

A REVIEW OF THE PRESENT 4-H FOODS AND NUTRITION PROGRAM
FOR KANSAS 4-H CLUB MEMBERS

by

LOUELLA NAN FRANKS

A. B., Drury College,
Springfield, Missouri, 1952

A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Foods and Nutrition

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

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TABLE OF CONTENTS

INTRODUCTION	1
REVIEW OF LITERATURE	2
Definition of the Extension Program	2
History of the Kansas 4-H Foods and Nutrition Program ..	3
Suggestions for 4-H Foods and Nutrition Programs	5
Adolescent Dietaries	8
Height-Weight "Standards"	13
PROCEDURE	17
RESULTS AND DISCUSSION	20
Place of Residence and Age of the 4-H Members	20
Number of Years and Types of Foods and Nutrition Phases Carried by 4-H Members	22
Home Produced and Preserved Foods	31
Home Responsibilities Related to Foods and Nutrition ...	39
Food Buying Practices	43
Methods Considered Correct for Serving Certain Foods ...	46
Classification of Members in the Wetzel Grid Physique Channels	52
One Day Dietaries	57
Evaluation of the Subdivisions of the 4-H Foods and Nutrition Program by the County Home Economics Agents	64
Subject Matter Suggested by 4-H Foods and Nutrition Members and County Home Economics Agents	70
SUMMARY	80
CONCLUSIONS	83
RECOMMENDATIONS FOR FURTHER WORK	83

ACKNOWLEDGMENTS	85
LITERATURE CITED	86
APPENDIX	90

INTRODUCTION

The Kansas 4-H foods and nutrition program was revised in 1940, and since that time there have been changes in the group participating in the total 4-H club program as well as many changes in the environment in which the participants live. Environmental changes that have affected the program include: higher standards of farm living, more rapid transportation, new time-saving equipment for the farm and home, faster methods of food preparation, new food products on the market, changes in family meal patterns, more diversified recreation and new social values.

Foods leaders, County Home Economics Agents, the state 4-H club department and the state advisory council all suggested that there was a need for a revised 4-H program in foods and nutrition in Kansas. Also, Dr. Evelyn B. Spindler, nutrition specialist with the Federal Extension Service, visited Kansas and suggested the present program be reviewed and revised according to the latest trends, needs and interests of the participants.

Statistics from the State 4-H Annual Report indicated two outstanding trends relative to the participants in the 1955 and 1956 4-H club program. The participants were younger than in previous years and urban boys and girls were included in the program. Approximately 56 percent of the members enrolled in the program for 1955 and 1956 were 12 years old or less, and 26 percent were 10 years or under. The figures from the annual reports for these same years showed that in 1955 approximately 26 percent of the members lived in rural non-farm and urban districts, whereas by

1956 this group had increased to 27 percent. Therefore, it seemed that a revised program which includes phases that attempt to meet the needs of all members would be worthwhile.

The purpose of this study was to review the 4-H foods and nutrition program in Kansas to gain information that may be used to determine the type of revision that is needed.

REVIEW OF LITERATURE

Definition of the Extension Program

Cooperative Extension work was defined by Kelsey and Hearne (1955) as "an out-of-school system of education in which adults and young people learn by doing." They pointed out that cooperative extension is a partnership between the government, the land-grant colleges and the people, and that the fundamental objective of the program is the development of the people. Extension personnel endeavor to help the people help themselves by extending college teaching and information gained from research to the people in all parts of the state.

According to Johnson (1956), the 4-H program is the part of the Extension Service that has an educational program for boys and girls between the ages of 10 to 21 years. The nucleus of this organization in Kansas is the monthly community 4-H meeting at which educational talks and demonstrations are given. Each year the club members plan and carry out projects pertaining to the farm, community and home. The 4-H foods and nutrition program is one of these projects.

Brunsmann (1952) defined the terms urban, rural non-farm and farm residence as used in Extension. Urban refers to a town with a population of 2500 or more, whereas rural non-farm refers to a town with a population of less than 2500. Farm residence means that the family lives on a farm.

History of the Kansas 4-H Foods and Nutrition Program

The development of the Kansas 4-H foods and nutrition program was traced from portions of Willard's "History of Kansas State College of Agriculture and Applied Science" (1940) as well as through records of, and personal communication with Extension personnel. According to Willard (1940) Kansas State College began to sponsor Farmers' Institutes in 1868. Women gradually were encouraged to attend these institutes, and by 1906 plans were inaugurated for girls' cooking contests. The Kansas State Agricultural College catalogue (1910-11) stated the purpose of these contests as being to create interest in rural life.

Also, Willard (1940) noted that the College of Extension was first listed in the Kansas Agricultural College catalogue of 1909-10. The staff included one woman to teach home economics, and according to the catalogue for 1909-10 her job was "to carry instruction in domestic science to those absent ones." In their annual report Allen and Fletcher (1938) elaborated further on the duties of the first Extension Home Economist. They stated that she was to present and send out lessons to Farmers' Institutes, chautauquas, women's clubs and girls' home economics groups.

In her diary, Batchelor (1914) referred to the appointment of Otis E. Hall as Boys' and Girls' Leader in 1914. Later, Batchelor (1915) referred to the official listing of boys' and girls' club work in the 1915-16 Kansas State College catalogue. The 1914-15 catalogue noted that these clubs were an outgrowth of the former boys' and girls' contests. It was pointed out by Willard (1940) that the boys' and girls' clubs were first designated as 4-H clubs in the 1926-27 Kansas State College catalogue. The marked difference between the philosophy of the 4-H program and the school program was the difference between voluntary participation and required attendance.

Batchelor (1914) described the mother-daughter canning clubs organized by Mr. Otis. Later, this author (1917 and 1918) reported on the girls' bread clubs organized to help 4-H members prepare war breads. She pointed out that this project was not a complete course in the art of baking, but rather an activity that would help the girls prepare an edible product.

Information gained through personal communications with Allen (1956), Fletcher (1956) and Smurthwaite (1956) revealed that until 1940, the 4-H foods and nutrition program consisted of baking and food preservation phases. In 1940 Gertrude Allen and Mary Fletcher, nutrition specialists, worked out a revised program that included three major divisions: food preparation, meal service and food preservation. The inexperienced members prepared individual food products, such as simple desserts and beverages. Later they prepared foods suitable for school lunches, picnics, and luncheon, supper and dinner menus.

The meal service phase was designed for the more experienced members. In this phase, planning, selection and serving of food for family meals were stressed. The food preservation phase had provisions for the inexperienced members to assist their mothers, whereas the older ones could plan and prepare the family's entire supply of preserved food, if they desired.

Flexibility was the keynote of the revised program. Minor changes were made to meet arising situations. For example, during the war years emphasis was placed on home gardens and food preservation. Two special interest phases, meat and pies, were added to the program during 1955. These phases were designed for the experienced member enrolled in the meal service phase.

Suggestions for 4-H Foods and Nutrition Programs

Only a few reports relative to 4-H foods and nutrition programs were found in the literature, and these reports were written by Evelyn Blanchard Spindler, Federal Extension Service. In 1955 she pointed out that the three developmental phases which apply to the 4-H youth are late childhood, early adolescence and later adolescence. She specified that the foods and nutrition project should be organized to meet the needs, interests and characteristics of these developmental phases. This same author (1956) gave the following suggestions as steps to be used in developing a revised program: (1) recognize the need for a revision, (2) determine the type of revision needed, (3) develop a questionnaire that may be used to learn the needs and interests of the participants, (4) plan an overall program, (5) prepare the foods and

nutrition project in detail, (6) test the material prepared on a percentage of the participants, (7) analyze the results of the field tests, (8) revise the tested material, (9) put the revised program into action and (10) evaluate the new program. Six states are now following the above plan for revising their 4-H foods and nutrition programs.

In an earlier publication, Blanchard (1954a) pointed out that 4-H foods and nutrition bulletins should be checked for easy, effective layout. Each bulletin should have readable type, be written in a simple language, contain appropriate illustrations, emphasize up-to-date recipes written in steps and generally be a well arranged bulletin.

Opinions on ways to improve 4-H foods and nutrition projects were summarized by Blanchard (1954b). Suggestions were for: (1) more work on frozen foods, (2) promotion of judging at club meetings, (3) incorporation of consumer education lessons, (4) some preparation of international foods, (5) simplified food records and (6) the proper use of equipment.

The Kansas 4-H Foods and Nutrition Steering Committee (1956) examined the organization of 4-H programs and publications used by other states. Careful analysis of this material revealed several types of organization in the 21 state programs studied. Only a few states planned their 4-H foods and nutrition program around individual foods such as vegetables, breads and meats. Approximately one-third of the states based their program on the interests, abilities and activities of the members. Examples of the members' interests and activities included outdoor cookery,

snacks and special occasion meals.

Blanchard (1955) described and gave examples of several questionnaires which were considered appropriate for gaining information about participants. The questionnaires were tested in Ohio, and the data compiled indicated that the 10 to 12 year old members were interested in food preparation as a new experience and for parent recognition. The teenagers were interested in learning to entertain their families and friends with foods for special occasions. This information was incorporated by including a variety of experiences in each phase of the Ohio 4-H foods and nutrition program.

Several states adapted Blanchard's basic questionnaires to their situation. The data obtained from Blanchard's questionnaire when used in California indicated that members were interested in snacks for various occasions. As a result, a pamphlet entitled, "Treats for Family and Friends," was prepared. The pamphlet included basic information on correct measuring, but was slanted towards snacks.

According to Loughesd (1956), Montans, in addition to setting up units around activities, has a special problems unit for the experienced members. Each member sets up his or her own problem and "develops it around his or her individual interests, abilities and family situation".

Still another method used by several states was planning the program around breakfast, lunch and dinner. Some of the nutritionists using this method set up the beginning phases so members

would learn basic food preparation techniques first. Then in the advanced phases, the members apply those basic preparation techniques to planning and serving the three daily family meals. After the Kansas 4-H foods and nutrition steering committee (1956) had reviewed the merits of each of the programs described above, they decided to continue using the type of organization built around three daily meals. This program was chosen because as future homemakers the members should learn to plan, prepare and serve food in terms of family meals.

Adolescent Diets

During the last few years, several studies concerned with adolescent diets have been reported from all sections of the United States. A summary of these studies should be helpful in guiding the development and selection of nutrition subject matter incorporated into the revised Kansas 4-H foods and nutrition program. Also, the eating habits of Kansas members may be compared with the diets recorded in other studies.

Generally, it was concluded from the studies reported in the literature that the nutrients most often lacking in adolescent diets were vitamin A, ascorbic acid and calcium. Usually the diets of adolescent boys were more adequate than those of adolescent girls when judged by the National Research Council's Recommended Dietary Allowances. The data from some of the studies indicated a direct correlation between an adequate breakfast and

an adequate nutrient intake.

A study carried out in Iowa, Kansas and Ohio was described by Eppright et al. (1955). The diets of 1700 children between the ages of nine and 12 years were studied from 1948 through 1951. Frequently individual diets were deficient in calcium, ascorbic acid and vitamin A. However, on the average, the level of intake of all nutrients met or exceeded the Recommended Dietary Allowances of the National Research Council. Aleo, Marlatt et al. (1956) found that the same nutrients were lacking in the diets of school children in these three states. It was of special interest to note that according to the latter study the diets of Kansas children made up the largest proportion of the diets lacking in one or more nutrients to the extent of one-third or more of the National Research Council's Allowances. Also, a larger percentage of the Kansas children were underweight than in the other two states.

In 1949-50, Leverton and Pazur (1957) studied 46 Nebraska families with 122 children whose ages ranged from one through 20 years. This work indicated that more girls than boys 13 to 20 years of age had low nutrient intakes. There were more girls in this age group who had inadequate diets than in the other age groups studied (children 1 to 9, boys and girls 10 to 12, boys and girls 13 to 15, boys and girls 16 to 20). Similar to studies conducted in Iowa, Kansas and Ohio, the Nebraska data indicated that the adolescent teenage girl consumed inadequate amounts of calcium and ascorbic acid.

Young et al. (1951) reported a study concerning the diets of 350 New York children between the ages of four and 18 years. Children between the ages of four and nine consumed more nutrients than children 10 through 15 years old. Again, as reported in other studies, the adolescent boy's diet rated higher than that of the adolescent girl. The diets of adolescent girls often were found to be lacking in calcium and ascorbic acid.

Vitamin C, calcium and iron were the main nutrients deficient in the diets of the 132 Utah school children between the ages of five and 19 years (Wilcox, 1953). The findings from this study showed that the diets of the older boys more nearly met the Recommended Dietary Allowances than those of the older girls and that the five to nine year old children had better diets than the 10 to 19 year old children.

Hard and Esselbaugh (1956) reported a study of seven-day dietaries of 248 boys and girls in Washington. The dietary intake of iron, calcium and ascorbic acid was lower for girls than the boys. Both the boys and girls failed to eat enough foods rich in ascorbic acid to meet the National Research Council's Recommendation for this nutrient. The data from this study also indicated that a higher percentage of girls than boys were overweight.

From 1940 to 1950, Mack and Bowes (1955) studied the food habits of 2,536 Pennsylvania boys and girls between the ages of 12 and 20 years. They found that the diets of adolescents were deficient in thiamine, riboflavin, niacin, ascorbic acid, iron and calcium.

During the period 1950 through 1952, Chalmers et al. (1955) studied high school children from four mining communities in West Virginia. Evaluation of the dietary information indicated that the adolescents who participated in the study needed to eat more foods containing calcium, phosphorus, riboflavin and ascorbic acid.

Steele et al. (1952) reported on a dietary study with 316 junior high and high school students in New York, Rhode Island and Maine. They found that 88 percent of the boys and 86 percent of the girls in New York ate an adequate breakfast, whereas in Rhode Island 87 percent of the boys and 80 percent of the girls consumed an adequate breakfast. Approximately 96 percent of the boys and girls in Maine ate an adequate breakfast. A high correlation was found between those boys and girls always eating breakfast and those students having an adequate diet.

Food habits of 274 Idaho school children between the ages of 15 and 16 years were studied (Warnick et al., 1955). An evaluation of the nutrient intake showed the diets of this group to be deficient in vitamin A and ascorbic acid. During the week, the participants ate more foods in the Basic Seven food groups than on weekends. Again, boys had better diets than girls.

As reported by Odland et al. (1955), the diets of 418 college freshmen men and women and 15 year old boys and girls were studied in 1950-1951 in Montana. They found that six out of every 10 boys ate all of the essential nutrients; however, only two out of every 10 girls ate an adequate diet. The diets of the girls were low in

vitamin C, iron and calcium.

Young and Storvick (1949) studied the food intake of 595 freshmen at Oregon State College. The freshmen men had better diets than the women. However, only 19 percent of the participants had a good diet. Approximately 64 percent of the freshmen ate a fair diet. The data revealed that 76 percent of the students ate breakfast daily, and 15 percent ate breakfast from one to six times a week, whereas nine percent did not eat breakfast at all. An adequate breakfast directly influenced the adequacy of the day's diet, which agreed with the study made in New York, Rhode Island and Maine.

According to Potgieter and Morse (1955), the food intakes of 1,242 Connecticut school children were studied and compared with the Basic Seven food guide. The leafy, green and yellow vegetables and ascorbic acid-rich foods were found to be deficient in the diets of these boys and girls. The results indicated a slightly higher dietary score for rural children than for the urban children. The 11 year old had a more adequate diet than the 12 to 14 year old. As previously reported in Nebraska, Montana, Oregon, Washington and Idaho, the boys ate a better diet than the girls.

Tucker and Brown (1955) studied the diets of 185 high school boys and girls and 250 college women in Rhode Island. In contrast to similar studies in other states, they found more high school boys than girls had dietary intakes below one-half the National Research Council's allowances of protein, calcium, riboflavin, iron, vitamin A and ascorbic acid.

Swartz (1949) reported a survey of the diets of 26,700 South Dakota school children in the first through the twelfth grades. The Basic Seven was used as criteria for an adequate diet to evaluate one-day dietaries. The children ate insufficient amounts of milk, citrus fruits, other fruit and leafy, green and yellow vegetables. The diets were particularly low in milk and citrus fruits.

Eppright (1955) pointed out that in Iowa teenage girls' diets and women's diets were deficient in similar nutrients. This author suggested that the woman's food habits may be developed at about 12 years of age. In addition, research work has shown that the teenage girl needs to improve her selection of breakfast and snacks.

Height-Weight "Standards"

The comparison of the height and weight of Kansas 4-H foods and nutrition members to a height-weight standard would supplement dietary information, and be a guidepost for the development of a revised program. Hathaway (1957) pointed out that changes in height and weight have long been used as an index of growth and a criterion of nutriture, even though many other measurements provide information relative to physical well-being. This same author stated that so-called height-weight standards are usually sets of average or smoothed average values of height and weight for age, and cover these measurements for defined but somewhat limited population groups. In addition, Hathaway (1957) suggested that the large number of "standards" published since

Baldwin-Wood's popular tables of 1923 illustrates the fact that no single set of "standards" is satisfactory for all children. She stated that marked variation may be found in the average size of groups of children from different geographic areas. Part of the variation may be ascribed to such factors as differences in national background, socioeconomic status and climate. Selected height-weight standards were reviewed briefly.

In a paper published in 1946, Scramlin recognized the many attempts to find objective standards for measuring the growth and development of children. She acknowledged the fact that the physical efficiency of the human organism expressed in terms of height, weight and nutrition has been an elusive quality. Failure to gain weight and excessive gain always have been just cause for concern. However, Scramlin (1946) noted that until 1941 when Dr. Norman C. Wetzel introduced the Grid for Evaluating Physical Fitness of children there was not an adequate method to assist in evaluating the progress of children who continue to gain weight. It was recognized that a child of the tall, slender type could not be expected to progress at the same rate as the child of a short, stocky body build. Height-weight tables were of some assistance when they were based on body types, but children's body types are far more numerous than those provided for in such tables.

The Wetzel Grid was described by Scramlin (1946) as two graphs that use no more complex data than the height, weight and age of the child, which have always been the figures collected for the basic estimate of the child's physical status. A comprehensive picture of the child's growth and development is obtained from the

two graphs. A child is studied only in reference to his own present position and past history and there is no comparison with another child or group of children. Also, the evaluation is free from any personal element.

In presenting further details, Scramlin (1946) pointed out that the graph on the left side of the grid is based on height and weight alone without consideration of age. The second graph, on the right side of the grid, is based on the age of the child and his developmental level, which is easily secured from the first graph.

The graph on which height and weight are plotted is traversed by seven diagonal channels that represent various body types. A child whose graph travels in one of the two channels at the extreme left (A_2 or A_3) is classified as stocky, and one whose graph falls outside the panel to the left (A_4) is obese. A child whose graph comes within the center channels (A_1 , M and B_1) is rated "good" nutritionally, whereas one whose graph follows one of the channels at the extreme right (B_2 and B_3) is classified nutritionally as fair and borderline. A child whose graph falls outside the panel to the right is rated nutritionally poor. Any given height and weight of the child plotted on the grid will determine his physical stature and body build at that time. However, only a series of plotted heights and weights will determine whether or not his progress is satisfactory (Scramlin, 1946).

In further explanation of the Wetzel Grid, Scramlin (1946) stated that under normal conditions the child's graph will remain in its chosen channel at a given rate of progress. If the graph

swings to the left of the specified channel, the child should be screened and observed for beginning obesity. Likewise, when the graph turns to the right, the child may be malnourished.

The panel at the right side of the grid, on which the second graph is recorded, uses age for the horizontal axis and developmental level for the vertical axis. Diagonally across this panel are five curves called auxodromes that represent the various schedules according to which children progress toward maturity. The months or years that a child is accelerated or retarded are measured from the center of one of these standard auxodromes.

A detailed explanation of the use of the grid was presented by Wetzel (1941 and 1943). In children, malnutrition is considered mainly a result of growth and developmental failure. As stated before, malnutrition may be caused by not only an inadequate diet but also by environmental factors such as inferior health habits, and disease or infection. Malnutrition may be identified on the grid two to three years before clinical or other height-weight standards can determine the child's status. The data on the grid may indicate malnutrition when either or both of the following two situations are present: (1) developmental lag and (2) change of channel course (loss of physique). Usually a developmental lag will be observed before a change in the course of channel.

Hathaway (1957) noted that the Wetzel Grid provides an appraisal of nutritional grade, basal heat requirements and caloric needs as well as an estimate of body build or physique, developmental level, physical status, relative age advancement or

retardation and state of maturation that were discussed by Scramlin (1946).

PROCEDURE

An understanding of the philosophy for the 4-H foods and nutrition program was obtained through a study of the historical development of this program. A review of an unpublished diary of Miss Ellen Batchelor, and personal communications with Miss Georgiana Smurthwaite, former State Home Economics Leader, Miss Mary Fletcher and Miss Gertrude Allen, Foods and Nutrition Specialists, provided basic information. The extension 4-H annual reports also were read for pertinent details. Other facts were gathered from the "History of Kansas State College," by Dr. Julius Terrass Willard (1940). The philosophy of the present 4-H foods and nutrition program was taken from unpublished minutes of the Kansas 4-H foods and nutrition steering committee (1956). The information gained from these sources has been summarized in the Review of Literature.

Two questionnaire-check lists were developed for collecting data relative to the present Kansas 4-H foods and nutrition program. One questionnaire-check list was for the participants in the 4-H foods and nutrition program, and the other for the County Home Economics Agents. Both groups were established sources of information for the Kansas Cooperative Extension Service. The use of these channels insured the return of a high percent of the questionnaire-check lists that were sent out.

The items on both questionnaire-check lists were based on the objectives and activities of the present program. The items on the questionnaire-check list for the 4-H members were devised to gain the following information: (1) the members' place of residence and age, (2) the number of years and types of foods and nutrition phases in which they had participated, (3) the types of foods produced and preserved in their homes, (4) the members' home responsibilities as related to foods and nutrition, (5) their foods buying practices, (6) the methods considered correct by the members for serving certain food, (7) the members' type of body physique according to the Wetzel Grid, (8) the foods they ate in one day and (9) the subject matter topics they would like to study as a 4-H foods and nutrition member (Form IV, Appendix).

The County Home Economics Agents were asked to: (1) indicate the phases of the program that they liked and those they disliked, (2) give reasons for their decisions on each item and (3) suggest new information and/or activities that they would like to have included in a revised program (Form II, Appendix).

Each county in Kansas was sent a letter explaining the study and requesting the co-operation of the County Home Economics Agent, or in those counties without a County Home Economics Agent, the County Agricultural Agent. Enclosed with the letter were the questionnaire-check lists for the County Home Economics Agent as well as letters and questionnaire-check lists for the 4-H members. At the time the letters were sent out there were 97 County Home Economics Agents in 89 counties, whereas 16 counties did not have a County Home Economics Agent. Out of the 89 counties, seven

counties had more than one agent, and one agent worked in two counties. If there was more than one County Home Economics Agent in a county, all of them were asked to fill out the questionnaire-check list for agents, and the one who worked mainly with the foods and nutrition part of the program was designated to be responsible for sending out and collecting the questionnaire-check lists from 4-H members.

Forms I, II, III and IV (Appendix) are samples of the letters and questionnaire-check lists that were sent to the counties. The number of 4-H members contacted in each county is presented in Fig. 1 (Appendix). The sample of 510 members is equivalent to three percent of the 4-H foods and nutrition members in the state during 1955-56. The list of random numbers used by the agents for selecting the sample is included in the Appendix. This list was prepared by Dr. Holly C. Fryer, Kansas Agricultural Experiment Station Statistician.

All of the questionnaire-check lists were edited and the information obtained was tabulated. In addition, the height and weight of each member completing a questionnaire-check list was recorded on the Wetzel Grid and a summary was made of the physique channels into which the children placed. The Daily Food Guide as described by Page and Phipard (1956) was used to indicate the adequacy of the one-day dietary recorded by the 4-H members in the sample. Also, the breakfast that each child listed was evaluated on the basis that an adequate breakfast consists of a fruit, a complete protein and a cereal product.

RESULTS AND DISCUSSION

A questionnaire-check list was used to gain information on the food habits and interests of a three percent sample (510) of the 4-H members enrolled in foods and nutrition phases during 1955-56. Simultaneously, all of the County Home Economics Agents were asked for suggestions for a revised 4-H foods and nutrition program. Completed questionnaire-check lists were received from 76.27 percent (389) of the 4-H club members who were contacted. Therefore, the sample obtained was 2.29 percent of all of the foods and nutrition members. Although the majority of the group were girls, three boys were included. Responses were received from 92.78 percent of the County Home Economics Agents.

Place of Residence and Age of the 4-H Members

The general characteristics of the members in the sample as related to age and residence were studied. Data on the distribution of the sample by age, residence and the extension geographical districts are given in Table 1. The members were divided into four age groups that ranged from eight to 20 years. There were 7.71 percent of the members in the eight to 10 age group, 20.05 percent in the 11 to 12, 29.81 percent in the 13 to 14 and 42.43 percent in the 15 to 20 age group. Most of the participants in the study lived on rural farms. As compared with the 79.45 percent living on farms, only 13.10 percent and 7.45 percent lived in rural non-farm and urban communities, respectively.

Table 1. Distribution of the sample of 4-H members by geographical districts, residence and age.

Districts	Residence	Age groups										Total sample
		8 to 10	11 to 12	13 to 14	15 to 20	No.:	%	No.:	%	No.:	%	
Southeast	Rural farm	10	2.57	15	3.86	26	6.68	40	10.28	91	23.40	
	Rural non-farm	1	0.26	2	0.51	6	1.54	3	0.77	12	3.08	
	Urban	0	0.00	0	0.00	1	0.26	0	0.00	1	0.26	
Total by district		11	2.83	17	4.37	33	8.48	43	11.05	104	26.74	
Northeast	Rural farm	4	1.03	15	3.86	27	6.94	34	8.74	80	20.57	
	Rural non-farm	2	0.51	1	0.26	2	0.51	7	1.80	12	3.08	
	Urban	0	0.00	4	1.03	1	0.26	4	1.03	9	2.31	
Total by district		6	1.54	20	5.14	30	7.71	45	11.57	101	25.96	
Central	Rural farm	6	1.54	15	3.86	23	5.92	31	7.97	75	19.29	
	Rural non-farm	1	0.26	1	0.26	6	1.54	4	1.03	12	3.08	
	Urban	0	0.00	3	0.77	2	0.51	4	1.03	9	2.31	
Total by district		7	1.80	19	4.89	31	7.97	39	10.03	96	24.68	
Northwest	Rural farm	2	0.51	7	1.80	9	2.31	16	4.12	34	8.74	
	Rural non-farm	0	0.00	2	0.51	4	1.03	2	0.51	8	2.06	
	Urban	1	0.26	0	0.00	0	0.00	1	0.26	2	0.51	
Total by district		3	0.77	9	2.31	13	3.34	19	4.89	44	11.31	
Southwest	Rural farm	2	0.51	8	2.06	4	1.03	15	3.86	29	7.45	
	Rural non-farm	0	0.00	2	0.51	4	1.03	1	0.26	7	1.80	
	Urban	1	0.26	3	0.77	1	0.26	3	0.77	8	2.06	
Total by district		3	0.77	13	3.34	9	2.31	19	4.89	44	11.31	
Grand Total		30	7.71	78	20.05	116	29.81	165	42.43	389	100.00	

Percentages are based on the total sample or 389.

Slightly more than three-fourths of the sample resided in the Southeast (26.74 percent), Northeast (25.96 percent) and Central (24.68 percent) geographical districts and the remainder of the members lived in the Northwest (11.31 percent) and Southwest (11.31 percent) districts (Table 1). This may be attributed to the large proportion of the population of Kansas living in the two eastern and the central districts. The total population per county was taken from the 1950 Census of Population Report (Brunsmann, 1952) and tabulated according to the extension geographical districts. There were 402,823 people living in the Southeast district, 683,994 in the Northeast district and 566,657 in the Central district as compared with only 124,050 people who lived in the Northwest district and 127,775 who lived in the Southwest district.

Number of Years and Types of Foods and Nutrition Phases Carried by 4-H Members

Little information is available on the number of years 4-H members were enrolled for the foods and nutrition phases and about the types of foods and nutrition phases that they carried. Information of this type concerning the participants would point out: (1) the range in the number of years that members enrolled for the foods and nutrition phases and (2) whether members were equally interested in each of the 10 foods and nutrition phases of the present program.

The number and percent of the participants for each residence group, as related to age and the number of years enrolled in the

foods and nutrition project, are presented in Table 2. Almost one-half (48.57 percent) of the members in the total sample, regardless of age or residence, had been enrolled in a foods and nutrition phase for five or more years, whereas 18.10, 14.70, 13.38 and 4.99 percent of the entire group had been enrolled for four, three, two and one year, respectively.

Members who were eight to 10 years old had carried a foods and nutrition phase for one to four years. However, the majority of this group had been enrolled for two years. Most of the participants who were 11 to 12 years old had been enrolled for three or four years. Fewer members in this group had been enrolled for two, five and one years in that order. In both the 13 to 14 and 15 to 20 year old groups more members had been enrolled for at least five years than had been enrolled for four or less years. The largest percent of the total sample was made up of members who were 15 to 20 years old and who had been enrolled in a foods and nutrition phase for five or more years. The data in Table 2 pointed out that 4-H members tended to enroll in the foods and nutrition project at an early age and continue with the project throughout their 4-H career.

The percent of rural farm and rural non-farm members, regardless of age, who had been enrolled in foods and nutrition phases for one to five or more years followed the same pattern as in the total sample. Fewer urban members than those in the other residence groups had been enrolled for five or more years, whereas more urban than other members had been enrolled for two and three years.

Table 2. Distribution of the sample of 4-H members as related to age, number of years enrolled in the foods and nutrition project and place of residence.

Age groups	Years enrolled	Residence						Total sample	
		Rural farm		Rural non-farm		Urban		No. :	%
		No. :	%	No. :	%	No. :	%		
8 to 10	1	3	0.99	3	6.00	0	0.00	6	1.57
	2	15	4.97	1	2.00	0	0.00	16	4.20
	3	5	1.66	0	0.00	2	6.90	7	1.84
	4	1	0.33	0	0.00	0	0.00	1	0.26
	5+	0	0.00	0	0.00	0	0.00	0	0.00
11 to 12	1	7	2.32	0	0.00	1	3.45	8	2.10
	2	10	3.31	3	6.00	4	13.78	17	4.46
	3	16	5.30	2	4.00	3	10.34	21	5.51
	4	17	5.63	1	2.00	2	6.90	20	5.25
	5+	9	2.98	2	4.00	0	0.00	11	2.89
13 to 14	1	2	0.66	1	2.00	0	0.00	3	0.79
	2	11	3.64	2	4.00	1	3.45	14	3.67
	3	14	4.64	4	8.00	2	6.90	20	5.25
	4	27	7.29	6	12.00	2	6.90	30	7.87
	5+	37	12.25	8	16.00	0	0.00	45	11.81
15 to 20	1	1	0.33	0	0.00	1	3.45	2	0.53
	2	4	1.32	0	0.00	0	0.00	4	1.05
	3	7	2.32	1	2.00	1	3.45	9	2.36
	4	15	4.97	2	4.00	1	3.45	18	4.72
	5+	106	35.10	14	28.00	9	31.03	129	33.87
Total by residence		302	100.00	50	100.00	29	100.00	381	100.00

Percentages are based on the number of participants in each residence group and total sample: Rural farm, 302; Rural non-farm, 50; Urban, 29; Total sample, 381.

Each phase of the foods and nutrition project and the distribution of members enrolled per phase are given in Table 3 as related to residence and in Table 4 as related to age. The phases listed under "Helping with" (food preparation) are considered as elementary work for the inexperienced member. Those phases listed under "Serving" (meal service) are referred to as advanced phases for the experienced member. The food preservation phases were designed for both the inexperienced and experienced member. A more detailed explanation of these phases was presented in the Review of Literature.

The participants chose the food preparation phases in preference to the meal service and food preservation phases. Almost all of the members (95.37 percent) had enrolled for Helping with Simple Desserts and Beverages. Approximately four-fifths (82.01 percent) of the group had taken Helping with School Lunch and Picnic Basket, slightly more than two-thirds (69.67 percent) had taken Helping with Lunch and Supper and about half (48.33 percent) had carried Helping with Dinner. Approximately one-fourth of the members in the sample had enrolled for Serving Breakfast (28.28 percent) and Lunch and Supper (22.11 percent), whereas only about one-sixth of them had enrolled for Serving Dinner (15.68 percent). The special interest phases, Easy as Pie and Ideas with Meat, had attracted 11.05 and 4.63 percent, respectively. In the food preservation phases 16.71 percent had been enrolled for Preserving for Breakfast, whereas only 10.80 and 8.48 percent had enrolled for Preserving for Lunch or Supper and Preserving for Dinner, respectively.

Table 3. The foods and nutrition phases studied by the sample of 4-H members as related to residence.

Foods and nutrition phases	Residence						Total sample
	Rural farm		Rural non-farm		Urban		
	No. :	% :	No. :	% :	No. :	% :	
<u>Helping with</u>							
Simple Desserts and Beverages	295	95.47	49	96.08	27	93.10	371 95.37
School Lunch and Picnic Basket	250	80.91	42	82.35	27	93.10	319 82.01
Lunch and Supper	224	72.49	35	68.63	12	41.38	271 69.67
Dinner	154	49.84	24	47.06	10	34.48	188 48.33
<u>Serving</u>							
Breakfast	92	29.77	13	25.49	5	17.24	110 28.28
Lunch and Supper	74	23.95	9	17.65	3	10.34	86 22.11
Dinner	54	17.48	5	9.80	2	6.90	61 15.68
Easy as Pie (Special Interest)	36	11.65	6	11.76	1	3.45	43 11.05
Ideas with Meat (Special Interest)	15	4.85	3	5.88	0	0.00	18 4.63
<u>Preserving for</u>							
Breakfast	57	18.45	6	11.76	2	6.90	65 16.71
Lunch or Supper	39	12.62	2	3.92	1	3.45	42 10.80
Dinner	30	9.71	1	1.96	2	6.90	33 8.48

Percentages are based on the number of participants in each residence group and the total sample: Rural farm, 309; Rural non-farm, 51; Urban, 29; Total sample, 389.

The place of residence had some influence on the 4-H foods and nutrition phases chosen (Table 3). Almost all of the rural non-farm (96.08 percent), rural farm (95.47 percent) and urban (93.10 percent) members had enrolled for Helping with Simple Desserts and Beverages. However, more urban (93.10 percent) than rural non-farm (82.35 percent) and rural farm (80.91 percent) members had enrolled for Helping with School Lunch and Picnic Basket. There were 72.49 and 68.63 percent of the rural farm and rural non-farm members, respectively, who had taken Helping with Lunch and Supper. In comparison, 41.38 percent of the urban members had taken this phase. Helping with Dinner was carried by 49.84 percent of the rural farm members, 47.06 percent of the rural non-farm members and 34.48 percent of the urban members.

Noteworthy was the small percent of the members in each residence group carrying a Serving phase, as compared with the percent of members enrolled for the food preparation phases. There were 29.77 percent of the rural farm members and 25.49 percent of the rural non-farm members who had taken Serving for Breakfast, whereas 17.24 percent of the urban members had enrolled for this phase (Table 3). Still fewer rural farm (23.95 percent), rural non-farm (17.65 percent) and urban (10.34 percent) members had taken Serving Lunch and Supper and Serving Dinner (rural farm, 17.48 percent; rural non-farm, 9.80 percent; and urban, 6.90 percent). The special interest phases were carried by a small percent of the members. Only 11.76, 11.65 and 3.45 percent of the rural non-farm rural farm and urban members, respectively, had enrolled for Easy as Pie. Ideas with Meat was still less popular. The percent of

the rural non-farm, rural farm and urban members who had been enrolled in this phase was 5.88, 4.85 and 0.00, respectively.

As compared with the food preparation and meal service phases, only a small percent of the members enrolled for the food preservation phases. More of the rural farm (18.45 percent), rural non-farm (11.76 percent) and urban (6.90 percent) members were enrolled for Preserving for Breakfast than for the other two food preservation phases (Table 3). There were 12.62 percent of the rural farm members enrolled for Preserving for Lunch or Supper as compared with 3.92 and 3.45 percent of the rural non-farm and urban members, respectively. Preserving for Dinner was taken by 9.71 percent of the rural farm members, 6.90 percent of the urban members and only 1.96 percent of the rural non-farm members.

The foods and nutrition phases that members of the various age groups carried are given in Table 4. Almost all of the members in the eight to 10 (100.00 percent), 13 to 14 (97.41 percent), 11 to 12 (94.87 percent) and 15 to 20 (93.33 percent) age groups had taken Helping with Simple Desserts and Beverages. A larger percent of the members in the 15 to 20 (89.70 percent) age group enrolled for Helping with School Lunch and Picnic Basket than members in the 11 to 12 (80.77 percent), 13 to 14 (75.86 percent) or eight to 10 (33.33 percent) age groups. There were 90.30, 81.90, 33.33 and 3.33 percent of the members in the 15 to 20, 13 to 14, 11 to 12 and eight to 10 age groups, respectively, taking Helping with Lunch and Supper. A slight decrease was noted in the percent of members in the 15 to 20 (78.79 percent), 13 to 14 (42.24 percent), 11 to 12 (11.54 percent) and eight to 10

Table 4. The foods and nutrition phases studied by the sample of 4-H members as related to age.

Foods and nutrition phases	Age groups								Total sample	
	8 to 10	11 to 12	13 to 14	15 to 20	No. :	%	No. :	%		
<u>Helping with</u>										
Simple Desserts and Beverages	30	100.00	74	94.87	113	97.41	154	93.33	371	95.37
School Lunch and Picnic Basket	10	33.33	63	80.77	88	75.86	148	89.70	319	82.01
Lunch and Supper	1	3.33	26	33.33	95	81.90	149	90.30	271	69.67
Dinner	0	0.00	9	11.54	49	42.24	130	78.79	188	48.33
<u>Serving</u>										
Breakfast	0	0.00	8	10.26	25	21.55	77	46.67	110	28.28
Lunch and Supper	0	0.00	2	2.56	10	8.62	74	44.85	86	22.11
Dinner	0	0.00	0	0.00	4	3.45	57	34.55	61	15.68
Easy as Pie (Special Interest)	0	0.00	2	2.56	3	2.59	38	23.03	43	11.05
Ideas with Meat (Special Interest)	0	0.00	1	1.28	1	0.86	16	9.70	18	4.63
<u>Preserving for</u>										
Breakfast	0	0.00	2	2.56	14	12.07	49	29.70	65	16.71
Lunch or Supper	0	0.00	2	2.56	6	5.17	34	20.61	42	10.80
Dinner	0	0.00	0	0.00	3	2.59	30	18.18	33	8.48

Percentages are based on number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

(0.00 percent) age groups who had enrolled for Helping with Dinner as compared with the percent enrolled for Helping with Lunch and Supper.

The meal service phases were carried by more of the members in the 15 to 20 age group than the members in the other age groups (Table 4). This is as would be expected, because it is a phase for the experienced members. None of the eight to 10 year old members had enrolled for a meal service phase. There were slightly less than half (46.67 percent) of the members in the 15 to 20 age group enrolled for Serving Breakfast as compared with about one-fifth (21.55 percent) in the 13 to 14 age group and one-tenth (10.26 percent) in the 11 to 12 age group. Slightly fewer members in the 15 to 20 age group (44.85 percent) took Serving Lunch and Supper than took Serving Breakfast, whereas a small percent of the 13 to 14 (8.62 percent) and 11 to 12 (2.56 percent) age groups took Serving Lunch and Supper. There were 34.55 and 3.45 percent of the 15 to 20 and 13 to 14 age groups, respectively, who enrolled for Serving Dinner, whereas none of the two younger age groups had enrolled. More members in the 15 to 20 age group (23.03 percent) enrolled for Easy as Pie than in the 13 to 14 (2.59 percent) and 11 to 12 (2.56 percent) age groups. Only 9.70, 1.28 and 0.86 percent of the members in the 15 to 20, 11 to 12 and 13 to 14 age groups, respectively, enrolled for Ideas with Meat.

Again, as would be expected, none of the members in the eight to 10 age group had enrolled for the food preservation phases. There were 29.70 percent of the members in the 15 to 20

age group who enrolled for Preserving for Breakfast as compared with 12.07 percent of the members in the 13 to 14 age group and 2.56 percent of the members in the 11 to 12 age group. Preserving for Lunch and Supper was carried by more of the members in the 15 to 20 age group (20.61 percent) than members in the 13 to 14 (5.17 percent) and 11 to 12 (2.56 percent) age groups. Fewer members in the 15 to 20 (18.18 percent) and 13 to 14 (2.59 percent) age groups had taken Preserving for Dinner than the two previous food preservation phases.

Home Produced and Preserved Foods

Recently there have been some questions concerning the kinds of foods produced and preserved by the families of 4-H members enrolled in foods and nutrition phases. Two sections of the questionnaire-check list for members (Form IV, Appendix) were on the food produced and preserved at home. Since 1956 was a drouth year, there may have been less variety in the food produced and preserved than in years when there was more rainfall.

The types of food produced by the participants' families are shown in Table 5. More families (81.75 percent) raised vegetables (other than potatoes) than the other foods listed in the questionnaire-check list. The same percent (71.21) of the families produced chickens as produced eggs, whereas beef was produced by a slightly smaller percent (69.92). Milk and potatoes were produced by 66.07 and 61.18 percent, respectively. Less than one-half (44.47 percent) of the families raised pork and between one-third and one-fourth (29.31 percent) of them produced fruit. Lamb was

Table 5. Types of food produced by the participants' families.

Food produced	Residence						Total sample	
	Rural farm		Rural non-farm		Urban			
	No. :	%	No. :	%	No. :	%		
Chickens	259	83.82	14	27.45	4	13.79	277	71.21
Eggs	259	83.82	14	27.45	4	13.79	277	71.21
Milk	250	80.91	5	9.80	2	6.90	257	66.07
Fruit	97	31.39	11	21.57	6	20.69	114	29.31
Potatoes	209	67.64	18	35.30	11	37.93	238	61.18
Other Vegetables	268	86.73	32	62.75	18	62.07	318	81.75
Beef	259	83.81	8	15.69	5	17.24	272	69.92
Pork	166	53.72	5	9.80	2	6.90	173	44.47
Lamb	35	11.33	1	1.96	1	3.45	37	9.51
Did not produce food	5	1.62	14	27.45	8	27.59	27	6.94

Percentages are based on the number of participants in each residence group and total sample: Rural farm, 309; Rural non-farm, 51; Urban, 29; Total sample, 389.

produced by fewer families (9.51 percent) than any of the other foods. Only 6.94 percent of the families did not produce any food. This is in contrast to a study of predominantly urban Kansas families in which Marlatt et al. (1956) found that 40 percent of the group did not produce food. In the present study the low percent of families who did not produce food is undoubtedly influenced by the large number of farm families in the sample.

Consistently a larger percent of the families living on rural farms produced each of the foods listed than families who resided in rural non-farm and urban areas. Over 50 percent of the farm families produced each of the foods except for fruit and lamb. In contrast, except for other vegetables, all foods listed were produced by less than 40 percent of the rural non-farm and urban families. Chickens and eggs were produced by a large percent of the rural farm families (83.82 percent); however, slightly more than one-fourth (27.45 percent) and about one-seventh (13.79 percent) of the urban families produced these two food items. Milk was produced by 80.91 percent of the rural farm families as compared with 9.80 and 6.90 percent of the rural non-farm and urban families, respectively. Approximately one-third (31.39 percent) of the rural farm and one-fifth of the rural non-farm (21.57 percent) and urban (20.69 percent) families raised fruit. Potatoes were raised by 67.64 percent of the rural farm families. A slightly larger percent of the urban families (37.93 percent) raised potatoes than rural non-farm (35.30 percent) families.

Vegetables other than potatoes were raised by more families in all residence groups (rural farm, 86.73 percent; rural non-farm,

62.75 percent; and urban, 62.07 percent) than any of the foods listed on the questionnaire-check list. A large percent (83.81) of rural farm families produced beef as compared with that of urban (17.24 percent) and rural non-farm (15.69 percent) families. There were 53.72 percent of the rural farm families who produced pork, whereas 9.80 percent of the rural non-farm and 6.90 percent of the urban families produced this food. Lamb was produced by only 11.33, 1.96 and 3.45 percent of the rural farm, rural non-farm and urban families, respectively. There were fewer rural farm families (1.62 percent) who did not produce food than urban (27.59 percent) and rural non-farm (27.45 percent) families.

The types of foods preserved in the homes of the participants are found in Table 6. Food preservation (any food) was practiced in the homes of 94.60 percent of the total sample, whereas 5.40 percent of the members' families did not preserve any food. A larger number of the rural farm families (96.44 percent) than rural non-farm (90.20 percent) and urban (82.76 percent) families preserved food. Notable was the large percent of the families who preserved vegetables (86.89 percent), jams and jellies (84.83 percent), fruits (82.78 percent) and meats (80.21 percent). Baked products were preserved by 63.75 percent of the participants' families.

This study indicated that, regardless of residence, a higher percent of the families of the 4-H members canned than froze foods. The differences between the families canning and freezing any food were 6.15, 19.61 and 6.89 percent for rural farm, rural non-farm and urban groups, respectively. According to Allen et al. (1957)

Table 6. Types of foods preserved in the homes of the participants.

Types of food : preserved :	Methods of food preservation :	Residence :						Total sample : No. : %	
		Rural farm :		non-farm :		Urban :			
		No. : %	No. : %	No. : %	No. : %	No. : %	No. : %		
Any food	Canning	290	93.85	46	90.20	21	72.41	357	91.77
	Freezing	271	87.70	36	70.59	19	65.52	326	83.80
	Preserving any food	298	96.44	46	90.20	24	82.76	368	94.60
Fruits	Canning	262	84.79	34	66.67	17	58.62	313	80.46
	Freezing	200	64.72	28	54.90	14	48.28	242	62.21
	Preserving fruit	262	84.79	39	76.47	21	72.41	322	82.78
Vegetables	Canning	238	77.02	28	54.90	12	41.38	278	71.47
	Freezing	197	63.75	27	52.94	15	51.72	239	61.44
	Preserving vegetables	282	91.26	37	72.55	19	65.52	338	86.89
Meats	Canning	83	26.86	7	13.73	3	10.34	93	23.91
	Freezing	249	80.58	30	58.82	17	58.62	296	76.09
	Preserving meat	264	85.44	31	60.78	17	58.62	312	80.21
Jams and jellies	Canning	264	85.44	43	84.31	19	65.52	326	83.80
	Freezing	3	0.97	0	0.00	1	3.45	4	1.03
	Preserving jams and jellies	267	86.41	43	84.31	20	68.97	330	84.83
Baked products	Freezing	199	64.40	28	54.90	18	62.07	245	62.98
	Method not feasible	3	0.97	0	0.00	0	0.00	3	0.77
	Preserving baked products	202	65.37	28	54.90	18	62.07	248	63.75

Percentages are based on the number of participants in each residence group and total sample: Rural farm, 309; Rural non-farm, 51; Urban, 29; Total sample, 389.

a survey by the Kansas Home Economic Extension Service in the Northeast extension district indicated that the same proportion (62 percent) of the families interviewed froze as canned foods. However, data reported by Orshanky and Mose (1957) from a study of food preservation practices in the North Central Region of the United States indicated that a larger percent of the families in each residence group canned (rural farm, 91.4 percent; rural non-farm, 71.5 percent; and urban, 40.6 percent) than froze (rural farm, 80.8 percent; rural non-farm, 29.3 percent; and urban, 12.7 percent) food. They also found that more pounds of food were frozen than canned. In the two latter studies homemakers rather than 4-H members provided the information.

The types of foods preserved by freezing and canning in the home of the participants were studied (Table 6). A larger proportion of all the families canned (80.46 percent) than froze (62.21 percent) fruit. This was true of the families in each residence group. Canning was a method used by all rural farm families (84.79 percent) who preserved fruit, whereas only 64.72 percent of this group froze fruit. There were 66.67 percent of the rural non-farm families that canned fruit and 54.90 percent that froze fruit. Similarly, 58.62 percent of the urban families canned fruits as compared with 48.28 percent that froze fruit.

In general, a larger percent of the families canned (71.47 percent) than froze (61.44 percent) vegetables. There were 77.02 percent of the rural farm families that canned vegetables as compared with 63.75 percent that froze them, but little difference was found in the percent of rural non-farm families that canned

(54.90 percent) and froze (52.94 percent) vegetables. However, more of the urban families froze (51.72 percent) than canned (41.38 percent) vegetables.

Freezing was used by 76.09 percent and canning by only 23.91 percent of all families as methods of preserving meat (Table 6). In the rural farm group, there were 80.58 percent of the families who froze meat as compared with only 26.86 percent who canned it. A larger percent of the rural non-farm families froze (58.82 percent) than canned (13.73 percent) meat. Likewise, 58.62 percent of the urban members froze meat, but only 10.34 percent canned meat. Several members residing on farms commented that their families rented lockers for freezing home produced meat.

Jams and jellies were preserved by 84.83 percent of all the families studied. A large percent of the rural farm (86.41 percent), rural non-farm (84.31 percent) and urban (68.97 percent) families preserved this food. In fact, jams and jellies were preserved by more of the rural non-farm families than any of the other foods listed. There were 83.80 percent of the families that canned jams and jellies, whereas only 1.03 percent of the members said that they preserved this product by freezing.

Baked products were frozen in 62.98 percent of the participants' homes. A higher percent of rural farm families (64.40 percent) and urban families (62.07 percent) stored baked products in the freezer than did rural non-farm families (54.90 percent). Three members failed to give a feasible method for preserving baked products (Table 6).

The methods used in the homes of the participants for canning fruits, vegetables, meats and jams and jellies were studied (Table 7). Fruits were canned in the open kettle by 58.10 percent of the families, in the hot water bath by 36.50 percent and in the pressure cooker by 27.25 percent. For canning vegetables the pressure cooker was used by the greatest proportion (29.82 percent) of families, the hot water bath by the next greatest percent (26.48) and the open kettle by the smallest percent (16.20). Jams and jellies were canned in the open kettle by 82.26 percent of the members. Generally, about the same proportion of families in each of the three residence groups followed these trends.

Meats were processed in the pressure cooker by 20.82 percent of the families. There were some of the members who checked that the meat in their homes was canned in the hot water bath (3.86 percent) and open kettle (0.77 percent). Likewise, in each residence group, a higher percent of the families canned meat in the pressure cooker than in the hot water bath or open kettle. Information was not collected on the particular meats processed by each method, but it is possible that the members who checked open kettle and hot water bath methods for processing meat did not know the method used in their homes. One member stated her family canned meats in the oven.

Home Responsibilities Related to Foods and Nutrition

The foods and nutrition responsibilities of members in their homes were studied by age groups. Later this information may be

Table 7. The method of canning used in the homes of the participants.

Type of food :	Methods of canning :	Residence :						Total sample No. : %	
		Rural farm :		Rural non-farm :		Urban :			
		No. :	% :	No. :	% :	No. :	% :		
Fruits	Open kettle	188	60.84	27	52.94	11	37.93	226	58.10
	Hot water bath	115	37.22	15	29.41	12	41.38	142	36.50
	Pressure	92	29.77	12	23.53	2	6.90	106	27.25
Vegetables	Open kettle	54	17.48	8	15.69	1	3.45	63	16.20
	Hot water bath	82	26.54	14	27.45	7	24.14	103	26.48
	Pressure	187	60.52	21	41.18	8	27.59	116	29.82
Meats	Open kettle	3	0.97	0	0.00	0	0.00	3	0.77
	Hot water bath	13	4.21	1	1.96	1	3.45	15	3.86
	Pressure	73	23.62	6	11.76	2	6.90	81	20.82
Jams and jellies	Open kettle	259	83.82	42	82.35	19	65.52	320	82.26
	Method not feasible	5	1.62	1	1.96	0	0.00	6	1.54

Percentages are based on the number of participants in each residence group and total sample: Rural farm, 309; Rural non-farm, 51; Urban, 29; Total sample, 389.

used in the revised program to co-ordinate the activities and requirements of the 4-H foods and nutrition phases with the responsibilities of members in their homes.

The data on the types of responsibilities the participants assumed in their homes are given in Table 8. From 57.58 percent to 98.20 percent of the members helped with each of the responsibilities listed. Almost all of the members helped with setting the table (98.20 percent), making cakes (97.43 percent) and washing the dishes (97.17 percent). A high percent of the members prepared and served salads (94.09 percent), vegetables (93.32 percent), lunch (92.29 percent) and refreshments (90.23 percent). A slightly lower percent of the members helped with preparing and serving dinner (86.89 percent) and muffins (84.58 percent). The two home responsibilities which the smallest percent of the members helped with were packing lunches (60.41 percent) and preparing and serving breakfast (57.58 percent).

Each member checked those responsibilities which he or she helped with individually and those which were done with mother. Some of the members checked both answers. In general, the percent of the members who did the various jobs without the help of mother increased with an increase in the age of the members. The responsibilities which members in all age groups assumed by themselves were setting the table, making cakes, washing dishes, preparing and serving muffins and refreshments and packing lunches (Table 8).

Over 90 percent of the members in all age groups set the table alone. Also cakes were prepared and served alone by over 90

Table 8. The foods and nutrition responsibilities of the participants as related to age.

	Age groups									
	8 to 10		11 to 12		13 to 14		15 to 20		Total sample	
Meals and foods prepared and served in the home	No.:	%	No.:	%	No.:	%	No.:	%	No.:	%
Breakfast	9	30.00	28	35.90	58	50.00	103	62.42	224	57.58
By myself	16	53.33	48	61.54	61	52.59	87	52.73		
With mother	10	33.33	29	37.18	71	61.21	117	70.91	359	92.29
Lunch	20	66.67	54	69.23	69	59.48	98	59.39		
By myself	3	10.00	21	26.92	48	41.38	104	63.03	338	86.89
With mother	20	66.67	59	75.64	81	69.83	102	61.82		
Refreshments	16	53.33	56	71.79	90	77.59	116	70.30	351	90.23
By myself	12	40.00	34	43.59	47	40.52	75	45.45		
With mother	13	43.33	61	78.21	100	86.21	145	87.88	363	93.32
Vegetables	15	50.00	26	33.33	36	31.03	51	30.91		
By myself	26	86.67	74	94.87	107	92.24	159	96.36	379	97.43
With mother	9	30.00	13	16.67	16	13.79	25	15.15		
Muffins	12	40.00	60	76.92	91	78.45	141	85.45	329	84.58
By myself	10	33.33	14	17.95	14	12.07	23	13.94		
With mother	16	53.33	55	70.51	95	81.90	149	90.30	366	94.09
Salads	17	56.67	26	33.33	35	30.17	37	22.42		
By myself	10	33.33	38	48.72	61	52.59	77	46.67	235	60.41
With mother	9	30.00	25	32.05	24	20.69	36	21.82		
I pack lunches	28	93.33	77	98.72	111	95.69	160	96.97	382	98.20
By myself	4	13.33	11	14.10	12	10.34	18	10.91		
With mother	25	83.33	64	82.05	100	86.21	145	87.88	378	97.17
I wash the dishes	13	43.33	33	42.31	44	37.93	62	37.58		

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

Members could check more than one item.

percent of the members of all ages, except the eight to 10 year old group. Only a slightly larger percent of the members in the 15 to 20 (87.88 percent) and 13 to 14 (86.21 percent) age groups washed the dishes alone than those in the eight to 10 (83.33 percent) or 11 to 12 (82.05 percent) age groups (Table 8).

Muffins were prepared alone by 85.45 percent of the 15 to 20, 78.45 percent of the 13 to 14, 76.92 percent of the 11 to 12 and 40.00 percent of the eight to 10 age groups. More of the 13 to 14 (77.59 percent) age group prepared and served refreshments alone than the 11 to 12 (71.79 percent), 15 to 20 (70.30 percent) or eight to 10 (53.33 percent) age groups. Over 50 percent (52.59 percent) of the 13 to 14 age group packed lunches alone, whereas 48.72, 46.67 and 33.33 percent of the 11 to 12, 15 to 20 and eight to 10 age groups, respectively, packed lunches alone.

Except for the eight to 10 year olds, more members in each age group prepared and served vegetables and salads alone than with mother. There were more of the 15 to 20 (87.88 percent) and 13 to 14 (86.21 percent) age groups who prepared and served vegetables alone than the 11 to 12 (78.21 percent) age group. Similarly salads were prepared and served alone by more of the 15 to 20 (90.30 percent) and 13 to 14 (81.90 percent) than the 11 to 12 (70.51 percent) age groups. However, a slightly larger percent of the eight to 10 age group prepared and served vegetables (50.00 percent) and salads (56.67 percent) with mother than alone (Table 8).

A higher percent of the members in the 13 to 14 (61.21 percent) and 15 to 20 (70.91 percent) age groups prepared and served

lunch alone than with mother, whereas members in the 11 to 12 (69.23 percent) and eight to 10 (66.67 percent) age groups helped mother prepare and serve lunch. Only the 15 to 20 age group had more members preparing and serving breakfast (62.42 percent) and dinner (63.03 percent) alone than with mother. There were more of the 11 to 12 age group who helped mother prepare and serve dinner (75.64 percent) than members in the 13 to 14 (69.83 percent) or eight to 10 (66.67 percent) age groups. Breakfast was prepared and served with mother by 61.54 percent of the 11 to 12, 53.33 percent of the eight to 10 and 52.59 percent of the 13 to 14 age groups. In all age groups, relatively small differences were observed in the percent of members preparing and serving breakfast and dinner with mother and alone (Table 8).

Food Buying Practices

The variety of new food products in the market and a realization that a large portion of the family income is spent on food has caused widespread interest in food buying. Therefore, information was collected on the food buying practices of the participants in the four age groups (Table 9). All of the members in the sample bought some food. Almost all of the participants purchased canned goods (94.34 percent) and fresh fruits (92.54 percent). A slightly lower percent bought bakery products (89.72 percent) and candy (87.92 percent). Approximately five-sixths of the participants bought pop (83.55 percent) and meat (83.03 percent), whereas four-fifths (79.95 percent) of them shopped for dairy products.

Table 9. Types of foods purchased by the participants.

Foods purchased	Age Groups										Total sample	
	8 to 10	11 to 12	13 to 14	15 to 20	No.:	%	No.:	%	No.:	%		No.:
Bakery products	By myself	8	26.67	24	30.77	58	50.00	96	58.18			
	With mother	23	76.67	40	51.28	58	50.00	66	40.00	349	89.72	
	Alone from list	7	23.33	31	39.74	44	37.93	71	43.03			
Canned goods	By myself	1	3.33	15	19.23	45	38.79	76	46.06			
	With mother	24	80.00	43	55.13	67	57.76	83	50.30	367	94.34	
	Alone from list	5	16.67	40	51.28	75	64.66	87	52.73			
Dairy products	By myself	4	13.33	23	29.49	45	38.79	70	42.42			
	With mother	17	56.67	30	38.46	57	49.14	59	35.76	311	79.95	
	Alone from list	6	20.00	29	37.18	42	36.21	66	40.00			
Fresh fruits	By myself	6	20.00	25	32.05	56	48.28	93	56.36			
	With mother	25	83.33	42	53.85	70	60.54	80	48.48	360	92.54	
	Alone from list	5	16.67	33	42.31	50	43.10	72	45.64			
Meat	By myself	2	6.67	9	11.54	38	32.76	57	34.55			
	With mother	23	76.67	42	53.85	59	50.86	79	47.88	323	83.03	
	Alone from list	7	23.33	25	32.05	44	37.93	78	47.27			
Candy	By myself	22	73.33	61	78.21	84	72.41	126	76.36			
	With mother	9	30.00	14	17.95	28	24.14	40	24.24	342	87.92	
	Alone from list	1	3.33	12	15.38	21	18.10	32	19.39			
Pop	By myself	20	66.67	54	69.23	76	65.52	122	73.94			
	With mother	6	20.00	15	19.23	27	23.28	38	23.03	325	83.55	
	Alone from list	2	6.67	11	14.10	25	21.55	31	18.79			

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

Members could check more than one item.

Each member checked whether he or she shopped for the foods listed alone, alone but from mother's list or with mother. Some members checked all three methods of purchasing most of the foods. From approximately two-thirds to three-fourths of the members in each age group bought candy and pop alone. Bakery products were purchased alone by 50.00 percent of the members in the 13 to 14 age group and 58.18 percent of the members in the 15 to 20 age group. Only members in the 15 to 20 age group tended to buy dairy products (42.42 percent) and fresh fruits (56.36 percent) alone (Table 9).

Except for pop and candy, generally the higher percent of members eight to 14 years old bought the foods on the check list with mother rather than alone or alone from mother's list. About three-fourths of the members in the eight to 10 (76.67 percent) age group and one-half of the members in the 11 to 12 (51.28 percent) and 13 to 14 (50.00 percent) age groups purchased bakery products with mother. Four-fifths of the members in the eight to 10 (80.00 percent) age group bought canned goods with mother, whereas more than one-half of the members in the 11 to 12 (55.13 percent) and 13 to 14 (57.76 percent) bought canned goods with mother. Slightly less than three-fifths of the eight to 10 (56.67 percent) age group, one-half of the 13 to 14 (49.14 percent) and two-fifths of the 11 to 12 (38.46 percent) age group bought dairy products with mother. Fresh fruits were bought with mother by a few more than four-fifths of the members in the eight to 10 (83.33 percent), three-fifths of the 13 to 14 (60.34 percent) and

about one-half of the 11 to 12 (53.85 percent) and 15 to 20 (48.48 percent) age groups (Table 9).

A few food items were bought alone from mother's list by approximately one-half to two-thirds of the members in the 11 to 20 age group. About two-thirds of the 13 to 14 (64.66 percent) age group bought canned goods alone from mother's list, whereas approximately one-half of the 15 to 20 (52.73 percent) and 11 to 12 (51.28 percent) bought canned goods in this manner. More members in the 15 to 20 (47.27 percent) age group bought meat alone from mother's list than members in the other age groups.

Methods Considered Correct for Serving Certain Foods

The methods considered correct by the participants for setting the table (Table 10) and eating different kinds of foods (Table 11) were studied. Information of this type was collected to give some indication of the knowledge that members had in the area of table etiquette.

Each member checked whether he or she would place the dessert spoon, dinner fork and dinner knife: (a) next to the plate on the right hand side, (b) next to the plate on the left hand side or (c) served separate from the main course and to the right of the dessert plate (Form IV, Appendix). Some of the members failed to answer this question. Other members checked more than one answer (Table 10).

Although a high percent checked that the dessert spoon should be served separate from the main course and to the right of the dessert plate (81.49 percent), some of the members checked

Table 10. Methods considered correct by the participants for setting the table.

Methods for placing silver-ware on the table	Age Groups						Total sample			
	8 to 10	11 to 12	13 to 14	15 to 20	No.:	%				
Dessert spoon should be placed										
a. Next to the plate on the right hand side.	2	6.67	12	15.38	12	10.34	22	13.35	48	12.54
b. Next to the plate on the left hand side.	0	0.00	2	2.56	2	1.72	3	1.82	7	1.80
c. Served separate from main course and to right of dessert plate.	27	90.00	59	75.64	97	83.62	134	81.21	317	81.49
Dinner fork should be placed										
a. Next to the plate on the right hand side.	0	0.00	1	1.28	3	2.59	2	1.21	6	1.54
b. Next to the plate on the left hand side.	30	100.00	73	93.59	113	97.41	157	95.15	373	95.89
c. Served separate from main course and to right of dessert plate.	0	0.00	0	0.00	0	0.00	1	0.61	1	0.26
Dinner knife should be placed										
a. Next to the plate on the right hand side.	30	100.00	70	89.74	112	96.55	155	93.94	367	94.34
b. Next to the plate on the left hand side.	0	0.00	3	3.85	3	2.59	4	2.42	10	2.57
c. Served separate from main course and to right of dessert plate.	0	0.00	1	1.28	1	0.86	1	0.61	3	0.77

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

Members checked more than one item.

that the dessert spoon should be placed next to the plate on the right hand side (12.34 percent). Only a small percent checked that the dessert spoon should be placed next to the dinner plate on the left hand side (1.80 percent). A high percent (90.00) of the eight to 10 age group checked the correct answer as compared with the 13 to 14 (83.62 percent), 15 to 20 (81.21 percent) and 11 to 12 (75.64 percent) age groups.

Almost all (95.89 percent) of the members answered that the dinner fork should be placed next to the dinner plate on the left hand side. A small percent (1.54) checked that the dinner fork should be placed next to the dinner plate on the right hand side. A higher percent of the members in the eight to 10 age group (100.00 percent) checked the right method than members in the 13 to 14 (97.41 percent), 15 to 20 (95.15 percent), or 11 to 12 (93.59 percent) age groups.

Each member checked whether he or she would eat a specified food with fingers or with silverware. Some of the members checked both ways. The number and percent of the members in each age group according to the methods which they would use are given in Table 11.

A large percent (94.33) of the members checked that they would eat fried chicken with their fingers. There were 16.24 percent who replied that they would eat fried chicken with silverware. More of the eight to 10 and 13 to 14 age groups answered that they would eat fried chicken with their fingers (96.67 and 96.55 percent, respectively) as compared with the 11 to 12 or 15 to 20 (93.59 and 92.68 percent, respectively) age

Table 11. Methods considered correct by the participants for eating certain foods.

Foods eaten	Age groups								Total sample
	8 to 10	11 to 12	13 to 14	15 to 20	8 to 10	11 to 12	13 to 14	15 to 20	
No. : %	No. : %	No. : %	No. : %	No. : %	No. : %	No. : %	No. : %	No. : %	
Fried chicken silverware fingers	2 6.67 29 96.67	15 19.23 73 93.59	16 13.79 112 96.55	30 18.29 152 92.68	63 16.24 366 94.33				
Carrot sticks silverware fingers	0 0.00 30 100.00	1 1.28 77 98.72	4 3.45 113 97.41	2 1.22 157 95.73	7 1.80 377 97.16				
Roast beef silverware fingers	30 100.00 0 0.00	77 98.72 2 2.56	114 98.28 5 4.31	159 96.95 1 0.61	380 97.94 8 2.06				
Orange slices silverware fingers	11 36.67 21 70.00	26 33.33 53 67.95	37 31.90 86 74.14	52 31.71 114 69.51	126 32.47 274 70.62				
Tokey grapes silverware fingers	0 0.00 29 96.67	3 3.85 69 88.46	3 2.59 109 93.97	1 0.61 149 90.85	7 1.80 356 91.75				
Raw cauliflower silverware fingers	5 16.67 20 66.67	7 8.97 57 73.08	17 14.66 88 75.86	33 20.12 102 62.20	62 15.98 267 68.81				
French fries silverware fingers	17 56.67 18 60.00	46 58.97 43 55.13	82 70.69 61 52.59	122 74.39 66 40.24	267 68.81 198 48.45				

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 164; Total sample, 388.

Members could check more than one item.

groups.

Likewise a high percent (97.16) of the members indicated that they would eat carrot sticks with their fingers. There were 1.80 percent who thought carrot sticks should be eaten with silverware. All of the members in the eight to 10 age group checked that they would eat carrot sticks with fingers. There were 98.72, 97.41 and 95.73 percent of the 11 to 12, 13 to 14 and 15 to 20 age group, respectively who answered that they would eat carrot sticks with their fingers (Table 11).

Many of the members (97.94 percent) ate roast beef with silverware. A small percent thought roast beef would be eaten with their fingers (2.06 percent). Again all of the members in the eight to 10 age group indicated that they would eat roast beef with silverware. There was a high percent of the members in the 11 to 12 (98.72 percent), 13 to 14 (98.28 percent) and 15 to 20 (96.95 percent) age groups who checked that they would eat roast beef with silverware.

More members replied that they would eat orange slices with their fingers (70.62 percent) than with silverware (32.47 percent). There were 70.00 percent of the eight to 10 age group who indicated that they would eat orange slices with their fingers as compared with 36.67 percent who checked that they would eat orange slices with silverware. Likewise more members in the 11 to 12, 13 to 14 and 15 to 20 age groups answered that they would eat orange slices with their fingers (67.95, 74.14 and 69.51 percent, respectively) than with silverware (33.33, 31.90 and 31.71 percent, respectively).

Responses from 91.75 percent of the participants indicated that they would eat tokay grapes with their fingers, whereas a few checked that they would eat tokay grapes with silverware (1.80 percent). A higher percent of the members in the eight to 10 (96.67 percent) age group answered that they would eat tokay grapes with their fingers than the 13 to 14 (93.97 percent), 15 to 20 (90.85 percent) or 11 to 12 (88.46 percent) age groups (Table 11).

A larger percent of the members indicated that they would eat raw cauliflower with fingers (68.81 percent) than with silverware (15.98 percent). More members in the 13 to 14 (75.86 percent) age group checked that they would eat cauliflower with their fingers than the 11 to 12 (73.08 percent), eight to 10 (66.67 percent) or 15 to 20 (62.20 percent) age groups.

Many members checked that they would eat French fries with silverware (68.81 percent) than with their fingers (48.45 percent). However, a slightly larger percent of the eight to 10 age group replied that they would eat French fries with their fingers (60.00 percent) than with silverware (56.67 percent). In contrast, more of the members in the 11 to 12, 13 to 14 and 15 to 20 age groups replied that they would eat French fries with silverware (58.97, 70.69 and 74.39 percent, respectively) than with their fingers (55.13, 52.59 and 40.24 percent, respectively).

Classification of Members in the Wetzel Grid Physique Channels

In this study, the Wetzel Grid was the height-weight "standard" chosen for indicating the general physical well being of the 4-R foods and nutrition members. The participants recorded their height and weight on the questionnaire-check list. This information was plotted on a Wetzel Grid to determine the body physique channels in which the members placed. The distribution of members among the Wetzel Grid channels is presented by residence groups in Table 12 and according to age in Table 13. The interpretation of the data is limited because only one observation was made per participant. Therefore, only an estimate can be made of the group's physical well being as of the time of the study.

As discussed in the Review of Literature, each of the grid channels represents various body types. Channel A_4 represents the obese child, whereas channels A_3 and A_2 indicate a stocky child. The middle channels (A_1 , M and B_1) represent the child with an average physique. The child whose body type falls into channels B_2 or B_3 is classified as thin, whereas the child whose body type falls into channel B_4 is very thin.

Outstanding was the fact that the largest percent of the members (59.95 percent, Table 12) placed in channels A_1 , M and B_1 , i.e., the majority of the members had average body physiques. Also, Marlatt et al. (1956) reported that over 50 percent of a group of Iowa, Kansas and Ohio school children had average body physiques as determined by the Wetzel Grid. Likewise, Scramlin (1946) reported that 60 percent of 748 Indiana school children

Table 12. The Wetzel Grid classification of body physiques of the participants as related to residence.

Wetzel grid channels :	Residence :						Total sample	
	Rural farm :		Rural non-farm :		Urban :			
	No. :	% :	No. :	% :	No. :	% :		
A ₄) Obese	33	10.75	6	11.76	1	3.45	40	10.34
A ₃) Stocky	18	5.86	2	3.92	3	10.34	23	5.94
A ₂)	28	9.12	6	11.76	4	13.79	38	9.82
Total in channels A ₃ and A ₂	46	14.98	8	15.69	7	24.14	61	15.76
A ₁)	55	17.92	6	11.76	4	13.79	65	16.80
M) Medium	84	27.36	12	23.53	7	24.14	103	26.61
B ₁)	48	15.64	13	25.49	3	10.34	64	16.54
Total in channels A ₁ , M and B ₁	187	60.91	31	60.78	14	48.28	232	59.95
B ₂)	32	10.42	5	9.80	5	17.24	42	10.85
B ₃) Thin	6	1.95	1	1.96	2	6.90	9	2.33
Total in channels B ₂ and B ₃	38	12.38	6	11.76	7	24.14	51	13.18
B ₄) Very thin	3	0.98	0	0.00	0	0.00	3	0.78

Percentages are based on the number of participants in each residence group and total sample: Rural farm, 307; Rural non-farm, 51; Urban, 29; Total sample, 387.

placed in the middle channels.

Although the majority of the members seemed to have an average physique, 10.34 percent were obese (channel A₄) and 0.78 percent were very thin (channel B₄). The percent of the members classified as stocky (channels A₂ and A₃) was 15.76 as compared with 13.18 percent that were thin (channels B₂ and B₃), Table 12. Scramlin (1946) reported that six percent of a group of Indiana school children were classified as obese and 0.5 percent of the children were very thin.

The Wetzel Grid classification of members as related to residence is given in Table 12. Almost the same percent of the members living on rural farms (60.91 percent) and rural non-farms (60.78 percent) were classified as average build (channels A₁, M and B₁), whereas a smaller percent of the urban members (48.28 percent) were in these channels. Stocky body physiques (channels A₃ and A₂) were found in 24.14 percent of the urban members as compared with 15.89 and 14.98 percent of the rural non-farm and rural farm members, respectively. There were 24.14 percent of the urban members that were thin (channels B₂ and B₃), whereas 12.38 percent of the rural farm and 11.76 percent of the rural non-farm members were classified in these channels. A larger percent of the rural non-farm (11.76 percent) and rural farm members (10.75 percent) were classified as obese than the urban participants (3.45 percent). Less than one percent of the rural farm members (0.98 percent) were found to be very thin (channel B₄). None of the rural non-farm or urban participants were considered very thin.

The body physiques of the members in the four age groups are reported in Table 13. Notable was the large percent of the members between the ages of 13 to 14 years (69.83 percent) and 15 to 20 years (62.20 percent) who were rated as having average physiques (channels A₁, M and B₁). There were 46.67 percent of the members in the eight to 10 age group and 45.45 percent of the members in the 11 to 12 age group who were classified in these channels. Stocky physiques (channels A₃ and A₂) were found among more of the members eight to 10 (23.33 percent) and the 15 to 20 age groups (18.29 percent) than in the other groups. About the same percent of the members in the 13 to 14 (12.93 percent) and the 11 to 12 (11.69 percent) age groups were stocky.

More of the 11 to 12 year old members (31.17 percent) had thin body physiques (channels B₂ and B₃) than did the members eight to 10 (13.33 percent), 13 to 14 (8.62 percent) or 15 to 20 (7.93 percent). The percent of members within each age group that were classified as obese (channel A₄) ranged from 7.76 to 13.33 percent for the 13 to 14 and eight to 10 age groups, respectively. In the 11 to 12 and 15 to 20 age groups 10.39 and 11.59 percent of the members, respectively, were obese. A slightly larger percent of the eight to 10 year old members (3.33 percent) were found to be very thin (channel B₄) as compared with the 11 to 12 year olds (1.30 percent) and 13 to 14 year olds (0.86 percent). None of the participants 15 to 20 years old were in this channel.

Table 13. The Wetzel Grid classification of body physiques of members as related to age.

Wetzel grid channels	Age Groups											
	8 to 10		11 to 12		13 to 14		15 to 20		Total sample			
	No. :	% :	No. :	% :	No. :	% :	No. :	% :	No. :	% :		
A ₄) Obese	4	13.33	8	10.39	9	7.76	19	11.59	40	10.34		
A ₃) Stocky	2	6.67	4	5.19	4	3.45	13	7.93	23	5.94		
A ₂)	5	16.67	5	6.49	11	9.48	17	10.37	38	9.82		
Total in channels A ₃ and A ₂	7	23.33	9	11.69	15	12.93	30	18.29	61	15.76		
A ₁) Medium	3	10.00	9	11.69	16	13.79	37	22.56	65	16.80		
M)	7	23.33	17	22.08	39	33.62	40	24.39	103	26.61		
B ₁)	4	13.33	9	11.69	26	22.41	25	15.24	64	16.54		
Total in channels A ₁ , M and B ₁	14	46.67	35	45.45	81	69.83	102	62.20	232	59.95		
B ₂) Thin	2	6.67	19	24.68	9	7.76	12	7.32	42	10.85		
B ₃)	2	6.67	5	6.49	1	0.86	1	0.61	9	2.33		
Total in channels B ₂ and B ₃	4	13.33	24	31.17	10	8.62	13	7.93	51	13.18		
B ₄) Very thin	1	3.33	1	1.30	1	0.86	0	0.00	3	0.78		

Percentages are based on the number of members in each age group and total sample: 8 to 10, 30; 11 to 12, 77; 13 to 14, 116; 15 to 20, 164; Total sample, 387.

One Day Dietaries

Several methods have been reported in the literature for obtaining dietary information. Martin (1954) pointed out that the best method to use would depend upon the dietary information desired and the way the information was to be applied. In this study, a one day dietary record was filled out by the 4-H club members participating in the study.

The Daily Food Plan as described by Page and Phipard (1956) was used as an indication of the adequacy of the participants' diets. These authors stated that the number of servings in each food group consumed by an individual could be compared with the minimum number of servings given in the Daily Food Plan. Page and Phipard (1956) stressed the fact that the minimum number of servings would furnish most of the nutrients needed for an adequate diet; however, not all of the nutrients would be supplied. Further, they explained that a diet deficient in milk might reflect an inadequate amount of calcium, whereas an insufficient amount of dark green or yellow vegetables would suggest that vitamin A was low. Likewise, lack of citrus fruit or other foods high in ascorbic acid would indicate a deficiency of ascorbic acid in the diet. The foods listed on the questionnaire-check list given to the 4-H members did not differentiate the type of fruit consumed; therefore, there was no way to indicate the adequacy of ascorbic acid in the diet.

The Daily Food Plan with the suggested number of servings as presented by Page and Phipard (1956) is given as follows:

1. Milk group: Children - three to four cups daily;
Teenagers - four or more cups daily.
Cheese and ice cream can replace part of the milk.
2. Meat group: Two or more servings --
Beef, veal, pork, lamb, poultry, fish, eggs, with
dry beans and peas and nuts as alternates.
3. Vegetable-fruit group: Four or more servings, in-
cluding--A dark-green or deep-yellow vegetable im-
portant for vitamin A--at least every other day.

A citrus fruit or other fruit or vegetable impor-
tant for vitamin C--daily.

Other fruits and vegetables including potatoes.
4. Bread-cereals group: Four or more servings--
Bread or cereals--whole grain, enriched, restored.

An adequate diet, based on a one day record and as compared with the Daily Food Plan, was consumed by 27.25 percent of the 4-H club sample (Table 14). In general, more of the younger members consumed an adequate diet than the older members. Many of the members who did not eat an adequate diet on the day that they recorded their food intake would have met the requirements of the Daily Food Plan through consuming one more serving from a specified food group.

On the day that diets were recorded, more of the 4-H club participants ate the recommended number of servings of food listed in the meat group than the recommended number of servings of food in any of the other groups (Table 14). Two or more servings of meat were consumed by 95.63 percent of the total sample, whereas four or more servings of food from the bread-cereals, vegetable-fruit and milk groups were eaten by 88.94, 68.38 and 37.53 percent of the sample, respectively. This same dietary pattern existed for all age groups. These data are in agreement with those reported in

Table 14. Evaluation of a one day dietary record of the 4-H club participants.

Food groups	Age groups								Total sample	
	8 to 10	11 to 12	13 to 14	15 to 20	No. : %		No. : %			
All groups adequate	12	40.00	31	39.74	27	23.28	36	21.82	106	27.25
Milk group	12	40.00	54	69.23	36	31.03	44	26.67	146	37.53
Meat group	30	100.00	68	87.18	112	96.55	162	98.18	372	95.63
Vegetable-fruit group	17	56.67	51	65.38	79	68.10	119	72.12	266	68.38
Bread-cereals group	24	80.00	67	85.90	100	86.21	145	87.88	346	88.94

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

other studies conducted in various parts of the United States in which it was evident that there was a lack of milk or calcium in the diets of the groups surveyed.

In further analysis of the daily food intake, it was noted that for the most part, the kinds of vegetables consumed by the participants on the day of the survey were potatoes, carrots, celery, fresh tomatoes, beans, peas, corn, lettuce and cabbage. Two members ate one serving of asparagus and one serving of each of the following vegetables was eaten: cauliflower, cauliflower with peas, squash, parsnips, spinach, broccoli and brussel sprouts. A green, leafy vegetable was not eaten by 19.27 percent of the participants on the day that they recorded their diets.

Eppright et al. (1955) found that often individual dietary intakes failed to meet the vitamin A Recommended Dietary Allowances of the National Research Council. In addition, they found little correlation between the vitamin A intake and the servings of green, leafy and yellow vegetables consumed. Leverton and Pazur (1957) found that 8, 25 and 20 percent of the girls studied who were 10 to 12, 13 to 15 and 16 to 20 years of age, respectively, consumed inadequate amounts of vitamin A and that calcium and ascorbic acid were the nutrients most often deficient in their diets. Studies with school children conducted in Connecticut (Potgieter and Morse, 1955) and South Dakota (Schwartz, 1955) found that diets were low in the leafy, green and yellow vegetable group when adequacy was based on the Basic Seven Food Groups.

The breakfast of each 4-H club participant was evaluated and the data are presented in Table 15. A breakfast that included

Table 15. Evaluation of the breakfast from a one day dietary record of the participants.

Breakfast	Age Groups								Total sample	
	8 to 10		11 to 12		13 to 14		15 to 20			
	No. :	%	No. :	%	No. :	%	No. :	%		
Adequate	15	50.00	53	67.95	65	56.03	88	53.33	221	56.81
Fruit	22	73.33	60	76.92	84	72.41	111	67.27	277	71.21
Protein	23	76.67	73	93.59	97	83.62	132	80.00	325	83.55
Cereal	29	96.67	75	96.15	110	94.83	157	95.15	371	95.37
Inadequate	15	50.00	25	32.05	51	43.97	77	46.67	168	43.19
Fruit	8	26.67	18	23.08	32	27.59	54	32.73	112	28.79
Protein	7	23.33	5	6.41	19	16.38	33	20.00	64	16.45
Cereal	1	3.33	3	3.85	6	5.17	8	4.85	18	4.63

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 369.

fruit, a complete protein and a cereal product was considered adequate and was consumed by 56.81 percent of the members. Over two-thirds of the members who were 11 to 12 years old ate an adequate breakfast, whereas only slightly more than half of those in the other age groups had an adequate breakfast. There were 28.79 percent of the total sample who did not eat fruit for breakfast, 16.45 percent who did not have a complete protein and 4.63 percent who did not eat a cereal product. All age groups tended to omit fruit, protein and cereal from breakfast in the same order as the total sample. There were two members who reported that they did not eat breakfast. Steele et al. (1952) and Young and Storvick (1949) found that an adequate breakfast directly influenced the adequacy of the day's diet.

The types of snacks consumed by the participants are given in Table 16. The number of snacks eaten during one day ranged from zero to 13. The most popular between-meal snack was fruit which was eaten by 30.33 percent of the members. Other snacks consumed by approximately one-fourth to one-fifth of the members were cookies (26.74 percent), candy (24.16 percent) and pop (21.08 percent). As compared with the previously listed snacks, a smaller percent of the members ate carrots (14.65 percent), potato chips (12.34 percent), celery (12.08 percent) and popcorn (11.83 percent). Less than 10 percent of the members ate ice cream (9.00 percent), sandwiches (7.97 percent), crackers (7.71 percent) and cake (7.71 percent). Only 3.60 percent ate pie as a snack on the day the dietary survey was recorded. In addition to the snacks listed in the table,

Table 16. Snacks consumed in one day by the participants.

Snacks	Age groups								Total sample
	8 to 10	11 to 12	13 to 14	15 to 20	8 to 10	11 to 12	13 to 14	15 to 20	
	No. :	No. :	No. :	No. :	No. :	No. :	No. :	No. :	No. :
	%	%	%	%	%	%	%	%	%
Celery	4	15	13	15	22	15	9.09	47	12.08
Carrots	6	12	17	22	13.33	22	13.33	57	14.65
Pop	5	11	27	39	16.67	39	23.64	82	21.08
Candy	4	20	38	32	13.33	32	19.39	94	24.16
Pie	0	6	4	4	0.00	4	2.42	14	3.60
Cake	3	6	11	10	10.00	10	6.06	30	7.71
Cookies	8	30	27	39	26.67	39	23.64	104	26.74
Popcorn	3	13	11	19	10.00	19	11.52	46	11.83
Fruit	6	26	33	53	20.00	53	32.12	118	30.33
Ice cream	4	11	9	11	13.33	11	6.67	35	9.00
Potato chips	3	8	16	21	10.00	21	12.73	48	12.34
Crackers	5	7	7	11	16.67	11	6.67	30	7.71
Sandwiches	4	6	11	10	13.33	10	6.06	31	7.97
No snacks	5	7	15	18	16.67	18	10.91	45	11.57

Percentages are based on the number of participants in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

watermelon, strawberry shortcake, lettuce salad, French fries, milk, cocoanut, nuts, cold cereal, lunch meat, apple cider, cocoa, bread and jelly, gelatin dessert, peanut butter, popsickle, bacon, wieners, hamburgers, cheese, soup and sunflower seeds were eaten as between-meal snacks.

There were some differences in the choice of snacks according to age groups (Table 16). The members in the eight to 10 age group tended to choose cookies, carrots, fruit, pop and crackers as a snack, whereas members in the 11 to 12 group ate more cookies, fruit, candy and celery than other snacks. The four snacks chosen by the largest percent of members 13 to 20 years were candy, fruit, pop and cookies. A between meal snack was not eaten by 11.57 percent of the members during the day of the dietary survey. More of the members in the eight to 10 (16.67 percent) age group than those in the 13 to 14 (12.93 percent), 15 to 20 (10.91 percent) and 11 to 12 (8.97 percent) age groups did not eat a snack.

Evaluation of the Subdivisions of the 4-H Foods and Nutrition Program by the County Home Economics Agents

The original plan for tabulating the data from the County Home Economics Agents' questionnaire-check list (Form II) was to place the reasons for liking the present program or wanting a change into the following categories: (1) subject matter, (2) recipes and (3) organization. Agents failed to check reasons that could be tabulated in this manner. They did not always check each foods and nutrition phase they liked or wanted revised. Several agents were asked why they omitted checking each phase of this section of the

questionnaire-check list. Their replies included: (1) that they had just started to work, (2) they were unfamiliar with the phase and that (3) they just checked those phases which needed a complete revision.

The percent of County Home Economics Agents who liked and/or suggested a change in the various subdivisions of the 4-H foods and nutrition program is given in Table 17. Many of the agents commented on the type of changes needed. These comments were analyzed, divided into categories and tabulated (Table 18). Over three-fourths of the agents commented that each subdivision of the 4-H foods and nutrition program needed some revision.

Generally (72.22 percent) the County Home Economics Agents checked that they liked the present leader's guide; however, 16.67 percent suggested a change (Table 17). Fifty percent commented that leaders needed additional help in being effective teachers (Table 18). One of them wrote, "A great deal of emphasis has to be placed on leadership because leaders determine the effectiveness of the program, regardless of the caliber of the printed material."

Food records have long been a controversial subject in Kansas; yet 51.11 percent liked the present record as opposed to 35.56 percent of the agents who suggested a change (Table 17). Some of the agents (41.11 percent) commented that members under 12 years of age should omit filling out records (Table 18). Other agents (15.56 percent) suggested that junior and senior records be developed. The Kansas 4-H Advisory Subcommittee (1957), composed of County Home Economics Agents, recommended either: (1) dropping the figures for cost, value and quality from the record sheet or

Table 17. The percent of county home economics agents who liked and who suggested a change of the 4-H foods and nutrition program.

Subdivisions of 4-H foods and nutrition program	Liked		Suggested a change		Did not answer	
	No. :	% :	No. :	% :	No. :	% :
Leader's guide	65	72.22	15	16.67	10	11.11
Food records	46	51.11	32	35.56	12	13.33
<u>Helping with</u> (Food preparation)						
Simple Desserts and Beverages	48	53.33	26	28.89	16	17.78
School Lunch and Picnic Basket	40	44.44	33	36.67	17	18.89
Lunch and Supper	49	54.45	22	24.44	19	21.11
Dinner	54	60.00	18	20.00	18	20.00
<u>Serving</u> (Meal service)						
Breakfast	57	63.33	16	17.78	17	18.89
Lunch or Supper	59	65.55	16	17.78	15	16.67
Dinner	47	52.23	21	23.33	22	24.44
Easy as Pie (Special Interest)	68	75.55	6	6.67	16	17.78
Ideas with Meat (Special Interest)	64	71.11	7	7.78	19	21.11
<u>Preserving for</u> (Food preservation)						
Breakfast	26	28.89	34	37.78	30	33.33
Supper or Lunch	26	28.89	34	37.78	30	33.33
Dinner	21	23.33	39	43.34	30	33.33

Percentages are based on the number of county home economics agents participating: 90.

Table 18. The types of changes for the 4-H foods and nutrition program as suggested by the county home economics agents.

Subdivisions of 4-H foods and nutrition program :	Types of changes	: County home eco-	
		: nomics agents	: %
		No. :	%
Leader's guide	Revise according to latest information Stress effective teaching by leaders	69 45	76.67 50.00
Food records	Revise according to latest information Omit records for members under 12 years Develop junior and senior records	69 37 14	76.67 41.11 15.56
Food preparation phases	Revise recipes with detailed directions Revise according to latest information Stress nutrition and vegetable-fruit cookery Reverse Helping with School Lunch and Picnic Basket to include school lunch program	83 69 68 63	92.22 76.67 75.56 70.00
Meal service phases	Revise according to latest information Include detailed subject matter on meal service Revise recipes with detailed instructions Omit special interest phases (include pastry making and meat cookery in meal service)	69 58 21 7	76.67 64.44 23.33 7.78
Food preservation phases	Omit drying, brining, storage and curing Revise according to latest information Divide phases into freezing and canning Develop food preservation pamphlets for 4-H members according to age and experience	70 69 66 65	77.78 76.67 73.33 72.22

Percentages are based on the number of county home economics agents participating: 90.

(2) setting up junior and senior records.

The four food preparation phases, excluding Helping with School Lunch and Picnic Basket, were liked by over 50 percent of the County Home Economics Agents (Table 17). Helping with Simple Desserts and Beverages was checked by 53.33 percent of the agents as one phase they liked; however, 28.89 percent suggested a change. In comparison, 44.44 percent liked Helping with School Lunch and Picnic Basket and 36.67 percent suggested a change. The phase, Helping with Supper and Lunch was liked by 54.45 percent and Helping with Dinner by 60.00 percent. There were 24.44 and 20.00 percent of the agents who suggested a change in Helping with Supper and Lunch and Helping with Dinner, respectively.

Several changes were suggested for the revised food preparation phases by the County Home Economics Agents (Table 18). Almost all of the agents (92.22 percent) commented that the recipes should be revised with detailed directions included. Approximately three-fourths of the agents (75.56 percent) wanted additional emphasis placed on nutrition and vegetable-fruit cookery in the food preparation phases. According to 70.00 percent of the agents the phase, Helping with School Lunch and Picnic Basket was passe. They expressed the opinion that the phase should be revamped to stress the school lunch program.

The meal service phases generally were liked better by the County Home Economics Agents than the food preparation or preservation phases (Table 17). Serving Breakfast was liked by 63.33 percent, whereas 17.78 percent suggested a change. There were

65.55 percent of the agents who liked Serving Lunch or Supper, but 17.78 percent suggested a change. Over 50 percent of the agents liked Serving Dinner (52.23 percent) and 23.33 percent suggested a change. The two relatively new special interest phases, Easy as Pie and Ideas with Meat, were liked by 75.55 and 71.11 percent, respectively. Only 6.67 and 7.78 percent of the agents suggested that Easy as Pie and Ideas with Meat, respectively, be changed (Table 17).

The comments on the types of revisions for the meal service phases indicated a need for detailed subject matter on meal service (64.44 percent). There were 23.33 percent of the agents who suggested that the recipes be revised. A few agents (7.78 percent) thought the special interest phases should be omitted and pastry making and meat cookery be incorporated into Serving Lunch and Supper and Serving Dinner (Table 18).

More of the agents suggested a change in the food preservation phases than in the food preparation and meal service phases (Table 17). The same percent (37.78) of agents suggested that Preserving for Breakfast and Preserving for Lunch or Supper should be changed, whereas the same percent (28.89) liked these phases. Slightly more of the agents suggested a change (43.34 percent) in the phase, Preserving for Dinner, than the other two food preservation phases. There were 23.33 percent of the agents who liked this phase.

The County Home Economics Agents suggested that three major changes should be undertaken in the revised food preservation phases (Table 18). Almost four-fifths (77.78 percent) believed

that drying, brining, storage and curing are methods that are out-of-date and should be omitted. Another change suggested by 73.33 percent of the agents was to divide food preservation into a phase on canning and a phase on freezing. Less than three-fourths (72.22 percent) stressed that food preservation pamphlets should be developed for the 4-H members because the U.S.D.A. bulletins that are currently used were designed for adults.

The Kansas 4-H Advisory Committee (1957) recommended a liberal, flexible policy for the food preservation phases. They suggested a complete revision with elimination of curing meat and drying of vegetables. This committee recommended letting members choose the method of food preservation (canning, freezing or storage) they would learn depending on the individual situation. In general this is in agreement with the comments of the County Home Economics Agents.

Subject Matter Suggested by 4-H Foods and Nutrition
Members and County Home Economics Agents

Both 4-H club members and County Home Economics Agents were given an opportunity to indicate which topics in a list of subject matter topics they would suggest for a revised 4-H foods and nutrition program. The number and percent of 4-H foods and nutrition members and County Home Economics Agents who checked each topic on Forms IV and II are given in Tables 19 and 21, respectively. The topics listed for the 4-H members and County Home Economics Agents (Table 21) to check for the revised program were not identical. Therefore, only those topics listed on both Forms

II and IV could be compared. The majority of both 4-H foods and nutrition members and County Home Economics Agents agreed that subject matter on Well balanced meals, Teenage table manners and Family meals should be included in the revised program.

The four topics (Table 19) that were suggested by approximately two-thirds to three-fourths of the 4-H foods and nutrition members were Prepare quick meals (73.01 percent), Cook outdoors (71.47 percent), Plan and prepare family meals (65.81 percent) and Know what foods I should eat (64.04 percent). More members showed interest in these topics than in the other topics suggested to them. Over half of the members were interested in topics such as Use recipes from other countries (60.93 percent), Serve family meals (57.84 percent) and Use teenage table manners (57.07 percent). Less than half of the members indicated an interest in Buy food at the store (47.30 percent) and Use homemade mixes (43.70 percent). Important, because of the recent national emphasis on weight control, were the 40.62 percent of the members who checked Lose weight as a topic which would be helpful, whereas only 9.51 percent of the members checked the topic, Gain weight. According to the placement of members in the Wetzel Grid channels more members did need to lose weight than to gain weight.

Some differences were observed in the interests of members residing on rural farms, rural non-farms and urban communities (Table 19). Almost the same percent of rural non-farm (72.55 percent) and rural farm (71.84 percent) members suggested the topic, Cook outdoors, for the revised program. About six percent less (65.52 percent) of the urban members checked this topic.

Table 19. Topics that members, as related to residence, would like to have included in the 4-H foods and nutrition program.

Topics	Residence						Total sample : No. : %	
	Rural farm		non-farm		Urban			
	No. : %	No. : %	No. : %	No. : %	No. : %	No. : %		
Cook outdoors	222	71.84	37	72.55	19	65.52	278	71.47
Use homemade mixes	140	45.31	20	39.22	10	34.48	170	43.70
Buy food at the store	146	47.25	25	49.02	14	48.28	184	47.30
Know what foods I should eat	198	64.08	33	64.71	22	75.86	253	65.04
Lose weight	127	41.10	21	41.18	10	34.48	158	40.62
Gain weight	27	8.74	8	15.69	2	6.90	37	9.51
Use recipes from other countries	184	59.55	36	70.59	17	58.62	237	60.93
Use teenage table manners	180	58.25	30	58.82	12	41.38	222	57.07
Prepare quick meals	227	73.46	34	66.67	23	79.31	284	73.01
Plan and prepare family meals	201	65.05	37	72.55	18	62.07	256	65.81
Serve family meals	190	61.49	19	37.25	17	58.62	225	57.84

Percentages are based on the number of members in each residence group and total sample: Rural farm, 309; Rural non-farm, 51; Urban, 29; Total sample, 389.

More of the rural farm members (45.31 percent) wanted to learn to Use homemade mixes than rural non-farm (39.22 percent) or urban (34.48 percent) members. Almost the same percent of members from rural non-farm (49.02 percent), urban (48.28 percent) and rural farm (47.25 percent) communities were interested in learning to Buy food at the store.

There were 75.86 percent of the urban members who indicated an interest in Know what foods I should eat as compared with 64.71 percent of the rural non-farm and 64.08 percent of the rural farm members who checked this topic. A few more of the rural non-farm (41.18 percent) and rural farm members (41.10 percent) wanted information on how to Lose weight than urban (34.48 percent) members. Although the topic, Gain weight, was checked by the smallest percent of members in each residence group, 15.69 percent of the rural non-farm members indicated an interest as compared with only 8.74 percent of the rural farm and 6.90 percent of the urban members (Table 19).

About seven-tenths of the rural non-farm (70.59 percent) indicated they would like to learn to Use recipes from other countries as compared with almost six-tenths of the rural farm (59.55 percent) and urban (58.62 percent) members. Practically the same percent of rural non-farm (58.82 percent) and rural farm (58.25 percent) members checked the topic, Use teenage table manners; however, only 41.38 percent of the urban members checked this topic.

As compared with the percent who checked the other topics listed, Prepare quick meals was the topic suggested by the highest

percent of urban (79.31 percent) and rural farm (73.46 percent) members, whereas two-thirds of the rural non-farm (66.67 percent) members checked this topic. Almost three-fourths of the members living on rural non-farms (72.55 percent) were interested in the topic Plan and prepare family meals, whereas less than two-thirds of the rural (65.04 percent) and urban (62.07 percent) members checked this topic. Although Plan and prepare family meals and Serve family meals were related topics, a slightly smaller proportion of the rural farm (61.49 percent), urban (58.62 percent) and rural non-farm (37.25 percent) members were interested in Serve family meals (Table 19).

The topics that members in each of the four age groups would like to have included in the 4-H foods and nutrition program are given in Table 20. Each of the listed topics were checked by some of the members in each age group. From approximately seven-tenths to over three-fourths of the members in each age group indicated an interest in Cook outdoors. More of the members in the eight to 10 (76.67 percent) age group checked this topic than members in the 13 to 14 (73.28 percent), 15 to 20 (70.30 percent) and 11 to 12 (69.23 percent) age groups. In contrast, fewer members in the eight to 10 (58.67 percent), 11 to 12 (53.85 percent), 15 to 20 (41.21 percent) and 13 to 14 (37.07 percent) age groups checked the topic, Use homemade mixes. Over 50 percent (55.13) of the members in the 11 to 12 age group wanted to learn to Buy food at the store as compared with less than 50 percent of the members in the eight to 10 (46.67 percent), 15 to 20 (45.45 percent) and 13 to 14 (44.83 percent) age groups.

Table 20. Topics that the members would like to have included in the 4-H foods and nutrition program as related to age.

Topics	Age groups										Total sample
	8 to 10		11 to 12		13 to 14		15 to 20		Total sample		
	No.:	%	No.:	%	No.:	%	No.:	%	No.:	%	
Cook outdoors	23	76.67	54	69.23	85	73.28	116	70.30	278	71.47	
Use homemade mixes	17	56.67	42	53.85	43	37.07	68	41.21	170	43.70	
Buy food at the store	14	46.67	43	55.13	52	44.83	75	45.45	184	47.30	
Know what foods I should eat	23	76.67	53	67.95	81	69.83	96	58.18	253	65.04	
Lose weight	8	26.67	23	29.49	50	43.10	77	46.67	158	40.62	
Gain weight	6	20.00	13	16.67	9	7.76	9	5.45	37	9.51	
Use recipes from other countries	15	50.00	43	55.13	69	59.48	110	66.67	237	60.93	
Use teenage table manners	15	50.00	50	64.10	74	63.79	83	50.30	222	57.07	
Prepare quick meals	22	73.33	62	79.49	73	62.93	127	76.97	284	73.01	
Plan and prepare family meals	20	66.67	47	60.26	75	64.66	114	69.09	256	65.81	
Serve family meals	18	60.00	46	59.97	57	49.14	104	63.03	225	57.84	

Percentages are based on the number of members in each age group and total sample: 8 to 10, 30; 11 to 12, 78; 13 to 14, 116; 15 to 20, 165; Total sample, 389.

The topic, Know what foods I should eat was checked by three-fourths to six-tenths of the members in the eight to 10 (76.67 percent), 13 to 14 (69.83 percent), 11 to 12 (67.95 percent) and 15 to 20 (58.18 percent) age groups. More members in the 15 to 20 (46.67 percent) and 13 to 14 (43.10 percent) age groups wanted to Lose weight than members in the 11 to 12 (29.49 percent) and eight to 10 (26.67 percent) age groups. In contrast, more of the members in eight to 10 (20.00 percent) and 11 to 12 (16.67 percent) age groups wanted to Gain weight than members in the 13 to 14 (7.76 percent) and 15 to 20 (65.45 percent) age groups.

Recipes from other countries was suggested by 66.67 percent of the members in the 15 to 20 age groups, whereas 59.48 and 55.13 percent of the members in the 13 to 14 and 11 to 12 age groups, respectively, suggested this topic (Table 20). One-half of the members in the eight to 10 age group (50.00 percent) checked an interest. Slightly less than two-thirds of the members in the 11 to 12 (64.10 percent) and 13 to 14 (63.79 percent) age groups wanted information on Teenage table manners, whereas one-half of the members in the 15 to 20 (50.30 percent) and eight to 10 (50.00 percent) age groups checked this topic. Several of the members in the 15 to 20 age group expressed the idea that they were not interested in learning teenage manners; they wanted to learn about adult etiquette. Actually, interest appeal was the only reason for using the term Teenage table manners. The same definition was used for both terms.

Prepare quick meals was checked by about four-fifths (79.49 percent) of the 11 to 12, three-fourths of the 15 to 20 (76.97

percent) and eight to 10 (73.33 percent) and five-eighths of the 13 to 14 (62.93 percent) age group. Almost seven-tenths of the 15 to 20 (69.09 percent) and about two-thirds of the eight to 10 (66.67 percent) and 13 to 14 (64.66 percent) age groups were interested in the topic, Plan and prepare family meals, whereas about three-fifths of the 11 to 12 (76.67 percent) age group checked this topic. In comparison about five-eighths of the 15 to 20 (63.03 percent), three-fifths of the eight to 10 (60.00 percent) and 11 to 12 (58.97 percent) and almost one-half of the 13 to 14 (49.14 percent) age groups indicated an interest in the topic, Serve family meals.

The types of information County Home Economics Agents suggested for the revised program are given in Table 21. Some of the agents commented that they checked only those subjects which they considered most essential or those not completely covered by the present program. Other agents wrote that they did not check each topic because they felt all of the information listed on Form II should be included. A few agents stated the information chosen for the revised program should be directed to help the girls become happy, efficient homemakers, whereas others expressed the opinion that the information included should help those homemakers holding a job outside of the home.

It was of interest to note that 51.11 percent of the County Home Economics Agents requested information on Planning and preparing the family meals, whereas only 36.67 percent wanted information on Serving family meals. One County Home Economics Agent commented that information on Serving family meals was essential

Table 21. Types of information the county home economics agents suggested for the revised program.

Types of information	: Agents checked :		: Agents did not check :	
	No. :	%	No. :	%
Planning and preparing the family meals	46	51.11	44	48.89
Serving family meals	33	36.67	57	63.33
Eating well balanced meals	56	62.22	34	37.78
Shopping for family food wisely	57	63.33	33	36.67
Preparing quick meals for the family	41	45.56	49	54.44
Entertaining with food	46	51.11	44	48.89
Knowing your table manners	59	65.56	31	34.44
Using prepared foods, mixes and ready cooked foods	42	46.67	48	53.33
Managing family meals wisely	49	54.44	41	45.56
Comparative cost of foods	20	22.22	70	77.78

Percentages are based on the number of county home economics agents participating:
90.

in order to combat the recent trend towards fewer family meals. This agent pointed out that she had noticed family tables set with a jar of mayonnaise, bread in the wrapper and milk in the carton.

Important was the fact that almost two-thirds of the County Home Economics Agents indicated that the program needed information on Eating well balanced meals (62.22 percent) and Shopping for family food wisely (63.33 percent). Less than half of the agents (45.56 percent) checked the topic, Preparing quick meals for the family, whereas about one-half (51.11 percent) thought that information on Entertaining with food should be included. Knowing your table manners was suggested by more of the County Home Economics Agents (65.56 percent) than any of the others.

The agents varied in their opinions on whether information on Using prepared food, mixes and ready cooked foods should be included in the 4-H foods and nutrition program. There were 46.67 percent of the agents who checked that this type of information should be included (Table 21). There were about 10 percent of the other agents who wrote that 4-H members should: (1) learn the basic techniques of food preparation, (2) learn to use mixes in preparing foods; yet consider time, energy, the family situation and the money available, (3) compare the quality of products obtained from mixes with the product obtained from individual ingredients and (4) reach their own decisions as to when to use a mix and when to use the basic individual ingredients. It was interesting that information on Managing family meals wisely was checked by 54.44 percent of the agents, whereas only 22.22 percent of the agents suggested that information be included on the Comparative

cost of food.

Subjects which were suggested by the agents, in addition to those listed on the questionnaire included: (1) vegetable-fruit cookery, (2) freezing precooked foods, (3) meat cookery, (4) foreign cookery, (5) outdoor cookery, (6) kitchen equipment, (7) judging and demonstrating food, (8) plans for helping the foods leaders be effective teachers and (9) inclusive information on meal service.

SUMMARY

A review of the 4-H foods and nutrition program in Kansas was undertaken to gain information that may be used to revise the program. The historical development of the 4-H foods and nutrition program was reviewed briefly in order to understand the basic philosophy of the program. The data for the present study were collected from a 2.29 percent random sample (309) of 4-H club members enrolled in the foods and nutrition program during 1955-56 and from 92.78 percent (90) of the County Home Economics agents. Each group completed questionnaire-check lists designed to gain certain information about the current program.

The ages of the 4-H members in the sample ranged from eight to 20 years and they lived in rural farm, rural non-farm and urban communities in all five of the extension geographical districts in Kansas. The number of years that the majority of the participants enrolled for foods and nutrition phases varied according to age groups. Members tended to enroll for food preparation phases in preference to the meal service or food preservation phases.

Although the meal service phases were designed for the experienced member, less than half of the members in the 15 to 20 age group had carried these phases. There was little interest in the special interest and food preservation phases.

Two-thirds or more of the participants' families produced vegetables other than potatoes, chickens, eggs, beef and milk; and preserved vegetables, jams and jellies, meat and fruits. More of the families canned fruits and vegetables than froze these foods, whereas families tended to freeze meat.

A large percent of the participants helped with many of the jobs in their homes related to foods and nutrition. Except for the preparation and serving of meals, members in all age groups tended to perform the responsibilities by themselves. Generally, meals were prepared and served with mother by the younger members and alone by the older members. The data indicated that a high percent of the members knew the right methods for setting the table and eating certain foods.

Almost all of the members in the sample bought some food. Canned goods and fresh fruits were purchased by over 92 percent of the members, whereas between 80 and 90 percent of the members bought bakery products, candy, meat, pop and dairy products. Foods were generally purchased by the members from eight to 14 years with mother, whereas the older members bought foods alone or alone but from mother's list.

The classification of the sample of 4-H foods and nutrition members by the Wetzel Grid indicated that about 60 percent had an average physique. Participants tended to have stocky rather than

thin physiques. It appeared that approximately 40 percent of the group needed help with weight control. Ten percent of the members were obese, whereas less than one percent were classified as very thin.

Only 27.25 percent of the participants ate the minimum number of servings listed for each of the four food groups in the Daily Food Plan. Many of the members failed to consume an adequate number of servings from the milk and vegetable-fruit group. The adequacy of ascorbic acid in the members' diets was not determined in this study. An adequate breakfast was eaten by 56.81 percent of the members with slightly more than one-fourth not eating fruit. From one to 13 different types of snacks were consumed during the day. Almost 12 percent of the participants did not eat any snacks.

A majority of the members were interested in a revised program including such topics as: Prepare quick meals, Cook outdoors, Plan and prepare family meals, Know what foods I should eat, Use recipes from other countries, Serve family meals and Use teenage table manners. In contrast, less than 50 percent checked an interest in: Buy food at the store, Use homemade mixes, Gain weight and Lose weight.

The County Home Economics Agents suggested a complete revision of the food preservation phases and some changes in the food preparation and meal service phases. The topics suggested by many of the agents for the revised program included: Knowing your table manners, Shopping for family food wisely and Eating well balanced meals.

CONCLUSIONS

1. The 4-H foods and nutrition program in Kansas does need to be revised.
2. Both the participants and County Home Economics Agents wanted information on nutrition. A one day dietary record of the participants indicated that only 27.25 percent of the participants ate the minimum number of servings of the four food groups of the Daily Food Plan.
3. Inclusion of information on food buying would appear to be timely and practical for the revised program because of the large percent of participants purchasing all types of food.
4. The meal service phases were not popular with the participants. Less than half of the sample in the 15 to 20 age group had carried a meal service phase.
5. The food preservation phases need a complete revision in order to appeal to the members. There were 94.60 percent of the participants' families that preserved food; yet only 16.71 percent of the participants had enrolled for a food preservation phase.

RECOMMENDATIONS FOR FURTHER WORK

1. A detailed study of the food habits of 4-H members.
2. A study of the reasons why the experienced member did not enroll in the meal service and food preservation phases.
3. A study of effective methods to help the 4-H foods and nutrition leader become an effective teacher.

4. A detailed study of all foods and nutrition responsibilities that members assumed in the home.

ACKNOWLEDGMENTS

Appreciation is expressed to Dr. Dorothy Harrison, Professor and Head of the Department of Foods and Nutrition, for her interest, guidance and helpful suggestions in the collection of data and the preparation of this thesis. The author is thankful for the help in planning this study received from Dr. Abby Marlatt, former Professor in the Department of Foods and Nutrition.

The author acknowledges the ideas, information and suggestions received from Miss Mae Baird, Professor and Head of the Department of Extension Home Economics; Miss Georgiana Smurthwaite, former Extension State Leader; Miss Ellen Batchelor, Home Crafts Specialist and first Home Demonstration Agent in Kansas; Miss Gertrude Allen, Professor and Extension Foods and Nutrition Specialist; Miss Mary Fletcher, Associate Professor and Extension Foods and Nutrition Specialist; Mr. J. Harold Johnson, former Head of the 4-H Club Department, all at Kansas State College; and from Mrs. Jewell Fessendon, Extension Analyst of the Federal Extension Service.

The author also wishes to express her gratitude to the Kansas Cooperative Extension Service, who made this study possible; to all of the County Home Economics Agents and 4-H Club members, who filled out the questionnaire; and to Dr. Holly C. Fryer, Kansas Agricultural Experiment Station Statistician, who tabulated the data.

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APPENDIX

Form I

The following letter and questionnaire-check list was sent to the 105 home economics agents during October, 1956.

This group is composed of college graduates who are employed by extension to direct a county program. County Home Economics Agents are an excellent source of information because they work directly with the foods and nutrition leaders and members. There are new agents who may not fill out the questionnaire because they are not completely acquainted with the program in their county.

Dear _____

Plans are now underway to review the present 4-H foods and nutrition program. We need your help and suggestions. Attached you will find a questionnaire-check list. Please fill this out carefully. We plan to use this information as a guide in revising the present program. Please consider both the strong and weak points of the present program. Then think about the information which you would like to have included in a revised program.

Also, we would like for you to send _____ questionnaires to 4-H foods and nutrition members. This is approximately a three percent sample of members enrolled for foods and nutrition in your county.

In choosing this three percent sample we would like for you to use the following procedure:

1. Make a numbered list of all the foods and nutrition members in your county.
2. Compile a list of random numbers, which will equal

your 3 percent sample, from the enclosed list of random numbers.

- a. Start with the first column on the enclosed list of random numbers.
- b. Take the numbers that are less than or equal to the total number of members enrolled in foods projects in the order they appear on the enclosed list.
- c. Look up the name corresponding to each number on your 4-H foods and nutrition list, and send that person a questionnaire with the attached letter.

EXAMPLE: Mary Smith is a County Home Economics Agent who had 125 4-H club members enrolled for food phases. Upon receiving the questionnaire for 4-H members, Mary checks to see that there is a numbered list of all 4-H foods and nutrition members;

1. Mary Jones
2. Carol Smith
3. Betty Jones
4. Kay Johnson
5. Nancy Little

Next Mary takes the enclosed list of random numbers and selects 4 numbers (three percent sample of 125 members). The four numbers from the random numbers given below would be 5, 114, 99, and 106.

RANDOM NUMBERS

5	114	106	3
246	231	145	44
190	99	11	1

Then Mary looks on her numbered list of foods and nutrition members for the name besides the number. Because the number was five, Mary would send a questionnaire to Nancy Little. Mary then follows the same procedure for the numbers 114, 99, and 106.

After the questionnaire is filled out and returned to you, please check it for completeness. Occasionally height or weight may not be given. It is essential that all questions be answered. If a questionnaire is not returned, please try to find out why, and have it completed. There will be a few cases in which it is not possible to have the questionnaire filled out. If this is true, please select another random number, and send a questionnaire to another member. With your help, our sample of foods and nutrition members will be representative of boys and girls enrolled in the foods project.

Please have all questionnaires returned by no later than October 20, to Miss Louella Nan Franks, Department of Home Economics Extension, Kansas State College. As you probably know, I am writing my master's thesis on the 4-H Foods and Nutrition Program. The data from this questionnaire will be summarized in the thesis and will be available for your information.

Thank you for your cooperation.

Sincerely yours,

Louella Nan Franks
Foods and Nutrition Specialist

List of Random Numbers Sent to the Counties

087	173	006	004	133	011	145	128	237	126	276
293	230	060	233	123	042	013	168	020	277	027
103	286	003	255	113	213	172	139	250	197	141
288	095	015	047	053	104	166	217	089	007	195
045	050	176	282	043	118	183	147	261	001	188
283	112	252	070	297	109	209	114	179	108	110
292	105	158	289	066	021	280	035	096	102	187
038	010	022	090	281	093	184	208	287	300	265
259	129	117	052	152	290	193	291	061	279	012
081	185	229	023	083	274	111	017	186	107	238
169	219	106	275	232	191	148	132	097	154	031
235	214	131	098	059	073	207	218	211	130	263
140	055	065	143	134	157	155	251	124	249	177
057	196	062	030	284	228	210	127	036	146	257
135	151	063	159	164	033	190	144	080	180	084
253	240	264	086	221	295	198	206	074	064	227
273	046	150	220	091	137	149	167	248	122	079
100	170	034	247	071	068	039	243	278	205	048
075	028	298	244	254	163	019	239	044	175	024
069	194	008	246	040	002	082	120	226	222	242
009	121	116	005	182	025	199	099	296	224	088
153	119	178	077	016	267	054	189	115	262	215
160	174	231	266	029	216	241	294	223	181	026
092	225	285	156	171	256	234	200	078	192	204
125	270	051	142	201	067	202	161	056	162	018
138	014	258	165	271	212	076	032	101	260	058

ADMINISTRATIVE DISTRICTS, DIVISION OF EXTENSION, KANSAS STATE COLLEGE

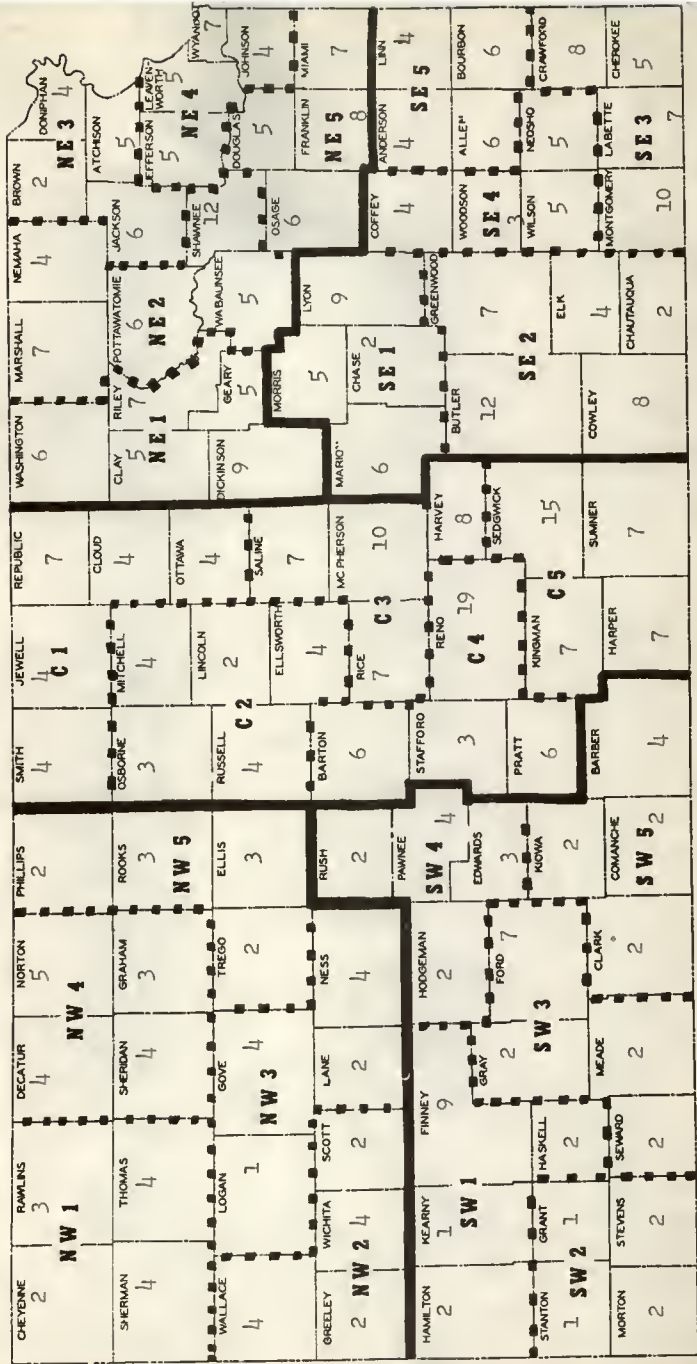


Fig. 1. Three percent sample of Kansas 4-H foods and nutrition members enrolled in 1955-56.

Form II

**4-H FOODS AND NUTRITION QUESTIONNAIRE FOR
COUNTY HOME ECONOMICS AGENTS**

Name _____ County _____

How long have you been associated with the county 4-H program as an agent in Kansas? _____ years.

Read each question. Then place an "x" in the blank next to your answer. You may check more than one answer. Please give reasons for your choice. You may give other suggestions.

1. What ideas or types of information would you like included in a revised foods and nutrition program?

- | | |
|---|--|
| ___ a. Planning and preparing the family meals. | ___ f. Entertaining with food. |
| ___ b. Serving family meals. | ___ g. Knowing your table manners. |
| ___ c. Eating well balanced meals. | ___ h. Using prepared foods, mixes, and ready cooked foods. |
| ___ d. Shopping for food wisely for the family. | ___ i. Managing family meals wisely, Example: Using leftovers for the family or saving time in preparing family meals. |
| ___ e. Preparing quick meals for the family. | ___ j. Comparative costs of foods. |

PLEASE GIVE YOUR REASONS FOR YOUR CHOICES ABOVE.

PLEASE GIVE OTHER SUGGESTIONS:

COUNTY _____ NAME _____

1. What do you like about the present program, and what parts of the present program should be changed? Please list in the column titled, "Reasons for Liking," whether you like it because of the organization, subject matter, or recipes. You may give other reasons besides these three. Please do the same for the column titled, "Reasons for Changing."

	: :Like:	: : Reasons : for Liking	: : Change	: : Reasons : for Changing
a. Leader's Guide	: :	: :	: :	: :
b. Records	: :	: :	: :	: :
c. Helping with Simple Desserts and Beverages	: : :	: : :	: : :	: : :
d. Helping with School Lunch and Picnic Basket	: : :	: : :	: : :	: : :
e. Helping with Dinner	: :	: :	: :	: :
f. Helping with Lunch or Supper	: : :	: : :	: : :	: : :
g. Preserving for Breakfast	: : :	: : :	: : :	: : :
h. Preserving for Supper or Lunch	: : :	: : :	: : :	: : :
i. Preserving for Dinner	: : :	: : :	: : :	: : :
j. Serving Breakfast	: :	: :	: :	: :
k. Serving Lunch or Supper	: : :	: : :	: : :	: : :
l. Serving Dinner	: : :	: : :	: : :	: : :
m. Easy as Pie	: :	: :	: :	: :
n. Ideas with Meat	: :	: :	: :	: :

Form III

Dear 4-H Foods and Nutrition Member:

We would like for you to help us plan you 4-H Foods and Nutrition Program. If you would like to help, please read and fill out this questionnaire, then return it to your County Home Economics Agent by October 15, 1956.

As you fill out the questionnaire, please consider the strong and weak points of the program. Then consider what new ideas should be included in the revised program. Be sure to write in all of the foods you ate during the day.

The data from this questionnaire will be compiled for a thesis, and will be available for your information.

Thank you for helping us to plan the foods and nutrition program.

Sincerely yours,

Louella N. Franks
Foods and Nutrition Specialist

Form IV.

A QUESTIONNAIRE FOR 4-H FOODS AND NUTRITION MEMBERS

Would you like to help us plan the 4-H foods program? Here's what you do. Fill out the blanks on the next few lines.

COUNTY _____ AGE _____ GIRL _____ BOY _____ HEIGHT _____
 WEIGHT _____ LBS. I LIVE ON A FARM _____ I LIVE IN TOWN _____ MY
 TOWN IS UNDER 2500 _____, OVER 2500 _____. I HAVE BEEN ENROLLED IN 4-H
 FOODS PROJECTS _____ YEARS (include this year). DATE _____
 (month) (day)

Read each statement. Then place an "x" in the space following your answer. You may check more than one answer. In the space below you may give reasons for your choice.

1. I BUY AT <u>THE STORE</u>	<u>BY MYSELF</u>	<u>WITH MOTHER</u>	<u>ALONE BUT FROM MOTHER'S LIST</u>		
Bakery Products	_____	_____	_____		
Canned Goods	_____	_____	_____		
Dairy Products	_____	_____	_____		
Fresh Vegetables	_____	_____	_____		
Fresh Fruits	_____	_____	_____		
Meat	_____	_____	_____		
Candy	_____	_____	_____		
Pop	_____	_____	_____		
Other	_____	_____	_____		
_____	_____	_____	_____		
_____	_____	_____	_____		
_____	_____	_____	_____		
2. I PREPARE AND <u>SERVE IN MY HOME</u>	<u>BY MYSELF</u>	<u>WITH MOTHER</u>	<u>I PREPARE</u>	<u>BY MYSELF</u>	<u>HELP MOTHER</u>
Breakfast	_____	_____	_____	_____	_____
Lunch or Supper	_____	_____	_____	_____	_____
Dinner	_____	_____	_____	_____	_____
Refreshments to Family and Friends	_____	_____	_____	_____	_____
I Pack Lunches	_____	_____	_____	_____	_____
I Set The Table	_____	_____	_____	_____	_____
I Wash Dishes	_____	_____	_____	_____	_____
			Vegetables		
			Cakes		
			Muffins		
			Salads		
			Other		

3. WE RAISE OR PRODUCE:

a. Chickens _____	d. Fruits _____	g. Beef _____
b. Eggs _____	e. Potatoes _____	h. Pork _____
c. Milk _____	f. Other Vegetables _____	i. Lamb _____

4. If your family preserves foods for home use, check how you preserve the following foods. You may check more than one method.

	: Open : Kettle	: Water : Bath	: : Pressure	: Home : Freezer
Fruits	:	:	:	:
Vegetables	:	:	:	:
Meat	:	:	:	:
Jelly and Jam	:	:	:	:
Baked Products	:	:	:	:

5. Check the phases of foods which you have taken. Then tell us in the next two columns whether you enjoyed the phase or did not enjoy the phase.

<u>HELPING WITH</u>	<u>I TOOK</u>	<u>I ENJOYED</u>	<u>I DID NOT ENJOY</u>
Simple Desserts and Beverages	_____	_____	_____
School Lunch and Picnic Basket	_____	_____	_____
Lunch and Supper	_____	_____	_____
Dinner	_____	_____	_____
 <u>SERVING</u>			
Breakfast	_____	_____	_____
Lunch or Supper	_____	_____	_____
Dinner	_____	_____	_____
Easy as Pie	_____	_____	_____
Ideas with Meat	_____	_____	_____
 <u>PRESERVING FOR</u>			
Breakfast	_____	_____	_____
Lunch or Supper	_____	_____	_____
Dinner	_____	_____	_____

6. Do you like to keep 4-H records? Yes _____ No _____

7. What have you liked best in your 4-H foods program?

8. Which of the foods you prepared in the 4-H foods projects were not enjoyed by your family?

9. Which of the following foods do you eat

With Silverware?

As Finger Foods?

Toast	_____	_____
Fried Chicken	_____	_____
Carrot Sticks	_____	_____
Roast Beef	_____	_____
Orange Slices	_____	_____
Tokay Grapes	_____	_____
Raw Cauliflower	_____	_____
French Fries	_____	_____

10. A dessert spoon should be placed (check one)

- () a. Next to the plate on the right hand side.
 () b. Next to the plate on the left hand side.
 () c. Served separate from main course and to the right of the dessert plate.

11. A dinner fork should be placed (check one)

- () a. Next to the plate on the right hand side.
 () b. Next to the plate on the left hand side.
 () c. Served separate from main course and to the right of the dessert plate.

12. A dinner knife should be placed (check one)

- () a. Next to the plate on the right hand side.
 () b. Next to the plate on the left hand side.
 () c. Served separate from main course and to the right of the dessert plate.

13. As a 4-H club member, I would like to:

- | | | | |
|-------------------------------------|-------|----------------------------------|-------|
| a. Cook outdoors | _____ | h. Use teenage table manners | _____ |
| b. Use homemade mixes | _____ | i. Prepare quick meals | _____ |
| c. Buy food at the store | _____ | j. Plan and prepare family meals | _____ |
| d. Know what foods I should eat | _____ | k. Serve family meals | _____ |
| e. Lose weight | _____ | l. Other | _____ |
| f. Gain weight | _____ | m. Other | _____ |
| g. Use recipes from other countries | _____ | n. Other | _____ |

14. Today I ate the following foods for:

BREAKFAST - Today

Ham	_____	Egg	_____	Waffles	_____
Bacon	_____	Toast	_____	Pancakes	_____
Sausage	_____	Muffin	_____	Cocoa	_____
Hot Cereal	_____	Biscuit	_____	Coffee	_____
Cold Cereal	_____	Butter	_____	Milk	_____
Fruit Juice	_____	Jelly	_____	Other	_____
Fruit	_____	Honey	_____		_____

LIST OTHER FOODS EATEN

NOON MEAL - Today

Soup	_____	Yeast Rolls	_____	Corn	_____
Roast Beef	_____	Bread	_____	Milk	_____
Steak	_____	Butter	_____	Coffee	_____
Chicken	_____	Lettuce Salad	_____	Pop	_____
Roast Pork	_____	Fruit Salad	_____	Ice Cream	_____
Sandwiches	_____	Peas	_____	Pie	_____
Hamburger	_____	Green Beans	_____	Cold Cereal	_____
				Cake	_____

LIST OTHER FOODS EATEN

EVENING MEAL - Today

Soup	_____	Yeast Rolls	_____	Corn	_____
Roast Beef	_____	Bread	_____	Milk	_____
Steak	_____	Butter	_____	Coffee	_____
Chicken	_____	Lettuce Salad	_____	Pop	_____
Roast Pork	_____	Fruit Salad	_____	Ice Cream	_____
Sandwiches	_____	Peas	_____	Pie	_____
Hamburger	_____	Green Beans	_____	Cake	_____
				Cold Cereal	_____

LIST OTHER FOODS EATEN

SNACKS - Today

Celery	_____	Pie	_____	Hamburger	_____
Carrots	_____	Cake	_____	Pop Corn	_____
Pop	_____	Cookies	_____	Fruit	_____
Candy Bar	_____	Wiener	_____	Ice Cream	_____
Potato Chips	_____	Crackers	_____	Sucker	_____
				Sandwiches	_____

LIST OTHER SNACKS EATEN

A REVIEW OF THE PRESENT 4-H FOODS AND NUTRITION PROGRAM
FOR KANSAS 4-H CLUB MEMBERS

by

LOUELLA NAN FRANKS

A. B., Drury College,
Springfield, Missouri, 1952

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Foods and Nutrition

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1958

A review of the 4-H foods and nutrition program in Kansas was undertaken to gain information that may be used to revise the program. The historical development of the 4-H foods and nutrition program was reviewed briefly in order to understand the basic philosophy of the program. The data for the present study were collected from a 2.29 percent random sample (309) of 4-H club members enrolled in the foods and nutrition program during 1955-56 and from 92.78 percent (90) of the County Home Economics Agents. Each group completed questionnaire-check lists designed to gain certain information about the current program.

The ages of the 4-H members in the sample ranged from eight to 20 years and they lived in rural farm, rural non-farm and urban communities in all five of the extension geographical districts in Kansas. The number of years that the majority of the participants enrolled for foods and nutrition phases varied according to age groups. Members tended to enroll for food preparation phases in preference to the meal service or food preservation phases. Although the meal service phases were designed for the experienced member, less than half of the members in the 15 to 20 age group had carried these phases. There was little interest in the special interest and food preservation phases.

Two-thirds or more of the participants' families produced vegetables other than potatoes, chickens, eggs, beef and milk; and preserved vegetables, jams and jellies, meats and fruits. More of the families canned fruits and vegetables than froze these foods, whereas families tended to freeze meat.

A large percent of the participants helped with many of the jobs in their homes related to foods and nutrition. Except for the preparation and serving of meals, members in all age groups tended to perform the responsibilities by themselves. Generally meals were prepared and served with mother by the younger members and alone by the older members. The data indicated that a high percent of the members knew the right methods for setting the table and eating certain foods.

Almost all of the members in the sample bought some food. Canned goods and fresh fruits were purchased by over 92 percent of the members, whereas between 80 and 90 percent of the members bought bakery products, candy, meat, pop and dairy products. Foods were generally purchased by the members from eight to 14 years with mother, whereas the older members bought foods alone or alone but from mother's list.

The classification of the sample of 4-H foods and nutrition members by the Wetzel Grid indicated that about 60 percent had an average physique. Participants tended to have stocky rather than thin physiques. It appeared that approximately 40 percent of the group needed help with weight control. Ten percent of the members were obese, whereas less than one percent were classified as very thin.

Only 27.25 percent of the participants ate the minimum number of servings listed for each of the four food groups in the Daily Food Plan. Many of the members failed to consume an adequate number of servings from the milk and vegetable-fruit group. The adequacy of ascorbic acid in the members' diets was not

determined in this study. An adequate breakfast was eaten by 56.81 percent of the members with slightly more than one-fourth not eating fruit. From one to 13 different types of snacks were consumed during the day. Almost 12 percent of the participants did not eat any snacks.

A majority of the members were interested in a revised program including such topics as: Prepare quick meals, Cook outdoors, Plan and prepare family meals, Know what foods I should eat, Use recipes from other countries, Serve family meals and Use teenage table manners. In contrast, less than 50 percent checked an interest in: Buy food at the store, Use homemade mixes, Gain weight and Lose weight.

The County Home Economics Agents suggested a complete revision of the food preservation phases and some changes in the food preparation and meal service phases. The topics suggested by many of the agents for the revised program included: Knowing your table manners, Shopping for family food wisely and Eating well balanced meals.