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& \text { PURCHASING PREFERENCES } \\
& \text { AND SHOPPING HABITS OF } \\
& 977 \text { SELECTED } \\
& \text { HOMEMAKERS }
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A DISSERTATION
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN FOODS AND NUTRITION IN THE GRADUATE SCHOOL OF THE TEXAS WOMAN'S UNIVERSITY

## COLLEGE OF

HOUSEHOLD ARTS AND SCIENCES

## $B Y$

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We hereby recommend that the dissertation prepared under our supervision by Eulalia Leffers Schmolder entitled MEAT, FRUIT, AND VEGETABLE PURCHASING PREFERENCES AND SHOPPING HABITS OF 977 SELECTED HOMEMAKERS
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## Committee:



1


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## CHAPTER I

## I NTRODUCTION

The development of the science of nutrition constitutes one of the greatest advances toward controlling environment in relation to health. The science of medicine has contributed anesthetics and surgical procedures to aid in correcting errors and abnormalities, sterile techniques, immunizations to prevent many diseases, and antibiotics to fight others. Nutrition has provided the knowledge that makes it possible for everyone, through individual responsibility and action; to have a significant measure of control over physical and mental well-being. To exercise this control, every individual must be informed and motivated. Acco:-ding to Leverton (35), this is the function of nutrition.

A National Nutrition Education Conference was held in Washington, D. C. on February 20 and 22, 1967. One day of the conference was devoted to possible means of communicating nutrition information to families and to the use of various news media in influencing desirable eating habits. Dr. Stiebeling (62) summarized the proceedings by discussing the accomplishments of nutritional education. Scientific research has broadened the knowledge about nutrition; consumers
have enjoyed the availability of a plentiful and varied supply of food which is the material base for all nutrition; but an understanding of how to communicate nutrition information to families has been an area of major concern. Dr. Stiebeling (62) stated:

> We here today are being confronted by a real, if subtle, crisis. The crisis is the paradox of less-than-optimal nutritional levels in a land of plenty, in an age of affluence. It is the crisis of the wide gap between nutritional knowledge and food practices, between the promise of the better life that the nutritional sciences offer and its fulfillment in the lives of our citizens. Do we believe enough in the importance of good nutrition for all people to do the necessary, often unglamorous jobs to make it an actuality in our midst? Many groups have a part to plan--and these parts must be coordinated... Taking the story of nutrition to the many publics of our society in such a way as to effect action is a special task.

Nutritionists and home economists collectively know the features of the many publics, differentiated by age, economic, social, and intellectual structures and these professionally trained leaders are experienced in the effective use of the many forms of communication: face-to-face dialogue; television; radio; posters; cartoons; and the printed word of books, magazines, and newspapers. The need for effective and continuing cooperation in all areas in the field of nutrition is great (62).

Leverton (35) recently stated that:
Nutrition education depends on communication-by word, deed, and example, soft-sell, hard-sell,
and motivation. Nutrition education also depends on the facts and ideas that are sent through the communication process.

To take leadership in making decisions about the information that should be available and communicated, a subcommittee of the Interagency Committee on Nutrition Education was appointed to develop some broad, research-based statements. Recognizing that concepts are the "meanings" that direct a person's responses and decisions, the committee formulated the following concepts about food that would promote a desirable level of health and growth:

1) Nutrition is the food you eat and how the body uses it.
2) Food is made up of different nutrients needed for growth and health.
3) All persons, throughout life, have need for the same nutrients, but in varying amounts.
4) The way food is handled influences the amount of nutrients in food, its safety, appearance, and taste.

Leverton (35) further stated that the concepts can be the content or subject matter of what is communicated and have been used effectively in teaching basic nutrition to families. Jalso, Burns, and Rivers (32) found the relationship between factual information about nutrition and food buying decisions of homemakers to be directly related.

NEED FOR STUDY

Five nationwide surveys of family food consumption have been made by the United States Department of Agriculture (67, 72), the first one in 1936 and the latest in 1965. Of the nutrients investigated, those most frequently found below the desirable intake levels in the surveys made through 1955 were calcium, vitamin $A$, and ascorbic acid. Although the nutritive value of the diets had improved since the depression year of 1936, diets of about one-tenth of the households were still lacking in one or more nutrients in 1955.

The 1965 nationwide survey of Food Consumption of Households in the United States (70) revealed that only half of the households had diets that met the allowance for all nutrients. The diets of 50 per cent of the families failed to meet the allowances for one or more nutrients. Calcium, vitamin $A$ value, and ascorbic acid were the nutrients most frequently found to be below the Recommended Dietary Allowances (R.D.A.) set by the Food and Nutrition Board of the National Research Council for protein; for two minerals, calcium and iron; and for four vitamins, vitamin $A$ value, thiamine, riboflavin, and ascorbic acid.

The recommended dietary allowances consist of daily nutrient intakes which are considered to be adequate for the
maintenance of good nutrition of essentially healthy persons living in the United States under current conditions of living. As stated by Goldsmith (28), the allowances, except for calories, were designed to afford a margin of sufficiency above the average physiological requirements in order to cover variations among individuals, to provide a buffer against increased needs during common stresses, and to permit full realization of growth and productive potential.

About 20 per cent of the households in the 1965 nationwide survey had diets that were rated "poor"; that is, these diets provided less than two-thirds of the allowance for one or more of the nutrients studied (68). Two-thirds of the allowance for any nutrient is considered a level below which diets could be nutritionally inadequate for some individuals over an extended period.

Adelson (l) reported fewer households had good diets in 1965 than in 1955--50 per cent in 1965 and 60 per cent in 1955. The proportion of households with poor diets increased over the 10 -year period from about, 15 per cent in 1955 to 30 per cent in 1965. Decreased use of milk and milk products and of vegetables and fruits, the main sources of calcium, ascorbic acid, and vitamin $A$ value were chiefly responsible for these changes in dietary levels.

The major problem facing nutritionists today appears to be the identification of and communication with the families receiving inadequate diets. Since food selection patterns are formulated during infancy and early childhood and are difficult to change in later years, an investigation of the food shopping behavior and nutritional knowledge of homemakers and the factors influencing consumer choices may assist in the identification of problems leading to poor nutritional practices. The multidisciplinary character of problems of the family and home requires an integrated approach on a nationwide scale.

The Federal government's concern for consumer affairs was much in evidence in President Kennedy's 1962 Consumer Message to Congress (62). The important role played by the consumer in the American economy and the challenging problems individuals face in improving the well-being of the family were stressed. Emphasis was given to the need for increasing incomes and for making the best possible use of the consumer dollar. In discussing the complexity of marketing, the president stated:
Marketing is increasingly impersonal. Consumer
choice is influenced by mass advertising uti-
lizing highly developed arts of persuasion.
The consumer typically cannot know... whether
one prepared food has more nutritive value than
another; whether the performance of a product
will meet his needs; or whether the "large
economy size" is really a bargain (62)!

President Kennedy called for additional legislative and administrative action to meet responsibility to consumers in the exercise of the four consumer "rights": the right to safety; the right to be informed; the right to choose; and the right to be heard.

In 1965 President Johnson invited over 600 physicians and other individuals drawn from allied health professions to participate in "The White House Conference on Health" (11). These individuals were requested to offer suggestions for dealing with the pressing health needs of this nation. Full utilization of the special competencies of all members of the various health fields in the establishment of community models to explore interrelationships was proposed. As a result of this conference, community projects to provide comprehensive health services for children of school and preschool age have been established. The main objective of these projects is to provide comprehensive health services for children in low-income families. Major emphasis is on continuity of care which is comprehensive in nature. Nutritionists and home economists are members of the interdisciplinary team of workers. Nutritionists provide direct nutrition services to project patients as a part of the overall patient care and planning program. Home economists provide services in home management and family economics directly to the project patients and their families.

An investigation of family shopping practices and the factors influencing consumer food choices may be of assistance to home economists and nutritionists in consultations with homemakers. If this type of service is to be effective, food problems of the homemaker must be identified.

## STATEMENT OF THE PROBLEM

The overall purpose of the present study was to survey. the shopping habits of 977 homemakers and to identify the factors influencing preferences in the selection of meats, fruits, and vegetables. The specific purposes of this investigation were to:

1) Examine the possible influence of the following factors on the general buying habits and on the selection of meats, fruits, and vegetables; family income; family size. and composition; age, employment, and education of the homemaker, including home economics training;
2) Test the homemakers' knowledge of nutrition in relation to meats,fruits, and vegetables;
3) Ascertain the sources of information and factors which influence purchases and judgment of the quality of meats, fruits, and vegetables;
4) Determine family preferences for meats, fruits, and vegetables; and
5) Investigate the family and per capita expenditures for groceries, including the amounts spent for meats and for fruits and vegetables.

## CHAPTER II

## REVIEW OF LITERATURE

Mitchell (47) mentioned that the remarkable institution of recent origin, the supermarket, has combined in one establishment the once numerous food specialty stores. Both chain stores and supermarkets have to a great extent eliminated a social barrier which once separated the higher from the lower socioeconomic group. Americans of all income and occupational groups shop in the same stores and are influenced in food selection by the same advertising. Although various socioeconomic groups have tended to develop similar food habits, the wide variety of items continuously available on the supermarket shelves allows each customer to satisfy individual dietary needs and desires.

More and more foods are purchased either partially or completely prepared, frequently without a marked increase in cost. Ready-prepared foods offered by a variety of establishments, notably frozen-food manufacturers, delicatessen stores, bakeries, and dairies, make it possible to dine at home with virtually no cooking.

Supermarkets not only carry a vast selection of nonfood items, but there is a wide choice among foods and
individual food items. Countless varieties. of foods, sizes of packages, brands, colors, and shapes appear on grocery shelves. It is not uncommon to find $10,000,15,000$ or even 20,000 items in giant supermarkets (78). In addition, most communities have a number of available food stores or supermarkets offering consumers a choice in the selection of a favorite store. In a 1966 ṣurvey of shopping habits, participants listed six factors as important in the selection of a food store: 1) low prices on groceries, 2) quality and freshness of meats, 3) convenience of location, 4) attractiveness and cleanliness of the store, 5) variety in the selection of grocery merchandise, and 6) quality and freshness of fruits and vegetables. Slow. checkout service and poor housekeeping were the main sources of customer irritation (23).

Since most communities possess representative supermarkets, and since the majority of homemakers have the opportunity for educational training presented by American public schools, the question arises as to what factors determine the differences in food selection patterns of wives and mothers resulting in adequate or inadequate nutrition. This is one of the major problems facing nutrition educators today.

Most adult behavior has originated or has been modified by experience, and experience has certainly contributed to the formation of the complex behavioral tendencies represented by attitudes toward food. According to Leverton (35), the scope of learning activities is determined by many factors pertaining to the individual and the individual's environment, such as age, sex, economic status, place of residence, and cultural and ethnic background factors. Insofar as food preferences are learned, the influence of background variables becomes important.

## FOOD SELECTION PATTERNS

A recent issue of the Dairy Council Digest (15) reviewed 11 studies concerned with dietary adequacy and nutritional status of different age groups including individuals from two years through 71 years of age. Six studies reported low vitamin $C$ values; four revealed calcium and iron deficiencies. Christakis and Others (7) investigated the protein intake of children residing in New York City. The diets of 642 children were frequently found to be inadequate in protein. Watts (75) conducted a study of the protein intake of women from several different areas. Among the participants residing in Alabama, pregnant women were found to have adequate protein intakes. Protein values were adequate for maintenance but were inadequate for growth in diets of farm families and
in diets of homemakers living in Birmingham and Buffalo. These and numerous other studies indicate that although nutrition in America is generally good, areas of malnutrition are still evident. Therefore, the patterns of food selection by the homemaker become an important aspect of the nutritional adequacy of the family diet.

Food selection patterns begin in infancy and develop into life time practices. Leverton (35) recently stated:

To the criteria of the kinds and amounts of nutrients for evaluating children's diets, I wish to add a third one...that of patterns of food selection. Patterns of behavior can be more potent than knowledge in directing actions because knowledge of itself does not have the power to make its possessors use it.

In a study of the food habits of 101 university students reported by Brown (4), food habits were investigated for the preschool, grade school, high school, and college years. Since eating is an important part of daily life, food was shown to have been important to the students, not only from the nutritional, but also from the psychological point of view. The factors which seemed to be the most important in the development of the eating habits of the students were: parental influence concerning the variety and appearance of foods served at mealtime, place of residence, income of the family, size of the family, pressures of life, influence of peers, influence of eating situations outside the home,
living arrangements outside the home, ease with which meals can be secured, and student's personal income and hours of work.

The Brown study (4) revealed that one of the determining factors of an individual's food habits is early background--parents, place of residence, income and family size. Responses revealed that food habits, their causes and effects, may portray a colorful personal history. For example, hot dogs and hamburgers often brought back memories of family picnics; on the other hand, certain foods revived memories of sitting alone at the kitchen table "until all those distasteful green lumps were eaten!"

The students in the above study recognized the mother as the most important factor of influence during early periods of development. The following positive influences of the mother were suggested by the students: serving a wide variety of foods; serving foods in interesting ways; and serving well-prepared, well-balanced and attractive foods.

Brown (4) found that dislike of a certain food can often be traced to having been forced to eat the food. Twenty-nine per cent of the freshmen and 7.7 per cent of the upperclassmen recalled being forced to eat some particular food. On the other hand, 14.5 per cent of the freshmen and 25.6 per cent of the upperclassmen attributed the ability to
eat and enjoy a wide variety of foods to the fact that as children they were taught to eat at least one spoonful before passing judgment on a food.

There was verification in the Brown study (4) of the fact that high school is usually a time of experimentation in foods. Several students indicated, "Adventurous teenagers are eager to try many types of foods, such as clams and lobster--maybe even eggplant--just to say they've tried it." Likes and dislikes often occur in mass movements, more popularly called "fads." The appearance of weight problems and poor complexions in this age group appeared to interest more than 50 per cent of these students in improving the diet. By the time a student reaches college age, food likes and dislikes are fairly well established; however, evidence from the study implied that food patterns were not unalterable. Food preferences vary with experiences, much as attitudes are changed or refined to fit the current situation, whether it be financial, time, dietary, or educational factors.

Diets of post-adolescent young women, training as dental hygienists, were investigated by Fry (25). Seven-day records of the food intake of the 144 girls enrolled in elementary nutrition classes were obtained at the beginning of the course. The purposes of the study were to determine whether or not the dietary habits of the subjects were a
continuation of adolescent eating habits and to ascertain how representative this group was of other 16- to 20-year-old women in the United States. The food intakes were compared with those of 13- to 15-year-old girls and 16- to 20-year-old Montana girls reported by Odland, Page, and Guild (52). The general pattern of eating, in terms of nutrient intakes, was strikingly similar among. all age groups investigated. The authors concluded that the food habits established during the age period of 13 - to 15 -years were definitely carried over into the succeeding years.

Trier, Smith, and Shaffer (66) reported a study on differences in food buying attitudes of housewives living in Lansing, Michigan. A sample of 242 homemakers, representative of the various income groups, was selected. Responses to 37 statements covering major areas of decision-making revealed the following rank order as to degree of influence: cost of food; friends (direct and indirect influence); food preparation time; food values; food quality; and mass media. Responses of the 57 wives with the highest scores on each factor were compared with the responses of 57 wives with the lowest scores with respect to the following socioeconomic variables: size of family, type of family, age of wife, education of wife, number of working members in the family, occupation of husband, family income, and percentage of income spent for food.

Each wife completed a personality inventory measuring differences in eight traits: dominance, conformity, gregariousness, warmth, emotional control, optimism, self confidence, and orderliness. Variables, traits, or adjectives which differentiated the $l$ ow from the high scores on the factor at the 5.0 per cent level of confidence were summarized. Some wives stressed cost-of-food in puchases, while other wives were unconcerned about cost. Cost-conscious homemakers also indicated reading the newspapers for specials, using shopping lists, and shifting purchases when the price of a food changed. None of the eight sociological variables, including family income, had any significant relationship to cost-consciousness. Wealthy wives were about as likely to be cost-conscious as were the low income homemakers. The cost-conscious wives considered the most important household tasks as cooking, washing, mending, and cleaning, and considered themselves primarily as shoppers and cooks. The less cost-conscious respondents tended to $v i e w$ the role of the homemaker in terms of human relationships within the family, stressing child-rearing and companionship aspects (66).

The more nutrition-conscious wives stressed the importance of bargain hunting, planning, intelligence, and ingenuity. Self-analysis of the role of a homemaker indicated that the wives most influenced by friends were more desirous of maintaining a cheerful home, were more concerned with
social responsibilities, spent more time cooking and entertaining, were better educated, and were more dominating. The respondents who were least influenced by friends placed the most stress on child-rearing functions. The higher the social status of the husband's occupation, the more the influence exerted by the husband on food purchasing. The more dominating wives were more open to the suggestions of their husbands and stressed the social and entertaining roles of the homemaker and the importance of being well-informed and being a good budget keeper.

The younger wife with younger children and a better formal education was more likely to be influenced by the buying and eating habits of parents. Wives who were less influenced by parents were more self-confident and stressed civic activities and the importance of being a companion to their husbands, and de-emphasized child-rearing and housekeeping functions. The most surprising finding of the Trier, Smith and Shaffer study (66) was that it was not the less educated and submissive wives who were most open to suggestions from friends, husbands, or mass media, but the well-educated and dominating homemakers. Possibly educated and dominating wives are more active in the search for food information and more discriminating and intelligent in the use of information.

## FACTORS INFLUENCING CONSUMER PREFERENCES

AND PURCHASING PRACTICES

## Family Income

A number of studies have revealed that family income is related to dietary adequacy, especially if the income is extremely low. The United States Department of Agriculture (68) food consumption survey for 1965 revealed that 63 per cent of the households with incomes under $\$ 3,000$ had diets that did not meet the recommended allowances for one or more nutrients. Over one-third, 36 per cent, of the households with incomes under $\$ 3,000$ had poor diets. At each successively higher level of income, a greater percentage of households had diets that met allowances. High income alone, however, did not insure good diets. More than one-third, 37 per cent, of the households with incomes of $\$ 10,000$ and over had diets that were below the recommended allowances for one or more nutrients.

A family nutrition study of selected Pennsylvania residents, representing a wide distribution of annual income levels was reported by Mack and Others (39). Vitamin A, ascorbic acid, and riboflavin intakes showed severe and consistent reduction with decreasing income levels, particularly in the two lower income groups investigated. This sharp reduction with diminishing income was paralleled with
a reduction in the quantity of fruits and vegetables consumed.

Metheny and Others (45) investigated nutritional sufficiency and family marketing practices of 94 families of preschool children enrolled in day-care centers or nursery schools in Ohio. Results showed the greatest percentage of children with inadequate diets was from the lowest income group, with annual incomes of $\$ 3,700$ or under. The greatest percentage of children meeting the recommended daily allowances was from families in the upper-middle income group with yearly incomes of $\$ 5,501$ to $\$ 7,250$.

Crabtree (10) studied factors contributing to consumer food preferences among five women's organizations in Texas. As consumer education and income increased the influence of children's food preferences on food choices decreased.

A study conducted by Dunsing and Bowles (17) in the summer of 1959 with a random sample of 680 households in California investigated family preferences for fruits and vegetables. Results of the study indicated income as an insignificant factor in the number of times a week fruits and vegetables were served in the home. A 1955 nutrition study of older girls and boys conducted by Mack and Bowes (38) in Texas, revealed that certain foods tended to be
used in lesser quantities by those in the lower income groups. These foods included chiefly the higher priced foods such as meat, fruit, and milk. The lower economic groups also tended to include less variety in the foods eaten, chiefly in the consumption of fruits and vegetables.

A general belief is that many low-income homemakers spend food money unwisely. To ascertain if enough money can be saved by educated shoppers to make training important in a consumer education program was one purpose of a study by Barney and Morse (2). Food expenditures of low-income, female-headed families were compared with cost estimates for the food items prepared by senior home economics students. Students were asked to select foods which were of like quality to those chosen by the homemakers. The name of the brand, price, and amount of each item selected, was recorded. The students could substitute brands but not foods or form of foods. Results revealed that the estimated costs prepared by the students were about 7.0 per cent more than the amounts spent by the homemakers. All but two of the 31 homemakers spent less than the amounts estimated by the students.

Homemakers in the above study were asked to indicate the food group in which they would spend an extra $\$ 5.00$. Students were asked to express opinions as to the gaps in
nutrition practices of these homemakers and to suggest more economical ways to meet the nutritional needs of the families involved. Food choices of the homemakers were judged by students to be lacking in fruits and vegetables but were considered more adequate in meat. On the other hand, homemakers expressed the need to buy more meat, poultry, and eggs. Students were of the opinion that milk and cheese were inadequate, but only five homemakers agreed with this opinion (2).

A review of the homemakers' purchases in the Barney and Morse study (2) indicated that foods were not purchased entirely for nutritional value. Some participants bought treats for the children along with major shopping. Suggestions by the students to provide more nutritious meals at equal or less cost for the family reflected the vaiue judgments, tastes, knowledge of nutrition, and concept of costs. For example, liver for weiners or hamburger, vegetables and potatoes for salami and pizza, broccoli for carrots, and sausage for turkey pies were some substitutions recommended. Dry milk, which is generally recommended for low-cost food plans, was suggested by only 13 of the 25 students to supplement milk supply; and only two of the 31 homemakers had purchased dry milk. Such suggestions, to be taken seriously, would need to be evaluated in terms of food habits
and psychological needs of the families involved. One major conclusion of the study was that minimum needs of low income families cannot be met by improved food buymanship.

Age of Homemaker

Younger homemakers have generally been found to possess greater knowledge of nutrition and more frequently make wise shopping decisions than do older wives. Jalso, Burns, and Rivers (32) reported age was more highly correlated with nutritional opinion scores than was education. Older age homemakers had less income, less formal education, less valid nutritional. opinions, and more rigid personality patterns. Nine per cent of the participating homemakers, 40 years of age or younger were classified as "faddists" while 91 per cent of the respondents over 40 were considered "faddists."

In a study by Hammett and Blackstone (29), homemakers of various age groups were included. Most young homemakers had several children and a relatively low per capita income, which indicated that food buying choices were limited. On the other hand, families with homemakers over 60 years of age were largely composed of adults. Although there were exceptions, per capita incomes and meal expenditures tended to be high among this group. Many homemakers of the older age group had ended formal education at the grade school
level, had stabilized food buying habits, and were little influenced by educational or promotional media. Many were not active seekers of new food experiences.

In the above study the middle-aged group of homemakers, 40 to 59 years of age, tended to have a small household size and a per capita income large enough to make the food budget less rigid than in earlier years. The completion of formal education tended to be nearer the high school level than for the older age group. These homemakers were experienced shoppers with freedom in making food-choice decisions, and most were willing to try new food experiences.

## Employment of Homemaker

In planning food purchases consideration should be given to the time and energy available for the preparation of food for family meals. A working mother may have little time and energy available. In addition, one with small children may have a limited food budget as well.

A study of nutritional sufficiency findings and family marketing practices by Methany and Others (45) revealed that a few more of the children of employed mothers had diets that could be rated as good than did the children of mothers who were not employed, 83 per cent and 76 per cent, respectively. The Household Food Consumption Survey of 1955 (72), involving a


#### Abstract

larger sample, revealed no evident difference in the adequacy of diets in families as related to the employment status of the homemaker.


#### Abstract

Suneson (65) investigated the use of time for family food shopping activities of 100 randomly selected families in New York. Results showed that more family members were involved in shopping if the wife was employed outside the home; also more trips were made to the food store by this group.


A study of food practices of homemakers in North Carolina, conducted by Harris (30), revealed that a complete grocery list was most frequently used by non-employed homemakers. More employed homemakers used no list. The percentage who had established food budgets was greater for unemployed than for employed women.

Nutritional Knowledge of Homemaker

Stubbs (64) reported a study of consumer responses to educational and promotional media conducted in seven southern states. The effectiveness of mass educational programs and the relationship of nutritional knowledge of the homemakers to decisions related to food purchasing were examined. In Texas and Virginia, citrus fruits were used as "tool" foods to gain information about the homemakers' food purchasing
behavior while in Alabama and Georgia, poultry was used. Mass media used by the investigators in Alabama and Georgia were radio programs and newspaper articles; television, radio, and newspapers were utilized in Texas; and television and mailed leaflets were used in Virginia. Preliminary data on homemaker characteristics, purchasing behavior, nutrition knowledge, and the use of the various types of mass media, designed as control data, were gathered from 2,442 homemakers. Follow-up data, comparable to the preliminary data and designed as experimental data, were secured from another group of 4,177 homemakers.

Data from the above study indicated that the largest percentage of homemakers with high nutritional knowledge scores were in the 35 to 45 years of age group, were more likely to have a high school education, and were more frequently from households of three or four persons. The male head was most often the only provider of family income and these families had higher per capita income. More homemakers who were classified as "impulsive" in marketing behavioral characteristics had high nutritional knowledge scores, while those classified as "habitual" shoppers more frequently had lower scores (64).

One set of questions in the investigation reported by Stubbs (64) was designed to measure the homemakers' knowledge
of useful information in making food purchasing decisions. Data analysis revealed that homemakers' marketing knowledge scores increased as the nutritional knowledge scores increased. In all states, the oldest and youngest homemakers made the lowest scores on both marketing and nutrition knowledge scales.

The respondents in the above study were more likely to have seen the newspaper column than to have heard the radio or seen a television program on nutrition. In general, homemakers who had higher nutritional knowledge scores more often remembered or gave evidence of remembering information that was presented through the various educational media. One of the assumptions of the study was that educational programs presented by various media would have greater impact on respondents with greater nutritional knowledge; this assumption was supported to some degree (64).

Homemakers with higher nutritional knowledge scores more often reported the desire for meal planning information from educational media than did those with lower scores. Despite most respondents' interest in food preparation programs, only a very small percentage had recently used information from such programs (64).

Questions relating to the homemakers' knowledge of the nutritive value of the "tool" food were included in the questionnaire used with both the control and experimental groups. Texas and Virginia data were pooled to determine the relationship of nutritional knowledge to food choices. Nutritional knowledge was related significantly to the food choices made. Available Texas data suggested that homemakers used knowledge of the nutritive value of foods in food purchasing, but some other factor might be of primary importance in a specific decision.

Morse, Clayton, and Cosgrove (49) conducted a study to test the nutritional knowledge of 238 mothers in relation to education, occupation, and the nutritional status of their children. A test covering a wide range of practical information on nutrition and diets was given during home visits when nutritionists reported some of the laboratory findings concerning the nutritional status of the individual children.

The 10 questions most often missed by the mothers with the highest nutritional knowledge had to do with familiarity with calculated values of foods. Items which exhibited a lack of knowledge were as follows: the level of protein in grams for a person of a given weight, the food containing the largest number of calories to be selected from four choices, or the daily calorie range needed by an active high school
boy. The type of question next most often missed had to do with a specific nutrient and its relation to such factors as stability in food processing or its function in the body. The other type of question among the top 10 missed had to do with selection of the correct statement among a group of fallacies. For the low scorers, even elementary nutritional knowledge was apparently lacking. Results indicated that the higher the level of education of the homemakers, the better was the knowledge of nutrition. It appeared that a course in nutrition was directly beneficial to the score attained without being related to the level of higher education (49).

Since the evaluation of nutritional status was based on biochemical analysis of blood samples obtained from each child in mid-morning, linear correlations were run between the blood determinations and the mothers' nutritional knowledge scores. Plasma ascorbic acid was the only chemical determination showing positive correlation with the mothers' scores for both boys and girls. This relationship was expected. A morning intake of ascorbic acid can affect the plasma level in a short time, and nutritional education usually emphasizes the need of a fresh supply of this vitamin every day. The fact that plasma carotene and not vitamin $A$ showed a positive correlation with the mothers' scores for
boys may possibly be explained by the knowledge that in animal products as well as in plant sources the yellow provitamin is present to a large degree.

Implications from the Morse, Clayton, and Cosgrove (49) study indicated the need for some supervised education in nutrition. Even an elementary course in nutrition would be of benefit to mothers in planning family meals. Because many of the girls among secondary school dropouts soon become mothers, courses in nutrition and a familiarity with foods and their nutrients are recommended for the elementary grades.

A recent article by Bauer (3) related that experts estimate Americans spend $\$ 1,000,000,000$ each year on useless cures, mechanical gadgets, fad foods, and other quack remedies. A breakdown of the cost of quackery in this country includes: $\$ 500,000,000$ for vitamin preparations, self-prescribed or sold house-to-house, and other nutritional nonsense; $\$ 1,500,000$ for self-prescribed laxatives, which can be harmful; $\$ 250,000,000$ for arthritis and rheumatism treatments with claims of cure; more than $\$ 100,000$ annually for "patent medicines," and more than $\$ 50,000,000$ for cancer "cures" and treatments. The United States, the best-fed nation on earth, certainly does not need to waste $\$ 500,000,000$ annually on vitamin pills, special dietary foods, and the so-called
"health foods." The amount of money wasted by the American public for the above items is more than is spent in a year on medical education in the United States.

Jalso, Burns, and Rivers (32) conducted a study to determine if an association exists between food faddist beliefs and practices and one or more of the following characteristics: age, socioeconomic level, educational level, and personality rigidity. In addition, data were obtained on sources of nutritional information and the underlying bases for and extent of selected nutritional practices. Two questionnaires, designed to test nutritional opinions and nutritional practices, were completed by 340 subjects who were members of various community organizations in New York State. A sub-sample of 101 subjects, composed of the groups scoring highest and lowest on the nutritional opinions questionnaire, were persorially interviewed to determine specific food practices and beliefs, to identify sources of nutritional information, and to obtain information on personality rigidity.

Correlation coefficients among age, income, education, nutritional opinion scores, and personality rigidity scores Were all highly significant. Age was negatively correlated with all other variables, indicating that the older age group had less income, less formal education, less valid nutritional opinions, and more rigid personality patterns. Age was more
highly correlated with opinion scores than was education. "Non-faddists" were concentrated in the higher educational category while. subjects in the "faddist" group were distributed throughout the educational range. "Faddists" had received substantially less nutritional education indicating that nutritional education is an effective means of preventing adoption of "faddist" opinions. On the basis of age, the distribution of "faddists" was concentrated in the older age group. It has been postulated that the older population group is most affected, since old age is often accompanied by ailments which the "faddist" proposes to cure. The "faddist" group was concentrated in the lower income categories; the "non-faddist" group, while more diversified throughout the range, tended to concentrate at the upper income levels (32).

Nutritional supplements and "health" foods were used to a greater extent by the "faddists" than by those in the "nonfaddist" group. In most cases, these foods and supplements were self-prescribed. The use of vitamins by 73.6 per cent of the "faddists" and 58.4 per cent of the "non-faddists" indicates that this practice is extensive. Virtually none of the "non-faddists" avoided any of the foods mentioned, while in the "faddist" group, 52.8 per cent avoided the use of saturated fats and from 30 to 40 per cent of this group
eliminated some food items in all of the food categories. Health was the major reason given for avoidance of certain foods (32).

Factors which initiated interest in nutrition were different for the two groups. Although both frequently mentioned maintaining good health as a reason for interest, the "faddists" emphasized health problems in the family and a concern with wholesomeness of foods. In contrast, the "nonfaddist" group listed nourishment of small children as a major reason for interest in nutrition (32).

The percentages of subjects in the study by Jalso and Associates (32) who expressed an interest in new findings in nutrition were 69.8 and 70.8 of "faddists" and "non-faddists," respectively. The "faddists" used books as sources of information substantially more frequently than did the "nonfaddists." Both groups read more nutrition books of questionable validity than read approved ones, thus attesting to the greater appeal of these books to the population as a whole. Magazines and newspapers were the most frequent source of nutritional information used by both groups. Radio and television were not major sources of information for either group suggesting that the best mass communication media for dispensing nutritional information are magazines and newspapers. The investigators suggested that one approach to
combating food "faddism" is to present valid nutritional information in a form that has popular appeal. Groups to which special attention might be given include: the aging population, persons with limited formal education and income, and persons having special health problems.

Wilson and Lamb (77) investigated the effectiveness of nutritional education in combating food fallacies by exploring food beliefs of women as related to ecological factors. The authors related that two types of faddists exist in our society. The first is the individual with acute chronic aberrations, as, for example, the avoidance or the craving of specific foods. The other is the collective type of faddist, psychologically exploited to accept a stereotyped dietary practice recommended by a group purporting to have the keys to improving health or curing disease.

Participants whose education included the study of home economics and nutrition did not accept the food fallacies accepted by their peers or by those from other disciplines. Their correct beliefs about food may be attributed to education in home economics and nutrition. Data indicated that those with more education in home economics had more education in nutrition. However, findings showed that a few unique misconceptions were still held by persons with education in home economics and nutrition. Some examples of misconceptions
were: "eat for two" during pregnancy, tension is caused by calcium deficiency, "that tired feeling" is due to a lack of iron, and protein gives athletic ability (77).

The investigators concluded that education in home economics was successful in at least two ways. First, the participants with a background in home economics, did not accept the food fallacies accepted by peers with a higher education in academic disciplines other than home economics. Second, and a more positive finding of the study was that home economics trained individuals were able to differentiate between the correct and the false beliefs. This was interpreted to mean that education in home economics at the college level makes a positive contribution to education in correct food beliefs (77).

## Education of Homemaker

Nutritional education is widespread in the United States. Health education is usually taught in elementary and secondary schools; biology and sciences related to health are included in secondary schools and colleges. As a result, American women should have the opportunity of acquiring a good general knowledge of the relative value of foods. The enormous advertising programs of the big firms in the food industry have an important educational role. For the most
part, advertising is beneficial, but occasionally are highly misleading advertisements. Extension services publish bulletins available to homemakers and newspaper usually include food news released by the Department of Agriculture. Women's journals often carry reliable articles on health, the care of children, and nutrition in general; the information given is usually accurate and these articles may be a potent educational force.

Education in home economics helps to as sure the best use of available food supplies. The better educated the women of a country, the better will be the health of all sections of the population. The responsibility for nutritional education rests in part with educational authorities, and in part with medical authorities. An understanding of the elementary principles of foods and food preparation is desirable for every future mother and homemaker.

Johnson (33) emphasized the idea that nutritional education must be related to some action and not to the storage of scientific information. In preparing normal diets for families, homemakers need to have information about the types of foods available which can meet nutritional needs. The information presented to the homemaker must be relatively simple yet should be related to those foods and food products which may be found in the local food markets.

The consumer should be informed as to the place in the diet of new and hitherto unavailable foodstuffs. Unfortunately, nutritional education, in relation to new foods and new eating habits, is frequently left by default to the manufacturer. The manufacturer is interested in selling products, and though in most cases does a commendable job of informing the public, the enthusiastic advertiser may convince the homemaker that the product deserves greater importance than can be warranted from a nutritional standpoint (33).

Johnson (33) further pointed out that the physician is considered a principal source of nutritional information, both for normal nutrition and for nutrition as related to the treatment of disease. Often the physician has not been able to keep pace with the tremendous advances in nutritional knowledge. This failure has been reflected in his inability to utilize nutrition in a way which is understandable and usable by the patient.

Young, Berresford, and Waldner (79) found that, based on the criteria studied, homemakers who reported having studied foods had a better knowledge of nutrition than other homemakers. Schools appear to be an important factor in teaching nutrition, since by far the majority of homemakers in the above study reported school as the source of nutritional
information. From responses to questions relating to nutri-. tional knowledge, approximately one-fourth of the participating homemakers appeared to have a fair understanding of nutrition as related to family feeding.

Wright (78) summarized the homemaker's responsibility in seeking nutritional information. Since food purchases require a high proportion of the expenditures for most families, the opportunity and the responsibility carried by the family food shopper can determine the health of family members as well as the health of the family purse. Informational aids are found throughout retail food markets. Multitudes of educational materials are available for the food shopper who takes the initiatike in seeking shopping information. Voluntary accumulation of available knowledge can add to the satisfaction of the homemaker and, to the extent of well-being of the family.

Education of the homemaker has been shown to be a most important criterion in the selection of an adequate and nutritious diet. Mack and Others (39) reported a mass nutritional status investigation involving 421 subjects, 173 boys and 248 girls, between the ages of six years, nine months and 16 years. The Stanford-Binet Form $L$ test, together with eight nutrition tests, were administered to the subjects. The education of adult members of the family and the child's
composite nutritional score were correlated positively; as were family education and the child's intelligence quotient. The composite nutritional status rating of the child, with the family income and education held constant, was positively related to the child's intelligent quotient. Family income and education of adult family members were the two chief determinants of food choices, with education having about twice as much influence as cash income, indicating the value of education as means of improving nutritional well being.

An eight year nutrition study conducted in New York state, by Young, Berresford, and Waldner (79), revealed that nutritional knowledge was greatest in the younger, better educated, higher income homemakers. However, of the factors studied, formal educational attainment seemed the most important factor related to knowledge of nutrition. The greatest needs for more nutritional knowledge were in regard to ascorbic-acid-rich fruits and vegetables, carotene-rich fruits and vegetables; adult needs for milk; and the nutritional value of bread stuffs and cereats, and of butter and fortified margarine.

Oppenheim (54) stated that people with more education use larger amounts of dairy products and more of both frozen and canned fruits and vegetables. The Zehner (80) survey
revealed higher educational groups used significantly more flexible spending guides or placed no limit on spending. These factors substantiate the findings of Mack and Others (39) in a study involving 100 urban families from a broad range of cash incomes. Expenditure was found to be more consistently related to choice of foods and consequent consumption of nutrients than was family cash income, with family education serving as the chief determining factor in establishing the other two family characteristics. The inter-correlations between these three socioeconomic factors were found to be highly significant.

Hammett and Blackstone (29) found that as formal education increased, there was a tendency for use of the nutrition information sources investigated to increase for most of the items studied. Some of the greatest percentage changes that occurred with an icnrease in education dealt with items that required reading ability. These included food store advertisements, in newspapers, cookbooks, food articles in magazines, and food sections in newspapers. The use of some items increased with additional education even though there was no apparent relationship between the source of information and a specific need for education. Items included in this group were information from friends and relatives, food advertisements on television, samples tasted in stores, displays and handout materials in stores. The receptiveness
to educational and promotional food materials tended to increase with each increase in level of formal education. As a general rule, grade school educated homemakers seemed least receptive and those with college education the most responsive. However, the college educated homemaker usually had a larger income, smaller size of household, and a less rigid food budget. In most cases impuisive buying did not interfere with the food budget. Generally, the grade school educated homemaker was in a family with low income, several children, and a restricted food budget. These combined factors often influenced the homemaker's decision-making concerning food more than did education alone.

## Sources of Food and Nutritional Information

Moore (48) conducted a study of the factors influencing the buying practices of farm women in Texas in 1949. Results showed the most potent influence on shopping was that of the demonstrator and the door to door sales person; few women were conscious of the influence of advertising in any form on buying practices. Advice from salespeople, friends, and relatives was sought by 100 per cent of the respondents. Advertised "specials" and "sales" did not appreciably affect buying practices. The participants evidenced a desire to help their community by patronizing local merchants. The author concluded that reliable sources of information were needed for the group surveyed.

Today, the door to door salesman is practically extinct and demonstrators have not been listed as important sources of information in recent studies. Changes in mass media communication in the past years have been significant. For the vast majority of the homemakers, to keep informed as to the most effective form of communicating, astute judgment and current evaluation of new materials and ideas by home economists are required.

Simmons and Roehm (60) investigated the sources of information used by 198 home economists and extension agents in Montana in teaching consumer economics. Over two-thirds of the home economists reported teaching consumer economics as a part of, or integrated with, other courses, for example, nutrition, clothing, family finance, and others. $0 f$ the 66 per cent of the respondents who reported using texts as references, many were unhappy because departmental budgets were 1 imited, books were outdated and expensive, and few were written for the high-school-age group. Fifty nine per cent of the home economists depended upon popular magazines as reference material for teaching consumer subjects. Only eight respondents listed the Journal of Home Economics as a reference; and two, the Journal of the American Dietetic Association. Forty-nine per cent of the home economists reported using information from commercial companies.

Several respondents noted that the information taken from such sources was biased; however, it was more current than most available materials on consumer economics and marketing research. Twenty-three per cent used various United States Department of Agriculture bulletins. The greater use of government bulletins by extension agents than by high school teachers may be attributed to the fact that extension agents in Montana are provided annually with a list of current government publications.

The results of the Simmons and Roehm (60) study indicated that 36 per cent of the home economists call upon the food store manager as a resource person to assist in teaching consumer economics; 27 per cent use bankers; 15 per cent use the extension family economist; 11 per cent use the extension marketing specialist; and 12 per cent call upon food processors. Other resource people named were brokers, experiment station economists, county agents, credit bureau personnel, real estate agents, insurance men, and extension subject-matter specialists. Since most of the help in teaching consumer economics is obtained from retailers, it seems logical to assume that this information could be biased and that the true picture would not be obtained by the students.

The majority of the home economics extension agents and high school teachers in the above study felt poorly
prepared to teach consumer economics. Approximately three out of four respondents requested information in the following areas: installment buying and costs of credit, new products available to the consumer, seasonal sales, and managing the food dollar. One out of two home economists suggested that research workers in the area of economics could help to keep home economics teachers and extension agents aware of new technologies which affect the consumer. The respones to this question show that there is a real need for helpful, up-to-date, and usable information in this area.

Numerous investigations have been conducted to determine the sources of information utilized by homemakers in food buying decisions and in nutrition. In a survey of Alabama consumers, Van DeMark (74) found that food advertisements in newspapers was one of the most influential promotional media. Homemakers living in small cities, under 25,000 population, generally were more responsive to promotional media than were respondents living in larger cities. The younger homemakers and those with nine to 12 years of education were influenced most by family preferences, especially of children. McKee (41) reported similar findings among elementary school children. A high percentage of the snack foods advertised on television were requested by the children and were purchased by the mothers.

In a recent study of food shopping habits, 73.8 per cent of the shoppers listed food store advertising in newspapers as the chief source of nutritional information. An average of one half of the food store shoppers who read advertisements read three or more different food store advertisements. This type of media was predominantly. the first choice as to the most effective method of bringing specials to the attention of shoppers; however, in-store displays, handbills, and circulars were important as effective methods of communicating information concerning food specials (23).

A survey conducted in Mississippi, by Dickins (14), examined three sources of information to determine the extent of influence on food purchases: advertising material, personal influences, and printed material. The types of advertising most used by the homemakers as a guide in food buying were: 1) grocery store advertisements in newspapers, such as week-end specials; 2) store displays; and 3) food advertisements on television. Food products purchased as a result of advertising appeals were usually selected on the basis of low price, appearance, or brand name: The use of coupons was mentioned less frequently than grocery store advertising as a food purchasing influence, but was mentioned more often than store displays and television food advertisements. Coupons provided opportunity to try the new, or to
buy the familiar at a lower price. The types of personal influence most often mentioned in the Dickins study were: influence of family members, with children mentioned more frequently than the husband; the influence of friends and relatives; and the influence of samples tasted at the grocery store.

The Harris (30) survey of North Carolina homemakers revealed that 52 per cent of the participants listed information from relatives and acquaintances and newspaper advertising as the most valuable sources of food information. Laidig (34) found that brand name of the product ranked first in importance as an influential factor in a Montana study. The influence of family and friends and newspaper advertising. were important as significant sources of information.

Crabtree (10) found that the influence of the husband or children and displays or promotions in the supermarket contributed most to purchases of unplanned items by Texas homemakers. Suggested uses for food and foods for special occasions were the most effective display techniques. Display stacks of "specials" were effective techniques of customers Who were college graduates and in the higher income groups.

The influence of mass media educational programs on food-buying decisions was investigated by the Agricultural Experiment Stations of six southern states and reported by

Stubbs (64). A higher percentage of homemakers were found to be exposed to the newspaper articles than to television or radio. The poor response as to the influence of radio and television appeared to be related to the type of program, the hour of the day and possibly the size of the community. The length of the program presented may have been a significant factor. McKee (41), in an investigation of the influence of television on snack selections of second grade students, found television to be an important advertising medium for children. The students correctly identified 79 per cent of the snack preferences presented as having been advertised on television commercials.

Emara (19) investigated the sources of nutritional information used by mothers of preschool children. The physician and printed material were listed as most valuable although a number of mothers reported receiving nutritional information from friends and relatives. However, these sources Were not considered as having a primary influence on family dietary practices. McNeely (42), in a study of two groups of nursery school children, found that, 100 per cent of nursery school mothers and 25.7 per cent of Head Start mothers listed printed material; 42.1 per cent of mothers of nursery school children and 5.7 per cent of mothers of Head Start children listed relatives and friends as important sources of nutritional
information. About one-fifth of both groups listed the physician or dietitian as a source of nutritional information.

Hammett and Blackstone (29) conducted an investigation of influences affecting food buying decisions of urban homemakers in Alabama. A random sample of 1,654 families, designed to represent all urban areas, was selected for study. Data revealed 43 per cent of the participants were in the low income group. Low income families tended to show little response to most of the written information items available in the stores. Food stores in low socioeconomic areas used a limited selection of promotional and educational materials. In-store media and practices involving tasting and sampling were most effective with the lower income group. Unrestricted buyers used a wide choice of promotional and educational materials that could be personalized to fit the shoppers. High income homemakers dropped well below the group average in reported use of requests by family members, houndout materials in stores, and information from cooking demonstrations on television. Medium and high income families were often smaller and included homemakers who had completed more formal education.

Hammett and Blackstone (29) found greater responses to information sources influencing food purchases at certain
stages in the family cycle. Requests from family members were strongest when the youngest child was between six and 12 years of age. Mothers of adolescent children were also responsive to food requests to about the same degree as those with preschool children. The influence of food store advertisements in newspapers increased from 39 to 61 per cent with a rise in the age of the youngest child from preschool age to 13 to 19 years. In most categories, homemakers in families with all adult members, were average or below in response as to influence of different food information sources.

## FOOD PREFERENCES AND CONSUMPTION PATTERNS

Meat

More meat is eaten per capita in America than in practically any other country. This fact undoubtedly is an important factor in the high level of nutritional health in this country. Meat supplies a wealth of high-quality proteins, important B-complex vitamins, and essential minerals. It is one of the most easily digested foods and one of the most universally liked foods to reach the American table.

The food consumption survey of 1965 conducted by the Agriculture Research Service (68) revealed that the per capita consumption in the spring of 1965 was 4.58 pounds of
meat per week at a cost of $\$ 2.88$. An average of 105.8 grams of protein per day per capita, including protein from other food groups, was provided. Ninety-five per cent of the diets of the households surveyed met the recommended allowances for protein. Of the 5.0 per cent of the households consuming less than the recommended allowances, 12 per cent listed incomes below $\$ 3,000$ and 2.0 per cent listed incomes over $\$ 10,000$. This indicates that family income is not the only criterion influencing adequate protein intake. One per cent of the households responding had dietary intakes below two-thirds of the recommended daily allowance for protein. Of this group, 1.0 per cent had incomes under $\$ 3,000$ and 1.0 per cent of the households in the $\$ 5,000$ to $\$ 7,000$ income level had poor diets, low in protein intake.

Although meat purchases take about 40 per cent of the family food dollar, meat packing companies have been able to maintain lower prices by utilizing by-products (69). The American Meat Institute published a story of the steer to illustrate the rise in cost from producer to consumer. Based on average market prices for 1968, a steer weighing 1,000 pounds costs the packer $\$ 295.00$ (43). The steer yields 590 pounds of carcass beef for which the retailer pays $\$ 265.00$. Retailer mark-up cost must cover such items as rent, labor, depreciation on equipment and fixtures, as
well as trimming loss and natural shrinkage in weight of the beef carcass when converted into retail cuts. A 1,000 pound steer yields 465 pounds of beef including 35 pounds of porterhouse, T-bone, and club steak; 40 pounds of sirloin steak; 65 pounds of round steak, 45 pounds of rib roast; 25 pounds of boneless rump roast; 100 pounds of chuck roast; 45 pounds of hamburger, 110 pounds of stew meat and miscellaneous cuts; and 125 pounds of bones, fat, waste, and shrinkage. The consumer pays $\$ 360.00$ for the above cuts from the 1,000 pound steer.

Despite the abundant production and the economical processing of meats, some protein deficiencies continue to be found in the United States. Leverton (36) recently stated that the greatest need in the field of protein nutrition today is for studies of "typical proteins in typical diets." The task today is to cope with the problems of protein nutrition wherever problems exist; in the low income groups in this country, or in the affluent society, prone to obesity and heart disease. Leverton has stated that nutritionists have an obligation to see that these much needed facts are among nutrition landmarks of the next half century.

Based on the large consumption of beef, this protein food has been shown to be the best liked meat in the United States. Capps (6) found that roast beef was the best liked meat dish of 131 college students with 93.9 per cent
checking pot roast of beef as a well-liked meat. Baked ham, roast turkey, ground beef, and macaroni and cheese were well-liked main dishes listed in descending rank order of preference. Roast beef was the only food item not checked as "refused" by any student. Main dishes, liked by less than one-third of the group, were as follows: cheese fondue, creamed dried beef, and corned beef hash. Other than liver, these were the only main dishes checked as "liked" by less than 50 per cent of the respondents.

Emara (19) found similar preferences among nursery school children and their families. A food preference list was checked by both parents, by school-aged siblings, and checked for the nursery school child by the parents. Data revealed a similarity in food likes and dislikes among family members. Main dishes for which the highest number of families reported a liking were as follows: beef pot roast, roast turkey, baked ham, and ground beef. Main dishes for which the average consumption was highest for the nursery school children were hamburgers, creamed chicken on rice, scalloped eggs, baked ham, meat loaf, turkey, and peanut butter sandwiches. Food items not well accepted, as indicated by the small number of children eating the entire serving, were as follows: cheese fondue, liver, and creamed chipped beef.

The food consumption survey for 1965 listed the meat items consumed in greatest quantities (71): The per capita consumption per week was as follows: total beef, 5.43 pounds; steaks, 2.23 pounds; roasts, 1.42 pounds; ground beef, 1.34 pounds; total pork, 3.60 pounds; cured pork, 1.86 pounds; fresh pork, 1.59 pounds; chicken, 2.62 pounds; lunch meat, 1.42 pounds; total fish, 1.21 pounds; variety meat, 0.26 pounds; lamb, 0.18 pounds; and veal, 0.16 pounds.

## Fruits and Vegetables

Adelison (1) stated that nutritionists should be concerned by the fact that fruit and vegetable consumption has decreased in American diets during the period from 1955 to 1965. The national food consumption survey indicated that low income households showed a greater proportion of vitamin A value and ascorbic acid deficiencies; however, less than optimum consumption of fruits and vegetables was found in higher income groups. Other studies have similarly revealed inadequate intakes of this food group (11, 58).

Edwards, Hogan, and Spahr (18), in a survey of 6,200 teen-age youth, using the 24 -hour recall method, found the consumption of deep green leafy and yellow vegetables and ascorbic acid-rich foods very low for all grade levels in all schools investigated. Only 16 per cent of the students included one serving of green or yellow vegetables, and 35
per cent had one serving of ascorbic acid-rich foods. Two or more servings of other fruits and vegetables were eaten by 64 per cent of the participating students. Students enrolled in the twelfth grade showed the poorest overall nutritional habits.

In the Dunsing and Bowles (17) study of 680 households, meal planners more frequently served fruits and vegetables, except for potatoes, seven days a week than served them either fewer than seven days or not at all. Either two or three vegetables were customarily served at dinner. Fresh fruits and vegetables were used by more homemakers than were canned, frozen, and dried forms. For both fruits and vegetables, food buyers considered the canned product most convenient. The proportion choosing canned fruits, however, was much higher than the proportion choosing canned vegetables. For the frozen product, the results were reversed. Frozen vegetables were mentioned as being the most convenient to use by a higher proportion of food buyers than were frozen fruits.

A marketing research report of homemakers' use and opinions about fruits and vegetables revealed that nonpurchasers of the specific fresh fruits gave a variety of reasons for not buying these fruits (73). Many of the reasons given did not indicate an actual dislike of the fruit itself.

Some non-purchasers raised or received fruits from friends. Unfamiliarity with the fruit, lack of availability on the local market, and difficulty in preparation were reasons given for not purchasing certain fruits. Reasons most often given for selection of fruits were as follows: good for health, good for snacks or packed lunches, and can be used in many ways. "Messy to eat" was frequently mentioned as a reason for not purchasing fruit, especially peaches.

Mackey and Others (40) reported an in-depth study to determine consumer practices with regard to fruits and vegetables. Because several western states participated, this research was planned and carried out on an interdisciplinary basis, using consumer economists, food scientists, nutritionists, and statisticians. In this way research from several states effectively complemented each other. Many fresh and processed fruits and vegetables were found available throughout the year in a large majority of the stores. Ninety per cent or more of the stores carried three fresh fruits, five fresh vegetables, 10 canned fruit products, 11 canned vegetables, two frozen fruits, four frozen vegetables, two dried fruits, and four dried vegetábles. Many of the most highly available products were among the least expensive. When fresh fruits and vegetables were in season, the majority of household food buyers bought these products for meals.

When fresh fruits were not in season, the majority used the canned form. When fresh vegetables were not in season, canned and frozen forms were generally used.

Emara (19) investigated the eating behavior of 53 nursery school children, their parents, and their siblings. Vegetables showed the widest variation in acceptance of any food group studied. Mashed potatoes and green beans were the favorite cooked vegetables of the nursery school children. The least liked vegetables were eggplant, cauliflower, Brussels sprouts, and okra. Carrots were the favorite raw vegetable of the group. Potatoes and green beans were the favorite cooked vegetables of family members. The raw vegetables most preferred by the 53 families included in the study were lettuce, tomatoes, and carrots. The most popular fruits were bananas, apples, peaches, and oranges. The preferred juices were orange, grape, appie, and tomato. No. fruits or fruit juices were disliked by all family members in any of the participating families.

A Gallup (27) survey of vegetable preferences revealed that vegetables being served most frequently in American restaurants are not those that patrons prefer, and that vegetable preferences cover a wider spectrum than is generally supposed. Among prepared forms of potatoes, baked were most often preferred with mashed and French fried following in popularity. Green beans topped the list of other vegetables,
and the second choice was asparagus. Corn and tomatoes shared the third position followed by French fried onion rings. Other popular choices were broccoli, lima beans, peas, carrots, cauliflower, Brussels sprouts, spinach, rice, and eggplant.

An investigation by Capps (6) of food selection. patterns of young college women revealed that baked and mashed potatoes were the favorite vegetables. Baked potatoes, mashed potatoes, sweet potatoes, and green beans were the only vegetables listed in the survey form that were served in all of the homes. The vegetables liked by 75 per cent of the subjects, in order of preference, were as follows: baked potatoes, mashed potatoes, green beans, scilloped potatoes, tomatoes, and okra. Half or more of the students liked sweet potatoes, squash, broccoli, carrots, asparagus, cauliflower, spinach, and Brussels sprouts in that order of preference. The vegetables liked by less than half of the respondents were rutabagas, turnips, and beets. Preferences of the 131 college students for raw vegetables in rank order of the frequency with which checked were as follows: lettuce, tomatoes, cucumbers, carrots, celery, and cole slaw. Parsley and spinach were liked by fewer subjects than were any other vegetables listed.

In a study by Capps (6), peaches, oranges, pears, and pineapples were reported as liked by more subjects than were other fruits listed. In general, fruits were better accepted than were vegetables. The most rejected fruit was raisins. All the fruits listed were reported as served in 96 per cent or more of the homes. Orange juice, grape juice, pineapple juice, and lemon juice were the favorite juices. Orange juice reportedly was served in all the homes. All but four homes served apple and lemon juice. The highest percentage of students reporting refusal to drink a fruit juice was for tomato juice, with grapefruit juice listed as the second most rejected juice.

## Snack Foods

Eating between meals has become increasingly popular in recent years. There can be no rigid rule as to the desirability of snacks. Active children often benefit by having a midmorning or midafternoon snack, providing that the food is of such a nature that the appetite at mealtime is not lessened. Workers in industry, nurses, students, and others experience a "lift" with a snack.

The quality of the snack is important. Concentrated sweets and carbonated beverages may contribute little nutritive value other than carbohydrate and may diminish the mealtime appetite; but fruits, fruit juices, milk, vegetables,
or a sandwich carry many valuable nutrients. Depending upon the individual's activity and the interval between meals, snacks may make a desirable contribution to the total day's requirements. Between-meal snacks, properly chosen, may actually aid some persons in maintaining weight by reducing the tendency to overeat at mealtime (56).

Snack foods may contribute to the total nutrient intake. Huenemann and Others (31) investigated food and eating practices of 122 junior and senior high school students over a period of two years. Results of the study revealed that the adolescents who ate regular structured meals, usually augmented by snacks, tended to have better nutrient intakes than the irregular eaters. The authors suggested that the elimination of between-meal-eating would necessitate a change in the overall pattern of living for the children and families investigated. Two questions raised by the authors were: "Is this a realistic and essential goal for nutrition educators," and 2) "Should home economics and nutrition teaching change its emphasis from meal-planning to buying of nutritious snacks and convenience foods?" One implication of the study was that if children are to have a balanced diet nutritious foods must be readily available.

The above authors listed the most frequently consumed snacks in descending order of popularity. Boys listed cereal
and bread; pie, cake, pastry, and cookies; soft drinks; milk; fruit; eggs, meat, and cheese; ice cream and candy; potato chips; and vegetables. Girls listed: pie, cake, pastry, and cookies; candy; fruit; cereals and bread; soft drinks; ice cream; milk; eggs, meat and cheese; potato chips, and vegetables. Vegetable snacks were an infrequent snack choice for both boys and girls.

Proudfit and Robinson (56) mentioned that ice cream with rich sauces, pastries, candy, soft drinks, popcorn, potato chips, pretzels, hamburgers, and pizza are among the favorite snack foods of teenagers. Poor choices of beverages were attributed to the fact that milk often is regarded as fattening, or as a food for babies. Conversely, tea and coffee may be selected because they are considered adult beverages. Huenemann and Others (31) found that among boys and girls with calcium intakes below two-thirds of the recommended allowance, there was a general tendency to substitute soft drinks for milk at mealtime. In contrast to this, coffee did not appear to be substituted for milk.

A Gallup (26) survey of beverage and snack preferences in the United States was reported in 1966. Coffee, the favorite between-meal drink in the United States, was named as a snack preference almost twice as often as iced. tea and colas, except in the South, where iced tea was a close
second choice. Milk was preferred more by men than women, by more young children than by teenagers, and by more western and midwestern than eastern and southern residents. Orange juice and hot chocolate were popular with individuals over 50 years of age. Low-calorie drinks were most popular with calorie-conscious women, in the 21 to 34 years of age range. Among snack foods, sandwiches (including hamburgers and hot dogs) were preferred over other types by a two-toone margin. Pie was the second choice for snacks, followed by salad. Ice cream snacks were found to be most popular in the midwest, men consumed more doughnuts than women. English muffins were preferred by about two times as many individuals in the high as in the other income groups, especially in the eastern area of the country.

Dr. Mehren (44), Assistant Secretary of Agriculture, recently stated that the broad aims to improve the nutrition of everyone and to advance education and the sciences in fields pertaining to food are the goals of the Department of Agriculture and of the American Dietetic Association. Periodic food consumption surveys and dietary appraisals indicate trends. Therefore, these types of investigations are of value in the study of nutrition.
$01 m s t e a d$ (53) described families as small businesses with the homemaker serving as the manager.

No businessman would ever hire a manager who was not experienced. Yet think how many family homes are run by inexperienced managers. . . Our responsibility is to help families make food dollars buy more . . . more food, more quality, more nutrition, more variety, yes, even more convenience if that is the prime requisite for the way they live. . . . It is our responsibility to every family to provide nutrition information that is accurate.

The author stressed the importance of communication with all families to ascertain reasons for purchasing specific types of foods.

In a recent article, Burk (5) stressed the need for an integrated approach to consumer behavior. The complexity of family and consumer problems demands greater knowledge of the interrelationships of the socioeconomic, psychological, and physiological factors affecting behavior. This research examines the need for interdisciplinary analysis in order to more closely approximate the multidimensional characteristics of reality.

## CHAPTER III

## PLAN OF PROCEDURE

An investigation of meat, fruit, and vegetable purchasing preferences; of shopping habits; and of factors influencing consumer purchasing decisions was the purpose of this study. Since the homemaker is the vital link between the food supply and the nutrient intake of families, insight into the factors relating to decision-making in food selection is essential to institute desirable changes in family food consumption patterns.

The 1968 sample was obtained from 200 mothers of homemaking students enrolled in four high schools in Texas. Two schools were located in Dallas; one in Irving, a suburb of Dallas; and one school in Nocona, Texas. The sample was designed to simulate random sampling and to extend the scope of six previous studies conducted in Dallas, Denton, McKinney, Garland, and Arlington, Texas, and in Wichita, Newton, and Hesston, Kansas. Data from 777 homemakers included in the six previous investigations were combined with data from the present study. Each survey contributed information of value in the overall study.

Three previous studies, conducted by Shetler (59), Douglas (16), and Moxey (50), investigated meat purchasing preferences and shopping habits of 416 families. The Shetler study included 183 homemakers residing in Wichita, Newton, or Hesston, Kansas. Wichita is representative of an industrialized urban area with a large population. Newton is representative of a smaller urban community; and Hesston is representative of a small community which included farm families. The Moxey study, including 108 homemakers, was conducted in Arlington, Texas. Arlington is a suburban industrial community lying midway between Dallas and Fort Worth. The Douglas investigation included 125 homemakers from high income families residing in Dallas, Texas, an extremely large metropolitan area.

Three investigations, by Ottenhouse (55), Schmolder (58), and Stribling (61), were conducted to survey fruit and vegetable purchasing preferences and shopping habits of 361 homemakers. The Schmolder study included 120 homemakers residing in Gariand, Texas. Garland, a suburb of Dallas, is representative of a highly industrialized city. The Ottenhouse investigation of medium and low income families was completed in Denton, Texas. This city, located 35 miles north of Dallas, is primarily a university community with two state universities within the city limits. The Stribling survey, conducted in McKinney, Texas, is representative of a smaller urban area.

The survey form of food preferences and shopping practices used in the 1968 study was designed to obtain information which could be combined with data from the six previously mentioned investigations. Two hundred and fifty questionnaires were sent to mothers of homemaking students through the homemaking teachers. A letter of introduction by the author and an explanation concerning the purpose of the investigation accompanied each survey form. A copy of the letter may be found in Appendix A. Participants were requested $\dot{\text { in }}$ return the questionnaires to the homemaking teachers. Of those forms returned, 200 were considered usable.

The survey form was designed to obtain information concerning shopping habits and possible factors influencing the meat, fruit, and vegetable purchasing preferences of families. The influence of family income, size of household, and the ages, employment outside the home, and education of the homemaker (including home economics courses) on general buying habits and the selection of meats, fruits, and vegetables was investigated. Information concerning food expenditures and family preferences for meats, fruits, and vegetables was requested of the participants. A copy of the survey form, "Inventory of Homemakers' Preferences in the Selection and Purchase of Meats, Fruits and Vegetables," may be found in Appendix B.

The data from the 1968 study were combined with responses obtained in the previous studies when feasible; other data from the 1968 study were analyzed and compared with findings from the earlier investigations. Data from each survey were utilized to obtain information concerning the respondent's background and certain other factors investigated. The questionnaires differed in the factors investigated and in the manner in which responses were recorded. Therefore, responses of the total group were not available in analyzing all factors.

## PRESENTATION OFDATA

The present survey was part of a joint study conducted by Moxey (50), Douglas (16), Shetler (59), Ottenhouse (55), Schmolder (58), and Stribling (63) to investigate the food shopping habits; purchasing preferences for meats, fruits, and vegetables; nutritional knowledge; and factors influencing consumer choices of 977 selected homemakers. The data were collected over a period of approximately two years. Seven survey forms were administered, the first in May, 1966 and the seventh one in March, 1968. In order to obtain possible seasonal differences in the food selection and purchasing practices of the homemakers, the months in which the surveys were conducted varied. Two of the surveys were conducted in March, two in May, and three in November.

The resuilts from each of the surveys were utilized to obtain certain types of information concerning background characteristics of the households and data concerning the various factors being investigated. In the discussion and presentation of findings in each area, the 1968 Survey will be discussed first, followed by a discussion of the overall study of the 977 homemakers.

The Shetler survey (59) was conducted in and near Wichita, Kansas. Six surveys were completed in or near the metropolitan area of Dallas, Texas. Questionnaires were sent to mothers of homemaking students through the homemaking teachers or to members of the Parent-Teacher Associations of selected schools. In addition, Shetler (59) included members of a county home economics association.

Distribution of the sample according to size, location, and survey date may be found in Table I. The first three studies, related to meat purchasing preferences and consumption, will hereinafter be referred to as follows: Survey I, the Moxey study (50); Survey II, the Douglas study (16); and Survey III, the Shetler study (59). The three studies investigating fruit and vegetable preferences and consumption will be considered as follows: Survey IV, the Ottenhouse study (55); Survey $V$, the Schmolder study (58); and Survey $V I$, the Stribling investigation (63).

## FAMILY CHARACTERISTICS OF 977 HOUSEHOLDS

The following characteristics of the participating families were investigated: annual income; family size and composition; age of homemaker; formal education and home economics training of the wife; occupation of the husband; and the employment status of the homemaker.

TABLE I
DISTRIBUTION OF SAMPLE ACCORDING TO SIZE, LOCATION, AND SURVEY.DATE

| Survey <br> Number | Name of Study | Sample <br> Size | Location of Survey | Date |
| :---: | :--- | :---: | :---: | :---: |
| 1968 Survey | 200 | Dallas, Irving, and <br> Nocona, Texas | March, 1968 |  |
| I | Moxey (50) | 108 | Arlington, Texas | May, 1966 |
| II | Douglas (16) | 125 | Dallas, Texas | November, 1966 |
| III | Shetler (59) | 183 | Wichita, Newton, and <br> Hesston, Kansas | May, 1967 |
| IV | Ottenhouse (55) | 107 | Denton, Texas | November, 1966 |
| V | Schmolder (58) | 120 | Garland, Texas | November, 1966 |
| VI | Stribling (61) | 134 | McKinney, Texas | March, 1967 |

Income

The total annual income before taxes was reported by 486 homemakers participating. in three suryeys: the 1968 Survey, Survey II, and Suryey III. No adjustment was made for the change in the cost of living index between November, 1966 and March, 1968. Responses are shown in Table II.

Eleven per cent of the homemakers in the 1968 study did not respond to the questions requesting income information and occupation of the husband. Part of this survey was conducted in an extremely low socioeconomic area of Dallas. Incomes were probably very $10 w$ and irregular for some of the participating families since the responses to these questions were given willingly by the homemakers participating in Surveys II and III. Questionnaires lacking only the completion of these two items were nevertheless included in the present survey in order that the responses to shopping behavior and knowledge of these homemakers could be utilized.

Survey IV, conducted by Ottenhouse (55), included low income families, with 42 per cent of the respondents reporting incomes below $\$ 5,000$; 33 per cent between $\$ 5,000$ and $\$ 7,499 ; 25$ per cent reporting incomes of $\$ 7,500$ or over. Survey $V$, the investigation by Schmolder (58), conducted in a highly industrialized area, showed an income before taxes of $\$ 9,000$ or over for 49.2 per cent of the participating

TABLE II
DISTRIBUTION OF 485 HOUSEHOLDS ACCORDING TO INCOME LEVEL

| Income Category | Name of Study |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1968 Survey |  | Survey II |  | Survey III |  | Total |  |
|  | Num- ber | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ | Number | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ | $\begin{aligned} & \text { Num- } \\ & \text { ber } \end{aligned}$ | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ | $\begin{aligned} & \text { Num- } \\ & \text { ber } \end{aligned}$ | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ |
| < \$2,000 | 10 | 5.7 | 0 | 0.0 | 0 | 0.0 | 10 | 2.1 |
| \$ 2,000-3,999 | 17 | 9.5 | 0 | 0.0 | 16 | 8.7 | 33 | 6.8 |
| \$ 4,000-5,999 | 30 | 16.9 | 0 | 0.0 | 37 | 20.2 | 67 | 13.6 |
| \$ 6,000-7,999 | 39 | 22.0 | 16 | 12.6 | 54 | 29.5 | 109 | 22.4 |
| \$ 8,000-9,999 | 30 | 16.9 | 10 | 8.0 | 36 | 19.7 | 76 | 15.7 |
| \$10,000-11,999 | 32 | 18.0 | 30 | 24.0 | 20 | 10.9 | 82 | 16.9 |
| \$12,000-15,000 | 13 | 7.2 | 26 | 20.8 | 13 | 7.1 | 52 | 10.7 |
| Over \$15,000 | 7 | 3.8 | 43 | 34.4 | 7 | 3.8 | 57 | 11.8 |
| Total | 178 |  | 125 |  | 183 |  | 486 |  |

families. The incomes of 40.8 per cent of the responding households were between $\$ 5,000$ and $\$ 8,999$, and 9.2 per cent below \$5,000. Survey VI, reported by Stribing (63), represented a smaller urban community. Slightly over one-third or 38.6 per cent of the families investigated had take home pay below $\$ 5,000$; half of this group had incomes below $\$ 3,000$. Of the remaining families, $45: 8$ per cent reported incomes between $\$ 5,000$ and $\$ 8,999$, and 15.8 per cent listed incomes over $\$ 9,000$.

Incomes were difficult to compare because of the different income categories used in the seven questionnaires and the request for take-home pay for Survey $V I$ and total income before taxes for the other investigations. The incomes reported in the present study most nearly resembled those reported in Survey III. Survey II included the highest income families and Survey IV included the lowest income families. The median income for the families included in Survey III and in the present survey was in the $\$ 6,000$ to $\$ 7,999$ category; the median income for the household investigated in Survey II was in the $\$ 12,000$ to $\$ 15,000$ range.

Another Texas investigation by Crabtree (10), conducted in Lubbock, revealed that 51 per cent of the households had gross incomes over $\$ 7,500$. The 1965 Laidig study (34) of 3,615 homemakers in Bozeman, Montana, revealed that the
majority of the households were in the $\$ 5,000$ to $\$ 6,999$ income category. Of 117 randomly selected families in. Greenbelt, Maryland, Cole (9) found the average incomes to be between $\$ 6,000$ to $\$ 7,300$. In the 1963 Harris survey (30) of randomly selected homemakers in Greensboro, North Carolina, 33 per cent of the family incomes were over $\$ 9,000$, 19 per cent in the $\$ 7,000$ to $\$ 7,999$ category, and 13 per cent in the $\$ 8,000$ to $\$ 8,999$ level. In the Zehner investigation ( 80 ) of 257 homemakers in Lansing, Michigan, conducted in 1961, the mean income level. was in the $\$ 5,401$ to $\$ 7,000$ range.

## Family Size and Composition

The Food Consumption of Households in the United States,
Spring 1965 (70) further substantiated the already wellestablished relationship.between family size and total food expenditures. Large families spend a greater total amount for food, but the amount expended for each family member is less than that spent in small families. As a rule, it is generally possible to prepare food more economically for a large than for a small number of persons. Also, in large families there are usually small children who require less of some of the foods. Furthermore, the quantities of foods, especially those that are higher in price, are used more sparingly in the larger than in smaller households. This follows as a consequence of the usual smaller income per capita in large families.

In the 1968 Survey, family size ranged from two persons to 10 members. The mean family size was 5.03 persons. This is larger than the average size of households listed in the 1965 Survey of Food Consumption of Households in the United States which reported a mean of 3.29 persons for urban families, 4.0 persons for farm families, and 3.5 persons for rural non-farm families.

Of the 200 families reporting in the present study, 86 had four or less members; 25.5 per cent of the participating households had four family members, 16 per cent listed three family members, and each of three families consisted of two members. Of the 114 households reporting five or more family members, 23.0 per cent of the homemakers reported five persons, 16.5 per cent listed six members, 10.0 per cent included seven persons, 3.0 per cent had a family size of eight persons, 3.0 per cent had 9 persons, and 1.5 per cent reported 10 family members.

The family size was reported for 975 participating households in the seven investigations and was divided into. two categories: families of four or less members and families of five or more persons. Two homemakers did not respond to the question concerning family size. Responses as to family size are shown in Table III. Of the 975 households, 50.6 per cent of the families reported a household size of five or

TABLE III
DISTRIBUTION OF 975* HOUSEHOLDS ACCORDING TO FAMILY SIZE

| Survey | Family Size |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 4 or Less |  | 5 or More |  | Total |
|  | Number | Per cent | Number | Per cent | Number |
| 1968 Survey | 86 | 43.0 | 114 | 57.0 | 200 |
| 1 | 42 | 38.9 | 66 | 61.1 | 108 |
| II | 74 | 59.2 | 51 | 40.8 . | 125 |
| II I | 94 | 51.3 | 89 | 48.7 | 183 |
| IV | 50 | 47.0 . | 57 | 53.0 | 107 |
| V | 69 | 58.3 | 49 | 41.6 | 118 |
| V I | 67 | 50.0 | 67 | 50.0 | 134 |
| Total | 482 | 49.4 | 493 | 50.6 | 975 |

*Family size was not reported by two homemakers.
more persons, and 49.4 per cent of the respondents listed four or less family members. The similar proportions of the two family size categories is very representative of the population parameter. A larger number of small families, 59.2 and 58.3 per cents respectively, were reported in Surveys II and $V$. Survey I included the largest number of families with five or more members, 61.l per cent; the present study included 57.0 per cent; and data for Survey IV revealed 53.0 per cent of the families had five or more members.

The family composition of the 200 households in the 1968 Survey included 1,006 persons; 396 adults and 610 children, of which 365 were girls and 245 boys. Of the 610 children, 52.0 per cent were teenagers; 83 or 13.6 per cent were teen-age boys and 234 or 38.4 per cent were teen-age girls. Since the survey forms were sent to mothers of homemaking students, this age category includes the largest number of children. Twelve girls and 10 boys were 19 years of age or over; 83 girls and 80 boys were between the ages of six and 12 ; and 26 girls and 21 boys were five years of age or younger.

Family composition of the 977 households participating in the combined surveys is shown in Table IV. The total number of family members was 4,693 persons, 2,066 adults and

TABLE IV
DISTRIBUTION OF 977 HOUSEHOLDS ACCORDING TO FAMILY COMPOSITION

| Survey | Total Number <br> Family Members | Adults | Children | Boys | Girls |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Number | Number |  |  |
| 1968 | 1,006 | 396 | 610 | 245 | 365 |
| I | 532 | 214 | 318 | 111 | 207 |
| II | 561 | 261 | 300 | 152 | 148 |
| III | 865 | 400 | 465 | 175 | 290 |
| IV | 545 | 226 | 319 | 127 | 192 |
| V | 526 | 257 | 269 | 107 | 162 |
| VI | 658 | 312 | 346 | 120 | 226 |
| Total | 4,693 |  |  |  | 1,037 |

2.627 children. This sample included 1,037 boys and 1,590 girls. The mean family size was 4.9 persons; the average number of children was 2.7. The combined studies were representative of typical families with teen-age children.

The household size for the 108 families included in Survey I ranged from three to nine family members; the average household size was 4.9 persons--2.0 adults and 2.9 children. There were 318 children, 111 boys and 207 girls. Approximately two-thirds of the children were teenagers and 108 were of elementary age or less.

For Survey II (16), household size ranged from three to 11 persons, with an average of 4.5 family members and a mean of 2.4 children per family. In the 125 families surveyed, there were 300 children, 152 boys and 148 girls. Of these, 199 were teenagers, 89 children were 12 years of age or less, and 12 were age 19 or over.

Family size for Survey III ranged from a household of one individual to a family of 15. The average family size was 4.8 . A total of 465 children were reported. Of these, 175 were boys and 290 were girls. Slightly more than one-half of the children reported were teenagers or older.

The size of households for survey IV ranged from three to nine members. The average household size was 5.1 persons
with a mean of 2.9 children per family. A total of 319 children were reported, 192 girls and 127 boys. Of the 319 children, 36 per cent were under 12 years of age and 205 or 64.3 per cent were over 12 years of age. Approximately 75 per cent of the girls and 49 per cent of the boys were over 12 years of age.

The number of persons per family varied from two to nine members for Survey $V$. The total number of persons participating in the study was 526; the average family size was 4.4 persons. The ages of the 107 boys and 162 girls listed included: 57.3 per cent, teenagers; 30.3 per cent, in the 6 to 12 years of age group; and 12.4 per cent under six years of age.

Of 134 households included in Survey VI, 346 children were reported, 120 boys and 226 girls. The average number of children per family was 2.5: Over half of the girls were between the ages of 14 and 18 years.

## Age of Homemaker

The present survey included 83 mothers between the ages of 30 and 39,27 homemakers under 30 years, 70 between the ages of 40 and 49 years, and 19 homemakers between 50 and 59 years of age. Eighty-six per cent of the respondents were between 30 and 50 years of age.

In the combined surveys, the majority of homemakers were similarly between 30 and 50 years of age. This was expected since most of the questionnaires were completed by mothers of homemaking students. Age was divided into two categories: under 40 years of age and 40 years or over, as shown in Table V. Of the 912 homemakers responding to the question concerning age, 55.1 per cent were 40 years of age or older; 44.9 per cent listed ages under 40 years. This distribution of older and younger homemakers indicated.that the participants in the combined surveys are very representative of mothers of teen-age children. Survey $I$ included the largest percentage of homemakers under 50 years of age, 65.7 per cent; Survey $V$ and the 1968 Survey included a greater proportion of younger homenakers, 60 and 55 per cent, respectively. Survey II listed the greatest percentage of homemakers 40 years of age or over, 81.6 per cent; followed by Survey III, 65.8 per cent; and Survey VI, 64.9 per cent.

## Education of the Homemaker

Formal education. -- The amount of formal education completed by the responding homemakers was investigated. In the 1968 study, 87 participants had completed high school, eight had completed one year of college, six had completed, two years of college, two listed three years of college as

TABLE V
DISTRIBUTION OF 912* HOMEMAKERS ACCORDING
TO AGE CATEGORY

| Survey | Age Category <br>   <br>  <br>  <br>  <br>  <br> Responding |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 110 | 55.0 | 89 | 44.5 | 199 |
| I | 71 | 65.7 | 37 | 34.3 | 108 |
| II | 23 | 18.4 | 102 | 81.6 | 125 |
| III | 41 | 34.2 | 79 | 65.8 | 120 |
| IV | 45 | 42.0 | 61 | 57.0 | 106 |
| V | 72 | 60.0 | 48 | 40.0 | 120 |
| VI | 47 | 35.1 | 87 | 64.9 | 134 |
|  |  |  |  |  |  |
| Total | 409 | 44.9 | 503 | 55.1 | 912 |

*Age was not reported by 65 homemakers.
completed, and nine were college graduates. Nine homemakers had completed five years of college. It may be assumed this extra year of college resulted in a Master's degree. Approximately, one-third of the homemakers had not completed high school; the level of education for this group ranged from the second grade to 11 years of education.

In analyzing overall data of the combined surveys, educational level of achievement was divided into three categories: less than a high school graduate, a high school graduate, and more than a high school graduate or some college education. Of the 961 homemakers responding to the question concerning education in the seven surveys, 31.3 per cent had less than a high school education, 39.4 per cent completed high school, and 29.3 per cent had one or more years of college (Table VI). Survey VI included the largest percentage of homemakers with less than a high school education, 65.7 per cent; followed by Survey IV, with 44.0 per cent of the homemakers not completing high school. Both of these figures were higher than the 34.9 per cent determined for the 1968 Survey. The highest percentage of homemakers who were high school graduates were found for Survey I, 60.2 per cent; followed by the 1968 study which 1 isted 46.7 per cent; and by Survey $V$, which listed 42.4 per cent. The greatest number of homemakers with more than a high school

TABLE VI
DISTRIBUTION OF 967* HOMEMAKERS ACCORDING TO FORMAL EDUCATIONAL ACHIEVEMENT

| Survey | High School Graduate |  |  |  |  |  | Total Number Responding |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Less Than |  | Graduate Only |  | More Than |  |  |
|  | Number | Per cent | Number | Per cent | Number | Per cent |  |
| 1968 | 65 | 34.9 | 87 | 46.7 | 34 | 18.3 | 186 |
| I | 15 | 13.9 | 65 | 60.2 | 21 | 25.9 | 108 |
| II | 12 | 9.6 | 42 | 33.6 | 71 | 56.8 | 125 |
| III | 40 | 21.8 | 72 | 39.3 | 71 | 38.8 | 183 |
| IV | 47 | 44.0 | 32 | 30.0 | 28 | 26.0 | 107 |
| $v$ | 34 | 28.8 | 50 | 42.4 | 34 | 28.8 | 118 |
| VI | 88 | 65.7 | 31 | 23.1 | 15 | 11.2 | 134 |
| Total | 301 | 31.3 | 379 | 39.4 | 281 | 29.3 | 961 |

*Educational achievement was not reported by 16 homemakers.
education, 56.8 per cent, was found for Survey II; followed by Survey III, 38.8 per cent; and by-Survey $V, 28.8$ per cent.

The distribution of homemakers among the three categories used for the highest level of educational achievement was fairly evenly divided. Approximately one-third of the homemakers had less than a high school education, 31.3 per cent; a little over one-third or 39.3 per cent were high school graduates; and 29.3 per cerit reported one to five years of college.

A study by Laịig (34) reported 29.5 per cent of a group of Montana homemakers had not completed high school, 34.2 per cent were high school graduates, and 45.9 per cent had received training beyond high school. Harris (30) found North Carolina homemakers to be less well educated. A total of 43.2 per cent had not completed high school; 30.4 per cent had completed high school, and 26.4 per cent reported some college education. Crabtree (10) found Texas homemakers to be more highly educated with 52.0 per cent reporting education beyond high school. A smaller group, 39 per cent, had completed high school but had not attended college. Only 8.0 per cent did not graduate from high school. The respondents in the Crabtree study were members of clubs; thus were not as representative of the general population as were the participants in the present study.

Home economics education.--Homemakers in the present study were requested to list the home economics courses completed and indicate whether the study of nutrition, food purchasing, meat preparation, and fruit and vegetable preparation had been included in the course content. A total of 142 of the 200 homemakers participating in the 1968 Survey had taken one or more home economics courses; 43.8 per cent of the homemakers reported either junior high school courses only or no training in home economics; and 56.2 per cent reported senior high school and/or college courses. Eight homemakers reported completing college courses, two majoring and two minoring in home economics.

Of the 968 homemakers responding to the question concerning home economics education for the combined surveys, 44.8 per cent had received no formal home economics training or had completed only a junior high school course. Over half, 55.2 per cent had completed senior high school training or more, as shown in Table VII. In an introductory home economics course, the material covered in foods and nutrition is assumed to have been limited. For this reason, in analyzing the data for the total study, junior high school courses were included in the category with those who reported no home economics education.

TABLE VII
DISTRIBUTION OF 968* HOMEMAKERS ACCORDING TO FORMAL
HOME ECONOMICS EDUCATION

| Survey | Home Economics Courses |  |  |  | Total Number Responding |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  | Number | Per cent | Number | Per cent |  |
| 1968 | 84 | 43.8 | 108 | 56.2 | 192 |
| I | 78 | 72.2 | 30 | 27.8 | 108 |
| I I | 47 | 52.0 | 78 | 62.4 | 125 |
| I I I | 63 | 34.8 | 120 | 66.3 | 183 |
| IV | 47 | 44.0 | 60 | 56.0 | 107 |
| $V$ | 43 | 36.1 | 76 | 63.9 | 119 |
| V I | 72 | 53.7 | 62 | 46.3 | 134 |
| Total | 434 | 44.8 | 534 | 55.2 | 968 |

*Home economics courses were not reported by nine homemakers.

The highest percentage of homemakers who had taken no home economics courses or junior high school training only was reported for Survey I, 72.2 per cent; followed by Survey VI, 53.7 per cent, and by Survey II, 52.0 per cent. The highest percentage of homemakers with senior high school training or more was reported in Survey III, 66.3 per.cent; followed by Survey V, 63.9 per cent; and Survey II, which disclosed 62.4 per cent. In Survey III, a portion of the questionnaires were sent to home economists which accounts for the high number of homemakers reporting home economics education for this study.

When homemakers in the 1968 Survey were asked if the home economics courses completed had included the study of nutrition, 129 homemakers answered in the affirmative. The study of food purchasing was indicated as being included in the home economics courses completed by 115 respondents. Meat preparation had been studied by 118 homemakers, and 115 reported studying fruit and vegetable preparation. Responses as to the course content of the highest level of home economics training completed by the homemakers are shown in Table VIII.

Occupation of Husband

Homemakers were requested to list the occupation of the husband. In the 1968 Survey responses indicated 5.5 per cent

TABLE VIII

## COURSE CONTENT OF HIGHEST LEVEL OF HOME <br> ECONOMICS EDUCATION COMPLETED BY <br> 142 HOMEMAKERS

| Level of Home <br> Economics <br> Training | Nutrition | Food <br> Purchasing | Meat <br> Preparation | Fruit and <br> Vegetable <br> Preparation |
| :---: | :---: | :---: | :---: | :---: |
| Junior high <br> school | 21 | 18 | 16 | 15 |
| Senior high <br> school | 100 | 91 | 96 | 95 |
| College <br> Course | 3 | 1 | 1 |  |
| College <br> major | 2 |  |  | 1 |
| College <br> minor | 2 | 2 | 3 |  |
| Total | 129 | 115 | 118 | 115 |

of the husbands were professional men; 19.0 per cent were managers or owners of a business; 8.5 per cent were semiprofessional persons including salesmen, clerical, accountants, and other similar positions; 19.0 per cent were skilled laborers; 18.5 per cent were semi-skilled laborers; 10.5 per cent were unskilled workers; and 2.0 per cent were unemployed or retired. Among the 34 households not responding to this question were several families with no father living in the home.

The occupation of the husband was investigated in six of the seven surveys. Survey IV did not present data with reference to the occupation of the husband. Data concerning the 774 households responding to this question are shown in Table IX. The variations in categorizing employment in the various surveys made it necessary to place the respondents in one of two major groups: the professional and managerial and "other occupations." Of the 774 husbands, 35.6 per cent Were categorized as professional men or managers or owners of businesses and 64.4 per cent were categorized in the "other occupations" group. Survey II disclosed the highest percentage of husbands employed in professional or managerial positions, 59.2 per cent; followed by Survey $V, 39.3$ per cent; and by Survey VI, 36.1 per cent. The highest percentage of respondents in the "other occupations" group was reported

TABLE IX
DISTRIBUTION OF 774* HOUSEHOLDS ACCORDING
TO OCCUPATION OF HUSBAND

| Survey | Occupations |  |  |  | Total Number Responding |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Professional or Managerial |  | Other |  |  |
|  | Number | Per cent | Number | Per cent |  |
| 1968 | 49 | 29.5 | 117 | 70.5 | 166 |
| I | 34 | 34.0 | 67 | 66.0 | 101 |
| I I | 74 | 59.2 | 51 | 40.8 | 125 |
| I I I | 34 | 18.6 | 123 | 81.4 | 157 |
| $V$ | 46 | 39.3 | 71 | 60.7 | 117 |
| VI | 39 | 36.1 | 69 | 63.9 | 108 |
| Total | 276 | 35.6 | 498 | 64.4 | 774 |

*0ccupation of husband was not reported by 167 homemakers.
for Survey III, 81.4 per cent; followed by the present survey, 70.5 per cent; and by Survey I, 66.0 per cent.

Data indicated that families included in the seven surveys were representative of the overall population groups. Survey II, which included the highest percentage of husbands in professional or managerial occupations, also reported the highest incomes and the highest percentage of wives with some college education.

## Employment of Homemaker

The employment of the homemaker was investigated. In the 1968 study 36.9 per cent of the homemakers were not employed outside the home, 52.3 per cent were employed fulltime, and 10.8 per cent worked part-time (Table X).

Of the 968 respondents in the overall study answering the question concerning their employment, 49.2 per cent were full-time homemakers, 37.2 per cent were employed full-time outside the home, and 13.6 worked part-time. The largest percentage of full-time homemakers was reported for Survey II, 72.0 per cent; followed by Survey I with 58.3 per cent; Survey III, 50.8 per cent; and Survey $V, 50.8$ per cent. The present study revealed the highest percentage of full-time workers outside the home, 52.3 per cent; followed by Survey $V, 45.0$ per cent; and Survey VI, 41.8 per cent. The highest

TABLE X
DISTRIBUTION OF 968* HOUSEHOLDS ACCORDING TO EMPLOYMENT OF HOMEMAKER

| Survey | Full-time Homemaker |  | Employed |  |  |  | Total Number Responding |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Full-time |  | Part-time |  |  |
|  | Number | Per cent | Number | Per cent | Number | Per cent |  |
| 1968 | 72 | 36.9 | 102 | 52.3 | 21 | 10.8 | 195 |
| I | 63 | 58.3 | 32 | 29.6 | 13 | 12.1 | 108 |
| I I | 90 | 72.0 | 21 | 16.8 | 14 | 11.2 | 125 |
| II I | 92 | 50.8 | 59 | 32.6 | 30 | 16.6 | 171 |
| IV | 34 | 32.0 | 37 | 35.0 | 36 | 34.0 | 107 |
| V | 60 | 50.8 | 54 | 45.0 | 4 | 4.2 | 118 |
| V I | 64 | 47.8 | 56 | 41.8 | 14 | 10.4 | 134 |
| Total | 475 | 49.2 | 361 | 37.2 | 132 | 13.6 | 968 |

*Employment of homemaker was not reported by nine homemakers.
percentage of part-time workers was reported for Denton homemakers, 34.0 per cent.

About one-half of the wives were full-time homemakers; over one-third were employed full time. Survey II, which represented a high socioeconomic group in Dallas, reported the highest percentage of full-time homemakers. The questionnaires for Survey II were distributed to Parent-Tescher Associations. This fact may account for the high income, more highly educated homemakers with a large percentage of professionally trained husbands found in this group. These homemakers may tend to participate in clubs and social responsibilities rather than seeking employment. The 1968 survey included the largest proportion of homemakers with full-time employment.

## FOOD SHOPPING BEHAVIOR OF HOMEMAKERS

The shopping habits of homemakers were investigated. The type of store in which the major shopping was done and the reasons for selecting this store, the number of shopping trips per week, shopping days and times preferred, the family members doing the shopping, the use of a shopping list, and the use of a food budget were recorded on the survey forms used in this study.

## Type of Store Preferred

In the investigation of the type of store preferred by the homemakers, the 1968 Survey revealed that 80 per cent of the homemakers chose the supermarket for major shopping, 10.5 per cent selected a small neighborhood store, 2.5 per cent chose a salvage or discount store, 6.5 per cent shopped in two or more stores, and 0.5 per cent chose various other types of stores. The meat market was not mentioned by any of the respondents in the present study as a store of choice.

Of the 840 homemakers in the overall study responding to this question, 81.0 per cent chose the supermarket for major shopping, 11.0 per cent selected the small neighborhood store, 2.3 per cent preferred a salvage or discount store, 4.6 per cent preferred a meat market, and 1.1 per cent selected some other type of store. Fourteen per cent of the 315 homemakers participating in Survey $V$ and the 1968 Survey indicated shopping at two or more stores. The percentage of total responses as shown in Table XI is greater than 100 per cent because of double listing of stores. Survey VI did not include a question concerning the store of choice for food shopping.

Four studies--completed by Moxey (50), Douglas (16), Shetler (59), and Ottenhouse (55)--related the reasons for selection of the food store of choice. Moxey, Douglas, and

CISTRIBUTION OF 840 HOUSEHOLDS ACCORDING TO PREFERENCE FOR TYPE OF STORE*

| Survey | Total <br> Number | Type of Store Preferred |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Supermarket |  | Small-Home Owned |  | Others |  |
|  |  | Number | Per cent | Number | Per cent | Number | Per cent |
| 1968 | 200 | 173 | 86.5 | 21 | 10.5 | 19 | 8.5 |
| I | 110 | 96 | 87.3 | 7 | 6.4 | 7 | 6.3 |
| II | 125 | 108 | 86.4 | 8 | 6.4 | 9 | 7.2 |
| III | 183 | 126 | 68.8 | 27 | 14.7 | 30 | 16.5 |
| IV | 107 | 82 | 76.6 | 16 | 14.9 | 9 | 8.4 |
| $V$ | 115 | 95 | 79.2 | 13 | 10.1 | 38 | 30.2 |
| $\begin{aligned} & \text { Total } \\ & \text { Sample } \end{aligned}$ | 840 | 680 | 81.0 | 92 | 11.0 | 112 | 13.3 |

*Some homemakers checked more than one preference.

Shetler related that the quality of food, usually meat, was the most important reason for the selection of a particular food store. Ottenhouse found that reasonable prices was the primary reason for store selection. Other reasons frequently given were as follows: convenient location; variety of choices; and a clean, attractive store. The 1965 Nielson survey (51) reported that respondents most frequently listed good prices, convenient location, quality and freshness of meats, variety and selection of merchandise, and friendly personnel as important criteria in selection of a food market.

The preference of homemakers for supermarket shopping was very similar for the combined surveys, varying from 76.6 per cent to 87.3 per cent of the total sample. Small homeowned stores were listed by relatively few homemakers, from 6.4 per cent to 14.9 per cent, as the food store choice. Meat markets were preferred by 4.6 per cent of the homemakers as a preferred food store for purchasing meat.

## Frequency of Shopping

The number of food shopping trips per week was investigated. In the 1968 Survey, 28.5 per cent of the homemakers shopped two or more times a week, 61.0 per cent purchased food once a week, 7.0 per cent shopped two times a month or less, and 3.5 per cent shopped daily.

Surveys I, II, III, and $V$ reported data on the frequency of shopping for food items. Of the 733 persons in the present and the above surveys responding to this question, 23.3 per cent shopped two or more times a week, 61.7 per cent shopped once a week, 3.8 per cent purchased food two times a month or less, and 1.2 per cent shopped daily. Responses are shown in Table XII. Neekly shopping was preferred by the majority of homemakers. The largest percentage reporting weekly shopping was found in Survey V. The questionnaire for Survey $V$ included the category "major shopping weekly, more as needed," in addition to the "once a week." The responses for the two categories were combined in Table XII.

Preferred Shopping Days and Time
The most preferred shopping days in the 1968 Survey were Saturday, no special day, Wednesday, and Friday, listed in descending rank order of preference. Of the 977 respondents in the total study, 310 chose Saturday, 300 elected Friday, 233 picked no special day, 170 named Wednesday, 134 preferred Thursday, 47 chose Monday, 34 selected Tuesday, and 22 checked Sunday. Responses are shown in Table XIII.

The greatest percentage of the Kansas homemakers included in Survey III chose Saturday as the preferred shopping

TABLE XII
RESPONSES OF 733 HOMEMAKERS AS TO FREQUENCY OF FOOD SHOPPING

| Survey | Frequency of Food Shopping |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Two or More <br> Times a Meek |  | Once a Week |  | Two Times a Month or Less |  | Daily |  |
|  | $\begin{aligned} & \text { Num- } \\ & \text { ber } \end{aligned}$ | $\begin{aligned} & \text { Fer } \\ & \text { cent } \end{aligned}$ | Number | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ | $\begin{aligned} & \text { Num- } \\ & \text { ber } \end{aligned}$ | Per cent | Number | Per cent |
| 1968 | 57 | 28.5 | 122 | 61.0 | 14 | 7.0 | 7 | 3.5 |
| I | 24 | 22.6 | 60 | 56.6 | 22 | 20.8 | . | -. |
| I I | 38 | 30.4 | 68 | 54.4 | 19 | 15.2 | $\ldots$ |  |
| I I I | 39 | 21.3 | 98 | 53.6 | 46 | 25.1 | . |  |
| V | 13 | 10.2 | 104* | 87.4 |  |  | 2 | 2.4 |
| Total | 171 | 23.3 | 452 | 61.7 | 101 | 3.8 | 9 | 1.2 |

*Combination of 33 reporting once a week and 71 reporting major shopping weekly.

TABLE XIII
RESPONSES OF 977 HOMEMAKERS AS TO PREFERRED SHOPPING DAYS*

| Survey | Monday | Tues day | Wednesday | Thursday | Friday | Saturday | Sunday | No Special <br> Day |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1968 |  |  |  |  |  |  |  |  |
| Number | 4 | 2 | 38 | 17 | 36 | 50 | 0 | 48 |
| Per cent | 2.0 | 1.0 | 19.0 | 5.5 | 18.0 | 25.0 | 0.0 | 22.0 |
| I |  |  |  |  |  |  |  |  |
| Number | 4 | 8 | 23 | 11 | 32 | 32 | 0 | 32 |
| Per cent | 4.0 | 7.0 | 21.3 | 10.0 | 30.0 | 30.0 | 0.0 | 30.0 |
| II |  |  |  |  |  |  |  |  |
| Number | 8 | 7 | 12 | 39 | 51 | 24 | 4 | 34 |
| Per cent | 6.4 | 5.6 | 9.6 | 31.2 | 40.8 | 19.2 | 3.2 | 27.2 |
| I I I |  |  |  |  |  |  |  |  |
| Number | 15 | 5 | 15 | 41 | 78 | 99 | 6 | 28 |
| Per cent | 8.2 | 2.7 | 8.2 | 22.4 | 42.6 | 54.1 | 3.1 | 15.3 |
| IV |  |  |  |  |  |  |  |  |
| Number | 5 | 5 | 270 | ${ }^{7} 8$ | 36 | 33 | 5 | 22 |
| Per cent | 5.0 | 5.0 | 37.4 | 7.5 | 43.0 | 31.0 | 5.0 | 21.0 |
| $v$ |  |  |  |  |  |  |  |  |
| Number | 78 | 4 | ${ }_{7} 8$ | 15 | 32 | 18 | 5 | 35 |
| Per cent | 7.2 | 4.2 | 7.2 | 12.6 | 28.9 | 16.2 | 4.2 | 31.6 |
| VI |  |  |  |  |  |  |  |  |
| Number | 3 2.2 | 1. ${ }^{2}$ | 34 25.4 | 9 6.7 | 35 26.1 | 54 40.7 | 1. 2 | 24 17.9 |

day. This was also the preferred day for the McKinney families reported in Survey VI. The largest proportion of Garland homemakers, Survey V, listed no special day. Dallas respondents participating in Survey II and Denton homemakers included in Survey IV, preferred Friday. Arlington homemakers participating in Survey $I$ listed Friday, Saturday, and no special day as being of equal importance with 30.0 per cent checking each of the three categories.

The most preferred shopping time as checked by the 200 homemakers in the 1968 Survey was the afternoon, followed by evening. Survey II did not include this information. Of the 847 responses to this inquiry, 31.5 per cent checked afternoon as the preferred shopping time, 24.2 per cent named no special time, 21.9 per cent selected evening shopping, and 20.9 per cent indicated a preference for morning shopping. Responses for Survey $V$ indicated 7.5 per cent of the shoppers preferred the noon hour. Survey IV and VI reported 7.5 and 11.3 per cent, respectively, as preferring early afternoon shopping. Responses are shown in Table XIV.

## Family Member Doing Shopping

Two surveys included an inquiry as to which member of the family did major food shopping. The 1968 study indicated that in most of the families major food shopping was done by the wives, 71.0 per cent. In approximately one in five

TABLE XIV
RESPONSES OF 847 HOMEMAKERS AS TO PREFERRED SHOPPING TIME*

| Survey | Morning |  | Afternoon |  | Evening |  | No Special Time |  | Other Times |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { Num- } \\ & \text { ber } \\ & \hline \end{aligned}$ | Per cent | Number | Per cent | Number | Per cent | Number | Per cent | $\begin{aligned} & \text { Num- } \\ & \text { ber } \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Per } \\ & \text { cent } \end{aligned}$ |
| 1968 | 30 | 19.5 | 70 | 35.0 | 51 | 25.5 | 37 | 18.5 |  |  |
| I | 33 | 30.6 | 23 | 27.3 | 25 | 16.2 | 27 | 27.0 |  |  |
| I I I | 38 | 20.8 | 59 | 32.2 | 40 | 21.8 | $55^{\text {• }}$ | 30.0 |  |  |
| IV | 15 | 14.1 | 52 | 48.6 | 32 | 29.9 |  |  | 8 | 7.5 |
| $v$ | 26 | 22.0 | 24 | $20.0{ }^{\circ}$ | 28 | 23.6 | 38 | 32.1 | 3 | 2.3 |
| VI | 26 | 20.9 | 36 | 29.0 | 10 | 8.0 | 48 | 38.7 | 14 | 11.3 |
| Total <br> sample | 177 | 20.9 | 267 | 31.5 | 186 | 21.9 | 205 | 24.2 | 25 | 3.0 |

*Some homemakers checked more than one time.
families, the husband and wife shopped together. Survey VI revealed that 70.8 per cent of the reporting homemakers were the food shoppers and that in 21.7 per cent of the households, the husband and wife shopped together. Of the 334 homemakers responding to this inquiry, 15 reported the husband and 22 reported other family members did the major food shopping. Homemaker's Use of a Shopping List

In the 1968 Survey, 48.5 per cent of the homemakers reported "usually" using a shopping list, 25.5 per cent of the respondents "sometimes" used a list, and 17.5 per cent "never" used a list. Of the 959 participating homemakers in the combined studies who responded to this question, 52.3 per cent "usually" used a shopping list, 30.2 per cent "sometimes" used a list, and 17.5 per cent "never" used a list. Responses are shown in Table XV.

Data from the 1968 Survey and Survey III were combined and the use of a shopping list was analyzed in relation to family income and age of the homemaker, using the chi-square technique. Differences were non-significant, however, a higher proportion of older than younger homemakers frequently used a shopping list (Table XVI). Data concerning the homemaker's use of a shopping list in relation to the employment, home economics education, and formal educational achievement of the wife were combined for the 1968 Survey and Survey $V$.

TABLE XV

## DISTRIBUTION OF 959* HOUSEHOLDS ACCORDING TO HOMEMAKER'S USE OF A SHOPPING LIST

| Survey | Number | Use of Shopping List |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Always or Usually |  | Sometimes |  | Never |  |
|  |  | Number | Per cent | Number | Per cent | Number | Per cent |
| 1968 | 183 | 97 | 48.5 | 51 | 25.5 | 35 | 17.5 |
| I | 108 | 65 | 60.2 | 25 | 23.1 | 18 | 16.7 |
| I I | 125 | 88 | 70.4 | 24 | 19.2 | 13 | 10.4 |
| $\therefore$ III | 183 | 121 | 66.1 | 62 | 3 | 9** |  |
| IV | 107 | 43 | 40.2 | 40 | 37.4 | 24 | 22.4 |
| $v$ | 119 | 26 | 21.5 | 37 | 31.4 | 56 | 47.1 |
| VI | 134 | 60 | 44.0 | 51 | 38.1 | 23 | 17.9 |
| Total <br> sample | 959 | 500 | 52.3 | 290 | 30.2 | 169 | 17.5 |

*Use of shopping list was not reported by 18 homemakers.
**Includes combination of "sometimes" and "never" responses.

TABLE XVI
ANALYSIS OF HOMEMAKER'S USE OF A SHOPPING LIST IN RELATION
TO FAMILY INCOME, AGE, FORMAL EDUCATION, HOME ECONOMICS
EDUCATION, AND EMPLOYMENT OF WIFE

| Factors | Use of Shopping List |  |  |
| :---: | :---: | :---: | :---: |
|  | Usually Always | Sometimes Never | Total |
| ```Income level <$ 6,000 $ 6,000-9,999 $10,000 or over Total``` | $\begin{array}{r} 75 \\ 90 \\ 52 \\ 217 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ 63 \\ 36 \\ 149 \\ \hline \end{array}$ | $\begin{array}{r} 125 \\ 153 \\ 88 \\ 366 \\ \hline \end{array}$ |
| $x^{2}=0.04$ | 2 d. f. n.s. |  |  |
| Age of homemaker <40 40 or over Total | $\begin{array}{r} 96 \\ 121 \\ 217 \\ \hline \end{array}$ | $\begin{array}{r} 89 \\ 75 \\ 164 \\ \hline \end{array}$ | $\begin{array}{r}185 \\ 196 \\ 381 \\ \hline\end{array}$ |
| $x^{2}=3.37$ | d. f. n.s. |  |  |
| Education of homemaker <High school graduate High school graduate Post high school Total | $\begin{array}{r}48 \\ 62 \\ 41 \\ 151 \\ \hline\end{array}$ | $\begin{array}{r} 61 \\ 67 \\ 33 \\ 161 \\ \hline \end{array}$ | $\begin{array}{r}109 \\ 129 \\ 74 \\ 312 \\ \hline\end{array}$ |
| $x^{2}=2.29$ | d.f. n.s. |  |  |
| Home economics education <br> Junior high or none <br> Senior high or more <br> Total | $\begin{array}{r}77 \\ 41 \\ 118 \\ \hline\end{array}$ | $\begin{array}{r}124 \\ 59 \\ 183 \\ \hline\end{array}$ | 201 <br> 100 <br> 301 |
| $x^{2}=0.106$ | d. f. n.s. |  |  |
| Employment of wife Full-time homemaker Employed Total | $\begin{array}{r} 88 \\ 44 \\ 132 \\ \hline \end{array}$ | $\begin{array}{r} 133 \\ 52 \\ 165 \\ \hline \end{array}$ | $\begin{array}{r} 201 \\ 96 \\ 297 \\ \hline \end{array}$ |
| $x^{2}=0.043$ | d. f. | n.s. |  |

Chi-square analysis showed these factors to be non-significant. However, there was a trend indicating that with an increase in educational level, the frequent use of a shopping list was more prevalent.

The use of a shopping list was analyzed in relation to age, income level, and geographic location of the responding homemakers for Survey III. A significant relationship was found between the age of the homemaker and the use of a shopping list $(P<.05)$. Data indicated greater use of a shopping list among the older homemakers. More homemakers in the 50 years of age or over category used shopping lists than did those of other age groups. Three age categories were used for Survey III: less than 40 years; 40 to 49 years; and 50 years or over. When data from this survey were combined with the 1968 study, only two age categories were used; under 40 years and 40 years or over. .This may account for differences in results. In addition, a significant relationship was found between geographic location and the use of a shopping list $(P<.01)$ for Kansas homemakers. More homemakers in small towns and rural areas used a shopping list than did those who resided in urban areas.

When the data for Survey IV were analyzed as to the use of a shopping list in relation to family income, employment of the wife, age of the homemaker, the educational level of
the wife, and family size, differences were found to be nonsignificant except for one factor, the educational level of the wife. A higher proportion of the homemakers with higher educational attainment more frequently prepared a written shopping list than did other homemakers ( $P<.05$ ). There was a trend for a higher proportion of homemakers with larger families than for those with smaller families to prepare a written shopping list.

Data for Survey $V$ were analyzed to determine the relationship of family income, education of the homemaker, home economics education, employment of homemaker, and size of household with the use of a shopping list. The education of the homemaker ( $P<.01$ ) and income level ( $P<.01$ ) were found to be significant. The higher income families and the homemakers with the higher educational achievement more frequently prepared a written shopping list.

When the data concerning the use of a shopping list obtained in Survey VI were analyzed in relation to family income, age, educational achievement, training in home economics, and employment of the homemaker, the only significant factor found was the age of the homemaker. More homemakers in the 40 to 49 years of age group prepared a written list before shopping for food than did the younger or older groups. ( $P<.05$ ).

## Homemaker's Use of a Budget

An investigation was made of the homemaker's use of a budget. In the 1968 Survey, 47.4 per cent usually followed a budget, 35.9 per cent sometimes used a budget, and 16.7 per cent never used one. In the combined surveys, 323 of the homemakers responding to this question indicated usually following a budget, and 329 participants reported sometimes or never using a budget. Responses may be found in Table XVII.

When the relationship of family income to the homemaker's use of a budget was analyzed, differences were non-significant. Data from Survey I, Survey $V$, and the 1968 Survey were combined to analyze the influence of educational level and the home economics education of the homemakers on the use of $a$ budget. Data analysis revealed neither factor to be significant. There was a trend for a greater proportion of homemakers who were high school graduates to report use of a budget than for those with less than or more than a high school diploma. A slightly higher proportion of homemakers with home economics courses at the senior high school level or higher reported the use of a budget than did those with less home economics training. Results are shown in Table XVIII.

TABLE XVII
RESPONSES OF 652 HOMEMAKERS AS TO USE OF A BUDGET

| Survey | Use of Budget |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Usually |  | Sometimes or Never |  | Total |
|  | Number | Per cent | Number | Per cent |  |
| 1968 | 91 | 47.4 | 101 | 52.6 | 192 |
| I | 47 | 43.5 | 61 | 56.5 | 108 |
| I I | 71 | 56.9 | 54 | 43.1 | 125 |
| IV | 39 | 36.4 | 68 | 63.6 | 107 |
| $v$ | 75 | 62.5 | 45 | 37.5 | 120 |
| Total | 323 | 49.6 | 329 | 50.4 | 652 |

- TABLE XVIII

ANALYSIS OF HOMEMAKER'S USE OF A BUDGET IN RELATION TO FAMILY INCOME AND THE EXTENT OF THE FORMAL AND

HOME ECONOMICS EDUCATION OF THE HOMEMAKER

| Factors | Use of a Budget |  |  |
| :---: | :---: | :---: | :---: |
|  | Usually | Sometimes Never | Total |
| Income |  |  |  |
| <\$ 6,000 | 38 | 43 | 81 |
| \$ 6,000-9,999 | 28 | 36 | 64 |
| \$10,000 or more | 25 | 24 | 49 |
| Total | 91 | 103 | 194 |
| $x^{2}=.589 \quad 2 \mathrm{~d} . \mathrm{f} . \quad$ n.s. |  |  |  |
| Education of homemaker |  |  |  |
| <High school graduate | 58 | 79 | 137 |
| High school graduate | 95 | 90 | 185 |
| Post-high school | 44 | 63 | 107 |
| Total | 197 | 232 | 429 |
| $x^{2}=3.898$ 2 d. f. n.s. |  |  |  |
| Home economics education |  |  |  |
| Junior high or none | 130 | 73 | 203 |
| Senior high or none | 153 | 94 | 247 |
| Total | 283 | 167 | 450 |
| $X=.12956$ | $f$. | n.s. |  |

Fifty-two per cent of the homemakers in Survey III reported attempting to follow a budget; 48 per cent did not use a budget. When analyzed statistically, neither home economics training nor income level had any apparent influence on the use or non-use of a budget. There was a tendency, however, for individuals in the highest income level to not use a budget. As home economics training increased, the use of a budget tended to decrease. However, Survey III included a group of professional home economists; more of this group with college home economics training were in the two higher income levels.

A total of 75 of the 120 homemakers participating in Survey $V$ reported attempting to follow a budget. When the data were analyzed in relation to the formal education and home economics education of the homemaker, the employment of the wife, and formal education of the husband, no significant differences were found. For each of the above comparisons more individuals in each category attempted to follow a budget than did not.

## FACTORS INFLUENCING SELECTION OF FOODS

Wilson, Fisher, and Fuqua (76) emphasized the fact that family tradition and the cultural background exert a real influence on food habits. The 1968 Survey examined the influence of family characteristics on food shopping behavior
and purchasing preferences for meats, fruits, and vegetables. Factors investigated included sources of information used by the participating homemakers, nutritional knowledge of the mothers, factors influencing the selection of food, and criteria used in judging the quality of certain foods. In addition the type of freezer storage available in the homes of the respondents was investigated.

## Sources of Information

Leverton (35) stated recently that "nutrition education depends on communication." Methods of communication have been investigated in the combined surveys to ascertain the sources of information used by the greatest percentage of homemakers in food purchasing and/or as sources of nutritional information.

The 1968 Survey included an investigation of, the degree of influence of certain sources of information in food selection. Responses as to the extent of influence are shown in Table XIX. Family requests were of "much" or "some" importance to 178 of the 200 homemakers. The item cookbooks was the second most frequently checked source of information used "much" or "some" of the time by the respondents, followed by brand names of food items, food sections in newspapers, food store advertisements in newspapers, and information from friends and relatives. Each of the above sources of information

TABLE XIX
RESPONSES OF 200. HOMEMAKERS AS TO EXTENT OF INFLUENCE OF CERTAIN FACTORS IN FOOD SELECTION

| Factors | Extent of Influence |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Much | Some | Little | None |
| Information on food <br> containers | 19 | 73 | 60 | 29 |
| Family requests | 122 | 56 | 9 | 6 |
| Friends and relatives | 13 | 87 | 57 | 25 |
| Advertisements |  |  |  |  |
| Food store | 45 | 74 | 51 | 20 |
| Brand name | 54 | 73 | 44 | 18 |
| Women's magazines | 15 | 70 | 39 | 64 |
| Radio or television | 17 | 56 | 75 | 44 |
| Newspaper food sections | 40 | 81 | 36 | 36 |
| Cookbooks | 54 | 79 | 33 | 25 |
| Samples tasted in |  |  |  |  |
| stores | 6 | 37 | 76 | 69 |
| Handout materials instores <br> Store displays <br> Government bulletins | 18 | 5 | 30 | 67 |

was listed by one-half or more of the participating homemakers as of "much." or "some" influence in food selection. The most frequently mentioned sources of information that were checked as never being used by the respondents participating in the 1968 Survey were handout materials in stores, government bulletins, samples tasted in stores, and women's magazines.

Data from the seven surveys were combined and analyzed to determine the relationship of the education of the homemaker and family income on the reported extent of the influence of 13 factors on food selection. The most frequently checked factors of influence used "much" or "some" of the time, listed in descending rank order, were as follows: requests from family members, brand name advertisements, food sections in newspapers, and information from friends and relatives. The most frequently checked sources of information listed as having "none" or "little" influence on food selection were information and recipes on food containers, government bulletins, samples tasted in stores, and store displays (Table XX).

Data analysis revealed that for the item, information and recipes on food container, the extent of influence was not significantly related either to education of the homemaker (Table XX) or family income (Table XXI). There was a slight trend for homemakers in the middle income group and those

TABLE XX
RESPONSES AS TO EXTENT OF INFLUENCE OF CERTAIN FACTORS IN FOOD
SELECTION ACCORDING TO EDUCATIONAL LEVEL OF THE HOMEMAKER

| Factors | Educational Level |  |  |  |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Less Than High School Graduate |  | High School Graduate |  | Post-High School |  |  |  |
|  | Much Some | Little None | Much Some | Little <br> None | Much Some | Little <br> None | Much Some | Little <br> None |
| Information and recipes on food containers | 60 | 101 | 118 | 191 | 80 | 155 | 258 | 447 |
| Requests from family members | 107 | 17 | 226 | 16 | 153 | 13 | 486 | 46 |
| Information from friends and relatives | 82 | 80 | 168 | 141 | 138 | 99 | 388 | 320 |
| Food store advertisements in newspapers | 66 | 57 | 150 | 87 | 110 | 56 | 326 | 200 |
| Brand name advertisements | 98 | 66 | 183 | 128 | 724 | 114 | 405 | 308 |
| Women's magazines | 55 | 77 | 112 | 152 | 109 | 95 | 276 | 324 |
| Food sections in newspapers | 93 | 70 | 165 | 146 | 142 | 95 | 400 | 311 |
| Radio or television | 32 | 90 | 67 | 172 | 39 | 126 | 138 | 388 |
| Cookbooks | 87 | 51 | 142 | 122 | 126 | 78 | 349 | 251 |
| Samples tasted in stores | 29 | 94 | 59 | 180 | 33 | 133 | 121 | 407 |
| Handout materials in stores | 18 | 74 | 35 | 157 | 25 | 108 | 78 | 339 |
| Store displays | 39 | 85 | 93 | 146 | 44 | 121 | 176 | 352 |
| Government bulletins | 43 | 89 | 87 | 177 | 56 | 148 | 186 | 414 |

TABLE XXI
RESPONSES AS TO EXTENT OF INFLUENCE OF CERTAIN FACTORS IN FOOD SELECTION ACCORDING TO FAMILY INCOME LEVEL

| Factors | Annual Family Income |  |  |  |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | <\$6,000 |  | \$6,000-9,999 |  | $\begin{gathered} \$ 10,000 \text { or } \\ \text { over } \end{gathered}$ |  |  |  |
|  | Much Some | Little None | Much Some | Little None | Much Some | Little <br> None | Much Some | Little None |
| Information and recipes on food containers | 38 | 72 | 70 | 115 | 63 | 128 | 171 | 315 |
| Requests from family members | 48 | 9 | 90 | 5 | 140 | 11 | 278 | 25 |
| Information from friends and relatives | 56 | 54 | 89 | 96 | 112 | 79 | 257 | 229 |
| Food store advertisements in newspapers | 35 | 22 | 63 | 32 | 94 | 57 | 192 | 111 |
| Brand name advertisements | 52 | 58 | 107 | 78 | 98 | 93 | 257 | 229 |
| Women's magazines | 37 | 73 | 82 | 103 | 100 | 91 | 219 | 267 |
| Food sections in newspapers | 50 | 60 | 109 | 76 | 120 | 71 | 279 | 207 |
| Radio or television | 19 | 38 | 30 | 65 | 35 | 116 | 84 | 219 |
| Cookbooks | 57 | 53 | 101 | 58 | 63 | 29 | 121 | 140 |
| Samples tasted in stores | 12 | 45 | 23 | 72 | 27 | 124 | 62 | 241 |
| Handout materials in stores | 9 | 48 | 18 | 77 | 22 | 129 | 49 | 254 |
| Store displays | 22 | 35 | 33 | 62 | 44 | 107 | 99 | 204 |
| Government bulletins | 39 | 71 | 58 | 127 | 48 | 143 | 145 | 341 |

with either less or more than a high school education to use this information more frequently than did other groups. In the overall group, more homemakers did not use information and recipes on food containers than indicated that this was a source of information frequently used. Chi-square values are shown in Table XXII.

Requests from family members was a source of influence considered important by most of the respondents. Data analysis of the relationship of education of the homemaker and family income to this factor showed a non-significant relationship but a trend was apparent. A higher proportion of homemakers with less than a high school education and families listing incomes under $\$ 6,000$ were less influenced by family requests than were other groups. Homemakers who had completed education beyond the high school level and indicated family incomes to be above $\$ 10,000$ more frequently reported requests from family members as being a source of "much" or "some" influence.

The item, information from friends and relatives, was considered as of "some" or "much" influence in food purchasing by slightly over one-half of the participating homemakers. There was a slight trend for homemakers with more than a high school education and family incomes of $\$ 10,000$ or more to be influenced by this type of information.

TABLE XXII

## STATISTICAL SIGNIFICANCE OF FACTORS

INFLUENCING FOOD SELECTION

| Factors | Variables |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Education of Homemaker |  | Family Income |  |
|  | $\begin{aligned} & \text { Chi- } \\ & \text { square } \end{aligned}$ | P | $\begin{gathered} \text { Chi- } \\ \text { square } \end{gathered}$ | P |
| Information on food containers | 1.03 | n.s. | 1.00 | n.s. |
| Family requests | 5.43 | n.s. | 5.59 | n.s. |
| Friends and relatives | 2.29 | n.s. | 4.41 | n.s. |
| Advertisements |  |  |  |  |
| Food store | 5.08 | n.s. | 0.53 | n.s. |
| Brand name | 3.25 | n.s. | 3.40 | n.s. |
| Women's magazines | 6.89 | $<.05$ | 9.95 | $<.01$ |
| Radio or television | 0.98 | n.s. | 3.16 | n.s. |
| Newspaper food sections | 2.63 | $n$ n: | 8.89 | $<.01$ |
| Cookbooks | 3.72 | n.s. | 6.49 | $<.05$ |
| Samples tasted in stores | 1.32 | n.s. | 1.45 | n.s. |
| Handout materials in stores | 0.07 | n.s. | 0.83 | n.s. |
| Store displays | 6.84 | $<.05$ | 1.95 | n.s. |
| Government bulletins | 1.83 | n.s. | 3.88 | n.s. |

Food store advertising in newspapers was reported as of "much" or "some" influence by more homemakers than reported this item to be of "little" or no influence in food selection. No significant relationship was found between family income and the reported use of this item. Homemakers who were high school graduates and those with some college education tended to use newspaper advertising by stores more frequently than did other groups investigated.

Brand name advertisements were of "much" and "some" influence as sources of information for about four out of seven homemakers. More middle-income families were influenced by brand names than were lower- or higher-income families; however, data analysis revealed non-significant chi-square values.

The influence of food information in women's magazines was checked as having little or no influence by more than half the respondents. Family income was a significant factor in the reported influence of this item on food purchases. Homemakers listing family incomes of $\$ 10,000$ or more used food articles in women's magazines more frequently than did lower income homemakers $(P<.01)$. The influence of the education of the homemaker upon the reported use of women's magazines was also significant $(P<.05)$. Homemakers with education beyond high school more frequently were influenced by food
articles from women's magazines than were homemakers with a high school education or less.

Food sections in newspapers were found to influence more homemakers in food selection than did women's magazines or food advertisements in newspapers. The influence of family income upon the use of this factor was significant at the . 01 level. Homemakers with family incomes of $\$ 10 ; 000$ or more used food sections in newspapers more frequently than did lower income families.

Radio and television were not important sources of information in food selection for the majority of the respondents. The educational achievement of the homemaker showed no significant relationship to these advertising media. More of the homemakers with lower family incomes tended to list the radio and television as a source having "much" or "some" influence than did homemakers with high incomes.

Cookbooks were reported as of "much" or "some" use to only 121 homemakers. Homemakers with incomes below \$6,000 reported using cookbooks "little" or "none" of the time more frequently than did homemakers with higher family incomes. More homemakers with higher family incomes indicated that cookbooks were used "much" or "some" of the time than did lower income families $(P<.05)$. The influence of the educational attainment of the homemaker was a non-significant
factor in the use or non-use of cookbooks as sources of information in food selection.

Samples tasted in stores did not influence many homemakers. Approximately one of five respondents checked this item as having "much" or "some" influence. The relationship of family income and educational achievement of the homemaker to the reported influence of samples tasted in stores on food selection was non-significant.

Handout materials in stores was listed by only 49 respondents as having "much" or "some" influence on food selection. Family income and the educational achievement of the homemaker had no apparent relationship on the use or nonuse of these materials in food selection.

The use of store displays was of "much" or "some" influence to approximately one-third of the homemakers in food selection decisions. When analyzed in relation to family income, the chi-square value was non-significant. The educational achievement of the homemaker was significantly related to the use of store displays as a source of information ( $P<.05$ ). A higher proportion of high school graduates indicated store displays to be a source of information in food selection than did those with more or less education.

The use of government bulletins as a source of information in food selection was checked by approximately one-third of the homemakers. The chi-square analysis showed no significant relationship of either family income or educational achievement of the homemaker to the reported use of government bulletins.

Data from Survey I revealed that requests from family members was reported as a factor of much influence by 50 per cent or more of the homemakers in all educational levels. Information from friends and relatives and printed information in newspapers, cookbooks, and magazines were listed as factors having "much" or "some" influence by over half of the homemakers. As formal education of the homemaker increased, there was a tendency for the more frequently reported informational sources to be those that required reading ability.

Douglas (16) reported that the type of advertisement having the most frequently reported influence on meat purchasing decisions was the local food store advertisements in newspapers. Both radio and television advertising had little influence on meat purchasing decisions, with television having more influence than the radio.

Shetler (59) reported that requests of family members was the most important factor in influencing meat purchasing decisions with 93 per cent of the participating women reporting
this factor as being of "much" influence. Approximately three-fourths of the homemakers recognized the influence of newspaper advertisements. Slightly over half of the participants indicated that cookbooks influenced purchasing decisions. All the items investigated in the overall study were analyzed in relation to income level of the family and educational attainment of the homemaker for Survev III data. The only significant factor found was the relation of income to the item, food articles in magazines. Women in the highest income level were more influenced by food articles in magazines than were those in other income groups ( $\mathrm{P}<.05$ ).

The Denton homemakers, Survey IV, reported the sources of information most frequently having "much" or "some" influence on food buying practices were grocery store food sales, product brands, newspaper advertising, food stamps, and coupons. Radio and television advertising were reported as factors having the least influence on food purchasing decisions.

Data concerning Garland homemakers reported in Survey $V$ revealed that the item, family requests, was the most frequently checked factor of "much" or "some" influence. Homemakers with a high school education and those with college training were influenced by requests of family members more than were the homemakers who had not completed high school.

Food store advertisements in newspapers was an influential source of information for homemakers who reported either more or less than a high school education. Homemakers with a high school education indicated food store advertisements were not influential in fruit and vegetable purchasing decisions. Homemakers with less than a high school education indicated that store displays were an influential factor in fruit and vegetable selection. As education increased, fewer homemakers considered this factor important.

The questionnaire used for Survey VI requested participants to indicate five sources of information considered most important in providing knowledge of the nutritional needs of the family. The physician was the preferred first choice of 61 women and the overall choice of 109 homemakers as a source of nutritional knowledge. The home economist and the dietitian were not often selected as a first choice; however, both professionally trained persons were frequently listed in second or third place as sources of nutritional knowledge. McNeely (42) reported the physician and the dietitian were indicated as individuals providing nutritional information for 21.0 per cent of the mothers of nursery school children and 17.1 per cent of the mothers of Head Start children.

McNeely (42) found that 100 per cent of the mothers of economically privileged nursery school children and 25.7 per
cent of the mothers of Head Start children listed printed materials as sources of nutritional information. Nearly half, 42.1 per cent, of the mothers of nursery school children and 5.7 per cent of the mothers of Head Start children listed information from relatives and friends as a source of nutritional information. Van Demark (74) reported the use of food sections as sources of information frequently used by the participants in an Alabama investigation. Popular magazines and newspapers were sources of information considered most frequently by homemakers in the Laidig study (34).

Dichter (13) categorized homemakers into permanent members and recent members of middle-class families. The author proposed that permanent members of middle-class families depend largely upon personal relationships and parents in purchasing decisions appropriate to class membership. Recent middle-class members who were reared on a lower social stratum tend to learn etiquette, dinner recipes, conduct, and especially the products that are to symbolize class membership, from radio and television, women's pages in newspapers, magazine articles, and newspaper advertisements, rather than from relatives, friends, or professional advisers.

## Nutritional Knowledge of Homemakers

Nine statements concerning nutritional knowledge were included in the questionnaire administered in 1968. In
response to each item, homemakers checked one of these categories: "agree," "disagree," or "undecided." Responses are shown in Table XXIII.

The greatest proportion of homemakers knew the correct response for the following statements: "Prolonged cooking. insures the best flavor, color, texture, and nutritive value in cooked vegetables;" "The liquid in which vegetables are cooked has little or no nutritive value;" "Cantaloupe and strawberries are excellent sources of ascorbic acid;" and "The best grades of beef are well-marbled, with fat." The statements for which the greatest percentage of homemakers checked incorrect responses were as follows: "Beef liver is more nutritious than pork liver;" "Beef is superior to pork in nutritive value;" "A medium-size baked potato and a mediumsize banana have approximately the same number of calories;" and "Fresh meat should be stored loosely covered"in the coldest part of the refrigerator."

The responses of the 200 homemakers participating in the 1968 Survey to the nine statements concerning nutritional knowledge were analyzed according to the home economics courses completed by the homemakers (Table XXIV) and the study of nutrition as a part of the course content (Table XXV). Chisquare values for data analysis are shown in Table XXVI. The completion or non-completion of home economics courses was not

TABLE XXIII
RESPONSES OF 200 HOMEMAKERS TO NINE STATEMENTS CONCERNING NUTRITIONAL KNOWLEDGE

| Statements | Agree | Disagree | Undecided | No Response |
| :---: | :---: | :---: | :---: | :---: |
|  | Number | Number | Number | Number |
| Beef is superior to pork in nutritive value | 87 | 16 | 18 | 79 |
| The best grades of meat are wellmarbled with fat | 96 | 72 | 21 | 11 |
| A medium-size baked potato and a medium-size banana have approximately the same number of calories | 53 | 82 | 53 | 12 |
| Cantaloupe and strawberries are excellent sources of vitamin C (ascorbic acid) | 96 | 46 | 41 | 17 |
| Prolonged cooking insures the best flavor, color, texture, and nutritive value in cooked vegetables | 20 | 161 | 14 | 5 |
| The liquid in which vegetables are cooked has little or no nutritive value | 27 | 155 | 11 | 7 |
| Fresh meat should be stored loosely covered in the coldest part of the refrigerator | 91 | 77 | 24 | 8 |
| T-bone steak has more nutritive value than round steak | 44 | 85 | 60 | 11 |
| Beef Tiver is more nutritious than pork liver | 120 | 32 | 45 | 3 |

TABLE XXIV

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RESPONSES OF 200 HOMEMAKERS TO NINE STATEMENTS CONCERNING NUTRITIONAL
    KNOWLEDGE ACCORDING TO FORMAL HOME ECONOMICS EDUCATION
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| Statements | Home Economics Education |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | None or Junior High Senior High or More |  |  |  | Total |
|  | Knowledge | $\begin{gathered} \text { No } \\ \text { Knowledge } \\ \hline \end{gathered}$ | Knowledge | $\begin{gathered} \text { No } \\ \text { Knowledge } \end{gathered}$ |  |
|  | Number | Number | Number | Number | Number |
| Beef is superior to pork in nutritive value | 5 | 42 | 11 | 61 | 119 |
| The best grades of meat are well-marbled with fat | 41 | 41 | 58 | 50 | 190 |
| A medium-size baked potato and a medium-size banana have approximately the same number of calories | 36 | 45 | 46 | 70 | 197 |
| Cantaloupe and strawberries are excellent sources of vitamin C (ascorbic acid) | 40 | 42 | 58 | 45 | 185 |
| Prolonged cooking insures the best flavor, color, texture, and nutritive value in cooked vegetables | 68 | 15 | 84 | 28 | 195 |
| The liquid in which vegetables are cooked has little or no nutritive value | 62 | 18 | 94 | 19 | 193 |
| Fresh meat should be stored loosely covered in the coldest part of the refrigerator | 42 | 39 | 54 | 57 | 192 |
| T-bone steak has more nutritive value than round steak | 41 | 40 | 38 | 68 | 187 |
| Beef liver is more nutritious than pork liver | 15 | 68 | 17 | 95 | 195 |

TABLE XXV
RESPONSES OF 200 HOMEMAKERS TO NINE STATEMENTS CONCERNING NUTRITIONAL KNOWLEDGE
ACCORDING TO THE STUDY OF NUTRITION IN HOME ECONOMICS COURSES

| Statements | Studied Nutrition |  | Did Not Study Nutrition |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Knowledge | $\begin{gathered} \text { No } \\ \text { Knowledge } \end{gathered}$ | Knowledge | $\begin{gathered} \text { No } \\ \text { Knowledge } \\ \hline \end{gathered}$ |
|  | Number | Number | Number | Number |
| Beef is superior to pork in nutritive value | 10 | 80 | 4 | 25 |
| The best grades of meat are wellmarbled with fat | 66 | 64 | 32 | 28 |
| A medium-size baked potato and a medium-size banana have approximately the same number of calories | 38 | 92 | 15 | 52 |
| Cantaloupe and strawberries are excellent sources of vitamin C (ascorbic acid) | 63 | 57 | 57. | 18 |
| Prolonged cooking insures the best flavor, color, texture, and nutritive value in cooked vegetables | 104 | 26 | 57 | 8 |
| The liquid in which vegetables are cooked has little or no nutritive value | 102 | 26 | 53 | 12 |
| Fresh meat should be stored loosely covered in the coldest part of the refrigerator | 61 | 63 | 34 | 34 |
| T-bone steak has more nutritive value than round steak | 52 | 72 | 33 | 30 |
| Beef liver is more nutritious than pork liver | 22 | 108 | 12 | 53 |

TABLE XXVI
STATISTICAL SIGNIFICANCE OF FACTORS INFLUENCING NUTRITIONAL KNOWLEDGE AS

## INDICATED BY RESPONSES OF 200 HOMEMAKERS TO NINE STATEMENTS

| Statements | Home Economics | Courses | Study of Nutrition |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Chi-square | P | Chi-square | P |
| Beef is superior to pork in nutritive value | . 53 | n.s. | . 00 | n.S. |
| The best grades of meat are wellmarbled with fat | . 26 | n.s. | . 03 | n.s. |
| A medium-size baked potato and a medium-size banana have approximately the same number of calories | . 45 | n.s. | . 73 | n.s. |
| Cantaloupe and strawberries are excellent sources of vitamin C (ascorbic acid) | 1.04 | n.s. | 9.80 | $<.07$ |
| Prolonged cooking insures the best flavor, color, texture, and nutri- tive value in cooked vegetables | . 59 | n.s. | 1.29 | n.s. |
| The liquid in which vegetables are cooked has little or no nutritive value | . 64 | n.s. | . 01 | n.s. |
| Fresh meat should be stored loosely covered in the coldest part of the refrigerator | . 09 | n.s. | .00 | n.s. |
| T-bone steak has more nutritive value than round steak | 3.52 | n.s. | 1.44 | n.s. |
| Beef Tiver is more nutritious than pork liver | . 12 | n.s. | . 00 | n.s. |

significantly related to the responses of the homemaker to the nine statements. The response to the statement "Cantaloupe and strawberries are excellent sources of vitamin C" was the only statement for which a significant relationship was found to the study of nutrition as a part of the homemaking course content. The homemakers who reported not having studied nutrition more frequently checked this statement as being true. The emphasis on the inclusion of citrus fruits in the daily diet may account for the lack of knowledge on the part of many homemakers as to the nutritive value of other fruits. Moreover, only eight homemakers in the 1968 Survey indicated having completed college courses in home economics. High school courses in homemaking are usually general in nature covering many areas of home economics. In an introductory course in homemaking, the material covered in foods and nutrition is assumed to have been limited.

The influence of age of the homemaker on nutritional knowledge was investigated. The percentages of homemakers checking the correct response, incorrect response, and the category "don't know" were recorded according to age of the homemaker (Table XXVII). In response to the statement that cantaloupe and strawberries are excellent sources of ascorbic acid, 56.1 per cent of the homemakers 40 years of age or 01 der checked the correct response, and 50.0 per cent of the homemakers under 40 years of age agreed that this statement

TABLE XXVII
RESPONSES OF 200 HOMEMAKERS TO NINE STATEMENTS CONCERNING
NUTRITIONAL KNOWLEDGE ACCORDING TO AGE CATEGORY

| Statements | Percentage of Responses to Each Question |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Under 40 Years |  |  | 40 Years or Over |  |  |
|  | Correct | $\begin{gathered} \text { Incor } \\ \text { rect } \end{gathered}$ | $\begin{aligned} & \text { Don't }^{\prime} t \\ & \text { Know } \end{aligned}$ | Correct | $\begin{gathered} \text { Incor- } \\ \text { rect } \end{gathered}$ | $\begin{aligned} & \text { Don' }^{\prime} t \\ & \text { Know } \end{aligned}$ |
| Beef is superior to pork in nutritive value | 14.5 | 69.4 | 16.1 | 12:1 | 75.9 | 12.1 |
| The best grades of meat are wellmarbled with fat | 50.5 | 38.8 | 10.7 | 51.8 | 36.5 | 11.7 |
| A medium-size baked potato and a medium-size banana have approximate the same number of calories | 30.1 | 48.6 | 21.3 | 26.2 | 36.9 | 36.9 |
| Cantaloupe and strawberries are excellent sources of vitamin $C$ (ascorbic acid) | 50.0 | 25.0 | 25.0 | 56.1 | 25.6 | 18.3 |
| Prolonged cooking insures the best flavor, color, texture, and nutritive value in cooked vegetables | 84.0 | 10.3 | 5.7 | 81.8 | 10.2 | 8.0 |
| The liquid in which vegetables are cooked has little or no nutritive value | 77.4 | 15.1 | 7.5 | 83.7 | 12.8 | 3.5 |
| Fresh meat should be stored loosely covered in the coldest part of the refrigerator | 46.2 | 38.4 | 15.4 | 48.8 | 41.0 | 10.2 |
| T-bone steak has more nutritive value than round steak | 47.1 | 22.5 | 30.4 | 42.5 | 24.1 | 33.4 |
| Beef liver is more nutritious than pork liver | 12.0 | 65.8 | 22.2 | 21.6 | 54.5 | 23.9 |

was true. In response to the statement that "Beef liver is more nutritious than pork liver," 54.5 per cent of the older homemakers and 65.8 per cent of the younger homemakers checked this statement as being incorrect.

Younger homemakers are generally believed to have more nutritional knowledge than older homemakers. This was not found to be true in the 1968 Survey. The influence of age on the total number of correct responses to the nine statements concerning nutritional knowledge was analyzed statistically. Responses of the 200 homemakers were divided into three categories as to nutritional knowledge: one to three correct responses, four to six correct responses, and seven to nine correct responses. The chi-square value was nonsignificant.

Survey I investigated nutritional knowledge of homemakers in relation to meat. More than 50 per cent of the homemakers participating in the study checked correct responses to four statements. Two-thirds of the respondents knew that the best grades of beef are well-marbled with fat. Approximately 80 per cent of the women knew that ground meat should be used within a few days of purchase, that roast beef should be cooked at $300^{\circ}$ to $325^{\circ} \mathrm{F}$. , and that fresh pork should not be eaten "rare." In general, meat and nutritional knowledge tended to increase slightly with age and educational level of the homemaker.

Seventy per cent or more of the homemakers participating in Survey II knew the correct responses for seven of 12 statements on meat. The greatest proportion of homemakers knew that fresh pork should not be eaten rare. Most homemakers were aware of the presence of Trichinella spiralis in some fresh pork. A substantial majority was not aware of the fact that defrosting in the refrigerator is the preferred method for defrosting frozen poultry. Nor were they aware of the fact that beef and pork are similar in nutritive value except for thiamine. More homemakers were undecided in response to the question as to whether beef or pork contains the most iron than were undecided about any other statement. Less than one-third of the respondents were aware of the fact that pork liver is a better source of iron than beef liver.

The largest proportion of the Kansas homemakers included in Survey III exhibited the greatest knowledge for the following statements: "Ground meat should be used within a few days of purchase" and "Fresh meat should be stored loosely covered in the coldest part of the refrigerator." Approximately one-half of the participants knew that the round is not considered one of the most tender cuts of meat. Most of the homemakers knew the recommended temperature for roasting beef. Eighty-seven per cent knew that fresh pork should not be eaten rare. The relative nutritive values of various
types of meat were areas of apparent lack of knowledge. Seventy per cent of the participants were not aware of the fact that pork liver is a better source of iron than beef liver, or that the nutritive contribution of beef is not superior to that of pork. The majority of the women were unaware of the fact that defrosting in the refrigerator is the preferred method for thawing frozen poultry.

Data for Survey III were analyzed in relation to the reported inclusion of a study of meat in the home economics courses completed. The level of home economics at which the study of meat was included was found to be significant ( $P<.05$ ). Homemakers reporting the highest level of study had a greater knowledge of meat. Approximately 74 per cent of the homemakers with college degrees in home economics knew correct responses for nine or more of the 12 statements as compared to 20 per cent in each of the two lower educational categories. Survey III included 38 homemakers who had completed one or more college courses in foods and/or nutrition. None of the other surveys included more than a few homemakers who reported one or more college courses in foods and/or nutrition.

Survey IV included five statements concerning the homemakers' nutritional knowledge of fruits and vegetables. Approximately 60 per cent of the respondents knew that prolonged cooking does not assure retention of flavor, color,
and texture of vegetables. The item for which the most homemakers checked the category "no opinion" was for the statement as to whether aluminum cooking pans are injurious to health. Only 16.8 per cent of the homemakers knew that a medium-size potato and a medium-size banana have approximately the same amount of calories. A majority of the respondents were aware of the fact that to retain nutritive value, vegetables should not be cooked in large amounts of water. Non-significant differences were found when each of the nutrition statements was analyzed according to the educational classification of the homemakers.

The approximate cooking time required for the preparation of four vegetables was included in the questionnaire used in Suryey V. Responses were analyzed according to whether or not the homemakers had studied vegetable cookery as a part of the home economics training. The responses showed evidence that many homemakers were overcooking vegetables in the home. There was a tendency to overcook all vegetables in many homes but a larger proportion of the homemakers overcooked green beans than overcooked cabbage, spinach, or broccoli. When the data concerning the accuracy of the homemaker's knowledge of the correct cooking time for certain vegetables was analyzed statistically, the educational achievement of the homemaker, home economics education, and
the study of vegetable cookery were found to be non-significant factors.

Survey $V$ included seven statements concerning nutritional knowledge in addition to the question concerning cooking time of vegetables. The statement for which the smallest group of homemakers knew the correct response concerned reheating of vegetables. Over one-half of the respondents were unaware of the rich sources of vitamin $A$ and ascorbic acid in many fruits and vegetables. Responses to the seven statements were analyzed on the basis of educational level of the homamaker, extent of home economics training, and age of the homemaker. Although responses varied among groups, only one chi-square value was significant. A higher proportion of women over 40 than women under 40 years of age knew that vitamin $A$ was not the vitamin most easily destroyed in vegetable preparation.

Responses of McKinney homemakers participating in Survey VI revealed that nearly three-fourths of the participants did not know that a medium-size baked potato and a medium-size banana have approximately the same caloric value. Fifty-one homemakers knew that both cantaloupe and strawberries are good sources of vitamin C. Seventy-five participants indicated that prolonged cooking of green beans would not improve the flavor. However, 36 women were of the opinion that
vegetables should be cooked for long periods of time. Although 81 homemakers indicated a knowledge of the nutritive value of the liquid in which vegetables are canned or prepared, 43 did not know of the solubility of some nutrients in the liquid used for vegetable preparation. Approximately half of the homemakers knew that reheated vegetables retain more nutritive value than vegetables heated for prolonged periods of time. An analysis of the relationship of educational level and participation in foods and nutrition courses to nutritional knowledge revealed that homemakers who were high school graduates or had college training more frequently checked the correct. response to two-thirds or more of the statements than did those with less than a high school education. A greater percentage of homemakers who indicated the completion of one or more courses in foods and nutrition correctly responded to two-thirds or more of the statements than did those who had not studied foods and nutrition, 30.6 per cent and 15.3 per cent, respectively.

Information to be Requested from a Home Economist
Surveys II, III, V, and the 1968 Survey requested responding homemakers to check information desired from a trained home economist if one were available at the grocery
store. Responses of the 200 homemakers participating in the 1968 Survey as to the information desired from a home economist are shown below:

```
Knowledge Desired
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Homemakers Number
What are "good buys" in the store today 121
How to prepare certain foods 97
Menu suggestions 106
Information on new products which are available

131
Nutritive value of certain food items

106

Data from the four surveys which included a question concerning information desired from a home economist, if one were available, were combined. The rank order of the percentages of homemakers desiring information follow: "good boys" available on shopping days, 50.3 per cent; new product information, 48.4 per cent; menu suggestions, 44.6 per cent; nutritive value of foods, . 34.5 per cent; and foods easily and quickly prepared, 24.0 per cent.

The item most frequently checked by Dallas homemakers participating in Survey II was food preparation information. Kansas homemakers most frequently checked information about "good buys," as did the Garland respondents. When the responses of Garland homemakers concerning food preparation information desired were analyzed on the basis of educational
level, the chi-square value was highly significant. As the level of education increased, the proportion of individuals desiring information on food preparation increased.

Criteria Used in Purchasing Meats,

## Fruits, and Vegetables

The 1968 Survey and Surveys II, IV, V, and VI investigated certain factors used as criteria in purchasing meats, fruits, and vegetables. Different factors were included in the various surveys. Survey III investigated the importance of several factors in purchasing meats; Surveys IV, V, and VI investigated criteria used in purchasing fruits and vegetables; and the 1968 study included information for meats, fruits, and vegetables.

Responses of 200 respondents included in the 1968 Survey indicate flavor, quality of the product, family preference, and nutritive value to be the most important factors considered in purchasing meats, fruits, and vegetables. All items listed were checked as of "much" or "some" importance
by more than one-half of the homemakers. The responses of the homemakers are shown below.


In Survey III, homemakers were requested to number in descending rank order the importance of each of five factors in meat purchasing. The choices in descending order of the frequency with which checked were: price per pound, number of servings, total cost of food, price per serving, and preparation time.

Data from Survey IV revealed the most frequently checked factors influencing purchasing decisions for fruits and vegetables were cost per serving, quality of the product, and preparation time. McKinney homemakers, included in Survey VI, indicated family preference as the most important factor in fruit and vegetable purchasing, with 95 of the 134 homemakers checking this item. Nutritive value of fruits and vegetables
was considered by 72 homemakers in food purchases. The other factors listed were checked by fewer respondents.

Data from Survey $V$ revealed that the largest proportion of Garland homemakers considered flavor of food to be the most important factor in purchasing decisions, with nutritive value and cost per serving checked by a large number of respondents. A higher percentage of families with incomes less than $\$ 9,000$ considered cost per serving than did families with incomes in excess of $\$ 9,000$. A significantly higher proportion of employed than of unemployed homemakers considered nutritive value and quality of fruits and vegetables as criteria in food purchasing. The 1968 Survey and Survey $V$ questionnaires were the only survey forms listing flavor of food as a factor in purchasing decisions; therefore, this first choice response in these two studies could not be compared with data from the other surveys.

Factors Used as Criteria i.n Judging Quality of Meats, Fruits, and Vegetables

Respondents were requested to check the factors used to determine the quality of fresh, canned, and frozen fruits and vegetables, and meats. The 1968 Survey, Survey II, and Survey III investigated criteria used in judging quality of meats. The 1968 study, Survey IV, and Survey V investigated criteria used in judging the quality of fruits and vegetables.

Data from the 1968 Survey showed government grade to be the most important factor in judging quality of meat, checked by 77.5 per cent of the homemakers; followed by appearance, checked by 59.5 per cent of the respondents; and the reputation of the store, checked by 41.5 per cent of the participants. Brand name and label information were considered important to less than 20.0 per cent of the homemakers. Re. sponses are shown in Table XXVIII. Data for the combined studies showed appearance to be the most frequently checked factor used by homemakers in judging quality of meat, while government grade was the second most frequently checked factor. The reputation of the store, followed by the brand name, were two other commonly listed influencing criteria. The most frequently checked factor in Surveys II and III was the appearance of meat.

The most frequently reported factor used in judging quality of fruits and vegetables for the 427 homemakers for whom this data was available was appearance for fresh produce, brand name for frozen fruits and vegetables, and brand name for canned vegetables. Information on the label was the second most frequently checked factor in judging quality for frozen and canned foods; the reputation of the store was the second most frequently checked factor in judging quality of fresh produce. Responses are shown in Table XXIX.

TABLE XXVIII
RESPONSES OF 508 HOMEMAKERS AS TO CRITERIA USED IN JUDGING QUALITY OF MEAT

| Criteria | $\frac{1968 \text { Survey }}{}$ | Purvey II | Survey III | Combined Studies |
| :--- | :---: | :---: | :---: | :---: |
| Appearance | 59.5 | Per cent | Per cent | Per cent |
| Brand name <br> Government <br> grade | 18.5 | 82.4 | 79.2 | 72.2 |
| Store's repu- <br> tation <br> Label informa- <br> tion* | 77.5 | 27.2 | 30.0 | 24.8 |
| None of above | 41.5 | 40.0 | 60.1 | 65.0 |

*Label information was not included as a criterion in Surveys II and III.

## TABLE XXIX <br> PESPONSES OF 427 HOMEMAKERS AS TO CRITERIA USED IN JUDGING QUALITY OF FRUITS AND VEGETABLES

| Criteria | Fresh Produce | Frozen Food | Canned Food |
| :--- | :---: | :---: | :---: |
|  | Per cent | Per cent | Per cent |
| Brand name | 11.9 | 46.1 | 52.1 |
| Government grade* | 19.0 | 14.0 | 15.0 |
| Appearance | 60.1 | 12.8 | 7.2 |
| Store's reputation | 21.5 | 13.1 | 12.1 |
| Label information | 6.0 | 33.7 | 45.1 |

*1968 Survey only $(N=200)$

## Freezer Storage Space and Use

The types of frozen food storage facilities of families was investigated by Surveys I, II, III, and the 1968 Survey. In the latter survey, 62 homemakers reported having a small freezer storage space in the refrigerator, and 45 reported having freezer storage across the top or bottom of the refrigerator. Of the separate freezer space reported, 85 homemakers checked the separate freezer category, and four homemakers indicated having a rented food locker. Three homemakers indicated that no freezer space was available.

In the combined studies, 48.0 per cent of the participants indicated a separate freezer was available. Approximately two-fifth, 41.4 per cent, of the homemakers checked having a separate freezer across the top or bottom of the refrigerator and 21.3 per cent of the participants checked having, a small freezer storage space in the refrigerator. A number of homemakers had more than one type of freezer storage space.

Homemakers participating in the 1968 Survey were requested to check the types of food stored in the freezer. Of the 200 respondetns, 140 indicated the use of freezer storage for meat, 124 listed ice cream, 99 checked vegetables as an item stored in the freezer, 17 stored frozen fruit, and 51 stated that all five types of foods listed in the questionnaire were stored in the freezer.

## WEEKLY FOOD EXPENDITURES

The survey report, Food Consumption of Households in the United States, Spring, 1965 (70), stated that the money value of food used by housekeeping households in the United States averaged $\$ 35.00$ per week in the spring of 1965. Of this amount, $\$ 29.00$ was the value for foods used at home and $\$ 6.00$ was given as the expense for meals and snacks eaten away from home. A further breakdown of the figure for food used at home showed that $\$ 27.00$ worth of food was purchased and $\$ 2.00$ worth was received without direct expense, mostly home produced. This figure is similar to the national average family food cost of $\$ 28.25$ per week reported in Food Costs (71) for 1965.

Household food expenditure was investigated in the 1968 Survey. The average weekly food expenditure for the 193 families providing this information was $\$ 30.46$.' Three homemakers remarked that the amount reported for food expenditure did not include meat, one homemaker reported that the cost of milk was not included, and one respondent stated that frozen foods were not included in the weekly food expenditure listed. The mean expenditure found in the 1968 study was higher than the national average. This was also true for the 1966 Survey of Dallas homemakers (16). Perhaps food costs are higher in Dallas than in many parts of the country. The median food
expenditure for households in the 1968 study was in the $\$ 30.00$ to $\$ 34.99$ category.

Survey I data revealed that Arlington families spent an average of $\$ 34.63$ per week for total foods purchased. Dallas homemakers included in Survey II reported the highest household food cost, $\$ 40.85$ per week. These homemakers were representative of a high socioeconomic level. The mean food expenditure for Kansas households was $\$ 29.28$ per week. Some farm families were included in the sample. Contributions of home produced foods may account for this lower food expenditure although this figure more nearly resembles the national average than do food expenditures for the Dallas area surveys. Data from Survey IV, representing low income families in Denton, revealed the average household expenditure for food was $\$ 29.28$. This amount was very similar to that reported in Survey III for Kansas families. McKinney respondents participating in Survey VI reported a mean weekly food expenditure of $\$ 30.51$. The McKinney homemakers reported spending slightly more than low income Denton homemakers, and slightly less than Garland households who reported an average food cost of $\$ 32.00$ per family per week.

The per capita food expenditure is perhaps a better indicator of food expenditure than food purchased per household. The average size of households given in the 1965
report of Food Consumption of Households in the United States (70) was 3.29 persons; the mean food expenditure per person per week was $\$ 10.64$ for all food. Money value of food used at home was given as \$8.79. Of this amount, $\$ 8.19$ was spent for food purchased and $\$ 0.60$ was allotted to food received without direct expense (home produced, federally donated, and received as a gift or as pay). Expense for meals and snacks eaten away from home was reported to be \$1.85. Nielsen (51) reported that the average weekly per capita grocery sales for Dallas and Houston areas for 1965 was \$6.17.

Participants in the 1968 Survey reported food expenditures averaging $\$ 6.52$ per person. The mean family size was 5.03 persons. It is generally believed that households with a larger number of family members spend less money for food per person, while families with fewer members have a higher per capita expenditure. This was found to be true of the households represented in the 1968 study. Family size was categorized into two groups: four or less persons and five or more persons. The per capita weekly food expenditure for the families with a smaller household size was \$7.78. Families with five or more persons per household had a mean per capita food expenditure of $\$ 5.57$. Total food purchases for the 193 families responding to this inquiry ranged from $\$ 8.00$ per week reported by one homemaker to $\$ 75.00$ reported by a homemaker listing a household size of six persons.

Food expenditures per capita per week reported in data from the other surveys ranged from $\$ 5.70$ reported by Denton homemakers participating in Survey IV to $\$ 9.20$ reported by Dallas homemakers included in Survey II. Arlington homemakers participating in Survey I reported a per capita food cost of $\$ 7.33$ per week; Kansas respondents included in Survey III reported $\$ 6.66$; and Garland homemakers participating in Survey $V$ reported $\$ 7.13$ per capita per week. The fact that the seven surveys were conducted over a two year period of time apparently did not exert a marked influence on the reported food expenditure, since the 1968 study showed food costs to be similar to those of the previous studies.

The food expenditure for meat and meat products was investigated. The national average household meat expenditure reported for 1965 was $\$ 8.50$ (71). The per capita weekly cost of meat for all urbanizations, as reported in Dietary Levels of Households in the United States (68), was $\$ 2.88$.

In the 1968 Survey, homemakers reported family meat expenditures ranging from $\$ 3.00$, reported by two families, to a high of $\$ 50.00$. The average household meat expenditure was $\$ 13.76$ for families participating in the 1968 Survey, $\$ 12.64$ for families responding to the inquiry in Survey I, $\$ 14.85$ for the Dallas families included in Survey II, and
\$11.29 for the Kansas families. The mean per capita meat expenditure for homemakers reporting in the 1968 Survey was \$2.90; for Survey I, \$2.69; for Survey III, \$2.56; and for Survey V, \$3.04. Some of the Kansas homemakers participating in Survey III reported home production of meat.

In the publication, Dietary Levels of Households in the United States, Spring, 1965 (68), the reported average food expenditure for total fruits was $\$ 0.65$ per person per week. The average per capita weekly vegetable expenditure was given as $\$ 1.07$ for total vegetables. The total expenditure for fruits and vegetables was $\$ 1.72$ per capita per week.

Data from the 1968 Survey revealed that the average household food expenditure for total fruits and vegetables was $\$ 9.32$; the per capita expenditure was $\$ 1.81$. Per capita weekly food expenditures for fruits and vegetables for Survey IV was \$1.37; for Survey V, \$1.62; and for Survey VI, \$1.73.

FAMILY FOOD PREFERENCES FOR MEATS, FRUITS, VEGETABLES, AND BETWEEN-MEAL SNACKS

Stiebling (61) stated that in America, the increased productivity of foods and the rising standards of living, combined with research contributions to studies of nutrition education, should enable every individual in the country to be adequately nourished since the supply of food is varied
and plentiful. However, making wise decisions in the food market requires alertness, knowledge, and skill. Eppright (21) mentioned that even a nutrition educator cannot be expected to know the merits of each of the 6,000 or so different items crowding the supermarket shelves. Nutrition educators can be most helpful to the consumer who needs some intelligent criteria for selecting from this vast array of food items. A knowledge of consumption patterns of families provides a foundation for planning helpful programs.

The questionnaire designed for the present investigation requested information from the participating homemakers as to family food preferences for meats, vegetables, fruits, juices, snack foods, and beverages. In addition, participating homemakers were requested to check their preferences in selecting meats, fruits, and vegetables. Responses of the various surveys were combined when possible. When this was not possible present findings were compared with the findings from the previous surveys.

## Meat Preferences

Consumption of meat has been an area of concern for many years. Food consumption surveys of previous years have indicated inadequate protein intakes within population groups (22, 37, 57): Recent surveys, however, have shown that meat
consumption is generally adequate, even in the lower income groups (12, 20). Major emphasis today has been placed on the worldwide shortage of protein foods occurring as a result of the great population expansion (8, 46, 54).

Consumer preference for prepackaged meat or for butcher services and the reasons for preference were investigated. Data from the 1968 Survey revealed that 63 , or 32 per cent, $*$ of the homemakers preferred prepackaged meat and.136, or 68 per cent, of the family shoppers preferred buying meat cut to order by a butcher. These data differ from findings reported for the other surveys. Data for Survey I indicated that 70.4 per cent of the Arlington homemakers preferred prepackaged meats. Of the Dallas homemakers participating in Survey II, 65.6 per cent preferred prepackaged meat. The highest percentage of preference was evident for prepackaged meat for Kansas homemakers, 87 per cent. The majority of the respondents in the three surveys indicated a preference for prepackaged meat. In contrast, the present 1968 Survey reported a preference for butcher service by the majority of respondents.

Reasons for the preference for prepackaged meats were given by a total of 616 respondents included in the 1968 Survey, Survey I, Survey II, and Survey III. The 1968 investigation of 200 homemakers revealed that prepackaged meats were
preferred because they save shopping time, checked by 50 homemakers; the exact cost and number of pieces or size is known, checked by 48 respondents; are more sanitary and attractive, checked by 46 food shoppers; and offer a wide variety of choices, checked by 42 homemakers. Less frequently checked reasons were the lack of knowledge of meat cuts to ask for and information on the label as to cut of meat.

In the overall survey, including responses of 616 homemakers, the most frequently reported reason for preferring prepackaged meat was that the exact cost and the number of pieces or size was known, checked by 39 per cent of the homemakers. A total of 210 homemakers, 34.1 per cent, indicated that prepackaged meat saves shopping time; 29.2 per cent 1 iked the wide variety of choices offered by prepackaged meats, and 25.0 per cent indicated that prepackaged meat was more sanitary. Information on the label, as to cut of meat, and a lack of knowledge of meat cuts to ask for were less
frequently checked by the participating homemakers. Responses follow:

| Reason for Preference | 1968 Survey |  | Combined Surveys |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Num- | Per | Num- | Per |
|  | ber | cent | ber | cent |
| Saves shopping time | 50 | 25.0 | 210 | 34.1 |
| Wide variety of choices | 42 | 21.0 | 180 | 29.2 |
| Lack of knowledge of meat. cuts to ask for | 30 | 15.0 | 66 | 10.7 |
| Information on label as to cut of meat | 25 | 12.5 | 89 | 14.4 |
| Exact cost and number of pieces or size known | 48 | 24.0 | 240 | 39.0 |
| More sanitary and attractive | 46 | 23.0 | 154 | 25.0 |

Surveys II and III included an inquiry as to reasons for preferences of butcher services when purchasing meat. Of the 408 homemakers responding to this inquiry, 225, or 55.1 per cent, of the food shoppers checked the, item stating that meat can be cut to the desired size; 117 , or 28.6 per cent, indicated that advice from the butcher can be obtained; and 91 , or 22.3 per cent, indicated that meat can be inspected before purchasing.

Respondents participating in the 1968 Survey were requested to list the five favorite meats of family members. Beef was preferred over other types of meats with 256 beef items being listed by the 200 homemakers. Steak was the most
frequently listed choice of beef cuts. Of 160 listings for steak, the most frequently named steaks were round steak and either broiled steak or T-bone steak. Beef roast was a choice of 73 respondents; ground beef of 70 homemakers; liver of 29 participants; ribs of 11 homemakers, and two homemakers listed neck bones as a preferred meat.

Pork was the second most frequently listed type of meat preferred by families represented in the 1968 Survey. A total of 168 responses to preferences for pork were listed. Seventy homemakers named pork chops, 53 listed ham, eight listed sausage, and bacon was named seven times.

Poultry was named as a favorite family meat 124 times. Of these 124 listings, 117 choices for chicken were listed, and three for turkey. Fish was listed by 41 respondents as a preferred family meat; four homemakers expressed a preference for shrimp, two for salmon, and one for tuna. Seven homemakers listed veal as a favorite family meat, five listed lamb, two preferred weiners and bologna. Lunch meat, tongue and casseroles were each listed by one homemaker.

## Fruit and Vegetable Preferences

Consumption of fruits and vegetables has increased in the past few decades; however, inadequate consumption of green, leafy and yellow vegetables and vitamin C-rich fruits remains
evident among a small percentage of the population as indicated by investigations of food intakes and nutritional assessments (67, 24, 12).

The questionnaire used in the 1968 Survey included an inquiry as to consumer preferences for prepackaged fruits and vegetables or a preference for "pick-your-own from loose displays." Of the 200 homemakers included in the survey, 180 preferred to select fruits from loose displays; 20 preferred to purchase prepackaged fruits. Reasons for selecting prepackaged fruits were checked, in descending rank order, as follows: more sanitary and attractive; wide variety of choices; saves shopping time; information on label as to name of fruit or vegetables; and exact cost and number of pieces or size known. Homemakers who preferred prepackaged fruits checked more than one reason. Some homemakers who preferred loose displays, nevertheless, checked reasons for preference for prepackaged fruits.

Prepackaged vegetables were preferred by 31 homemakers; 166 respondents preferred to select vegetables from loose displays. Reasons given for preference for prepackaged vegetables are listed, in rank descending order, as follows: more sanitary and attractive; saves shopping time; wide
variety of choices; and information on label as to name of vegetable. Four homemakers checked a lack of knowledge about vegetables.

| Reason for Preference | Fruit | Vegetables |
| :--- | :---: | :---: |
| Saves shopping time | 22 |  |
| Wide variety of choices | 30 | 35 |
| Information on label as | 35 |  |
| to name of fruit or vegetable | 19 | 30 |
| Exact cost and number of | 17 | $\ddots$ |
| pieces or size known | 19 |  |
| More sanitary and attractive | 31 | 37 |

Homemakers participating in the 1968 Survey were requested to list family preferences for fruits and yegetables. The fruits named by 25 per cent or more of the respondents follow:

| Fruits | Number of Homemakers |
| :--- | ---: |
| Apples | 144 |
| Oranges | 137 |
| Bananas | 111 |
| Peaches | 62 |
| Grapes | 59 |

Fruits listed by 10 to 25 per cent of the homemakers as favorite family choices, listed in descending rank order of the frequency with which named, were as follows: strawberries, pears, plums, lemons, and pineapple. Favorite
juices named by 10 per cent or more of the responding homemakers, in descending rank order of preference, were as follows: orange, grape, grapefruit, pineapple, tomato, apple, and lemon.

Vegetables listed by homemakers as family "favorites" by 25 per cent or more respondents were as follows:
Vegetables
Number of Homemakers
Corn 111
Potatoes 90
Peas, green and blackeyed 90
Green beans 68
Beans, dried $\square$

Vegetables listed by 10 to 25 per cent of the homemakers as preferred by family members were tomatoes, lettuce, and cabbage.

Snack Foods and Beverages

Eating between meals has become increasingly popular in recent years. Active children may benefit by having a midmorning or midafternoon snack, providing that the food is of such a nature that the appetite at mealtime is not lessened. Between-meal snacks, properly chosen, may actually aid some persons to maintain weight by reducing the tendency to overeat at mealtime.
Snack foods named by 10 per cent or more of the parti- $X$ cipating homemakers in the 1968 Survey as preferred by family members, listed in descending rank order of the frequency with which named, were as follows: chips and crackers, sandwiches, fruits, meat and cheese, ice cream, dips, candy, cake, popcorn, vegetables, and pie. Snack beverages named by 10 per cent or more of the responding homemakers, in descending rank order of the frequency with which listed, were as follows: carbonated beverages, fruit drinks, fruit juice, milk, tea, and coffee.

## CHAPTER V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The present study was part of a group of seven surveys conducted by Moxey (50), Douglas (16), Shetler (59), Ottenhouse (55), Schmolder (58), and Stribling (63) which investigated family characteristics; food shopping habits; purchasing preferences for meats, fruits, and vegetables; nutritional knowledge of the homemakers; and factors influencing consumer choices of 977 selected homemakers. The data were collected over a period of approximately two years. Seven survey forms were administered, the first in May, 1966, and the seventh one in March, 1968. In order to obtain possible seasonal differences in the food selection and purchasing practices of the homemakers, the months in which the surveys were conducted varied. Two of the surveys were conducted in the nonth of March, two in May, and three in November. The studies effectively complement each other by providing group variations in relation to family characteristics, geographic location, and seasonal variations. The combined surveys present a group simulating random sampling. The data from each of the surveys were utilized to obtain information pertinent to the investigation.

Six surveys were completed in or near the metropolitan area of Dallas, Texas; the remaining information was obtained in and near Wichita, Kansas. In addition, some survey forms in Kansas were administered to members of a county home economics association.

The three studies related to meat purchasing preferences and consumption were Survey I, the Moxey study (50); Survey II, the Douglas study (16); and Survey III, the Shetler study (59). In addition, the three studies which investigated fruit and vegetable preferences and consumption were Survey IV, the Ottenhouse study (55); Survey $V$, the Schmolder study (58); and Survey VI, the Stribling investigation (63). The present inquiry was referred to as the 1968 Survey.

The overall purpose of the 1968 Survey was to investigate the shopping habits and to identify the factors influencing preferences in the selection of meats, fruits, and vegetables of 200 homemakers as an addition to the data provided by the previous surveys. The specific purposes of this investigation were to:

1) Examine the possible influence of the following factors on the general buying habits and on the selection of meats, fruits, and vegetables: family income; family size and composition; age, employment, and education of the homemaker, including home economics training;
2) Test the homemakers' knowledge of nutrition in relation to meats, fruits, and vegetables;
3) Ascertain the sources of information and factors which influence purchases and judgment of the quality of meats, fruits, and vegetables;
4) Determine family preferences for meats, fruits, and vegetables;
5) Investigate the family and per capita expenditures for groceries, including the amounts spent for meats, and for fruits and vegetables.

The sample size of the 1968 Survey, conducted in Dallas, Irving, and Nocona, was 200. Sample sizes and geographical areas included in the overall study were: Survey 1, 108 homemakers from Arlington, Texas; Survey II, 125 homemakers from Dallas, Texas; Survey III, 183 homemakers from Wichita, Newton, and Hesston, Kansas; Survey IV, 107 homemakers from Denton, Texas; Survey V, 120 homemakers from Garland, Texas; Survey VI, 134 , homemakers from McKinney, Texas. The total sample included information obtained from 977 families.

Certain family characteristics of the participating families were included in the study. Income levels were difficult to compare since varying financial categories were used in the seven questionnaires; however, high, medium, and low income brackets were well represented within the total sample. Family size, as determined by the current investigation, indicated proportions similar to those of the
national population parameter. The family patterns represented in the combined studies were observed to be representative of typical American families with teen-age children.

The 1968 Survey included 83 homemakers between the ages of 30 and 39,27 homemakers under 30 years of age, 70 between the ages of 40 and 49 years, and 19 homemakers between 50 and 59 years of age. Ages of the homemakers involved in the combined study were determined. The majority of homemakers were between 30 and 50 years of age: over 55 per cent of the women were 40 years of age or older; and approximately 45 per cent were found to be under 40 years of age. This distribution of older and younger homemakers indicates that the participants in the combined surveys were representative of the characteristic ages of mothers of teen-age children.

The amount of formal education completed by the responding homemakers was investigated. In the 1968 Survey, 87 participants had completed high school, eight had completed one year of college, six had completed two years of college, two listed three years of college as completed, and nine were college graduates. Nine homemakers listed education beyond the college graduate level. Approximately one-third of the homemakers had not completed high school; the level of educaticn for this group ranged from the second grade to 11 years of education. In analyzing the overall data of the combined
surveys, educational level of achievement for the homemakers was divided into three categories: less than a high school education, high school education, and more than a high school education or some college education. Of the 961 homemakers responding to the question concerning education in the seven surveys, 31.3 per cent had less than a high school education, 39.4 per cent had completed high school, and 29.3 per cent had one or more years of college. The distribution of homemakers among the three categories for educational achievement was fairly evenly divided.

Homemakers were requested to list the home economics courses completed. A total of 142 of the 200 homemakers participating in the 1968 Survey had taken one or more home economics courses; 43.8 per cent of the homemakers reported either junior high school courses only or no training in home economics; and 56.2 per cent reported senior high school and/or college courses. Eight homemakers reported completing college courses, two majoring and two minoring in home economics. Of the 968 homemakers responding to these questions for the combined surveys, 44.8 per cent had received no formal home economics training or had completed only a junior high school course. Over half, or 55.2 per cent, had completed at least one senior high school course. When homemakers in the 1968 Survey were asked if the home economics courses completed had included the study of
nutrition, 129 homemakers answered in the affirmative. The study of food purchasing was indicated as being included in the home economics courses completed by 115 respondents. Meat preparation had been studied by 118 homemakers, and 115 reported studying fruit and vegetable preparation.

Homemakers were requested to list the occupation of the husband. In the 1968 Survey, responses indicated 5.5 per cent of the husbands were professional men; 19.0 per cent were managers or owners of a business; 8.5 per cent were semi-professional persons including salesmen, clerical, accountants, and other similar positions; 19.0 per cent were skilled laborers; 18.5 per cent were semi-skilled laborers; 10.5 per cent were unskilled workers; and 2.0 per cent were unemployed or retired. Among the 34 not responding to this question were several families with no father living in the home. The occupation of the husband was investigated in six of the seven survevs. The variations in categorizing employment in the various surveys made it necessary to place the occupation of husbands in one of two major groups: professional and managerial and "other occupations." Of the 774 husbands for whom occupation was listed, 35.6 per cent were professional men or managers or owners of businesses, while 64.4 per cent were categorized in the "other occupations" group.

In the 1968 study, 36.9 per cent of the homemakers were not employed outside the home, 52.3 per cent were employed full-time, and 10.8 per cent worked part-time. Approximately one-half of the wives were employed full-time and over one-third were not employed. Of the 968 respondents in the overall study answering the inquiry concerning employment of the homemaker, 49.2 per cent were full-time homemakers while 37.2 per cent were employed full-time outside the home, and 13.6 per cent worked part-time.

The shopping habits of the homemakers were investigated. The type of store in which the major shopping was conducted, the reasons for selection of the store, the number of shopping trips per week, shopping days and hours preferred, the family members purchasing the food, and the extent of use of a shopping list and a food budget were recorded for use in the current study. Data obtained in the 1968 Survey revealed that 80.0 per cent of the homemakers chose the supermarket for major shopping, 10.5 per cent selected a small neighborhood store, 2.5 per cent chose a salvage or discount store, 6.5 per cent shopped in two or more stores, and 0.5 per cent chose various other types of stores. Of the 840 homemakers in the overall study responding to this question, 81.0 per cent chose the supermarket for major shopping, 11.0 per cent selected the small neighborhood store, 2.3 per cent preferred
a salvage or discount store, 4.6 per cent preferred a meat market, and 1.1 per cent selected some other type of store.

In the 1968 Survey, 28.5 per cent of the homemakers shopped two or more times a week, 61.0 per cent purchased food once a week, 7.0 per cent shopped two times a month or less, and 3.5 per cent shopped daily. Surveys I, II, III, and V reported data on the frequency of shopping for food items. Of the 733 persons participating in the 1968 and the above surveys responding to this question, 23.3 per cent shopped two or more times a week, 61.7 per cent shopped once a week, 3.8 per cent purchased food two times a month or less, and 1.2 per cent shopped daily. Weekly shopping was preferred by the majority of homemakers.

The most preferred shopping days checked in the 1968 Suryey were Saturday, no special day, Wednes day, and Friday, listed in descending rank order of the frequency with which named. Of the 977 respondents in the total study, 310 chose Saturday, 300 elected Friday, 233 chose no special day, 170 named Wednesday, 134 preferred Thursday, 47 chose Monday, 34 selected Tuesday, and 22 checked Sunday.

The preferred shopping time of the 200 homemakers included in the 1968 Survey was the afternoon, followed by evening. Survey II did not include data regarding shopping
time preferences. Of the 847 responses for the remaining studies, 31.5 per cent checked afternoon as the preferred shopping time, 24.2 per cent named no special time, 21.9 per cent selected evening shopping, and 20.9 per cent indicated a preference for morning shopping.

Two surveys included an inquiry as to which member of the family completed the major food shopping. The 1968 Survey indicated that in most families major food shopping was. a responsibility of the wife (71 per cent). In approximately one in five families, the husband and wife shopped together. Survey VI revealed that 70.8 per cent of the reporting homemakers were the family food shoppers and that in 21.7 per cent of the households, the husband and wife shopped together. $0 f$ the 334 homemakers responding to this inquiry, 15 reported that the husband did the major food shopping, while 22 reported that other family members shopped for food.

In the 1968 Survey, 48.5 per cent of the homemakers reported "usually" preparing a shopping list, 25.5 per cent of the respondents "sometimes" used a list, and 17.5 per cent "never" used a list. Of the 959 participating hamemakers in the combined studies who responded to this question, 52.3 per cent "usually" prepared a shopping list, 30.2 per cent "sometimes" used a list, and 17.5 per cent "never" used a shopping list.

Data concerning the use of a shopping list from the 1968 Survey and Survey III were combined and statistically analyzed in relation to family income and age of the homemaker. A higher proportion of older than younger homemakers frequently used a shopping list; however, differences were non-significant. Data concerning the homemaker's use of a shopping list in relation to the employment, home economics education, and formal educational achievement of the wife were analyzed for the combined responses of the 1968 Survey and Survey V. Although the chi-square analysis indicated non-significant differences, there appeared to be a trend indicating that with an increase in educational level, the use of a shopping list was more prevalent.

The use of a shopping list was analyzed in relation to age, income level, and geographic location of the responding homemakers for Survey III. A significant relationship was found between the age of the homemaker and the use of a shopping list $(P<.05)$. Data indicated greater use of a shopping list among older homemakers. In addition, a significant relationship ( $P<.01$ ) was found between geographic location and the use of a shopping list for the Kansas homemakers included in Survey III. More homemakers in small towns and rural areas used a.shopping list than did those who resided in urban areas.

Data from Survey IV were analyzed as to the use of a shopping list in relation to family income, employment of the wife, age of the homemaker, the educational level of the wife, and family size. The educational level of the wife was found to be the only significant factor ( $P<.05$ ). A higher proportion of the homemakers with higher educational attainment more frequently prepared a written shopping list than did other homemakers.

Data for Survey $V$ were analyzed to determine the relationship of family income, education of the homemaker, home economics education, employment of the homemaker, and size of the household with the reported use of a shopping list. The educational attainment of the homemaker ( $P<.01$ ) and income level ( $P<.01$ ) were found to be: significant factors. The higher income families and the homemakers with the higher educational achievement were among the group most frequently preparing a shopping list.

When the data concerning the use of a shopping list obtained in Survey VI were analyzed in relation to family income, age, educational achievement, training in home economics, and employment of the homemaker, the only significant factor found to be significant was the age of the homemaker. More homemakers in the 40 to 49 years of age group prepared a written list before shopping for food than did the younger or older homemakers ( $P<.05$ ).

An investigation was made of the homemaker's use of a budget. In the 1968 Survey, 47.4 per cent usually followed a budget, 35.9 per cent sometimes used a budget, and 16.7 per cent never used such a guide. In the combined surveys, 323 of the homemakers responding to this question indicated usually following a budget and 329 participants reported sometimes or never using a budget.

The influence of family characteristics on food shopping behavior and purchasing preferences for meats, fruits, and vegetables was examined for data obtained from the 1968 Survey. The degree of influence of certain sources of information in food selection was investigated. One-half or more of the participating homemakers reported family requests, cookbooks, brand names of food items, food sections in newspapers, food store advertisements in newspapers, and information from friends and relatives as being of "some" or "much" influence.

Data from the seven surveys were combined and analyzed to determine the relationship of the education of the homemaker and family income on the reported extent of the influence of 13 factors on food selection. The most frequently checked factors of influence used "much" or "some" of the time, listed in descending rank order, were as follows: requests from family members, brand name advertisements, food
sections in newspapers, and information from friends and relatives. None of the above listed factors were determined to be statistically significant in influencing food selection.

Nine statements concerning nutritional knowledge were included in the questionnaire administered in 1968. The responses of the 200 homemakers included in this survey were, analyzed in relation to various other factors under consideration within the study. The response to the questionnaire item, "Cantaloupe and strawberries are excellent sources of vitamin $C, "$ was the only statement for which a significant relationship was found to the study of nutrition as a part of the homemaking course content. The homemakers who reported not having studied nutrition were the group who more frequently checked this statement as being true.

Younger homemakers are generally believed to have more nutritional knowledge than do older homemakers. This was not found to be true in the 1968 Survey. In Survey III, the homemakers reporting the highest level of home economics training had a greater knowledge of meat. This survey included 38 homemakers who had completed one or more college courses in foods and nutrition.

Surveys II, III, V, and the 1968 Survey requested responding homemakers to check information desired from a
trained home economist, if one were available at the grocery store. Combined data from four of the surveys indicated the rank order of the percentages of homemakers desiring information were "good buys" available on shopping days, 50.3 per cent; new product information, 48.4 per cent; menu suggestions, 44.6 per cent; nutritive value of foods, 34.5 per cent; and foods easily and quickly prepared, 24.0 per cent.

The 1968 Survey investigated certain factors used as criteria in purchasing meats, fruits, and vegetables. Responses of 200 respondents included in the study indicated that flavor, quality of the product, family preference, and nutritive value were the most important factors considered in purchasing meats, fruits, and vegetables.

Respondents were requested to check the factors used to determine the quality of fresh, canned, and frozen fruits and vegetables, and meats. The 1968 Survey, Survey II, and Survey III investigated criteria used in judging quality of meats. The 1968 Survey, Survey IV, and Survey $V$ ingestigated criteria used in judging the quality of fruits and vegetables.

Data from the 1968 Survey showed government grade to be the most important factor considered in judging quality of meat, followed by appearance, and the reputation of the
store. Brand name and label information were considered less important. Data for the combined studies revealed that appearance was the most frequently checked factor used by homemakers in judging quality of meat, while government grade was the second most frequently checked factor. The reputation of the store, followed by brand name, were two other commonly listed influencing criteria.

The most frequently reported factor used in judging quality of fruits and vegetables for the 427 homemakers for whom this data were available was appearance for fresh produce, brand name for frozen fruits and vegetables, and brand name for canned fruits and vegetables. Information on the label was the second most frequently checked factor in judging quality for frozen and canned foods; the reputation of the store was the second most frequently checked factor in judging quality of fresh produce.

The types of frozen food storage facilities of families was investigated by Surveys I, II, III, and the 1968 Survey. In the latter survey 62 homemakers reported having a small amount of freezer storage space in the refrigerator, and 45 reported having freezer storage across the top or bottom of the refrigerator. Of the separate freezer storage space reported, 85 homemakers checked the separate freezer category,
and four homemakers indicated having a rented food locker. Three homemakers indicated that no freezer space was available.

In the combined studies, 48.0 per cent of the participants indicated that a separate freezer was available. One in four, or 41.4 per cent of the homemakers, checked having a separate freezer across the top or bottom of the refrigerator and 21.3 per cent of the participants checked having a small amount of freezer storage space in the refrigerator. A number of homemakers had more than one type of freezer storage space.

Homemakers participating in the 1968 Survey were requested to check the types of food stored in the freezer. Of the 200 respondents, 140 indicated the use of freezer storage for meat, 124 listed ice cream, 99 checked vegetables as an item stored in the freezer, 17 stored frozen fruit, and 51 stated that all five types of foods listed in the questionnaire were stored in the freezer.

Weekly food expenditures per household and per capita for total foods purchased, meats, and fruits and vegetables were investigated. The 1968 Survey revealed average household food expenditures for the 193 families providing this information to be $\$ 30.46$. The mean weekly per capita cost for total food was \$6.52. Households with four or less
persons spent an average of $\$ 7.78$ per family member per week for total food; households with five or more family members spent an average of $\$ 5.57$ per person per week for total food. The mean cost of meat per household, per week, was $\$ 13.76$; the mean per capita cost of meat was $\$ 2.90$ per week. The cost of fruits and vegetables per household, per week, was \$9.32; the per capita cost was \$1.81.

Family food preferences for meats, fruits, vegetables, juices, and snack foods and beverages were investigated in the 1968 Survey. Foods listed by 10 per cent or more of the responding homemakers as family "favorites" listed, in descending rank order of the frequency with which named were as follows: meats--beef steak, beef roast, ground beef; liver, pork, poultry, and fish; fruits--apples, oranges, bananas, peaches, grapes, grapefruit, strawberries, peàrs, plums, lemons, and pineapple; juices--orange, grape, grapefruit, pineapple, tomato, apple, and lemon; vegetables--corn, potatoes, peas, green beans, dried beans, tomatoes, lettuce, and cabbage; and snack foods--chips and crackers, sandwiches, fruits, meat and cheese, ice cream, dips, candy, cake, popcorn, vegetables, and pie. Preferred snack beverages were carbonated beverages, fruit drinks, fruit juice, milk, tea, and coffee.

Inquiry concerning preference of the family food shopper for prepackaged versus butcher services in meat purchasing or. "pick-your-own from loose displays" in fruit and vegetable selection was made for the 1968 Survey. A total of 63 , or 32 per cent, of the homemakers preferred prepackaged meat and 68 per cent preferred buying meat cut to order by a butcher. These data differ from findings reported for the other surveys. Data for Survey I indicated that 70.4 per cent of the Arlington homemakers preferred prepackaged meats. Of the Dallas homemakers participating in Survey II, 65.6 per cent preferred prepackaged meat. The highest percentage of preference was evident for prepackaged meat for Kansas homemakers, 87 per cent.

Of the 200 homemakers included in the 1968 Survey, 180 homemakers preferred to select fruits from loose displays; 20 preferred to purchase prepackaged fruits. Prepackaged vegetables were preferred by 31 homemakers; 166 respondents preferred to select vegetables from loose displays.

Reasons checked by the homemakers for preferences for prepackaged foods were determined in descending rank order of the frequency of the responses. For the 1968 Survey, responses for meat were: saves shopping time, exact cost and number of pieces or size known, more sanitary and attractive, wide variety of choices, lack of knowledge of meat cuts to
ask for, and information on label as to meat cuts. Reasons listed by 616 responses for meat preferences in the combined surveys were as follows: exact cost and number of pieces or size known, saves shopping time, wide variety of choices, more sanitary and attractive, information on label as to cut of meat, and lack of knowledge of meat cuts to ask for.

Reasons most frequently checked by homemakers as to preference for fruits and vegetables were determined in descending rank order of the frequency of responses. Reasons checked for desired prepackaged fruits were: more sanitary and attractive, wide variety of choices, saves shopping time, information on label as to name of fruit, and exact cost and number of pieces or size known. Reasons checked for vegetables were: sanitary and attractive, saves shopping time, wide variety of choices, information on label as to name of vegetable, and exact cost and number of pieces or size known.

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## APPENDIX A

LETTER TO HOMEMAKER

Dear Homemaker:
We need your help in conducting a research project concerning. your preferences in the selection of meats, fruits, and vegetables which you purchase for your family. Successful completion of the project also requires that we learn about some of your shopping habits and obtain information about you, the homemaker, and your family.

You will note that there is no place for your name so the replies will be anonymous. Since the individuals completing the questionnaire cannot be identified, it will be impossibl to send you a reminder. Therefore, will you please return the completed survey form to your daughter's homemaking teacher as soon as possible? If you are unable to complete and return this form before March 25 , 1968, please return it unanswered so that another homemaker from your community may be selected.

The questionnaire is a part of a research project undertaken in partial fulfillment of the requirements for a Doctor of Philosophy degree in Home Economics in the College of Household Arts and Sciences, Texas Woman's University, Denton, Texas.

Thank you for your help.

> Sincerely, yours,

Eulalia Schmolder

## APPENDIX B

INVENTORY. OF HOMEMAKERS' PREFERENCES IN THE SELECTION AND PURCHASE OF MEATS, FRUITS, AND VEGETABLES

## INVENTORY OF HOMEMAKERS' PREFERENCES IN THE SELECTION AND PURCHASE OF MEATS, FRUITS, AND VEGETABLES

1. At what type of store does your family do most of the food shopping?

Supermarket
Small neighborhood store

```
Salvage or discount
    store
Other, List
```

$\qquad$
2. As a usual practice, how often does your family buy gro-. ceries?

Daily
Two or more times
Once a week Less than once a
a week $\qquad$ week $\qquad$
3. When do you usually do most of your grocery shopping?

> Days of week: Time of day:

Morning
Afternoon
Evening
No special day
No special time
Usually Sometimes Never
4. Do you attempt to follow a food budget?
Do you prepare a written shopping list for major food buying?
$\qquad$
$\qquad$
5. Who usually does the grocery shopping?
$\qquad$ Husband and wife together $\qquad$ Wife $\qquad$ 0thers $\qquad$
6. Do you have storage space for frozen food? Yes $\qquad$ No $\qquad$
If yes, please check type:
Small freezer compartment within refrigerator
Separate freezer compartment across refrigerator $\qquad$
Separate freezer
Rented frozen food locker $\qquad$
7. What type of food do you store in your freezer storage space?
Fruit $\qquad$ Vegetables $\qquad$ Meat $\qquad$
8. In purchasing food for your family, to what extent do each of the following sources of information influence your selection?

Information and recipes on food containers Requests from family members Information from friends and relatives Food store advertisements in newspapers
Brand name advertisements Women's magazines Food sections in newspapers Radio or television Cookbooks Samples tasted in stores Handout materials in stores Store displays Government bultetins $\qquad$
9. Please check what you believe to be the best answer.

|  | Agree | Disagree | Undecided |
| :---: | :---: | :---: | :---: |
| Beef is superior to pork in nutritiye value $\qquad$ |  |  |  |
| The best grades of meat are wellmarbled with fat |  |  |  |
| A medium-size baked potato and a medium-size banana have approximately the same number of calories |  |  |  |
| Cantaloupe and strawberries are excellent sources of vitamin C (ascorbic acid) |  |  |  |
| Prolonged cooking insures the best flavor, color, texture, and nutritive value in cooked vegetables |  |  |  |

The liquid in which vegetables are cooked has little or no nutritive value Fresh meat should be stored loosely covered in the coldest part of the refrigerator T-bone steak has more nutritive value than round steak Beef liver is more nutritious than pork liver


10. Of what importance do you consider the following factors in purchasing meats, fruits, and vegetables?

Total cost of food item Cost per serving Nutritive value Quickly and easily prepared
Family preference
Quality of food
Flavor of food

|  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |

11. How do you judge the quality of meats, fruits, and vegetables? Check ( $/$ )

|  | Mrand | Fresh <br> Produce | Frozen <br> Food | Canned <br> Food |
| :--- | :--- | :--- | :--- | :--- |
|  | Meat |  |  |  |
| Gravernment grade |  |  |  |  |
| Appearance |  |  |  |  |
| Store's reputation |  |  |  |  |
| Information on labet |  |  |  |  |
| Other, list |  |  |  |  |

12. How do you prefer to buy the following foods?

Meats: Prepackäged
Fruits: Prepackaged $\qquad$
Vegetables: Prepackaged

Have butcher cut to order $\qquad$ Pick-your-own from loose displays
Pick-your-own from loose displays $\qquad$
13. If you prefer prepackaged foods, please check (V) reasons for preference.

|  | Meat | Fruit | Vegetables |
| :--- | :--- | :--- | :--- |
| Saves shopping time |  |  |  |
| Wide variety of choices |  |  |  |
| Lack of knowledge of meat cuts |  |  |  |
| to ask for |  |  |  |
| Information on label as to |  |  |  |
| cut of meat or name of fruit. |  |  |  |
| or vegetable |  |  |  |
| Exact cost and number of pieces |  |  |  |
| or size known |  |  |  |
| More sanitary and attractive |  |  |  |

14. Disregarding price, please list your family's favorite foods, in order of preference, listing first choice as Number 1.

| Meats | Vegetables | Fruits | Juices |
| :---: | :--- | :--- | :--- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

15. If a trained home economist were available at the grocery store where you shop, what would you like to ask her?

What are "good buys" in the store today $\qquad$
How to prepare certain foods
Menu suggestions
Information on new products which are available
Nutritive value of certain food items
Other, list
16. What are the favorite s.nacks of family members?

| Foods: |  |
| :--- | :--- | :--- |
| Beverages: | $1 .\left[\begin{array}{l}2 . \\ \hline\end{array}\right]$ |

17. What is the highest grade in school or year of college that you completed?

School $\qquad$ College $\qquad$
18. Have you ever taken any home economics courses?

None
Junior high
Senior high

College
Major
Minor $\qquad$
19. Did your home economics courses included a study of the following:

Nutrition
Food purchasing
$\mathrm{Yes} \ldots \mathrm{No}^{2}$
Principles of meat preparation
Yes No
Principles of fruit and vegetable preparation Yes No No
20. How many members are there in your household?

Adults: Male FemaTe
$\qquad$
Children:

Boys $\qquad$
Girls $\qquad$

Ages
Ages $\qquad$
21. In what age category are you? Please check.

Under 30
50-59 60 or over
30-39
$\qquad$
$\qquad$
$\qquad$
22. Approximately what was your total family income for 1967 (before taxes)?
Under \$2,000 $\qquad$
\$2,000-3,999 $\qquad$
$\$ 4,000-5,999$ $\qquad$
\$6,000-7,999 $\qquad$
\$ 8,000- 9,999
$\$ 10,000-12,999$
$\$ 13,000-15,000$ $\qquad$
Over \$15,000 $\qquad$
23. Just as an estimate, about how much does your family spend in an average week for the following:

Total groceries \$ Meat and meat products \$ $\qquad$

24. What is your husband's occupation?
25. Are you employed outside the home?

No $\qquad$ Full-time $\qquad$ Part-time $\qquad$

