add variety and interest to meals. Recipes should contain few ingredients, familiar foods, and be accompanied by pictures of the completed dish, which enable the homemaker to visualize its use in her family meals.

In developing methods for promoting milk products or for informing homemakers about the contributions of a particular food commodity to family nutrition, several points should be considered. Programs should be designed to meet the needs of specific consumer groups based on their level of knowledge, avenues of receiving information, socio-economic situations, and personal attributes. The homemaker's responsibility is to purchase food for home consumption in keeping with family needs, preferences, and available funds. To attract her interest requires consumer-oriented programs that supply her with information she can use in her profession — homemaking. The program must use language and approach that the homemaker can understand and appreciate, and give her the impression that it is sincerely trying to make shopping for milk products and other foods a satisfying experience.

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ALABAMA URBAN HOMEMAKERS AND MILK PRODUCTS*

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RETAIL FOOD MARKETS offer consumers several thousand products from which to choose their purchases. Decision making by homemakers regarding food buying and preparation is a dynamic process that must be made several times daily. As with any problem-solving situation, determining what foods to buy and serve family members involves factors that may lead the homemaker to act in a rational manner at times and in an emotional one at other times. Her problem is concerned with the satisfaction of hunger, the proper nourishment of family members, and the amount of family income that can be spent for food.

Food preferences, the socio-economic level of the family, attitudes about specific foods, and the homemaker's nutritional knowledge are other factors that help determine whether a particular food is selected. Homemakers and their families are the major consumers of farm products. However, homemakers are concerned with the satisfaction of family needs and desires without regard to the impact their actions may have on the food marketing structure. An understanding of homemaker desires and motives could aid producers and distributors in their efforts to supply the market with food products.

One purpose of this study was to determine the effect of certain family characteristics on the attitudes and actions of homemakers with respect to food purchases in general. A second purpose was to determine kinds and amounts of milk products used by repre-

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sentative urban families in Alabama. Also investigated was how use of milk products was related to the homemaker's nutritional knowledge and attitudes about these foods. Although emphasis in this study was on milk products, much of the information obtained applies to the consumers' reaction to foods in general. The findings have implications for agencies and educational groups concerned with all food marketing and use, as well as for those interested specifically in dairy products.

HOW the STUDY WAS MADE

The sample for this study was drawn to represent all urban areas of Alabama. This classification covers all cities of 2,500 population or more. Urban areas included in the study are shown in Figure 1.

A stratified random sample of families was selected by appropriate statistical procedures.¹ Cluster samples were taken in all cities of 2,500 to 99,999. In cities of 100,000 or more, population block-size clusters were used. An enlarged sample was drawn of Negro families so that an equal number of families of both races would be available for study. All households except residences of transients were given an equal chance of falling in the sample. There were 1,654 usable records collected from families in the sample, 832 from white and 822 from Negro families.

Pertinent information was recorded on a prepared schedule during a personal interview with the homemaker of the families studied. All interviews were made during the spring, fall, and winter of 1958. Each homemaker answered questions in terms of the last 7 days immediately preceding the interview. This period is referred to as the study week.

Three-fourths of the white and nearly all of the Negro homemakers were natives of Alabama. Slightly more than half the white homemakers had urban backgrounds. The reverse was true for Negro homemakers, with slightly more than half reporting rural backgrounds. Nearly half the white families had per capita incomes over \$1,200. Three-fourths of the Negro families earned less than \$900 per capita. Distribution by age of homemaker was almost identical by race. Half the homemakers were between 30 and 50 years of age.

¹ The general procedure of the sampling methods used is reported by Hansen, M. H., Hurwitz, W. H., and Madow, W. G., in *Sample Survey Methods and Theory*. John Wiley and Sons. New York, New York. Volume 1. Chapters V, VI, and VII. 1956.

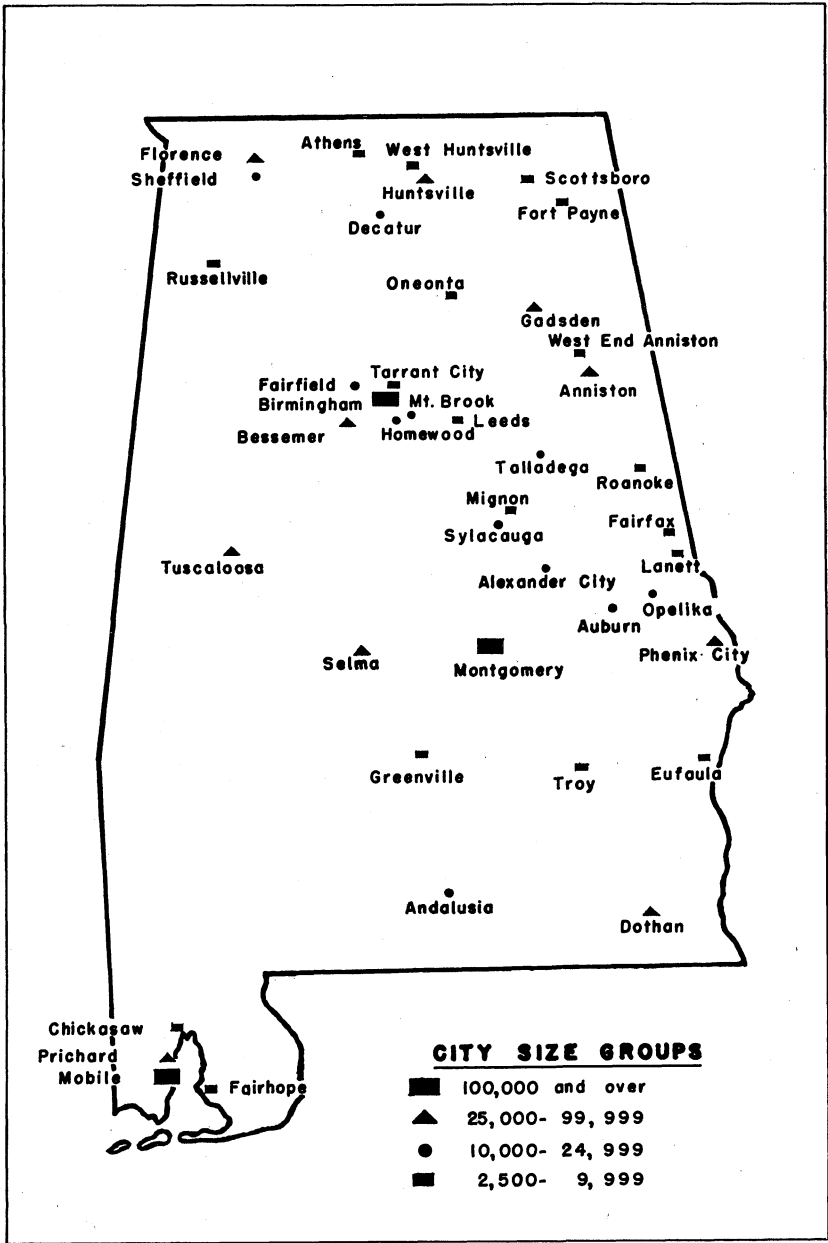


FIG. 1. Urban areas of Alabama included in the study are shown on the map.

About half the Negro homemakers had a grade school education. Nearly half the white homemakers had completed high school. One-fifth of the white but less than one-tenth of the Negro homemakers had education beyond high school. One-fourth of the white and half the Negro homemakers were employed outside the home. Negro homemakers usually worked in some form of domestic service. Most white homemakers were employed in clerical or sales work.

One-fifth of the Negro and one-tenth of the white families had no husband or other male head of the house. Three-fourths of the white and about one-third of the Negro male heads of the house were employed in professional, managerial, clerical, sales, service, or skilled work. Average size of household was 3.3 in white and 4.0 persons in Negro families. Per capita meal costs averaged 34¢ for white and 22¢ for Negro families.

White and Negro families differed in family income, per capita income, per capita meal costs, education of homemaker and head of household, and size of household. Findings of this study show significant differences in the per capita consumption of milk products. For this reason, the two races are reported separately.

USE of MILK PRODUCTS by FAMILIES

Enumerators used a prepared list in asking homemakers about their use of 27 different types or kinds of milk products. This list included various forms of fresh fluid milk, dry milk, canned milk, cream, cheese, and frozen products. Although each product had been used by one or more families, the study revealed that most families used a small variety of products during the study week. Details of the number and percentage of families using the various products and the average quantity used per family are reported in Appendix Table 1.

The percentage of all families using selected products during the study week was as follows:

<i>Selected product</i>	<i>Percentage of all families</i>	
	<i>White</i>	<i>Negro</i>
Fresh fluid milk (sweet milk).....	97	79
Yellow cheese.....	85	72
Ice cream.....	67	63
Evaporated milk.....	62	82
Buttermilk.....	55	62
Cottage cheese.....	29	10
Dry milk.....	26	40
Whipping cream.....	10	3

Examples of products that had been used by only a small percentage of all families were skim milk, flavored milk, condensed milk, coffee cream, half and half cream, and dry cream. As an average, white families used 8.6 quarts of sweet milk during the study week and Negro families used 4.2 quarts.

Milk products may be used in the home as a beverage, for cooking purposes, or for both. Families that used them for both purposes tended to use more forms of milk products and larger quantities. Consumption of milk products was likely to be low unless milk was used as a beverage, and by adults as well as children.

Some 97 per cent of all white and 79 per cent of all Negro families used fresh fluid milk for one or more purposes during the study week. All of these families used some fresh fluid milk as a beverage, but only 55 per cent of the white and 26 per cent of the Negro families had used it for cooking, Figure 2. The low use of fresh fluid milk by Negro families largely accounted for their low use of total whole milk equivalents.

The most popular milk products used in cooking were fresh whole or skim milk, buttermilk, evaporated milk, and dry skim milk. Half the white and one-fourth of the Negro homemakers listed sweet milk first in their list of forms of milk used in cooking.

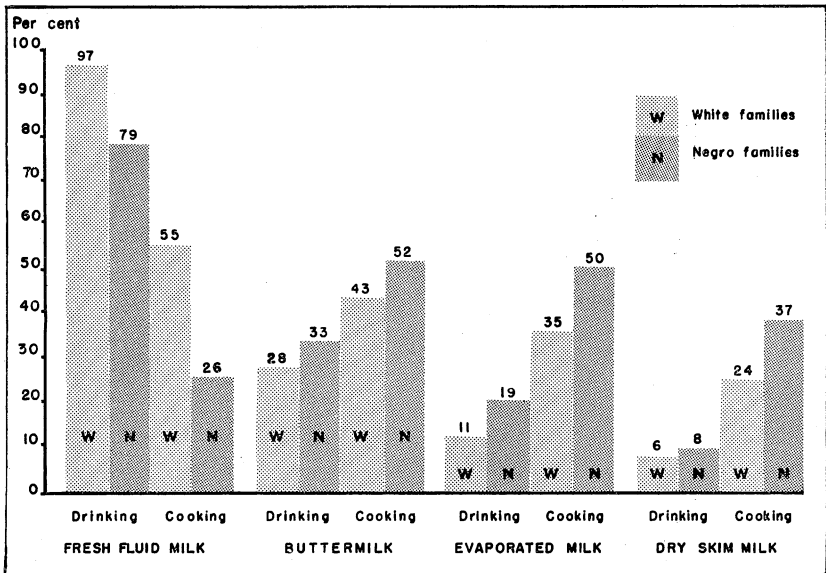


FIG. 2. Percentages of white and Negro urban Alabama families that used selected milk products for drinking and cooking during a 7-day period are shown.

Nearly one-fourth of the white and one-fifth of the Negro home-makers usually used only one form of milk in cooking. Although Negro families drank less sweet milk than white families, they often used an equal amount for cooking purposes, Appendix Table 2. Buttermilk was used by more Negro than white families, both for drinking and for cooking. Dry skim milk and evaporated milk were used largely for cooking rather than for drinking by all families. However, dry skim milk and evaporated milk were used in larger amounts and by greater percentages of Negro families.

Per Capita Consumption of Milk Products

All milk products used by individual families were converted into quarts of whole milk equivalent on the basis of their protein and mineral contents. Conversion factors developed by the Institute of Home Economics of the U.S. Department of Agriculture were used to express the nutritive value of each product as compared with fluid whole milk. The moderate cost food plan developed by USDA was used to determine optimum amounts of whole milk equivalent required by each family when adjusted to its composition.² This plan was based on dietary allowances set up by the National Research Council.

The recommended quantities of whole milk equivalent for persons, by age, were as follows:

<i>Age of person</i>	<i>Quarts per week</i>
Under 10 years.....	6.0
10-12 years.....	6.5
13-19 years.....	7.0
Adults.....	3.5
Nursing mothers.....	10.0

All milk products were placed in seven groups to simplify presentation of the data. Sweet milk was the classification for all forms of fresh milk, such as homogenized, skim, or chocolate. All forms of fresh and dry cream were placed together. Evaporated and condensed milk were classed in the canned milk group. All types of cured cheese were listed in the same class and all frozen products were listed as ice cream.

Per capita consumption of whole milk equivalent during a 7-day period amounted to 5.0 quarts for white families and 3.3 quarts for Negro families, Table 1. The per capita recommended whole milk equivalent for white families was 4.6 quarts and for

² *Family Food Budgets, Revised 1957*. Family Economics Review. Institute of Home Economics, USDA. Washington, D.C. Table 2, Page 9. October 1957.

TABLE 1. AVERAGE PER CAPITA USE OF MILK PRODUCTS (STANDARDIZED TO WHOLE MILK EQUIVALENT) DURING 7-DAY PERIOD, BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Average per capita use of milk products		Percentage that Negro was of white
	White	Negro	
	Quarts	Quarts	Pct.
Sweet milk.....	2.7	1.1	41
Buttermilk.....	.4	.4	100
Cream.....	.1	.1	30
Canned milk.....	.4	.5	125
Dry milk.....	.4	.5	125
Cheese.....	.8	.6	75
Ice cream.....	.3	.2	67
TOTAL OR AVERAGE.....	5.0	3.3	66
Recommended milk equivalent.....	4.6	4.8	104
Percentage of recommended amount used.....	109	69	---

¹ Less than 0.05 quart.

Negro families, 4.8 quarts. White families used 109 per cent of the recommended amounts. Negro families used 69 per cent of the whole milk equivalent necessary for a nutritionally sound diet.

Since percentages of use of whole milk equivalent were based only on meals eaten at home, it was possible that, during a 7-day period, individual family members could fall short of using recommended amounts if many purchased meals were eaten. More persons in white than in Negro families ate some meals outside the home. Indications were that many of these urban families were not meeting minimum requirements for whole milk equivalents (WME) of milk products. This would include 46 per cent of the white families and 75 per cent of the Negro families, as shown in the following table:

Level of consumption	Percentage of all families	
	White	Negro
Very low (under 50 per cent of recommended WME).....	4	24
Low (50-89 per cent of recommended WME).....	24	38
Medium (90-109 per cent of recommended WME).....	18	13
High (110 per cent and over recommended WME).....	54	25

KNOWLEDGE of NUTRITIVE VALUE of MILK PRODUCTS

Nutritional knowledge of homemakers may have affected the kinds and amounts of milk products used and the manner in which they were used. Five statements about the constituents of milk and one about orange juice were used to test the home-

maker's knowledge of the nutritional value of these foods. Percentages of homemakers who correctly evaluated the statements are shown below:

Statement	Percentages answering correctly	
	White	Negro
Milk is a good source of protein.....	91	78
Milk is a good source of calcium for strong bones and teeth...	99	96
Milk is a good source of some B vitamins.....	56	54
Yellow cheese is a good meat substitute.....	83	67
Orange juice is a good source of Vitamin C.....	95	83
Butter has more food value than oleomargarine.....	24	15

The correct answer for the first five statements was "yes," and for the last, "no." The statement about orange juice was added because the substantial advertising of this fact by the citrus industry could be used as a partial check on the answers given to the milk product statements.

Almost all homemakers knew that milk was a good source of calcium and protein. About half knew that milk supplied riboflavin and niacin. Uncertainty or lack of awareness of the vitamin B content in milk was greatest in families where per capita income or per capita meal costs were low, and the homemaker was under 30 years of age or had less than 12 years of education.

Answers other than the "correct" ones were about evenly divided among the "incorrect," the "uncertain," or the "don't know" replies. Combined "uncertain" or "don't know" answers exceeded the "incorrect" answers, except for the last statement. Homemakers least likely to know about the constituents of milk were those with formal education levels below the ninth grade; age beyond 60 years; low per capita incomes; and per capita meal costs in the lowest expenditure groups.

All families were divided into four levels of milk consumption in terms of whole milk equivalent — very low, low, medium, and high. Three-fourths of the homemakers whose families were consuming less than half the amount of milk products needed for good nutrition knew that milk was a good source of protein, and nearly all said milk was a good source of calcium. Percentages of respondents who were aware that milk was a good source of some B vitamins were nearly as high among low as high users of whole milk equivalent.

A slight upward trend in the percentage of homemakers who correctly evaluated the milk statements was noted as the level of use of milk products increased in both white and Negro families,

TABLE 2. RELATIONSHIP OF HOMEMAKERS' "CORRECT" ANSWERS TO SPECIFIC STATEMENTS ABOUT MILK PRODUCTS TO PERCENTAGE OF FAMILIES USING VARIOUS LEVELS OF WHOLE MILK EQUIVALENT, BY RACE, URBAN AREAS OF ALABAMA

Statement	Percentage used of recommended whole milk equivalent			
	Under 50 (very low)	50-89 (low)	90-109 (medium)	110 and over (high)
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
White families				
Milk is a good source of protein.....	81	88	92	92
Milk is a good source of calcium.....	97	98	99	99
Milk is a good source of some B vitamins.....	46	52	57	58
Yellow cheese is a good meat substitute.....	54	84	83	84
Butter has more food value than oleomargarine.....	11	20	17	28
Negro families				
Milk is a good source of protein.....	73	79	79	80
Milk is a good source of calcium.....	96	95	95	98
Milk is a good source of some B vitamins.....	55	53	63	48
Yellow cheese is a good meat substitute.....	70	63	66	68
Butter has more food value than oleomargarine.....	8	13	18	24

Table 2. There was a tendency for an increase in the knowledge of milk products to be related to a higher use of whole milk equivalents. This was most noticeable in the case of cheese, both yellow and cottage types, which was used in larger amounts in families where homemakers were over 40 years of age. The low relationship between use of recommended amounts of milk products and knowledge of their nutritional value showed that factors other than health considerations affected food purchases by homemakers.

FACTORS RELATED to MILK CONSUMPTION

Seventeen characteristics typical of family composition and income were tested for their relationship to the use of milk products. Of these, meal equivalent size of household, per capita income, per capita meal cost, and race were most closely related to variation in milk product consumption. Age of the homemaker, family type, and age of the youngest family member were less closely related. However, they did serve as indicators because of their association with income and household size as families passed through a typical family cycle.

Meal Equivalent Size of Household

"Size of household" as used in this study refers only to the 21-meal-equivalent family size. All meals eaten during the 7 days previous to the interview by family members, guests, or other persons were added together, then divided by 21 (meals per week) to reduce all families to standard units of a 21-meal person. Families in which several members ate meals away from home, or which had entertained guests were assumed to have adjusted food purchases to fit these situations.

Seventy per cent of the white and 56 per cent of the Negro families had a size of household of less than four persons. In 18 per cent of the Negro and 6 per cent of the white families, household size was six or more persons, Table 3. Seventy-eight per cent of the white and 67 per cent of the Negro families with a meal equivalent size of household under two people were high users of whole milk equivalent. Where meal equivalent size of household was six or more persons, 74 per cent of the white and 97 per cent of the Negro families were using less than 90 per cent of the whole milk equivalent recommended for good nutrition.

As size of household increased by one person, the decrease in per capita consumption of whole milk equivalent was relatively constant, as shown below:

Size of household, persons	WME used, quarts	
	White	Negro
Under 2.0.....	6.4	5.2
2.0-2.9.....	5.6	4.1
3.0-3.9.....	5.2	3.9
4.0-4.9.....	4.9	3.3
5.0-5.9.....	4.3	3.0
6.0-6.9.....	3.8	2.8
7.0-7.9.....	4.6	2.7
8.0 and over.....	3.2	2.1
Average.....	5.0	3.3

With an increase in household size, the per capita consumption of sweet milk was affected more than other milk products, especially in Negro families. The use of sweet milk declined from 3.2 quarts (WME) in the smallest white families to 1.4 quarts where the household numbered eight or more persons. Negro per capita consumption dropped from 1.7 to 0.5 quarts with a corresponding increase in size of household, Appendix Table 3.

Among white families, an increase in size of household was related to lesser use of sweet milk, buttermilk, cream, and cheese. Except for cream, this was also true of Negro families. Several

TABLE 3. RELATIONSHIP OF SIZE OF HOUSEHOLD TO PERCENTAGE USED OF RECOMMENDED WHOLE MILK EQUIVALENT, BY RACE, URBAN AREAS OF ALABAMA

Size of household, persons	Percentage used of recommended whole milk equivalent				Families in each group
	Under 50	50-89	90-109	110 and over	
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>No.</i>
White families					
Under 2.0.....	0	12	10	78	109
2.0-3.9.....	4	17	17	62	468
4.0-5.9.....	4	39	24	33	208
6.0 and over.....	23	51	13	13	47
Negro families					
Under 2.0.....	7	15	11	67	110
2.0-3.9.....	14	33	19	34	351
4.0-5.9.....	31	53	10	6	212
6.0 and over.....	54	43	3	0	149

of the white families with a household of seven persons had used buttermilk, dry milk, and canned milk, which raised their use of whole milk equivalents and changed slightly the downward tendency in the use of milk. Several Negro families of larger size had used enough dry milk, cheese, and ice cream to alter the downward tendency, but the relationship of increasing size of household to a lower use of sweet milk, buttermilk, and cheese is otherwise recognizable.

Families with a small household size were usually composed of adults, or a homemaker with one or two children. Although family income might be low, dividing it among two or three persons usually allowed sufficient money for food choices. When income was extremely low or a large number of persons was dependent on it, the limited money available for family needs, especially those of children, caused homemakers to restrict the use of milk products. This was especially true of fresh fluid milk, except for amounts necessary for cooking purposes. When food money was ample, milk products were used freely in both variety and quantity.

Per Capita Income

Income in this study refers only to per capita income. This adjusts the annual family income to the number of persons supported by that income. Thus, families are grouped according to their ability to purchase food products. For example, two families each with a \$4,000 income would have different purchasing habits and

abilities if one family consisted of two people and the other of six.

As per capita income increased the quarts of whole milk equivalents used in a 7-day period also increased, as shown below:

<i>Per capita income, dollars</i>	<i>Quarts of WME used</i>	
	<i>White</i>	<i>Negro</i>
Under 300.....	3.2	2.5
300-599.....	4.2	3.1
600-899.....	4.9	3.6
900-1,199.....	5.2	4.0
1,200-1,799.....	5.3	5.1
1,800-2,399.....	5.4	5.5
2,400 and over.....	6.3	5.4
Average.....	5.0	3.3

These data show that white families at all per capita income levels except the lowest were consuming nutritionally adequate amounts of whole milk equivalent. Negro families did not approach this level until per capita incomes reached the \$1,200 level. Having an equal amount of per capita income to spend did not lead to equal expenditures for milk products. Approximately \$5,000 in annual income for Negro families with an average of 4.5 persons would be required to place their purchasing power on a level with white families.

Since the widest difference in consumption of milk products between white and Negro people was in the use of sweet milk, analysis of this product by race and income level for a 7-day period showed the following:

<i>Per capita income, dollars</i>	<i>Use of sweet milk, quarts</i>	
	<i>White</i>	<i>Negro</i>
Under 300.....	1.4	0.6
300-599.....	2.0	1.1
600-899.....	2.5	1.2
900-1,199.....	2.8	1.5
1,200-1,799.....	3.2	2.1
1,800-2,399.....	3.2	2.6
2,400 and over.....	3.7	1.9
Average.....	2.7	1.1

In white families, the average consumption of 2.7 quarts of sweet milk was reached with per capita incomes of \$900-\$1,199. Among Negro families the 1.1-quart average was reached by most families with per capita incomes of \$300-\$599. Only for the few Negro families earning between \$1,800 and \$2,399 did the use of sweet milk approximate average use by white families. Except for canned milk, the direction of the trends in the use of milk

product groups was the same for both races. As per capita income increased, larger amounts of milk products were purchased, Appendix Table 4.

Since per capita income was derived from annual income divided by persons dependent on it, an analysis was made of the composition of families with per capita incomes within certain ranges. For example, families with per capita incomes below \$900 included only 35 per cent of all white families but 77 per cent of all Negro families. In the per capita income range of \$300-\$599, the recommended whole milk equivalent of 5.1 quarts for Negro families was considerably higher than the 4.2 quarts for white families. This indicated the presence of more children in the Negro families of this income range. The concentration of children among Negro families was greatest in families whose per capita incomes were under \$600. The highest recommended milk equivalent for white families (4.7 quarts) occurred at the \$600-\$1,199 per capita income level.

White families with low per capita incomes were likely to be composed of adults with perhaps one child, whereas Negro families with low per capita incomes were more likely to have one adult with several children. When a family with several children had limited money for all needs, the homemaker curtailed the use of milk products largely to the amounts needed for cooking. Among Negro families with more ample food money, milk was used as a beverage by children for at least one meal a day, usually breakfast.

Per Capita Meal Costs

Per capita meal costs in the moderate cost diet plan ranged from 18¢ for children under 1 year to 54¢ for boys between 16 and 19 years of age. The average for women was 35¢ and for men, 43¢.³ The range in per capita meal costs for families in this study was from less than 10¢ to more than \$1.00. White families had spent an average of 34¢ per person per meal during the 7-day study period, as compared with 22¢ for Negro families.

With an increase in per capita meal cost, both white and Negro families consumed more sweet milk per person, Appendix Table 5. It was more than three times as great in the highest per meal expenditure group as in the group with the lowest expenditure

³ Ibid.

for white families, and seven times as great for Negro families, as illustrated below:

<i>Per capita meal cost, cents</i>	<i>Use of sweet milk, quarts</i>	
	<i>White</i>	<i>Negro</i>
Under 10.....	1.1	0.4
10-19.....	1.7	0.9
20-24.....	2.0	1.3
25-29.....	2.8	1.4
30-34.....	3.0	2.0
35-39.....	2.9	1.7
40-49.....	3.4	2.4
50 and over.....	3.9	2.8
Average.....	2.7	1.1

There was less increase in per capita consumption of total whole milk equivalent from lowest to highest expenditure groups than was true for sweet milk alone. However, there tended to be some increase in the use of all items except dry skim milk. Given in the following table is the relationship of per capita meal cost to the use of whole milk equivalent:

<i>Per capita meal cost, cents</i>	<i>WME used, quarts</i>	
	<i>White</i>	<i>Negro</i>
Under 10.....	2.4	2.1
10-19.....	3.8	2.9
20-24.....	4.2	3.6
25-29.....	5.0	3.9
30-34.....	5.0	4.7
35-39.....	5.3	4.8
40-49.....	6.3	6.2
50 and over.....	6.5	6.5
Average.....	5.0	3.3

The percentage of recommended whole milk equivalent consumed increased from 48 to 155 per cent between the lowest and highest per capita meal cost groups in white families and from 40 to 171 per cent in the Negro families. As per capita meal costs increased from the lowest to the highest group, the recommended amount of milk equivalent decreased from 5.0 to 4.2 quarts for white families and from 5.3 to 3.8 quarts for Negro families. This change represents a difference in composition of the average family in the two per capita meal cost groups for both white and Negro families. Families spending under 10¢ per meal were large families with a low per capita income; those spending more were small families with high per capita income. Requirements for the first type of family were heavily weighted by the children and in the second by the adults.

Per capita meal cost was highly interrelated with both size of household and per capita income. As per capita meal costs in-

creased, size of household decreased and conversely, per capita income increased. While it costs more to feed an adult than a child, families composed only of adults have fewer members among whom income must be divided. Per capita income was above \$2,000 in many of the all-adult families, and other financial needs had been satisfied, which allowed homemakers to spend food money freely. About 30 per cent of the families in the study were of the all-adult type. Families with an income below \$5,000 a year, and four or more members, usually found it necessary for the homemakers to spend food money with an eye on other expenses.

In many respects, per capita meal costs were a good measure of the use of milk products. When food expenditures were large enough to provide both an adequate and a nutritious diet, milk products were an important part of the family food supply.

Less Important Factors

Several family characteristics studied were less directly related to use of milk products than was size of household, per capita income, or per capita meal cost. However, they provided a background for understanding the more closely related family characteristics. For example, "family type" isolated families that included definite clusters of persons by age, Appendix Table 6. The following summary of percentage use of recommended amounts of whole milk equivalent shows variations among different types of families:

<i>Family type</i>	<i>Percentage use of WME</i>	
	<i>White</i>	<i>Negro</i>
All adults.....	149	111
Adults, children 13-19 yr.....	119	81
Adults, children 12 yr. and under.....	102	67
Adults, children of mixed ages.....	85	49
Average.....	109	69

The recommended amounts of whole milk equivalent per week were 3.5 quarts for adults and 6.0 quarts for children. Therefore some idea about the family composition is revealed by the whole milk equivalent recommended for each group, as shown below:

<i>Family type</i>	<i>WME recommended, quarts</i>	
	<i>White</i>	<i>Negro</i>
All adults.....	3.7	3.6
Adults, children 13-19 yr.....	4.8	4.8
Adults, children 12 yr. and under.....	4.7	4.9
Adults, children of mixed ages.....	5.3	5.5
Average.....	4.6	4.8

These data show that only adult families as a group were likely to use nutritionally adequate amounts of whole milk equivalent. White families with children in both the younger and the older age ranges were likely to be deficit consumers. Most Negro families with children used less than the recommended amounts of whole milk equivalent.

Another characteristic that assisted in locating the kinds of families that were likely to be underconsuming milk products was age of the youngest family member. This related the stage in the family cycle to use of whole milk equivalent. Families whose youngest child was in grade school usually had homemakers in the late twenties or early thirties; family income was climbing; and family size was at the largest. Data in Appendix Table 7 show that only in Negro families was there a strong relationship between stage of family cycle and use of whole milk equivalent.

A third characteristic that formed a background but was less related to use of whole milk equivalent was age of the homemaker. Since the study dealt with two-member or larger families, most homemakers were married or had been, and about two-thirds had children below the age of 20 years. In the normal family situation, homemakers in their late twenties or early thirties have children in grade school; those in their late thirties and early forties have children of high school age; and the older homemakers usually have other adults in the home — grown children, husband, or relatives. Negro families followed less closely this pattern but the trend was still evident. When the percentage of recommended quarts of whole milk equivalent used was related to age of homemaker, the following results were noted:

<i>Age of homemaker, years</i>	<i>Percentage use of WME</i>	
	<i>White</i>	<i>Negro</i>
Under 20.....	73	54
20-29.....	104	66
30-39.....	100	63
40-49.....	113	67
50-59.....	127	80
60 and over.....	137	80
Average.....	109	69

While age of the homemaker was an indicator of the use of whole milk equivalent, it was most useful in showing the probable family composition when homemakers were in specific age ranges. For example, considerably less per capita whole milk equivalent is recommended for families when homemakers are above 60 years of age than for those whose homemakers are in

their twenties, Appendix Table 8. Older women were more likely to eat some meals away from home and to drink some beverage other than milk. The apparent overconsumption of adult families may not be an actual fact in terms of all meals eaten within a 7-day period, but was true in relation to meals eaten at home.

Education of the homemaker is a fourth characteristic of families that served as an indicator of the use of milk products. Relationship of the percentage used of recommended amounts of whole milk equivalents by educational levels of homemakers is shown by data in the following table:

<i>Education of the homemaker</i>	<i>Percentage use of WME</i>	
	<i>White</i>	<i>Negro</i>
Under 5 grades.....	88	65
5-8 grades.....	96	63
9-11 grades.....	111	68
High school graduate.....	113	79
Some college.....	131	86
College graduate.....	126	100
Average.....	109	69

As the homemaker's level of education went higher, per capita use of whole milk equivalents increased in both races, Appendix Table 9. However, an analysis of families by levels of formal education completed by homemakers indicated that other characteristics were more directly related to use of milk products. The homemaker with a grade school education or less was likely to be nonwhite and to have families with low per capita incomes, large size of households, and low per capita meal costs. The high school educated homemaker was the "average" in per capita income, size of household, and per capita meal costs for white families, but above average for these items in Negro families. The homemaker with a college education tended to be related to families with high per capita incomes, small size of households, and high per capita meal costs. These homemakers were frequently employed outside the home. While it is not possible to separate "cause" and "effect," education of the homemaker serves as a convenient indicator of the use of whole milk equivalents provided the interrelated characteristics are recognized.

This study was based on the homemaker as the center of the household with respect to food purchases for families. About 10 per cent of the white and 20 per cent of the Negro families had no male head of the house. In normal family situations the age and education of homemakers and male heads of the house tended

to be similar. Analysis by characteristics of the male head, even when households headed by women were excluded, did not differ a great deal from results when age or education of the homemaker was the criterion.

Occupation was not closely related to the use of milk products in the classifications that were used. Employment of the homemaker outside the home was unrelated, except their incomes enlarged total family income. Total expenditure for food the previous 7 days was unrelated to the use of milk products because it failed to take into account family size. However, it was used to calculate per capita meal costs for each family.

Most of the homemakers included in this study were natives of Alabama. Of the remainder, most had grown up in the South. Consequently, there were insufficient data to study the relationship of homemaker origin to use of milk products. The homemakers studied were nearly evenly divided between those who had grown up in rural areas and those with an urban childhood background. Families whose homemakers had rural backgrounds tended to use less whole milk equivalents on a per capita basis. However, these families were usually larger in size; income was limited; and per capita meal costs were lower.

Per capita consumption of whole milk equivalents seemed only slightly related to the amount of specific knowledge the homemaker possessed about milk products. On the other hand, use of milk products showed a close relationship to selected family and economic characteristics. These findings point to several specific implications. Nutritionists and others concerned with the physical well being of families need to develop techniques other than nutritional values to motivate homemakers to use milk products in adequate amounts. This is especially important in families with young children, which often have low incomes, young homemakers, or homemakers with less than a high school education. The need exists for simple nutritional information that can be translated into better meals at moderate costs.

Homemakers past 40 years of age were usually better informed and more concerned with good nutrition than the younger women. There were probably two reasons for this — the natural concern about health in older persons, but more likely, the widely published nutritional programs featuring the Basic Seven during the war years.

Advertisers of food products who present unbiased nutritional

information in forms that the homemaker can use make a contribution to the nation's health and to the commodity they sell. Nutritional information is most effective when conveniently available to those who need it most — the beginning homemaker, the young mother, the parent of a child who requires a planned dietary program, the homemaker who wants help in planning the most nutritious meals at minimum cost, and the older person who can profit from better food habits. Food faddism, outdated erroneous beliefs, and unbalanced diets from preference or ignorance are areas in which scientific but practical information is needed by homemakers and their families.

ATTITUDES about MILK and MILK PRODUCTS

Family Meals and Snacks

At meal times nearly all urban families usually had some beverage other than water. Race, season of the year, and age exerted considerable influence on the beverages used at snack times. Most white children usually had a mid-afternoon snack beverage. Adults were most likely to have an afternoon snack beverage in warm weather. Relatively few family members had a beverage before going to bed. Beverage patterns of Negro families were

TABLE 4. AVERAGE BEVERAGE CHOICE AND PERCENTAGE PREFERENCES BY SEX AND AGE OF FAMILY MEMBERS, BY RACE, URBAN AREAS OF ALABAMA

Family member by sex and age	Average beverage choice preference						
	Milk	Coffee	Tea	Soft drinks	Fruit juice	Drink mix	Water, none
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
White families							
Boys under 13 years.....	50	1	4	5	8	3	29
Girls under 13 years.....	50	1	4	4	9	1	31
Boys 13-15 years.....	44	4	4	9	5	2	32
Girls 13-15 years.....	35	5	6	11	6	1	36
Boys 16-19 years.....	34	10	7	13	2	2	32
Girls 16-19 years.....	37	6	6	14	2	0	32
Male heads of house.....	19	31	10	9	2	0	29
Homemakers.....	15	30	13	8	3	0	31
Negro families							
Boys under 13 years.....	41	1	2	4	5	5	41
Girls under 13 years.....	39	1	2	4	5	5	44
Boys 13-15 years.....	28	3	3	6	4	7	49
Girls 13-15 years.....	29	3	4	5	5	6	47
Boys 16-19 years.....	23	8	4	6	5	5	49
Girls 16-19 years.....	24	6	4	9	6	5	45
Male heads of house.....	13	21	5	9	3	3	46
Homemakers.....	11	20	7	8	4	3	47

similar to those of white families except at a lower percentage level, reflecting the lesser use of all beverages other than water.

Table 4 reports the average percentage level of beverage choices of family members by sex, age, and race at meal and snack times in warm and in cold weather. This table illustrates the following tendencies in selection of beverages by family members:

- (1) The decreasing use of milk as a beverage with an increase in age of family members.
- (2) Greater use of milk as a beverage by boys than girls in early adolescence.
- (3) The use of coffee and tea by adults.
- (4) The ages when soft drinks were used as snack beverages.
- (5) The lesser use by Negro families of any beverage other than water.

The general pattern of beverage choices was coffee at breakfast for adults the year around. More boys than girls drank coffee for breakfast, especially after the age of 16 years. The major beverage

TABLE 5. PERCENTAGE OF MILK DRINKERS AMONG FAMILY MEMBERS AT MEAL AND SNACK PERIODS, BY RACE, URBAN AREAS OF ALABAMA

Meal and snack periods	Family members by age and sex							
	Home-maker	Male head of house	Boys			Girls		
			Under 13 yr.	13-15 yr.	16-19 yr.	Under 13 yr.	13-15 yr.	16-19 yr.
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
White families								
Breakfast.....	6	8	73	64	40	72	42	44
Noon meal.....	29	34	84	87	67	86	79	75
Evening meal.....	39	47	81	74	69	83	65	75
Morning snack.....	4	4	18	6	1	16	2	3
Afternoon snack.....	5	5	23	15	14	25	11	11
Evening snack.....	10	16	22	19	13	19	12	15
Number of people ¹ .	831	754	420	69	76	429	81	62
Negro families								
Breakfast.....	9	10	70	46	33	68	51	39
Noon meal.....	22	23	72	69	58	73	74	54
Evening meal.....	21	31	63	40	37	57	46	37
Morning snack.....	2	3	13	2	3	10	3	2
Afternoon snack.....	3	4	16	10	5	14	7	6
Evening snack.....	3	8	2	4	4	12	6	5
Number of people ² .	818	662	567	89	71	665	110	100

¹ Accounts for 93 per cent of family members; excludes 76 other males and 135 other females 20 years and over living in the family.

² Accounts for 90 per cent of family members; excludes 118 other males and 238 other females 20 years and over living in the family.

age for other meals in summer was iced tea. Children who drank iced tea in summer usually changed to milk in winter. Adults were somewhat more likely to change to coffee for cold weather meals. Soft drinks were most often used as warm weather snack beverages by adolescents and adults.

Milk was primarily used as a beverage with the noon and evening meals, especially in cold weather. If adults drank milk at all, it was usually at these meals. Some older persons and younger children drank milk before going to bed. Milk as a snack beverage was used largely by boys of all ages and girls under 13 years old. The milk drinking habits of family members are summarized in Table 5.

At the lower income levels, a higher percentage of families used no beverage other than water. Milk, coffee, and fruit juice were used more by families with ample food money, and tea and soft drinks by families with some restrictions on free choice. Employed homemakers were more likely to have a snack beverage, usually coffee or a soft drink, than those who did not work outside the home.

Beverages for Meals Eaten in Public Places

Forty-six per cent of the white and 9 per cent of the Negro homemakers sometimes ate meals at public places, such as restaurants, cafeterias, or lunch counters. Homemakers who sometimes purchased meals had medium to high incomes and educations beyond grade school. Those who ate "out" were asked what they usually drank in cold and in warm weather with four types of menus: (1) a plate lunch with pork chops, (2) a hamburger, (3) a roast beef sandwich, and (4) a fish plate. Large, glossy prints of attractively arranged plates featuring the four types of orders were shown each homemaker.

Iced tea in warm weather and coffee in cold weather were the preferred beverages of more than half the white homemakers with the pork chop lunch, the beef sandwich, and the fish plate. To go with a hamburger, soft drinks were the choice of two-thirds in warm weather and nearly half in cold weather. Milk was suggested more often with the beef sandwich than with any of the other plate lunches. Even so, mentions of tea and coffee were about triple those of milk; only in cold weather was milk the second most popular beverage. Among Negro homemakers, preferences were similar except that soft drinks were more popular than

iced tea in warm weather with both the beef sandwich and the fish plate.

Homemakers drank coffee regardless of the season because it was a mealtime habit, the flavor was enjoyable, or it complemented the food flavors in the meal. Some said coffee, even in summer, made the meal more satisfying. With pork or beef meals, most reasons for choosing coffee were in terms of habitual use or flavor preference. In the case of the fish plate, the characteristic flavor of this meal caused more comments about coffee complementing the taste of the food or its stimulating qualities, particularly in cold weather.

Iced tea was the preferred beverage in warm weather because it was refreshing, it was a favorite beverage, or the homemaker believed it was more suitable to the season with pork or beef meals. Of those who selected tea with the fish plate, about half said tea with lemon heightened the food flavors and made the meal more appetizing. In cold weather, those who preferred hot tea with the beef sandwich said this was because of personal preferences, it was a stimulating beverage, or it made a cold meal more satisfying. Hot tea was preferred with the pork chop plate by some homemakers because they felt it made the greasiness of pork more palatable.

Regardless of season, the main reasons given for drinking milk with the selected meals were that the respondents liked milk, they always drank milk with light meals, or milk rounded out a light meal in terms of calories and nutritive value. Homemakers who would drink milk with the beef sandwich gave such reasons as the flavor of beef and milk went well together, or a sandwich used as a meal needed a hearty beverage. Relatively few homemakers selected milk to drink with the fish plate. Coffee, milk, and juice beverages were more likely to be ordered by those who had more years of education or ample income. Tea and soft drinks were more popular with homemakers of lesser incomes and education. Season of the year and habit appeared to be controlling factors in the choice of beverages with purchased meals.

Beverages for Guest Meals

Nine-tenths of the white homemakers would serve iced tea in summer or coffee in winter at a prestige meal for adults. When asked for a second preference, one-third of the homemakers did

not mention another beverage. Among Negro homemakers, two-thirds mentioned iced tea in summer as a suitable guest meal beverage. Three-fourths of these respondents suggested coffee for cold weather meals. Soft drinks, fruit juice, and drink mix beverages were also suggested as suitable for guest meals, especially in warm weather and by the Negro homemakers.

Two-fifths of the white and two-thirds of the Negro homemakers said they never offered milk to adult guests. This was true either as an offer along with tea or coffee, or when these other beverages were not used by the guests. The conditions under which milk was offered to adult guests were as follows:

<i>Situation</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Milk is never offered.....	40	65
Milk offered along with coffee or tea.....	27	12
Milk offered if other beverage refused.....	17	11
Milk offered when family members drink it.....	10	6
Milk offered when guests ask for it or are on a known diet, and miscellaneous answers.....	6	6

Major reasons given by the homemaker for failing to offer milk to adults at guest meals are shown below:

<i>Reason</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Feel that adults don't drink or like milk.....	41	38
Hostess does not drink milk.....	25	15
Too expensive to serve to guests.....	19	35
Social custom to offer coffee or tea.....	7	5
Miscellaneous answers.....	8	7

The grade school educated homemakers, those with low incomes, and those over 40 years of age were most likely to regard milk as too expensive to serve adults. That homemakers do not serve milk at guest meals because they do not drink it themselves was mentioned more often by white homemakers with above average formal education and income. Negro homemakers with higher levels of income and education were most likely to say adults do not like or drink milk.

Coffee or tea was mentioned nearly twice as often for guest meals as it was for family meals. Conversely, milk was mentioned for guest meals only half as often as in family meals. Homemakers with a high level of income and education were accustomed to serving elaborate guest meals with coffee or tea as the traditional

beverage. Milk was offered only under special conditions, such as guests asking for it, or if known that guest was on a diet. Among homemakers of a relatively low level of income and education, guest meals were not much different from regular meals with the beverage being the one usually used by the family. Relatively few Negro homemakers invited guests to their homes for meals.

Beverages for an Evening Party

Traditionally milk has not been thought of as a social beverage. The slogan, "three glasses of milk a day" suggests it is a meal-time beverage. Nearly half the white homemakers said it would be quite all right for a guest to request milk even though it had not been offered by the hostess. Some homemakers thought they should comply with the request, but implied there might be an embarrassing moment if the milk supply was low. Opinions expressed by homemakers can be summarized as follows:

<i>Opinion about guest asking for milk</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Perfectly all right.....	45	37
Guest asks for health reasons.....	25	20
Unusual but tries to please guests.....	17	20
Strange, odd, rude.....	8	15
No opinion, never has parties.....	5	8

Among white homemakers, requests for milk by a guest at an evening party was approved most frequently by those with a college education, the younger homemakers, and those with high per capita incomes. Concern about the guests' health was expressed more often by homemakers with a grade or high school education, those with medium or low per capita incomes, and homemakers in their forties. Responses of Negro homemakers were quite similar to those of white homemakers except that the income situation of the family was more closely related to opinions. Negro homemakers with low incomes were most likely to think the request of the guest was rude or strange.

Beverages for Teenage Girls

Teenage girls who really like milk but have soft drinks when with others of their age group probably do so because "that's a teenage habit," many white homemakers commented. Replies to

a question regarding beverage habits of teenage girls, by race, were as follows:

<i>Why teenage girls drink soft drinks</i>	<i>Percentage of homemakers</i>	
	<i>White</i>	<i>Negro</i>
Teenage habit, fad.....	32	24
Break with childish habit.....	25	16
Likes taste.....	21	35
Gives energy, not fattening.....	9	11
Easier to get, parents let them.....	6	5
No opinion or don't know.....	7	9

The better educated homemakers were most likely to consider the use of soft drinks by teenagers as a fad typical of their years. Less educated Negro homemakers were of the opinion that the characteristic flavor of soft drinks was the strongest appeal.

Homemakers were asked for suggestions as to an approach to convince the teenage girl she should drink milk when with her contemporaries. The following table shows the percentage of replies by race:

<i>Suggestions to teenagers</i>	<i>Percentage of homemakers</i>	
	<i>White</i>	<i>Negro</i>
Milk is the most healthful beverage.....	54	62
Drink milk, don't follow crowd.....	17	14
Milk promotes good complexion.....	14	4
Soft drinks are unhealthful.....	5	8
Add sweetening, have milk available.....	5	4
Do nothing or no opinion.....	5	8

Use of Milk Products for Weight Control

To learn more about their attitudes concerning the use of milk in weight control programs, homemakers were asked to suggest a suitable beverage to be served at the noon meal with a lettuce and tomato sandwich to a person who wanted to lose a little weight. Fifty-six per cent of the white and 40 per cent of the Negro homemakers suggested some form of milk as shown below:

<i>Kind of milk beverage</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Milk, whole, including flavored.....	14	14
Milk, skim or nonfat dry.....	32	17
Buttermilk.....	10	9

Homemakers who usually drank milk with meals more often suggested some milk form than did other respondents. Women who were concerned about weight changes were more likely to suggest nonfat dry milk as a suitable beverage. Those who were trying to maintain their present weight were more likely to recommend coffee or whole milk.

The reason most often given for suggesting a form of milk was that it was nourishing or that it contained protein. Homemakers who suggested skim milk or buttermilk said these were low in calories but high in food value. Suggestions of milk as a suitable beverage increased with an increase in per capita incomes and levels of education of the respondents.

Homemakers who did not suggest milk as a suitable beverage with the lettuce and tomato sandwich were then asked what they thought of serving milk with this weight watcher's meal. The responses of homemakers to this question were as follows:

<i>Response</i>	<i>Percentage of homemakers</i>	
	<i>White</i>	<i>Negro</i>
All right if skim or buttermilk.....	33	19
Fattening, adds calories.....	27	37
All right occasionally.....	19	26
Nourishing.....	11	7
Don't know.....	8	9
Wouldn't go with sandwich.....	2	2

Cottage Cheese

Cottage cheese is one of the oldest known dairy foods, yet it is a new food form in terms of modern methods of manufacture and promotion. Despite advances in production and sales of cottage cheese, it is not a widely used product in urban areas of Alabama. Only 29 per cent of the white and 10 per cent of the Negro families had used cottage cheese during the study week. However, most homemakers thought that cottage cheese was a healthful food, as shown below:

<i>Opinion about cottage cheese</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Healthful food.....	86	70
Not healthful food.....	2	2
Don't know.....	12	28

The reasons reported by homemakers who thought cottage cheese was a healthful food are given in Table 6. Percentages of homemakers giving each reason are reported separately for those who said cottage cheese was a healthful food and for those who often served cottage cheese. Negro homemakers were less likely than white homemakers to explain their belief that cottage cheese was a healthful food. Percentages of Negro homemakers whose answers indicated a knowledge of the product were much higher among those who frequently used cottage cheese. Percentages of

TABLE 6. REASONS GIVEN BY HOMEMAKERS AS TO WHY COTTAGE CHEESE IS A HEALTHFUL FOOD, BY RACE, URBAN AREAS OF ALABAMA

Reason given	Percentage of homemaker replies among those who believed cottage cheese a healthful food			
	Total sample		Families using cottage cheese often	
	White	Negro	White	Negro
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
It is low in calories	30	22	38	40
It is made from milk.....	24	19	15	8
Contains calories, proteins, minerals, and vitamins.....	17	10	28	18
Recommended for diets, easy to digest.....	14	17	17	24
Don't know or not answered.....	15	32	2	10
TOTAL	100	100	100	100

homemakers who replied that it is "recommended in diets" were higher among Negro than white homemakers. Homemakers who knew only that it was made from milk were usually younger homemakers or those who seldom or never used cottage cheese.

As years of formal education or per capita income increased, a greater percentage of homemakers thought cottage cheese was a healthful food. The relationship of education and knowledge of the nutritive value of cottage cheese is shown below:

<i>Education of homemaker</i>	<i>Percentage reporting cottage cheese a healthful food</i>	
	<i>White</i>	<i>Negro</i>
Under 5 grades.....	58	51
5-8 grades.....	74	71
9-12 grades.....	89	76
College, 1 or more years.....	96	88

Homemakers between 30 and 60 years of age were most likely to recognize the nutritional value of cottage cheese, but age did not show a consistent trend. While about three-fourths of the homemakers were aware that cottage cheese was a healthful food, only one-third of the white and one-eighth of the Negro families used it regularly. Frequency of use by homemakers who thought cottage cheese was a healthful food was as follows:

<i>Frequency of use</i>	<i>Percentage use</i>	
	<i>White</i>	<i>Negro</i>
Often (one or more times a week).....	32	12
Seldom (once a month or less).....	28	24
Never.....	40	64

All homemakers were asked if they considered cottage cheese an expensive food. Their replies were as follows:

<i>Relative expense of cottage cheese</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Inexpensive.....	71	38
Expensive.....	7	24
Don't know or no answer.....	22	38

Families that used cottage cheese most often used it in salads with fruits, such as peaches or pears, or with such vegetables as tomatoes. Some users combined it with other foods and ate it with meals or as snacks throughout the year. Ways in which homemakers used cottage cheese are given below:

<i>Uses of cottage cheese</i>	<i>Percentage of all uses</i>
With fruit in a salad.....	39
With vegetables in a salad.....	27
Plain as a snack or with meal.....	10
Plain on bread, toast, or crackers.....	8
In sandwiches with mayonnaise, etc.....	5
On plate with other food or seasonings.....	5
In cooked dishes.....	3
With gelatin as a dessert.....	2
As a dessert with cream, sugar, spices.....	1

Homemakers who were actively trying to watch their weight used cottage cheese more often than those not concerned about weight control, Table 7. The difference was more pronounced for Negro than for white homemakers. Of all white homemakers who were watching their weight — trying to lose, gain, or keep the same weight — 42 per cent used cottage cheese often, as compared with 29 per cent for those who were not weight conscious. Among the Negro homemakers, cottage cheese was used often by 28 per cent who were watching their weight and by 9 per cent who were not. These data indicate that the use of cottage cheese has become closely associated with a dietary practice, which may have resulted in a restricted market.

Cottage cheese was most likely to be used in families with high per capita incomes, high per capita meal costs, small size of households, and homemakers whose education was well above average. Conversely, families who never used cottage cheese were characterized by low per capita incomes, grade school educated homemakers, low per capita meal costs, and large size of households.

The major reason for nonuse of cottage cheese was that the homemaker herself did not care for it or she was afraid it might not be eaten by her family. Sixteen per cent of the Negro home-

TABLE 7. RELATIONSHIP OF FREQUENCY OF USE OF COTTAGE CHEESE TO WEIGHT CONTROL PRACTICES OF HOMEMAKERS, BY RACE, URBAN AREAS OF ALABAMA

Weight control practice	Frequency of using cottage cheese			Total
	Often	Seldom	Never	
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	
White families				
Lose weight.....	49	19	32	100
Gain weight.....	19	37	44	100
Keep same weight.....	44	41	15	100
Average, weight watchers.....	42	26	32	100
Average, not watching weight.....	29	29	42	100
AVERAGE OF BOTH GROUPS.....	32	28	40	100
Negro families				
Lose weight.....	31	33	36	100
Gain weight.....	25	20	55	100
Keep same weight.....	17	28	55	100
Average, weight watchers.....	28	31	41	100
Average, not watching weight.....	9	23	68	100
AVERAGE OF BOTH GROUPS.....	12	24	64	100

makers who never used cottage cheese said they had never tasted the product. In half the Negro and two-thirds of the white families that regularly used cottage cheese, all family members liked the product.

These data show that homemakers may recognize that a food is "good for you," but use other factors to determine the extent of its use in family meals. These factors include size of food budgets, family preferences, menu patterns, need for variety, or age and sex of persons to be fed.

Instant Dry Milk

Forty-four per cent of the homemakers in each race had used or were using instant dry milk at the time of the study. About one-third of all homemakers in the sample were currently using this product in cooking. About half that number were using dry milk as a family beverage. Few families used reconstituted dry milk only for drinking. About two-fifths of the homemakers who were familiar with instant dry milk were current users of it for drinking purposes. Seven-tenths of the white and nearly nine-tenths of the Negro homemakers who had ever tried instant dry milk were current users of it for cooking purposes.

Major reasons for the use of instant dry milk as a beverage by white and Negro families were that it was low in calories, had a pleasant flavor, and was an economical dairy food. White home-

makers most often said that instant dry milk gave the same results in cooking as the more expensive forms of milk. Negro homemakers said that it made good breads at less expense. Such reasons for liking the product as ease of use, storage, and economy were reported by both races.

Of the families who did not use instant dry milk, "don't like taste" was the most important reason given by all age groups of homemakers for disliking dry milk for drinking. "Not rich enough" and "trouble to mix" were other reasons given by both races. Instant dry milk was much more readily accepted by both white and Negro homemakers as a food for cooking than as a beverage for drinking. The major reasons given by homemakers who disliked instant dry milk for cooking were "not rich enough" and "trouble to mix," which were also objections for beverage use, plus "get poor results."

In white families, major users of instant dry milk were older homemakers with low per capita incomes, grade school educations, low per capita meal costs, and either very small or very large size households. Instant dry milk was used primarily because it was a less expensive milk product. However, there was a group of middle-aged homemakers who used it because of its low calorie content.

The trends among Negro families were less well defined. Major users of dry milk for drinking had large families, low per capita incomes and meal costs, and homemakers were likely to be in their thirties. Users of dry milk for cooking were similar, except homemakers were likely to be middle aged. They used the product largely for hot breads.

Ice Cream

Two-thirds of the families interviewed had eaten ice cream during the previous 7 days, Appendix Table 1. Consuming families had used an average of $3\frac{1}{2}$ pints. The average quantity of ice cream used by all families studied was above 2 pints. Ice cream was both a popular snack and dessert item with these urban families in Alabama.

Using a check list, homemakers said that cake, pie, and ice cream were the most frequently used desserts for family meals. The most popular snack items were cookies, fruit, and ice cream. Families most apt to have desserts or snacks were those with younger homemakers, several children, medium per capita incomes, and average per capita meal costs. Characteristics of fam-

ilies that seldom or never used snack or dessert foods were homemakers 50 years of age or older, no children, and per capita incomes either high or very low. One-fifth of the Negro families did not use any of the listed items as snacks.

When homemakers were asked to name their families' favorite desserts, some form of pie accounted for nearly half those mentioned. Ratings for favorite family desserts were as follows:

<i>Dessert class</i>	<i>Percentage of total</i>
Cake.....	25
Nonfruit pie.....	23
Fruit desserts, predominately pie.....	19
Ice cream.....	15
Pudding.....	12
Miscellaneous.....	6

From the list of specific desserts most liked by family members, those mentioned more than 30 times are shown below:

<i>Favorite dessert</i>	<i>Percentage of total</i>	
	<i>White</i>	<i>Negro</i>
Chocolate cake.....	16	18
Chocolate pie.....	14	6
Lemon pie.....	12	13
Apple pie.....	12	11
Banana pudding.....	12	16
Vanilla ice cream.....	11	10
Strawberry shortcake.....	7	---
Pound cake.....	6	6
Cocoanut cake.....	6	---
Cherry pie.....	4	---
Sweet potato pie.....	---	11
Peach pie.....	---	6
Plain cake.....	---	3

Of the most frequently mentioned desserts, three kinds of pie, cake, pudding, and ice cream accounted for two-thirds of the total. "Chocolate cake" for Alabama residents is a white or yellow cake with chocolate icing. Vanilla was by far the most popular ice cream, followed by chocolate and strawberry. Homemakers were a little more inclined toward the unusual ice cream flavors.

Most homemakers approved the serving of ice cream for a guest meal dessert. Reactions to this suggestion were as follows:

<i>Opinion of ice cream as guest meal dessert</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Definite approval.....	47	62
Indifferent approval.....	16	14
Expected fancier dessert.....	18	13
Easy way out.....	11	6
Disapproval.....	8	5

Homemakers with low incomes or those over 60 years of age were most likely to approve of ice cream as a dessert. Those with

medium incomes or in their fifties were more likely to prefer a special dessert, perhaps reflecting the fact that they often used ice cream with family meals. It was the belief of homemakers in their thirties or those with high per capita incomes that the hostess took the easy way out when serving ice cream or that she was a poor cook. Homemakers in their twenties were most likely to make statements reflecting disappointment.

Calorie content of ice cream was mentioned most by homemakers in their forties or those trying to lose weight. Those who were trying to maintain their present weight were most likely to feel the hostess could have exerted a little more effort. Homemakers who were trying to gain weight expressed a preference for having pie or cake under the ice cream. Those unconcerned with weight control were most likely to approve of ice cream as a guest meal dessert.

Ice cream alone or combined with cake, pie, or a topping were most frequently mentioned as a suitable dessert for a prestige meal in their own home. Suggestions of the homemakers were as follows:

<i>Prestige meal dessert</i>	<i>Percentage of all homemakers</i>	
	<i>White</i>	<i>Negro</i>
Ice cream alone.....	20	27
Ice cream with other sweets.....	20	22
Nonfruit pie.....	19	14
Fruit pies or desserts.....	16	11
Cake.....	8	8
Pudding.....	5	6
Miscellaneous or no answers.....	12	12

As with family meal desserts, economic level of the family and age of the homemaker were reflected in prestige meal endings. However, desserts for prestige meals were usually somewhat more expensive than those served at regular family meals. The suggestion of ice cream for the prestige meal was not related to income levels of white families, but was usually suggested only by medium or higher income Negro homemakers. Ice cream combined with a topping or put on cake or pie was usually suggested by high income homemakers or those in their forties. Fruit pie with ice cream was considered the ultimate in desserts by many Negro families.

Desserts for prestige meals were chosen largely because they were a "family favorite," or "everybody likes it." "Ease of service or preparation" was a much less important reason. With pies or gelatin based desserts, the reason given for serving them was

“special for company.” The major reasons given for suggesting ice cream alone or in combination was that it was “easy to serve” or the “family likes these desserts.”

SUMMARY

The purpose of this study was to determine the effect of family characteristics on the food buying decisions of urban homemakers. Data were obtained from 832 white and 822 Negro homemakers in a Statewide urban sample. Milk products were used as the representative food because of their wide acceptability, stable price, and many forms.

One-fourth of the white and two-thirds of the Negro families consumed less than nutritionally adequate amounts of whole milk equivalent. Knowledge of the constituents of milk by the homemaker did not necessarily result in the use of nutritionally adequate amounts of milk products by her family. Relatively few of the wide variety of milk products available in the market were used by most families. Negro families were low users of fresh fluid milk as a beverage. Manufactured milk products were used about equally by both races.

Urban families were about equally divided between high and low users of whole milk equivalents. High user homes consisted of families that were above average in per capita income, education of homemaker and head of the house, and per capita meal costs. Most homemakers of this group were middle aged and their families were below average in size. Conversely, the low user homes consisted of families that were below average in per capita incomes, education of homemaker and head of the house, and per capita meal costs. The homemaker was in the under 40 age group and her family was usually above average in size. The high user homemaker had a largely unrestricted food budget, whereas the low user had limited funds for food. This fact showed up in both the amount and kind of dairy products purchased.

Fresh fluid milk was used primarily as a meal time beverage, particularly at the noon or evening meals in colder weather. Most homemakers accepted milk as a suitable and nourishing beverage for children at meal times. About one-third of the homemakers and nearly half the husbands drank milk with meals other than breakfast when at home. The frequency of drinking milk with meals decreased with an increase in age of family members. Few women drank milk with purchased meals.

Milk was seldom used as a snack beverage except by young children and some teenage boys. With guest meals, iced tea was usually served in warm weather. Coffee was usually served at breakfast, and for guest meals in cold weather. At an evening party for adults, most homemakers did not offer milk but would serve it on request. Many homemakers did not drink milk or recommend it for other women because it was thought to be fattening. Women who drank milk with meals were most likely to suggest low-calorie milk beverages as a suitable accompaniment for a light lunch for a weight watcher.

Instant dry milk and evaporated milk were used largely for cooking purposes. About one-third of the homemakers used it in hot breads or desserts. Relatively few families used canned or dry milk as a beverage. Both forms were used primarily because they were low in cost and provided satisfactory substitutes for fresh milk. Homemakers who believed they could afford fresh milk used the dry or canned forms for specific recipes only. A few used dry milk as a beverage in health programs.

Cheese and ice cream were widely used but cream was a prestige item in the limited number of families who used it. The cured cheeses were most popular in older families. Ice cream was served more often in families with several children and adequate food money.

There was a close relationship between attitudes toward cottage cheese and its use. Frequent users considered it to be an inexpensive, low-calorie, easily served form of milk that provided variety in healthful meals. Non-users knew little about it except that it was made from milk. Forty per cent of the white and 64 per cent of the Negro homemakers never used cottage cheese. Some Negro homemakers used cottage cheese because it was in the prescribed diet of a family member. A considerable number of Negro homemakers had never tasted cottage cheese.

Ice cream and other frozen desserts were used for snacks, family meals, and prestige dinners. When used for special meals, ice cream was frequently combined with cake, pie, or a topping. Ice cream was most popular in families with several children because of its convenience.

Milk is a familiar product to all urban homemakers. However, there were varying levels of knowledge and attitudes about the value or uses that could be made of milk products. Consequently, wide differences were found in the amount of milk products used by individual families.

APPENDIX

APPENDIX TABLE 1. NUMBER AND PERCENTAGE OF FAMILIES USING MILK PRODUCTS IN THE HOME, AND AVERAGE AMOUNT CONSUMED PER FAMILY DURING 7-DAY PERIOD, BY KINDS OF PRODUCT AND BY RACE, URBAN AREAS OF ALABAMA

Milk product	Families using		Percentage of families using		Unit	Average quantity used per family			
						Consuming families		All families studied	
	White	Negro	White	Negro	White	Negro	White	Negro	
	No.	No.	Pct.	Pct.		No.	No.	No.	No.
Fresh fluid milk									
Whole raw.....	31	34	4	4	Qt.	10.3	6.3	0.4	0.3
Whole past. creamline.....	67	67	8	8	Qt.	8.9	5.6	.7	.4
Whole past. homo.....	434	334	52	41	Qt.	8.6	5.2	4.5	2.1
Whole past. homo. fortified.....	263	215	32	26	Qt.	9.2	5.2	2.9	1.4
Skimmed past.....	27	11	3	1	Qt.	5.3	3.0	.2	¹
Skimmed past. fortified.....	18	9	2	1	Qt.	3.7	2.2	.1	¹
Buttermilk.....	457	510	55	62	Qt.	2.4	2.4	1.3	1.5
Choc. milk or drink.....	76	56	9	7	Qt.	2.3	2.0	.2	.1
Dry milk									
Skim or non-fat.....	219	329	26	40	Oz.	10.5	16.4	2.8	6.5
Whole.....	1	0	²	0	Oz.	45.0	.0	¹	.0
Modified—malt, formulas, etc.....	7	1	1	²	Oz.	30.8	16.0	.3	¹
Canned milk									
Evaporated whole.....	517	676	62	82	Oz.	34.7	42.0	21.6	34.8
Condensed, sweetened.....	43	16	5	2	Oz.	17.2	15.9	.9	.3
Formulas, malt.....	10	6	1	1	Oz.	108.0	70.0	1.3	.5
Cream									
Whipping.....	84	25	10	3	½ Pt.	1.5	1.6	0.2	¹
Coffee.....	45	11	5	1	Pt.	2.0	1.2	.1	¹
Half and half.....	71	19	8	2	Pt.	1.0	.8	.2	.1
Sour.....	24	2	3	²	Pt.	.7	.4	¹	¹
Dry cream—Pream, etc....	11	5	1	1	Oz.	4.4	6.0	.1	¹
Cheese									
American (or yellow).....	706	589	85	72	Lb.	0.8	0.9	0.7	0.7
Cottage.....	239	83	29	10	Pt. ³	1.0	.9	.3	.1
Cream.....	113	34	14	4	Oz.	5.5	5.3	.7	.2
Spreads.....	104	45	12	5	Oz.	5.3	5.8	.7	.3
Other.....	64	4	8	1	Oz.	4.8	6.0	.4	¹
Frozen products									
Ice cream.....	556	518	67	63	Pt.	3.5	3.3	2.3	2.1
Ice milk.....	52	52	6	6	Pt.	3.2	2.5	.2	.2
Other products.....	77	66	9	8	Pt.	1.8	1.4	.2	.1

¹ Less than 0.05 unit.

² Under 0.5 per cent.

³ Since carton sizes varied, all have been standardized to pints (16 ounces).

APPENDIX TABLE 2. USE OF FLUID, DRY, AND CANNED MILK FOR DRINKING AND FOR COOKING, BY RACE, URBAN AREAS OF ALABAMA

Milk form and unit	White families				Negro families			
	Drinking		Cooking		Drinking		Cooking	
	Fami- lies using family	Use per family	Fami- lies using family	Use per family	Fami- lies using family	Use per family	Fami- lies using family	Use per family
	<i>Pct.</i>	<i>No.</i>	<i>Pct.</i>	<i>No.</i>	<i>Pct.</i>	<i>No.</i>	<i>Pct.</i>	<i>No.</i>
Whole homogenized, quart.....	52	7.8	29	1.6	40	5.0	12	1.4
Whole homo. fort., quart.....	31	8.8	17	1.8	25	4.6	9	1.8
Buttermilk, quart.....	28	2.4	43	1.5	33	2.8	52	1.5
Evaporated whole, large.....	11	3.5	35	2.5	19	3.6	50	2.9
Chocolate milk, quart.....	9	2.3	¹	1.5	7	2.0	¹	2.0
Whole creamline, quart.....	8	8.2	5	1.5	8	4.5	3	1.2
Dry skim, ounce.....	6	17.2	24	12.4	8	18.1	37	13.5
Evaporated milk, small.....	5	1.6	18	2.3	7	1.9	18	2.7
Whole raw, quart.....	4	9.3	3	1.9	4	5.8	2	2.4
Skim pasteurized, quart.....	3	5.1	1	1.4	1	2.9	¹	1.5
Skim past. fort., quart.....	2	3.7	¹	1.0	1	2.3	¹	1.3

¹ Less than 0.5 per cent.

APPENDIX TABLE 3. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY SIZE OF HOUSEHOLD AND BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Range in size of household, persons									Average
	Under 2.0	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0 and over	Qt.	
	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.		
White families										
Sweet milk ²	3.2	2.9	2.9	2.8	2.4	2.1	2.2	1.4	2.7	
Buttermilk.....	.5	.5	.5	.4	.3	.2	.4	.3	.4	
Cream.....	.1	.1	.1	.1	.1	.1	.1	.1	.1	
Canned milk.....	.3	.4	.4	.4	.4	.4	.5	.4	.4	
Dry milk.....	.6	.3	.3	.3	.3	.3	.6	.4	.4	
Cheese.....	1.4	1.1	.8	.7	.7	.6	.6	.6	.8	
Ice cream.....	.3	.3	.3	.3	.2	.2	.3	.1	.3	
TOTAL.....	6.4	5.6	5.2	4.9	4.3	3.8	4.6	3.2	5.0	
Recom. milk equivalent....	3.8	4.1	4.5	4.8	5.0	5.2	5.2	5.6	4.6	
Percentage of recom.										
amt. used.....	168	137	116	102	86	73	88	57	109	
Number of families.....	108	265	205	132	75	26	12	9	832	
Negro families										
Sweet milk ²	1.7	1.3	1.3	1.2	1.1	0.9	0.8	0.5	1.1	
Buttermilk.....	.7	.7	.5	.4	.4	.4	.3	.3	.4	
Cream.....	.1	.1	.1	.1	.1	.1	.1	.1	.1	
Canned milk.....	.7	.5	.6	.5	.5	.6	.4	.3	.5	
Dry milk.....	.5	.5	.5	.4	.3	.4	.5	.5	.5	
Cheese.....	1.2	.8	.7	.6	.5	.4	.5	.4	.6	
Ice cream.....	.4	.3	.3	.2	.2	.1	.2	.1	.2	
TOTAL.....	5.2	4.1	3.9	3.3	3.0	2.8	2.7	2.1	3.3	
Recom. milk equivalent....	3.9	3.9	4.5	4.9	5.1	5.3	5.4	5.5	4.8	
Percentage of recom.										
amt. used.....	133	105	87	67	59	53	50	38	69	
Number of families.....	108	222	130	114	98	62	37	51	822	

¹ Less than 0.05 quart.

² A second degree least squares fit of the per capita sweet milk consumption (Y) on the size of household (X) is given as:

White: $Y_w = + 3.1256 - .00387X - .02171X^2$ Standard error (.009653) (.0011375)

Negro: $Y_n = + 1.7122 - .122057X - .000709X^2$ Standard error (.00756366) (.00073880)

The predicted values of Y for given values of X are as follows:

Size of household, number of persons	Per capita milk consumption, quarts	
	White	Negro
1.....	3.1	1.6
2.....	3.0	1.5
3.....	2.9	1.3
4.....	2.8	1.2
5.....	2.6	1.1
6.....	2.3	1.0
7.....	2.0	.8
8.....	1.7	.7
9.....	1.3	.6

APPENDIX TABLE 4. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY PER CAPITA INCOME AND BY RACE, URBAN AREAS OF ALABAMA

Milk products used, WME	Range in per capita income, dollars							Average
	Under 300	300-599	600-899	900-1,199	1,200-1,799	1,800-2,399	2,400 and over	
	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts
White families								
Sweet milk ²	1.4	2.0	2.5	2.8	3.2	3.2	3.7	2.7
Buttermilk.....	.3	.4	.5	.4	.3	.4	.5	.4
Cream.....	¹	¹	¹	¹	¹	.1	.1	¹
Canned milk.....	.4	.4	.5	.5	.3	.3	.3	.4
Dry milk.....	.5	.5	.4	.3	.3	.1	.2	.4
Cheese.....	.5	.7	.8	.9	.9	1.0	1.2	.8
Ice cream.....	.1	.2	.2	.3	.3	.3	.3	.3
TOTAL.....	3.2	4.2	4.9	5.2	5.3	5.4	6.3	5.0
<i>Recom. milk equivalent</i>	4.8	4.2	4.7	4.7	4.5	4.2	3.9	4.6
<i>Percentage of recom. amt. used</i>	67	100	104	111	118	129	162	109
<i>Number of families</i>	40	110	137	152	193	107	88	827
Negro families								
Sweet milk ²	0.6	1.1	1.2	1.5	2.1	2.6	1.9	1.1
Buttermilk.....	.3	.4	.5	.5	.6	.4	.6	.4
Cream.....	¹	.0	¹	¹	¹	.1	.1	¹
Canned milk.....	.4	.5	.6	.5	.7	.8	.8	.5
Dry milk.....	.6	.4	.4	.5	.2	.1	.6	.5
Cheese.....	.5	.5	.7	.7	1.1	1.1	1.1	.6
Ice cream.....	.1	.2	.2	.3	.4	.4	.3	.2
TOTAL.....	2.5	3.1	3.6	4.0	5.1	5.5	5.4	3.3
<i>Recom. milk equivalent</i>	5.1	5.1	4.5	4.6	4.1	3.8	3.6	4.8
<i>Percentage of recom. amt. used</i>	49	61	80	87	124	145	150	69
<i>Number of families</i>	165	255	217	72	90	13	10	822

¹ Less than 0.05 quart.

² A second degree least squares fit of the per capita sweet milk consumption (Y) on the per capita income (X) is given as:

$$\text{White: } Y_w = + 1.3472 + .00162X - .000000284X^2$$

Standard error (.000020808) (.000000057348)

$$\text{Negro: } Y_n = + .3817 + .001498X - .0000002954X^2$$

Standard error (.000024315) (.000000010122)

The predicted values of Y for given values of X are as follows:

Per capita income, dollars	Per capita milk consumption, quarts	
	White	Negro
200.....	1.7	0.7
500.....	2.1	1.1
800.....	2.5	1.4
1,000.....	2.7	1.6
1,500.....	3.1	2.0
2,000.....	3.5	2.2
2,500.....	3.6	2.3

APPENDIX TABLE 5. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY PER CAPITA MEAL COST AND BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Range in per capita meal costs, cents								Average
	Under 10	10-19	20-24	25-29	30-34	35-39	40-49	50 and over	
	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.	Qt.
White families									
Sweet milk ²	1.1	1.7	2.0	2.8	3.0	2.9	3.4	3.9	2.7
Buttermilk.....	.4 ₁	.4 ₁	.4 ₁	.4 ₁	.3 ₁	.4 ₁	.5 ₁	.4 ₁	.4 ₁
Cream.....							.1	.1	
Canned milk.....	.2	.5	.5	.3	.3	.3	.5	.3	.4
Dry milk.....	.3	.5	.4	.4	.2	.4	.3	.2	.4
Cheese.....	.3	.6	.7	.8	.9	.9	1.2	1.2	.8
Ice cream.....	.1	.1	.2	.3	.3	.4	.3	.4	.3
TOTAL.....	2.4	3.8	4.2	5.0	5.0	5.3	6.3	6.5	5.0
Recom. milk equivalent....	5.0	4.9	4.7	4.7	4.6	4.4	4.2	4.2	4.6
Percentage of recom.									
amt. used.....	48	78	89	106	109	120	150	155	109
Number of families.....	11	99	93	149	118	120	135	105	830
Negro families									
Sweet milk ²	0.4	0.9	1.3	1.4	2.0	1.7	2.4	2.8	1.1
Buttermilk.....	.2 ₁	.4 ₁	.5 ₁	.5 ₁	.6 ₁	.9 ₁	.8 ₁	.6 ₁	.4 ₁
Cream.....									
Canned milk.....	.3	.5	.6	.5	.5	.7	.9	.6	.5
Dry milk.....	.7	.5	.4	.5	.3	.3	.3	.5	.5
Cheese.....	.4	.5	.6	.7	1.0	.9	1.3	1.4	.6
Ice cream.....	.1	.1	.2	.3	.3	.3	.5	.6	.2
TOTAL.....	2.1	2.9	3.6	3.9	4.7	4.8	6.2	6.5	3.3
Recom. milk equivalent....	5.3	5.0	4.8	4.4	4.1	3.9	4.3	3.8	4.8
Percentage of recom.									
amt. used.....	40	58	75	89	115	123	144	171	69
Number of families.....	63	160	158	154	119	62	57	39	822

¹ Less than 0.05 quart.

² A second degree least squares fit of the per capita sweet milk consumption (Y) on the per capita meal cost (X) is given as follows:

White: $Y_w = + .2435 + 10.683569X - 7.806848X^2$

Standard error (.1926983) (.2427600)

Negro: $Y_n = + .0274 + 6.396127X - 3.139856X^2$

Standard error (.1253743) (.2092543)

The predicted values of Y for given values of X are as follows:

Per capita meal cost, cents	Per capita milk consumption, quarts	
	White	Negro
5.....	0.8	0.3
10.....	1.2	.6
15.....	1.7	.9
20.....	2.1	1.2
25.....	2.4	1.4
30.....	2.7	1.7
40.....	3.3	2.1
50.....	3.6	2.4
60.....	3.8	2.7

APPENDIX TABLE 6. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY FAMILY TYPE AND BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Family type				Average
	All adults	Adults, children 13-19 yr.	Adults, children 12 yr. and under	Adults, children mixed ages	
	Quarts	Quarts	Quarts	Quarts	Quarts
White families					
Sweet milk.....	2.8	2.9	2.8	2.5	2.7
Buttermilk.....	.5	.6	.3	.3	.4
Cream.....	.1	.1	.1	.1	.1
Canned milk.....	.3	.4	.4	.4	.4
Dry milk.....	.4	.4	.3	.3	.4
Cheese.....	1.1	1.1	.7	.7	.8
Ice cream.....	.3	.3	.3	.2	.3
TOTAL.....	5.5	5.7	4.8	4.4	5.0
<i>Recom. milk equivalent</i>	3.7	4.8	4.7	5.3	4.6
<i>Percentage of recom. amt. used</i>	149	119	102	85	109
<i>Number of families</i>	316	106	303	107	832
Negro families					
Sweet milk.....	1.3	1.2	1.2	0.8	1.1
Buttermilk.....	.6	.5	.4	.3	.4
Cream.....	.1	.1	.1	.1	.1
Canned milk.....	.5	.5	.6	.4	.5
Dry milk.....	.4	.6	.4	.5	.5
Cheese.....	.9	.8	.5	.5	.6
Ice cream.....	.3	.3	.2	.2	.2
TOTAL.....	4.0	3.9	3.3	2.7	3.3
<i>Recom. milk equivalent</i>	3.6	4.8	4.9	5.5	4.8
<i>Percentage of recom. amt. used</i>	111	81	67	49	69
<i>Number of families</i>	294	67	301	160	822

¹ Less than 0.05 quart.

APPENDIX TABLE 7. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY AGE OF YOUNGEST FAMILY MEMBER AND BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Range in age of youngest family member					Average
	Under 1 yr.	1-5 yr.	6-12 yr.	13-19 yr.	20 yr. and over	
	Quarts	Quarts	Quarts	Quarts	Quarts	
White families						
Sweet milk.....	2.8	2.7	2.7	2.8	2.8	2.7
Buttermilk.....	.2	.3	.4	.6	.5	.4
Cream.....	¹	¹	¹	¹	.1	¹
Canned milk.....	.7	.4	.4	.4	.3	.4
Dry milk.....	.3	.3	.3	.4	.4	.4
Cheese.....	.7	.7	.8	1.1	1.1	.8
Ice cream.....	.2	.2	.3	.3	.3	.3
TOTAL.....	4.9	4.6	4.9	5.6	5.5	5.0
Recom. milk equivalent....	5.0	4.8	4.9	4.8	3.7	4.6
Percentage of recom. amt. used.....	98	96	100	117	149	109
Number of families.....	59	200	152	106	315	832
Negro families						
Sweet milk.....	0.8	1.1	1.0	1.3	1.3	1.1
Buttermilk.....	.2	.4	.5	.5	.6	.4
Cream.....	¹	¹	¹	¹	¹	¹
Canned milk.....	.8	.4	.4	.6	.5	.5
Dry milk.....	.4	.5	.5	.4	.4	.5
Cheese.....	.4	.5	.6	.8	.9	.6
Ice cream.....	.1	.2	.2	.3	.3	.2
TOTAL.....	2.7	3.1	3.2	3.9	4.0	3.3
Recom. milk equivalent....	5.3	5.1	5.1	4.8	3.6	4.8
Percentage of recom. amt. used.....	51	61	63	81	111	69
Number of families.....	75	247	142	69	289	822

¹ Less than 0.05 quart.

APPENDIX TABLE 8. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING
 7-DAY PERIOD, BY AGE OF HOMEMAKER AND BY RACE,
 URBAN AREAS OF ALABAMA

Milk product used, WME	Range in age of homemaker						Aver- age
	Under 20 years	20-29 years	30-39 years	40-49 years	50-59 years	60 years and over	
	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts
White families							
Sweet milk.....	2.4	2.8	2.8	2.8	2.5	2.5	2.7
Buttermilk.....	.2	.3	.3	.5	.5	.5	.4
Cream.....	.1	.1	.1	.1	.1	.1	.1
Canned milk.....	.5	.5	.4	.4	.3	.3	.4
Dry milk.....	.6	.3	.3	.4	.5	.5	.4
Cheese.....	.8	.7	.8	.9	1.1	1.0	.8
Ice cream.....	.2	.2	.3	.3	.3	.3	.3
TOTAL.....	4.7	4.8	4.9	5.3	5.2	5.2	5.0
<i>Recom. milk equivalent</i>	6.4	4.6	4.9	4.7	4.1	3.8	4.6
<i>Percentage of recom.</i> <i>amt. used</i>	73	104	100	113	127	137	109
<i>Number of families</i>	16	154	215	183	128	132	828
Negro families							
Sweet milk.....	1.1	1.2	1.0	1.1	1.1	0.9	1.1
Buttermilk.....	.4	.4	.4	.5	.5	.6	.4
Cream.....	.1	.1	.1	.1	.1	.1	.1
Canned milk.....	.6	.5	.5	.5	.5	.4	.5
Dry milk.....	.3	.4	.5	.4	.5	.5	.5
Cheese.....	.4	.5	.6	.6	.7	.6	.6
Ice cream.....	.3	.2	.2	.2	.2	.2	.2
TOTAL.....	3.1	3.3	3.2	3.3	3.5	3.2	3.3
<i>Recom. milk equivalent</i>	5.7	5.0	5.1	4.9	4.4	4.0	4.8
<i>Percentage of recom.</i> <i>amt. used</i>	54	66	63	67	80	80	69
<i>Number of families</i>	15	138	219	191	129	125	817

¹ Less than 0.05 quart.

APPENDIX TABLE 9. PER CAPITA USE OF WHOLE MILK EQUIVALENT DURING 7-DAY PERIOD, BY EDUCATION OF HOMEMAKER AND BY RACE, URBAN AREAS OF ALABAMA

Milk product used, WME	Range in education of homemaker						Average
	Under 5 grades	5-8 grades	9-11 grades	High school graduate	Some college	College graduate	
	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts	Quarts
White families							
Sweet milk	1.5	2.2	2.6	2.9	3.8	3.1	2.7
Buttermilk .....	.5	.5	.5	.4	.3	.3	.4
Cream .....	.0	¹	¹	¹	.1	.1	¹
Canned milk .....	.5	.4	.4	.4	.2	.2	.4
Dry milk .....	.6	.5	.4	.3	.2	.3	.4
Cheese .....	.5	.7	.9	.9	1.0	1.0	.8
Ice cream .....	.2	.2	.3	.3	.3	.4	.3
TOTAL	3.8	4.5	5.1	5.2	5.9	5.4	5.0
Recom. milk equivalent	4.3	4.7	4.6	4.6	4.5	4.3	4.6
Percentage of recom. amt. used	88	96	111	113	131	126	109
Number of families	26	187	181	254	95	70	813
Negro families							
Sweet milk	0.8	0.9	1.2	1.5	2.0	1.9	1.1
Buttermilk .....	.5	.4	.5	.4	.3	.3	.4
Cream	¹	¹	¹	¹	¹	¹	¹
Canned milk .....	.4	.5	.5	.6	.7	.7	.5
Dry milk .....	.6	.5	.4	.4	.2	.3	.5
Cheese .....	.6	.6	.6	.6	.7	.8	.6
Ice cream .....	.1	.2	.2	.3	.3	.3	.2
TOTAL	3.0	3.1	3.4	3.8	4.2	4.3	3.3
Recom. milk equivalent	4.6	4.9	5.0	4.8	4.9	4.3	4.8
Percentage of recom. amt. used	65	63	68	79	86	100	69
Number of families	132	340	175	99	22	29	797

¹ Less than 0.05 quart.

