OPINIONS, PRACTICES, BELIEFS, ATTITUDES AND CONSUMPTION OF FRUITS AND VEGETABLES BY OKLAHOMA HOMEMAKERS

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Duluth, Minnesota

1980

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
July, 1988

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ATTITUDES AND CONSUMPTION

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BY OKLAHOMA

HOMEMAKERS

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ACKNOWLEDGMENTS

The author wishes to express her sincere appreciation to Dr. Lea Ebro, thesis adviser, for her guidance encouragement, and interest in every phase of this study. Also appreciated were the contributions of the committee members, Dr. Esther Winterfeldt and Dr. William Warde. Their insight, advice and assistance were invaluable.

I wish to dedicate this thesis to my husband Roger for his emotional support, love and understanding. I also wish to dedicate this thesis to my inlaws, Joe and Marie Blair and to my parents, Austin and Mariann Otto whose love, understand and moral support have made this accomplishment a reality.

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CHAPTER I

INTRODUCTION

As the human race evolved, man's diet contained more plant sources. Plant sources such as fruits and vegetables are being eaten by more Americans as the supplies of these foods increase and as consumer's preferences are changing possibly due to concerns about health and nutrition.

"Americans ate 209.2 pounds of vegetables per person in 1984. Consumption of fruit in 1984 came to about 142.9 pounds per person."(Hecht, 1985, p. 7).

These statistics from the USDA are from what is called "disappearance data". This term is obtained by "subtracting exports, year-end inventories, non-food use, and military procurement from total production, imports and beginning inventories" (Miller, 1985). This "statistic" does not truly measure an accurate record of the United States consumption of various foods as it does not take into account food that is thrown away in processing by the consumer or food which is spoiled. These statistics from the USDA are useful in "spotting trends in consumption" (Miller, 1985), however, these statistics do not report the actual consumption.

If a person is single, married, working, not working, has children, the ages of their children, the availability of food and numerous other factors could influence either directly or indirectly the food choices that they will make but also the food choices they will be able to make. Various studies have been reported on the food choices of individuals according to a specific variables such as age, income, race and location of residence, or according to the intake of a specific nutrients, however, limited studies have been done on only fruit or vegetable consumption.

Purpose and Objectives of the Study

The purposes of this research are: 1) to determine the types of fruits and vegetables consumed by individuals who are a member of the Oklahoma Extension Homemakers Counsel (henceforth referred to as Oklahoma homemakers); and 2) to determine if there is a relationship between the Oklahoma Homemakers', opinions, practices, beliefs and attitudes toward fruits and vegetables and if these opinions, practices, beliefs and attitudes affect their consumption of fruits and vegetables. The specific objectives are:

1) To identify the types of fruits and vegetables consumed by Oklahoma homemakers.
2) To relate demographic variables with Oklahoma homemakers' fruit and vegetable intake.

3. To determine the impact or effects of opinions, practices, beliefs and attitudes of Oklahoma homemakers' toward the consumption of fruits and vegetables.

Hypotheses

The following hypothesis will be examined:

1. There is no significant association between the intake of fruits with age, sex, marital status, size of household or education level, location of residence, job status or income.

2. There is no significant association between the consumption of vegetables of Oklahoma Homemakers and selected demographic variables as in H_1.

3) There is no significant association between the consumption of fruits of Oklahoma Homemakers and their opinions, practices, beliefs and attitudes.

4. There is no significant association between the consumption of vegetables of Oklahoma homemakers and their opinions, practices, beliefs and attitudes.

Assumptions and Limitations

This research paper was planned on the following assumptions and limitations.

1. The individuals in the study were honest in

answering the questionnaire to the best of their ability.

2. The Oklahoma homemakers were knowledgeable enough about their intake of fruit and vegetables to accurately answer the questionnaire.

3) The Oklahoma homemakers will actually complete the questionnaire.

The major limitation in this study is the fact that only 625 homemakers who belonged to the Oklahoma Extension Homemakers Council were surveyed. Generalizations about the results will only apply to this group.

Definition of Terms

For the purpose of this study the following terms are defined so that the researcher's intent is understood specifically.

Opinion: a conclusion or judgment held with confidence, but falling short of positive knowledge (Funk & Wagnals Dictionary, 1975).

Practices: any customary action or proceeding regarded as individual (Funk & Wagnals Dictionary, 1975).

Belief: probable knowledge; mental conviction; acceptance of something as true or actual (Funk & Wagnals Dictionary, 1975).

Attitude: state of mind, behavior, or conduct regarding some matter, as indicating opinion or purpose (Funk & Wagnals Dictionary 1975).

Oklahoma homemaker: an individual who is a member of the Oklahoma Extension homemakers Council.

CHAPTER II

SURVEY OF LITERATURE

Introduction

This chapter will be devoted to a review of the literature pertaining to the eating of food and other consumption studies which have been previously reported This study was undertaken to determine the consumption of fruits and vegetables of a select group of homemakers who are members of the Oklahoma Extension Homemakers Counsel.

Cultural and Social Desirability of Food

The act of eating is much more than just a physical ingesting of food. Our food choices are deeply rooted in our past. Cultural and social factors influence the reason why many of us eat a particular food or eat in the manner that we do.

For example, sex role identification is apparent in the "meat and potatoes man" and the female identification of "salad, vegetables, and tea" are a way in which food has social significance (Gordon, 1983). Mealtime in general

has been a time of bringing people together, especially the evening meal.

If one looks back at ancient times, they could see the cultural and social factors which have developed. One can see the social differences which occurred with the development of cultivation in ancient cultures. Meat was associated with "heroism " in the Homeric epics in Greece. The peasants were not allowed to eat meat but the aristocratic warrior class did eat meat. The skeletons of the aristocrats were found to be three inches taller than the peasants. The peasant rarely ate more than bread or some type of grain.

In these ancient times, there was poor transportation. Thus one area could go hungry while another would prosper. This fact caused severe anxiety. A severe storm or inclement weather could mean disaster for an entire region. The townspeople often became obsessed with the fear of running out of grain and would suspect the peasants of hoarding the grain to cause the prices to go up.

Religious beliefs and practices also played a role in medieval food choices. Advent and Lent were periods of fasting which were then broken by feasts at Christmas and Easter. The time of fasting coincided with "seasonal scarcity" (Gordon, 1983). The church gave man an understanding of their life and gave meaning to the conditions under which they lived. The church also began to "remind man of his higher nature and responsibilities."

Gluttony was considered one of the seven deadly sins and the virtue of charity was constantly discussed.

With the increase in trade agricultural products began to be traded. Thus food which had previously been eaten only in local areas could now be obtained in large areas. (Enloe, 1977). But the acceptance of certain foods were often slow. An example of this is the potato. The potato was accepted very reluctantly in Europe. It was used originally as a food for only animals. Potatoes were eaten by humans only at the worst times. The potato became the main food of the poor and thus their "social status" was very low (Salaman, 1970).

The French Revolution drastically affected the culinary field. When many cooks lost their jobs in the aristocrats homes, they then sought work in other related fields. Restaurants showed up very quickly and soon became the centers of political and literary activity in cities.

Both the French Revolution and the Industrial Revolution changed western man's way of dining. "New methods of food production, transport, storage, and marketing brought about the largest rise in population and most extensive dietary changes in human history." (Gordon, 1983, p. 18). The diet of the early American worker was of a better quality than the European worker but it was still dull and nutritionally insufficient. Bacteria was not known and food poisoning was one of the most common diseases known in the urban community. The main meats

eaten by the poor included salt pork and blood pudding. The workers would often notch the ears of pigs who roamed the streets to use their blood as a source of food. When New York City finally would not allowed the pigs to roam the street and city officials were sent to round them up, they were met by resistance from the housewives of the poor city dwellers (Cummings, 1940).

At the end of the 19th century, the diet of the poor had changed drastically. There was more money, the transportation had improved and above all, there now was refrigeration. The invention of refrigeration finally broke the cycle of famine as the poor were no longer dependent on the whims of nature for their food production. The use of refrigerated railway cars allowed people in the Midwest to have access to citrus fruit grown in the south. Canning was also used in the first half of the nineteenth century. Canned food played a very important part in supplying the troops in the Civil War (Root and de Rochemont, 1976).

The Industrial Revolution did not just influence what people ate but also played a part in when people ate. Traditionally eating time was two meals a day. The first meal was a major meal which was eaten about noon after a considerable amount of labor had occurred in the fields. The second meal was a lighter meal, eaten at the end of the work day late in the afternoon. After this meal the person would then go home for the night as the cost of light was

so high. With the onset of industrialization and the change in the workers hours, (they now worked 10 to 12 hours per day with only a short break in the middle for a meal) they then had to eat a breakfast of some type to provide themselves with energy for the first half of their work day. The noon meal, which had been a two to three hour break, was considerably shorter so the worker could get back to their machine as soon as possible.

As the wives of many of the workers soon became employed in factories also, the type of home cooking began to change. Thus the workers who left the country for better wages and better food supplies were usually not able to find the better food supply because of their "industrialized" life. (Gordon, 1983, p. 18).

The beginning of the science of nutrition began with studies of the diet of the poor factory worker. To be able to work in the factory the workers had to be in at least a minimally adequate nutritional state. This fact was noted in 1887 by an observer who "praised the American worker as more productive than his less well fed English counterpart" (Cummings, 1940).

At the end of the nineteenth century, because of the influx of people to the city, "regional cuisine" began to develop. This type of cuisine is still very prevalent today as pasta is considered an Italian food; Parisian bread, butter types of cooking, chicory coffee, and red

wine is considered French cooking. Fish and chips is considered English and of course the all American hotdogs, pork, canned beans and white bread (Gordon, 1983).

The twentieth century has known an increased concern about nutrition as more knowledge has become available in this field. The Pure Food and Drug law of 1906 came about as there was concern about the adulteration of foods. Brand name identification began as advertising became more common and people began to identify with certain products such as Kraft and Heinz.

The twentieth century has shown less of a gap between the classes as to their food consumption. However, one still sees some social differences as rarely do you find Gourmet food in blue collar area. There are also regional differences such as one would not readily find blackeyed peas in North Dakota (Gordon, 1983).

Eating Patterns of Different Groups

Various studies have been reported on the food choices of individuals according to a particular variable such as marital status, age, availability of food etc. Many different factors will affect the consumption patterns of different groups.

The Adolescent

When one looks at the dietary intake of various groups, the adolescent group is an interesting one because of the many changes that are occurring in their life at one time. Adolescent girls are of particular interest to study because the "lifetime dietary habits of mothers influence the outcomes of pregnancy and therefore the potential health of future generations (McCoy, 1984).

At no time does one's body change so fast as it does during adolescence. There was found to be a very strong relationship between adolescent girl's physical appearance and the quality of their food intake. The girls with the worst diets measured fatter than the girls with better food intakes. The fat girls liked to skip meals as a way of reducing their caloric intake. When the nutrient intake of female adolescents from eight southern states were compared it was noted that the energy intakes between races and age groups were similar but the urban females had higher energy intakes than the rural females. Again there was an interesting note about adolescent girl's concern about their weight. The percentages of the diets which did not provide two thirds of the RDA's was always greater for the older adolescents than for the younger ones.(McCoy, 1984). "Because the quality of food intake is so strongly

an hour or less before their athletic event. Of the adolescents polled, 92% felt that the best way to change one's food habits was to learn the facts and then to practice them. Again, this was not seen in the adolescent's low reported consumption of calcium and iron-rich foods (Perron and Endres, 1985).

When a study looked at a group of girls who were elite school gymnasts they were found to consume less than 100% of the RDA for most nutrients. An important reason for this is the fact that excess body weight especially fat can hurt a gymnast's performance. The gymnasts had an average of 10% less body fat when compared to their non-athletic school mates. (Moffatt, 1984). 44% of the gymnast's calories were from "other" food categories. As an example the foods which were most frequently eaten were cakes, candy, soda pop, butter and jellies and jams. What was most surprising was that only three of the gymnasts studied were supplementing their diets. Thirty to sixty percent of the gymnasts' had diets which were considered to be inadequate in vitamins B-6, folic acid, calcium, iron zinc, and magnesium. (Moffatt, 1984).

Other factors may have influenced these adolescents food intake. The low-nutrient, energy-dense foods could have been less expensive and more accessible. Also many of the adolescent's food choices and food selection were made by others thus making many of their choices out of their control (Perron and Edress, 1985).

related to the quantity of food consumed this practice may be very dangerous." (MacDonald, 1983, p. 261). Girls tended to drink more low-calorie drinks more than boys and would drink less milk than boys (Bailey, Lynn, WagonerDavis and Dinning 1984). Also "physical activity" was found to be a strong indicator of the quality of the adolescent's diet.

"Young athletes do not know a great deal about nutrition. "(Douglas, 1984, p. 1199). In a study which tested the nutrition knowledge of high school athletes, the high school athletes scored a mean score of 55% (Douglas, 1984). The young male athletes had higher food practice scores than the female athletes. This fact is likely due to the fact that the male athletes ate more and thus consumed the recommended diet due simply to the amount of food consumed. It was also shown in this study that the nutrition knowledge of the young female athletes had did not reflect in their food choices. Thus actual knowledge about nutrition was not enough to convince people that they should change their eating habits (Douglas, 1984).

In a different study by Perron, 1985 there again was found to be no significant relationship between nutrition knowledge or attitudes and the athletes energy, calcium, iron, and vitamins A and C intake. (Perron and Edres, 1985). As an example 42% of the athletes stated that they knew the pre-event meal should be eaten three to four hours before their competition, however, 80% ate their meal

Specific Groups

Such factors such as the adolescent's family income and family size could have negatively influenced the actual availability of food. One's ethnic background also seems to influence their food choices. For example, Hispanics rarely selected green cooked vegetables or other cooked vegetables; whereas, blacks ate potatoes often one or more times per day (Bailey et.al., 1984). Traditionally, women have been responsible for the preparation of food. Because family roles are changing (more and more women are working outside the home) and due to the high divorce rate, many men are now involved in the processing of food. In a study where the food use in households with male preparers was analyzed, there was found to be a greater usage of beer and whole wheat bread and a less use of home-baked products. There was little difference between men and women as to their usage of fruits and vegetables (Pearson et.al., 1986).

Military personnel were studied to determine if there were sex and race differences in one's food preferences. Women preferred vegetables, salads and fruit. The favorite food of both white and black women, was a green tossed salad. By comparison, men never preferred a starch, fruit or salad more than women. Men's most preferred food was meat, with grilled steak being the most preferred food. Prune juice and stewed prunes were the least liked by three

of the four groups. Blacks as a race preferred fruit-flavored juices and drinks (Wyant and Meiselman, 1984).

The Elderly

The elderly are another group with a different food consumption pattern. The elderly's nutritional intake is a factor that they can control to improve their health status. Various studies have been done one the food consumption of the elderly. In a study which looked at the cluster analysis of food consumption for older Americans, data for persons aged 65 through 74 years from the 1979 - 1978 Nationwide Food Consumption Survey (NFCS) was used in this study (Health Resource Administration, National Center for Health Statistics, 1979). There were eight clusters. The men in cluster 1 were the group that consumed the most whole-grain and fruit and vegetable products. This was the cluster which is "characterized by a relatively balanced diet." (Akin, et.al. 1986). If one was Southern they had an 11% more likelihood to fall into cluster 1 and being white made the choice 7% more likely (Akin, et.al. 1986). If one knows which types of individual will be more likely to choose a particular food, nutrition education programs can be individually designed to fit each group.

In a study using the food frequency method, core foods were analyzed. A three day dietary collection period of

people more than 54 years old was evaluated. The group of food with the greatest variety was the fruit and vegetable group. Orange juice and bananas were the fruits most frequently mentioned by both the men and women. Tomatoes , potatoes and lettuce were the most frequently used vegetables. Potatoes were consumed at least by 50% of the people surveyed on at least one of the three days (Fanelli and Stevenhagen, 1985).

In another study, socioeconomic factors and the dietary intake of elderly Missourians was analyzed. There was a greater number of individuals who consumed less than 67% of the recommended servings of protein-rich foods, fruits and vegetables who lived alone in high-rise apartments for the elderly; had not worked at least part time for the past year; and were not married. Whereas, individuals who have the lowest percentage of persons who consumed less than 67% of those foods were living with other people; had worked at least part-time for the past year and were married or widowed (O'Hanlon, Pauline, Kohrs, Hilderbrand and Nordstrom, 1983).

Food choices are very limited for those living in a nursing home,. A study was done which evaluated the nutritive intake of residents in a nursing home. There was found to be many resident who were consuming less than 1,500 calories per day on a regular basis. When one consumed this few calories, the menus of the nursing homes did not meet the nutrient needs of many of the residents.

"A study of planned menus and food intake data... has shown that energy and the nutrients magnesium, zinc, vitamin B-6, and total folic acid may be low in the food supply." (Sempos, Christopher, Johnson, Elmer, Allington and Matthews, 1982, p. 36). The study recommended that the nutrient density of the nursing home menus' should be increased and that vitamin and or mineral supplementation might be necessary for particular residents who had continually low intakes of calories. If the resident had a disease or was chronically ill, using drugs could further compromise their nutritional status (Sempos, et.al. 1982).

Importance of Fruits and Vegetables

As the life-style in the United States has become more fast paced, the quality of the American diet has become a concern to nutritionists. There has been an increase in consumption of convenience foods. Nationwide Food Consumption Survey (NFCS) found that in 1965 35% of the 23-34 year olds ate food away from home compared with almost 50% eating out in the 1977 survey. (Science and Education Administration, 1980). It is important to evaluate the fruit and vegetable consumption since convenience foods are often lacking in fruits and vegetables. There was a large proportion of individuals with vitamin A intake below the standards in the HANES study (Health Resource Adminstration, National Center for

Health Statistics, 1979). "The proportions of females in the 12-74 years age group, ranged from 56% in the age group 55-64 years, to 70 % in the age group 15-17 years." (Health Resource Administration, Nation Center for Health Statistics, 1979, p. 9)

There was also a large proportion of individuals with vitamin C intakes below the standards in the HANES study. "The proportions of white females with low vitamin C values ranged from 36 to 72% in the low income group; the range was from 36 to 54 % in the upper income group. (Health Resource Administration, 1979, p. 67).

MacDonald, Lorry, Wearring, and Moase (1983) assessed the quality of the intakes of adolescent girls. They found that those who ate "good" diets, ate more food and kilocalories from each food group versus those who ate "poor" diets. The diets which were classified as "good" were those which had: three to four servings from the milk group, four to five servings from the bread and/or cereal group, four to five servings of fruits and vegetables and around two servings from the protein group. The study found that students who ate "poor" diets ate less from the the major food groups. In a study which looked at the diets of elementary student, it was found that milk protein, grain, vegetables, fruits, sugary products and fats where consumed more as the kilocalorie level of the student's diet increased. As these students' kilocalories decreased, their consumption of milk protein and grain

decreased. A fact which has implications for those children who might be dieting (Newell et.al. 1985).

In a study which looked at Appalachian adolescent' eating patterns and nutrient intakes, (Skinner et.al. 1985) 34 percent of the adolescents skipped breakfast and 15 percent did not eat lunch. Of those who did eat lunch, 62 percent did not eat vegetables and only 5 percent ate a fruit. For supper, less than 10 percent ate a vegetable which was a good source of vitamin A and only 5 percent ate fruit. The Appalachian girls' mean consumption of calcium, iron and vitamin A was lower than their RDA. The boys means consumption of iron was lower than their RDA but the boys ate 1,000 more calories on the average than girls did which could be the reason why the boys' diets appeared more adequate than the adolescent girls.

Major Consumption Studies

The Nationwide Food Consumption Survey (NFCS) (Science and Education Administration, 1980) and the Health and Nutrition Examination Survey (HANES) (Health Resource Administration, 1979) are two well known consumption studies. These studies are conducted on a large number of individuals across the United States by the Department of Health, Education, and Welfare.

Nationwide Food Consumption Survey

The Nationwide Food Consumption Survey (NFCS) (Science and Education Administration, 1980) is conducted by the U.S. Department of Agriculture. The first survey was conducted in 1936. This survey looks at the food used at home by households and dietary intakes of certain members n the particular household.

The results of the NFCS provides data on the kind and amounts of foods consumed and an assessment of the nutritive value of the diets eaten by males and females of different ages and by various household characteristics. The survey also obtains dietary information besides the kind and amount of food eaten. Other information such as the time the food was eaten, the eating occasion, who the food was eaten with, the place the food was eaten (at home or away), and the individual are asked if they are on a restricted diet, if they took vitamins and/or supplements. Other factors are also looked at in this survey such as income, region, education, occupation, size of household, race and an appraisal by the individual of their health and physical handicap. The data was collected by interviewing the member in the household who did the majority of the food planning and preparation.

Health and Nutrition Examination Survey

The Health and Nutrition Examination Survey (HANES) was begun by the Nation Center for Health Statistics of the Department of Health and Human Services. Its purpose was to set up a continuing, national system to assess the nutritional status of the United States. This "system" would be under the authority of the National Health Survey Act of 1956956 and its purpose would be to not only measure the nutritional status of the United States but to also watch the changes which occur in the United States' nutritional status over time (Health Resource Adminstration, National Center for Health Statistics, 1979).

The HANES is a program which collects various measures of the United States' nutritional status by using a "scientifically designed sample representative of the U.S. civilian noninstitutionalized population in a broad range of ages, 1-74 years." (Health Resource Administration, 1979, p. 2).

The HANES used nutritional assessment techniques which measured overt signs of malnutrition and indicators which measured a level of the individual's nutritional status that would be considered outside a set range. Four types of data were obtained: (1) dietary intake, which consisted the the amount and the type of food eaten and its

nutritional value. A 24 hour recall and a 3 month frequency recall was used for this part of the survey. (2) tests on the individual's blood and urine to assess the level of different nutrients. (3) the results of examinations by doctors and dentists which would indicate signs of nutrition related problems. (4) different types of body measurements that would show growth, including obesity (Health Resource Administration, National Center for Health Statistics, 1979).

Methods of Studying Food Consumption

There are different methods which can be used to obtain the consumption of food of individuals. Each of these methods have certain advantages and disadvantages. The most accurate method is the "balance study". This method gives the chemically quantitative estimates of both the food consumed and the corresponding urinary and fecal outputs (Burke, 1947). Balance studies are very expensive and time consuming. They can not be used on large groups for any length of time. The subjects are forced to live under abnormal conditions and their normal eating habits may become altered. (Burke, 1947). This method is very rarely if ever used.

Another accurate method of measuring dietary intake is to have the subject weigh the foods they eat at each meal. This method is accurate for a small group of individuals

and for a short period of time. The actual method of measuring and weighing the foods may alter the subject's intake, as they will tend not to eat the food which is hard to weigh and measure (Beal, 1967).

Diet history is a method to estimate an individual's food intake. "A diet history consists of an extensive interview from which an estimate can be made of a person's usual diet over a fairly long time period" (Hankin, et al., 1984, p. 134). This interview must be done by a trained nutritionist. The diet history may show the average dietary intake of the individual for a particular time period and it can show the nutritional status of the individual before the time period discussed. The interviewer is interested in the "average dietary intake over a considerable period" (Burke, 1947).

The 24-hour recall method can be used by someone with less training and takes less time. The subject is asked to recall what his exact intake has been for the past 24 hours. The method is good in that one's memory of the past 24 hour intake is normally good but an individual's diet can vary a great deal from day to day and may not be representative of what that individual normally eats. A way to get around this problem is to have the individual make a seven day record of their actual food intake. This method should give a fairly accurate intake record as the person is asked to either weigh, measure or estimate the amount of food eaten. The trouble with this method is that

it is not practical for clinical or epidemiologic studies; it requires a great deal of cooperation from the subjects and the number of individuals who would be involved in the study would be small thus making the sample small and not representative of the sample (Block, 1982).

A frequency questionnaire can be given to large numbers of persons and thus can be used for a large epidemiologic type of research. Frequency questionnaires are "questionnaires which ask only the frequency with which specified foods were eaten in a given interval ..." (Block, 1982, p. 495). For epidemiologic purposes, being able to place individuals into particular groups of intake can be very useful.

In a study which compared a frequency and a quantitative method of measuring food intake, there was found to be a high level of agreement between the two studies for the mean intake of food items but not for food groups or nutrients. There is however, agreement in this study between items which come in standard measurements. Items such as fruits showed good agreement since fruits generally come in standard portion sizes.

Frequency data can not be used to estimate the exact intake of "individuals". But in epidemiologic studies, the <u>comparison</u> of individuals is what is usually studied. It is the intent of this study to compare the individuals, thus a frequency questionnaire is the method of choice as a research tool.

CHAPTER III

METHOD

This chapter identified the procedures which were followed by the researcher in order to fulfill the objectives of the study. These were: selection of the sample, research design, development of instrument, collection of data, administration of questionnaire, and analysis of data.

Research Design

The research design is a status quo survey in the form of a mailed questionnaire. The purpose in status survey research is to describe, analyze, and interpret conditions that exist. It uses comparison or contrast and tries to discover relationships which exists between variables (Best, 1981). The collection of data from this research is designed to focus on the present opinions, practices, beliefs, attitudes toward and consumption of fruit and vegetables of the Oklahoma homemakers.

In this study the dependent variables were the consumption of fruits and vegetables. The independent variables were selected personal characteristics, opinions, practices, beliefs and attitudes of Oklahoma homemakers.

Population/Sample

The population used in the study was drawn from the membership of the Oklahoma Extension Homemaker Council (N=18,000). A simple random sample of 625 was chosen to be mailed the research questionnaire. The State of Oklahoma was divided into four sections for sampling purposes: Northwest, Southwest, Southeast, and Northeast. One hundred fifty-six members were randomly chosen out of three of the sections and 157 were randomly chosen from the fourth section to whom the questionnaires were mailed.

Data Collection

Development of Instrument

Portions of the instrument were adopted from questionnaires used for studies done on the consumption of wheat products and beef products by other graduate students in the department of Food Nutrition and Institution Administration. The content validity, clarity, and format were examined by the research committee. Corrections were incorporated into the questionnaire.

The research instrument (Appendix A) consisted of two parts: general information and fruit and vegetable survey. Part I, the general information portion requested demographic information about the respondents and questions regarding the procurement and cooking of food. Part II,

the fruit and vegetable survey obtained information about the respondents opinions, practices, beliefs and attitudes toward fruits and vegetables. Numbers 15 and 16 of section II requested information on frequency of consumption and the form in which the respondent consumed fruits and vegetables.

Procedure

A cover letter (Appendix A) was developed to accompany the instrument explaining the research and providing instructions for completion of the questionnaire. The cover letter and questionnaire were printed on light pink bond paper and reproduced at the Oklahoma State University Engineering Duplicating Services. The questionnaires were folded into thirds and stapled, with the address label visible. They were mailed first class, and business reply mail was utilized on the return mailing. The 625 questionnaire were mailed March 30, 1987, and the respondents were asked to return them on or before April 17, 1987 for analysis.

A follow-up technique was employed. Two weeks after the questionnaires were mailed, postcards were sent to those who had not returned their questionnaire encouraging them to answer their questionnaire and return it if they had not already done so. The questionnaire and its cover letter, with the return envelope provided, was mailed only once.

Data Analysis

The responses to the questionnaire was tabulated and coded for analysis. The responses which were given for the fruit and vegetable surveys were coded in the following ways: 0 times per two week period "0"; 1-2 times per two week period, "1.5"; 3-4 times per two week period, "3.5"; 5 or more times per two week period, "5.5". Data were processed through a computer and analyzed by the Statistical Analysis System Package (SAS) (Helwig and Council, 1979). T-tests, ANOVA and Duncan Multiple Range Tests were the statistical procedures used. The level of significance was established as $p \leq 0.05$.

CHAPTER IV

RESULTS AND DISCUSSION

Nutritionists generally say that to obtain a balanced diet one needs to incorporate fruits and vegetables in their daily intake. In this study, the consumption of fruits and vegetables of Oklahoma Homemakers and the relationship between the Oklahoma Homemakers' opinions, practices, beliefs and attitudes, toward fruits and vegetables and how these opinions, practices, beliefs and attitudes affect their purchasing habits and consumption were studied. Data was obtained using the research instrument described in Chapter III, "Methods and Procedures". The questionnaires were mailed to 625 randomly selected members of the Oklahoma Extension Homemakers Council and the total response rate was 42% (N=264).

Characteristics of Survey Participants

More than half of the respondents were 61 years of age or older and about 40 percent were in the age group 31-50 (Table I). The majority of the participants were Caucasion. Eighteen out of the 260 who indicated their race were minorities (Table I).

Three fourths of the respondents were married while the remaining individuals were widowed, divorced or separated. Only 4 individuals indicated that they have never married (Table I).

Community Size, Employment Status and Income

Half of the respondents lived in a rural community, while only four percent (N=11) lived in a community of over 250,000 people (Table I). Over 40 percent of the respondents were retired and approximately 30 percent considered themselves as full-time homemakers. Only about 30 percent of the respondents worked, either part-time or full-time (Table I).

The majority of the respondents' spouse were either employed full time or were retired (Table I). The range of income among the respondents, was equally distributed with only 14 percent earning over $40,000 (Table I). Approximately half of the respondents' household had two people living at home and around one fifth of the respondents were living alone (Table I).

Number of Children Under Eighteen

Seventy-five (N=197) of the respondents did not have children under 18 years of age living in their household. Twenty-five percent (N=64) did have children under 18 years of age living at home.

Table I

DEMOGRAPHIC VARIABLES OF RESPONDENTS

Variable	Frequency*	Percentage**
Age		
<20	0	0
21-30	15	5
31-40	36	13
41-50	66	25
51-60	33	13
61 & older	146	56
Race		
Caucasian (White)	243	93
Black	7	3
American Indian	9	3
Oriental	1	0.4
Marital Status		
Single or never married	4	2
Married	195	74
Divorced/separated or widowed	63	24
Education		
Less than high school	41	16
High school graduate	101	39
Attended college	68	26
College graduate or post grad	50	19
Community size		
Large city (>250,000)	11	4
Small city (25,000 to 250,000)	44	17
Town (2,500 to 25,000)	72	28
Rural Community (<2,500)	130	50

* Total respondents was 264 but some individuals did not provide information on certain questions

** Total is not 100 due to rounding error

Table I

DEMOGRAPHIC VARIABLES OF RESPONDENTS
(CONTINUED)

Variable	Frequency*	Percentage**
Employment status of respondent		
Full-time	45	17
Part-time	28	11
Homemaker	77	29
Unemployed	5	2
Retired	107	41
Employment status of co-wage earner		
Full-time	89	38
Part-time	11	5
Homemaker	5	2
Unemployed	5	2
Retired	88	37
Not applicable	39	17
Income		
Less than $10,000	51	21
$10,000 to $14,999	46	19
$15,000 to $24,999	58	24
$25,000 to $39,999	51	21
$40,000 - more	33	14
Size of household		
One	57	22
Two	128	49
Three	24	9
Four	34	13
Five	11	4
Six	6	2

* Total respondents was 264 but some individuals did not provide information on certain questions

** Total is not 100 due to rounding error

Person Responsible For Purchasing and Cooking Food

Eighty-four percent (N=222) of the respondents purchased the food and 94 percent (N=247) of the respondents cooked the food in their households. None of the respondents said that a child had these responsibilities (Table II). Respondents who stated that the responsibility for purchasing and cooking of food is "shared", have perhaps their spouse and/or their child assist with this task.

Table II

PERSON RESPONSIBLE FOR PURCHASING AND COOKING FOOD

Responsible	FOOD PURCHASING Frequency	Percentage*	COOKING Frequency	Percentage*
Self	222	84	247	94
Shared	34	13	10	4
Spouse	11	4	5	2
Parent	1	0.4	1	0.4
Other	1	0.4	1	0.4
Child	0	0	0	0

* total is not 100 due to rounding error

Age of Principal Shopper

The predominant age of the principal shopper was 61 years and older (N=145, 55%). Only 15 (6%) were in the age group 21 to 30 years (Table III).

Table III

AGE OF PRINCIPAL SHOPPER

Age	Frequency	Percentage
Less than 20	0	0
21 - 30	15	6
31 - 40	35	13
41 - 50	34	13
51 - 60	34	13
65 and older	145	55

Opinions, Practices, Beliefs and Attitudes

Nutrition Responses of Respondents and Spouse

The responses given for the spouses were the

perceptions of the respondents regardings their spouse. he spouse themselves did not answer these questions. There was a general tendency for the respondents to give themselves a higher score on the questions concerning their nutrition knowledge or concerns than for their spouses except for the amount of time spent in physical activity and the respondents' perception of their weight status (Table IV).

The amount of time the respondents spent in physical activity was well distributed. About half of the respondents spent one hour or less on physical activity and the other half spent one or more hours. The spouses were perceived as spending either less than one half hour or more than two hours on physical activity (Table IV).

Seventy percent of the respondents stated that they wanted to lose one or more pounds, whereas, only 40 percent of the spouses were perceived as needing to lose one or more pounds (Table IV). Around 50 percent of the spouses were perceived as being satisfied with their weight but only 30 percent of the respondents stated that they were satisfied with their weight (Table V). Women tend to see themselves as needing to lose weight more than they would perceive others as needing to lose weight. The researcher also found it interesting that most of the respondents stated that they wished to lose weight and were concerned about nutrition and diet, however, they engaged in very little exercise (Table V).

Table IV

RESPONSES TO NUTRITION QUESTIONS

Variable	YOURSELF Frequency	YOURSELF Percentage	SPOUSE Frequency	SPOUSE Percentage
Concern About Nutrition				
More Concerned	190	74	96	52
No Real Change	74	23	78	42
Less Concerned	4	2	6	4
Not Sure	3	1	4	2
Eating Habits Now As Compared to Past Years				
More nutritious	162	63	94	50
No change	74	29	81	44
Less nutritious	17	7	12	6
Not sure	3	1	0	0
Informed About Nutrition As Compared to Past Years				
Fairly informed	133	52	90	48
Well informed	113	44	37	20
Not informed	11	4	49	26
Not sure	1	0.4	10	6

(continued)

Table IV

(CONTINUED)

Variable	YOURSELF Frequency	YOURSELF Percentage	SPOUSE Frequency	SPOUSE Percentage
Amount of Time Engaged in Physical Activity				
Less than 1/2 hour	56	22	63	34
1/2 to 1 hour	68	27	33	18
1 to 2 hours	47	19	19	10
More than 2 hours	82	32	72	38
Weight Status				
Gain 10+ lbs	1	0.4	6	3
Gain 1-10 lbs	3	1	4	2
Not concerned	44	17	70	39
Counts calories	27	11	27	15
Lose 1-10 lbs	89	35	29	16
Lose 10+ lbs	89	35	42	24
Concern About Diet				
Eats Balanced Diet	187	74	103	64
Calories Only	33	13	9	5
Eats Nutritious Food	30	12	6	4
Not Concerned	4	2	44	27

Weight Loss Programs

Since the majority of the respondents did not belong to a weight loss program, the results were not analyzed. The researcher will not discuss this topic further.

Read and Use Nutritional Labeling

Eighty-one percent (N=197) of the respondents indicated that they read and use nutritional labeling, while 19 percent (N=45) of the respondents said they did not. The reading of labels by the majority of the respondents could be an example of their concern about nutrition and a desire to increase their nutritional knowledge. Since the majority of the respondents were the primary shoppers, they could be more concerned with the nutritional content of the products purchased.

Appear on Food Label

When asked to choose the three most important nutrients or ingredients that should appear on a food label out of those listed in the questionnaire, the respondents chose sodium, sugar, food additive/ preservatives and calories in descending order (Table V). The majority of the respondents were over 60, so they could be more concerned about health problems such as heart disease, high blood pressure and diabetes. An

individual with these health problems would be concerned about the salt, sugar and calorie content of foods they were eating. Contrary to expectations, 32 percent of the respondents stated that they wanted the fat content on the fruit/vegetable label (Table V). As there is more processed convenience foods available which are fried, in a cream sauce etc., the respondents could be concerned about the fat content of processed foods.

Table V

APPEAR ON A FRUIT/VEGETABLE LABEL

Nutrient/Ingredient	YES	
	Frequency	Percent
Sodium	180	71
Sugar	147	58
Food Additive/ Preservative	118	47
Calories	114	45
Fat	80	32
Vitamin/Mineral	53	21
Protein	28	11
Carbohydrate	25	10

Interpretation of the Term "Lite"

Approximately 40 percent of the respondents stated that "low in calories" was a meaning of the term "lite". One third of the respondents stated that "no added sugar" was a meaning of the term (Table VI). "Lite" does not have a standard, universal meaning. The respondents' perception of the term lite could reflect their desire to eat more nutritiously as they attempt to purchase foods which have a lower sugar and/or calorie content.

Table VI

RESPONDENTS' INTERPRETATION OF THE TERM "LITE"

	YES	
Stated Meaning	Frequency	Percent
Low In Calories	164	42
No Added Sugar	124	32
Better For You	55	14
No Added Salt	40	10
Better Tasting	9	2

Influence of Promotional Techniques

About 50 percent of the respondents stated that

discounts, appearance of display, daily specials and service personnel recommendations "sometimes" influenced their food purchases. About 40 percent of the respondents said that weekly specials and discounts "often" influenced their purchases. Only about 5 percent of the respondents said that weekly specials and discounts "never" influenced their purchases. Weekly specials "always" influenced the purchases of 21 percent of the respondents (Table VII).

It would appear that the majority of the respondents were influenced by daily to weekly specials as well as by discounts in their fruit/vegetable purchases. As most of the respondents were over 60 and retired, they may be on a fixed income and therefore need to watch their food expenditure by using daily to weekly specials and discounts.

Cooking Methods

The cooking methods most often used were microwaving, baking and boiling (Table VIII). These cooking methods for fruits and vegetables were contrary to the researcher's expectations by observing the common practices in this region of the country. Deep fat frying was the cooking method which the researcher expected to be used frequently by the respondents. Possibly, the food science specialist and extension home economists who give demonstrations on how to use

Table VII

INFLUENCE OF PROMOTIONAL TECHNIQUES ON FOOD PURCHASES

Technique	Never		Sometimes		Often		Always	
	Freq	%	Freq	%	Freq	%	Freq	%
Weekly Specials	12	5	90	36	92	37	54	21
Discounts	8	4	91	42	89	41	30	14
Appearance of Display	40	21	89	46	40	21	24	12
Daily Specials	27	14	93	50	53	28	15	9
Service Personnel Recommendations	60	33	86	48	18	10	17	9

microwaves could explain the frequent use of microwaving by the homemakers.

Where Fruits and Vegetables Are Obtained

The majority (N=200, 79%) of the respondents stated that they obtained their vegetables from the grocery store. Similarly, the majority (N=190, 75%) also obtained their fruits from the grocery store. Only 21 percent (N=54) of the respondents obtained their vegetables from the garden or a fruit/vegetable stand, and only 25 percent of the respondents stated that they obtained fresh fruits from the garden or a fruit/

Table VIII

COOKING METHODS OF FRUITS AND VEGETABLES
USED IN THE LAST TWO WEEKS

Method	Yes	
	Frequency	Percent
Microwaving	170	66
Baking	151	58
Boiling	131	51
Steaming	87	34
Stewing or braising	84	32
Roasting	79	30
Pan frying	69	27
Crock pot	53	21
Broiling or grilling	48	19
Stir frying	45	17
Pressure cooking	33	13
Deep fat frying	30	12

from the garden or a fruit/vegetable stand.

These results were expected as most of the respondents lived in a small community and could have a small garden of their own or have easy access to fruit/vegetable stands. As the majority of the respondents were retired, they perhaps have the time for maintaining gardens and more time to obtain fruits and

vegetables from sources other than the grocery store.

Attitudes About Fruits and Vegetables

The majority of the respondents considered vegetables and fruits as nutritious food items which are good sources of vitamin C, iron and fiber; however, about one third felt that fruits are expensive to purchase. Many did not consider french fries and catsup as vegetable items, and 41 percent thought that grapefruit would burn body fat. Baked potato was perceived to be low in calories and canned vegetables as high in salt, less nutritious than fresh ones and expensive to purchase (Table IX).

Consumption of Fruits

The most frequently eaten fresh fruits were peaches and pineapple, (five or more times every two weeks) followed by apple, bananas and oranges (one to two times every two weeks) (Table X). Avocado, grapes, fresh grapefruit, lemon and strawberries were also eaten during a two week period. Peaches and strawberries are grown widely in eastern Oklahoma, hence they were consumed more often than other fruits. Pineapple from Hawaii and New Mexico are available in the grocery stores almost year round.

All market forms of apples and oranges were checked as being consumed either one to two or three to four

Table IX

ATTITUDES OF RESPONDENTS' TOWARD FRUITS AND VEGETABLES

Statement	Str. Agree Freq	%	Agree Freq	%	Disagree Freq	%	Str. Disagree Freq	%
French fries like vegetable	10	4	51	21	96	39	88	36
Fruits are good for me	209	83	36	14	0	0	5	2
Vegetables are low in calories	80	34	119	50	29	12	9	4
Catsup like vegetable	7	3	18	8	108	45	105	44
Fruits good source of Vit C	112	47	113	47	10	4	6	3
Grapefruit will burn bodyfat	19	8	79	33	99	42	40	17
Fruits are too expensive	29	12	40	17	102	42	71	29
Vegetables are good for me	173	71	49	20	12	5	9	4
Canned veg. more nutritious	5	2	15	6	132	54	94	38
Vegetables good source of iron	40	17	140	60	48	21	5	2
Vegetables good source of fiber	58	24	138	58	39	16	6	3
Canned vegetables high in salt	105	43	123	50	11	6	7	3
Baked potato high in calories	10	4	13	5	157	62	72	29

times during the same period. Since frozen apples and oranges are not generally available in grocery stores, the respondents may have meant juice when they checked the the frozen form column for these two items. The research was conducted during the spring season, hence, many of the fruits generally consumed by the respondents were fresh rather than canned or frozen (Table VII).

Consumption of Vegetables

Similar to fruit consumption, fresh vegetables were consumed more often than frozen or canned. Those consumed five or more times during a two weeks period were green beans, green peas, beets, tomatoes and blackeyed peas (Table XI). These vegetables are grown in the garden and are available in grocery store and produce stands.

Those eaten at least one to two times in a two week period included, fresh carrots, cauliflower, celery, cabbage, and rice. Okra, a favorite vegetable in Oklahoma was eaten three to four times in a two week period. Asparagus and mushrooms are abundant in eastern Oklahoma in the spring.

A complete list of the various fruits and vegetables consumed by the respondent is listed in the Appendix A. Some of respondents stated that they consumed a fruit or vegetables in forms which are somewhat unusual eg. frozen kiwi fruit. Generally occurrence of these was infrequent

so no analysis was performed (Appendix A, Table LXXXIX and XC).

Table X

CONSUMPTION OF FRUITS BY RESPONDENTS IN A TWO WEEK PERIOD

Type of Fruit	FREQUENCY		
	Fresh	Frozen	Canned
1-2 times per two week			
Apple (one)	75	54	63
Avocado (1/2)	44	-	-
Banana (one)	73	-	-
Grapes (1/2 cup)	44	-	-
Grapefruit (1/2)	38	-	-
Lemon (1 slice)	34	8	12
Orange (one)	63	44	64
Orange juice (1/2 cup)	9	11	22
Strawberries (1/2 cup)	41	17	14
3-4 times per two week			
Peaches (one)	13	7	3
Orange juice (1/2 cup)	22	23	59
Strawberries (1/2 cup)	31	13	11
5 or more times per two week			
Apple (one)	21	9	5
Peaches (one)	62	-	8
Pears (one)	35	-	4
Cherries (1/2 cup)	37	-	5
Mandarin orange (1/2 c)	21	-	-
Pineapple (1/2 cup)	67	12	15

Table XI

CONSUMPTION OF VEGETABLES BY RESPONDENTS IN A TWO WEEK PERIOD

Type of Vegetable	Fresh	Frozen	Canned
1-2 times per two week			
Tomato (1/2 cup)	60	-	32
Carrots (1/2 cup)	74	64	44
Cauliflower (1/2 cup)	78	33	-
Potato (1/2 cup)	51	71	98
Celery (1/2 cup)	76	-	-
Cucumber (one)	64	-	-
Cabbage (1 cup)	85	40	-
Radishes (one)	45	-	-
Rice (1/2 cup)	70	-	-
Broccoli (1/2 cup)	50	32	-
Green onion (one)	51	-	-
Sweet pepper (1/4 cup)	54	-	-
3-4 times per two week			
Okra (1/2 cup)	68	8	1
Green peas (1/2 cup)	40	14	4
Cauliflower (1/2 cup)	27	9	-
Broccoli (1/2 cup)	49	16	-
Corn (1/2 cup)	43	10	2
5 or more times per two week			
Asparagus (1/2 cup)	26	6	1
Tomato (1/2 cup)	47	-	20
Green beans (1/2 cup)	75	60	35
Lima beans (1/2 cup)	27	8	3
Green peas (1/2 cup	60	24	10
Beets (1/2 cup)	54	9	9
Spinach (1/2 cup)	34	8	5
Sauerkraut (1/2 cup)	-	-	33
Blackeyed peas (1/2 cup)	44	-	4
Mushroom (1/2 cup)	30	6	3

Statistical Analysis

Age

ANOVA determinations indicated that age is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables (Table XII and XIII). Duncan multiple range tests showed that the 51-60 year old homemakers consumed significantly more fresh blueberries, fresh pumpkin and frozen spinach, while the 61 years and older consumed more fresh sweet potatoes. The 21-30 year old homemakers consumed significantly more fresh plums and the middle-age group, 41-50 years, consumed significantly more frozen orange juice. The 41-50 years age group consumed significantly more canned beets than the 31-40 years age group.

Race

Since 93 percent (N=243) of the respondents were Caucasian, the researcher did not analyze this variable. It was felt that due to the exceedingly small number of the respondents who were minorities, conclusions could not be drawn between the two groups.

Education

Education is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables as shown by ANOVA determinations. Duncan multiple range tests,

Table XII

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY AGE

Age	N	Blueberries	Plums	Pumpkin	Sweet potato
21-30 Years	15	.00[b]	.60[a]	.00[b]	.00[b]
31-40 Years	35	.04[b]	.00[b]	.00[b]	.08[b]
41-50 Years	33	.00[b]	.00[b]	.00[b]	.35[b]
51-60 Years	33	.27[a]	.00[b]	.20[a]	.29[b]
61 and older	136	.02[b]	.05[b]	.01[b]	.61[a]
F	4,247	.045	.0003	.006	.02

Means with same letter are not different by Duncan's test

Table XIII

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRUITS AND VEGETABLES BY AGE

Age	N	Orange Juice (frozen)	Spinach (frozen)	Beets (canned)
21-30 Years	15	.00[b]	.10[b]	.00[b]
31-40 Years	35	.04[b]	.04[b]	.32[b]
41-50 Years	33	.26[a]	.00[b]	1.06[a]
51-60 Years	33	.00[b]	.61[a]	.68[ab]
61 and older	136	.00[b]	.15[b]	.67[ab]
F	4,247	.002	.013	.038

Means with the same letter are not different by Duncan's test

(Table XIV) showed that the college graduate consumed more honeydew, whereas, those who had less than a high school education consumed significantly less tomatoes. Those who have attended or graduated from college consumed significantly ($p \leq 0.05$) more fresh cauliflower and mushrooms than those who were not high school graduates. Those who were college graduates also consumed significantly more fresh spinach then those who have completed 12 or less grades. Thus the higher the education level of the consumers in the study, the higher the consumption of the fresh and expensive produce.

Community Size

Community size is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables as shown by ANOVA determinations. Duncan multiple range tests (Table XV and XVI) showed that tangerines pears, brussel sprouts, corn and eggplant were consumed more by those living in large communities (over 25,000), whereas, for canned strawberries, (probably frozen package) blackeyed peas and sweet potatoes were consumed significantly more by those living in communities with 2,500 to 25,000 population. Those living in the 2,500 to 25,00 size community consumed more canned lima beans and fresh strawberries than those in a small (under 2,500) size communities and consumed significantly more canned green beans than those in large communities (over

Table XIV

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY EDUCATION

Education	N	Honeydew	Tomato	Cauliflower	Spinach	Mushroom
Less than high school graduate	37	.14[b]	.85[b]	.69[b]	.08[b]	.04[b]
High school graduate	98	.02[b]	1.67[a]	1.21[ab]	.32[b]	.43[ab]
Attended college	67	.05[b]	2.32[a]	1.61[a]	.38[ab]	.57[a]
College graduate/ post graduate	48	.38[a]	1.97[a]	1.50[a]	.74[a]	.76[a]
F	4,249	.0005	.001	.036	.019	.034

Means with the same letter are not different by Duncan' test

Table XV

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY COMMUNITY SIZE

Community Size	N	Tangerine	Pears	Strawberries	Brussel Sprouts	Corn	Eggplant
Over 25,000	51	.54[a]	.40[a]	.79[ab]	.38[a]	.62[a]	.28[a]
2,5000 to 25,000	69	.33[ab]	.16[b]	1.14[a]	.09[b]	.23[b]	.07[a]
Under 2,500	127	.11[b]	.11[b]	.58[b]	.05[b]	.21[b]	.04[a]
F	3,247	.033	.033	.047	.004	.03	.001

Means of the same letter are not different by Duncan's test

Table XVI

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF CANNED FRUITS AND VEGETABLES BY COMMUNITY SIZE

Community Size	N	Strawberries	Green Beans	Lima Beans	Blackeyed Peas	Sweet Potato
Over 25,000	51	.00[b]	1.44[b]	.34[ab]	.22[b]	.00[b]
2,500 to 25,000	69	.09[a]	2.47[a]	.58[a]	.71[a]	.25[a]
Under 2,500	127	.00[b]	2.03ab	.21[b]	.40[b]	.05[b]
F	3,247	.037	.013	.026	.002	.001

Means with the same letter are not different by Duncan's test

25,000). In general, it was found that consumers living in larger communities ate more fresh fruits and vegetables than those living in smaller communities.

Employment Status

ANOVA determinations indicated that employment status is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables. Duncan multiple range tests (Table XVII and XVIII) showed that for fresh kiwi, fresh brussel sprouts, frozen raspberry and frozen potato, those employed part-time consumed significantly more. Consumers employed part-time consumed significantly more frozen peas and fresh grapes than those employed full-time or retired. Respondents employed part-time consumed more rice than those employed full-time. Consumers working part-time or full-time homemakers, consumed more frozen broccoli than those retired. In contrast, retired homemakers consumed more fresh sweet potato than those who were working full-time.

Income

Income is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables as shown by ANOVA determination. Duncan multiple range tests (Table XIX and XX) indicated that those earning $14,999 and less, consumed significantly more canned carrots than

Table XVII

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FROZEN FRUITS AND VEGETABLES BY EMPLOYMENT STATUS

Employment Status	N	Raspberry	Peas	Potato	Broccoli
Full-time	46	.19[b]	.35[b]	.20[b]	.75[ab]
Part-time	28	.50[a]	1.00[a]	.52[a]	1.28[a]
Homemaker	73	.12[b]	.68[ab]	.13[b]	.92[a]
Retired	99	.06[b]	.34[b]	.05[b]	.34[b]
F	4,245	.04	.01	.038	.038

Means with the same letter are not different by Duncan's test

Table XVIII

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY EMPLOYMENT STATUS

Employment Status	N	Grapes	Kiwi	Rice	Brussel Sprouts	Sweet Potato
Full-time	46	1.70[b]	.13[b]	.67[b]	.07[b]	.16[b]
Part-time	28	2.10[a]	.64[a]	1.35[a]	.45[a]	.30[ab]
Homemaker	73	1.10[ab]	.17[b]	1.20[ab]	.13[b]	.28[ab]
Retired	99	1.17[b]	.19[b]	1.60[ab]	.08[b]	.65[a]
F	4,df245	.05	.03	.02	.04	.01

Means with the same letter are different by Duncan's test

Table XIX

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY INCOME

Income	N	Tangerine	Lemon	Pineapple	Tomato
Less than 10,000	47	.06^{b}	.00^{b}	.12^{b}	1.14^{b}
10,000 to 14,999	42	.32^{ab}	.20^{ab}	.14^{b}	2.30^{a}
15,000 to 24,999	58	.02^{b}	.00^{b}	.73^{a}	1.84^{ab}
25,000 to 39,999	48	.47^{a}	.54^{a}	.33^{ab}	1.58^{ab}
40,000 up	33	.31^{ab}	.43^{a}	.21^{b}	2.12^{a}
F	4,127	.033	.009	.015	.04

Means with the same letter are different by Duncan's test

Table XX

ANOVA AND DUNCAN MULTIPLE RANGE TESTS ON CONSUMPTION OF FROZEN AND CANNED FRUITS AND VEGETABLES BY INCOME

Income	N	Lemon (canned)	Raspberry (frozen)	Carrots (canned)	Peas (frozen)	Pumpkin (canned)
Less than 10,000	47	.00^{b}	.03^{b}	.50^{a}	.23^{b}	.14^{b}
10,000 to 14,999	42	.00^{b}	.04^{b}	.62^{a}	.50^{ab}	.46^{a}
15,000 to 24,999	58	.00^{b}	.11^{b}	.27^{ab}	.34^{b}	.08^{b}
25,000 to 39,999	48	.14^{a}	.14^{b}	.06^{b}	.93^{a}	.09^{b}
40,000 and more	33	.00^{b}	.50^{a}	.04^{b}	.71^{ab}	.18^{b}
F	4,227	.047	.043	.007	.019	.027

Means of the same letter are not different by Duncan's test

those earning $25,000 or more. Those earning $10,000 to 14,999 consumed significantly more canned pumpkin than all other income groups. Surprisingly, those earning $10,000 to 14,999 and those earning $40,000 and up consumed significantly more fresh tomatoes than the less than $10,000 income group. Those earning $15,000 to 24,999 consumed significantly more fresh pineapple than the $14,999 and less group or the $40,000 and up income group. Those earning $25,000 to 39,999 consumed significantly more canned lemon (presumably bottled juice or powdered drink mix). This group also consumed significantly more frozen peas and fresh tangerine than the $15,000 to $24,999 group or the less than $10,000 group. Those with income of $25,000 or more consumed significantly more fresh lemon than all other income groups. Those earning $40,000 or higher consumed significantly more frozen raspberries which are expensive and less available except in chain grocery stores.

Number of People Living in Household

The number of people living in the household is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables by ANOVA determination. Duncan multiple range tests (Table XXI) indicated that those living alone consumed significantly more fresh sweet potato than those with four or more living in the household. Those with three in the household consumed

Table XXI

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY NUMBER OF PEOPLE LIVING IN HOUSEHOLD

Number	N	Pineapple (canned)	Peas (frozen)	Potato (fresh)	Blackeyed Peas (frozen)	Sweet Potato (fresh)
One	54	1.00[b]	.13[b]	2.73[b]	.00[b]	.79[a]
Two	124	.87[b]	.47[ab]	3.37[ab]	.24[ab]	.41[ab]
Three	24	1.80[a]	.70[a]	4.12[a]	.41[a]	.27[ab]
Four	34	.53[b]	.77[a]	4.11[a]	.04[b]	.19[b]
Five	17	.27[b]	1.00[a]	3.44[ab]	.09[ab]	.08[b]
F	5,252	.004	.013	.007	.036	.03

Means with the same letter are not different by Duncan's test

significantly more canned pineapple than those in all other groups, and more frozen blackeyed peas than those with one or four in the household. Those with three or four in the household consumed significantly more fresh potatoes than those with with only one in the household. Those with more than three in the household consumed significantly more frozen peas.

Canned pineapple as well as frozen peas and blackeyed peas are normally enough for three to four servings, In this study, these items are consumed more by those with three or more in the household. Sweet potato can easily be baked or microwaved for one, whereas, the amount of potato prepared would depend on the number in the household.

Responsible for purchasing food

The individual who is responsible for purchasing food in the household is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables. ANOVA determinations indicated that whoever purchases the food influences the amount consumed of frozen apples, canned grapes, canned pears, and fresh tomatoes. Duncan multiple range tests (Table XXII) showed that the consumption of frozen apples and canned grapes were more when another person or "other" was responsible for the food purchasing in the household. For statistical purposes, the researcher combined child, spouse or

Table XXII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS BY WHO IS RESPONSIBLE FOR PURCHASING FOOD IN THE HOUSEHOLD

Person	N	Apple (frozen)	Grapes (canned)	Pears (canned)	Tomato (fresh)
Self	215	.02[b]	.01[b]	.49[ab]	1.76[a]
Shared	27	.00[b]	.00[b]	.98[a]	2.46[a]
Other	12	.29[a]	.45[a]	.12[b]	.54[b]
F	3,253	.017	.0001	.05	.015

Means with the same letter are not different by Duncan's test

housemate and parent as "other" person purchasing the food. In the households where the food purchasing was a shared responsibility, more canned pears were significantly consumed than in the household where "other" purchased the food.

In a previous section, the researcher indicated that perhaps frozen apple is apple juice. This result would then indicate that the respondents generally do not purchase apple juice. Canned grapes are not consumed because they are not readily available. The researcher is aware that red-colored canned grapes in No. 10 cans are used as substitutes for marachino cherries in the school food lunch programs.

Age of Principle Shopper

Consumption of fresh plums, frozen orange, fresh pumpkin, fresh cauliflower, fresh sweet potato, frozen green peas and frozen sauerkraut is significantly ($p \leq 0.05$) associated with age of the principle shopper as indicated by the ANOVA determination. Duncan multiple range tests (Table XXIII and XXIV) showed that the 21-30 year old shoppers consumed significantly more plums but they also consumed significantly less sweet potato than the 61 year and older shoppers. The 31-40 year old shoppers consumed significantly more frozen green peas than the 21-30 year old, the 41-50 year old or the 61 and older age group. The 41-50 year old shoppers consumed

Table XXIII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FROZEN FRUITS AND VEGETABLES BY THE AGE OF THE PRINCIPLE SHOPPER

Age	N	Orange	Green peas	Sauerkraut
21-30 years	15	.00[b]	.20[b]	.00[b]
31-40 years	34	.00[b]	1.05[a]	.04[ab]
41-50 years	34	.25[a]	.45[b]	.00[b]
51-60 years	34	.00[b]	.61[ab]	.14[a]
61 and older	137	.01[b]	.38[b]	.00[b]
F	5,253	.002	.015	.04

Means with the same letter are not different by Duncan's test

Table XXIV

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY AGE OF THE PRINCIPLE SHOPPER

Age	N	Plums	Pumpkin	Cauliflower	Sweet potato
21-30 years	15	.60[a]	.00[b]	.86[b]	.00[b]
31-40 years	35	.00[b]	.00[b]	1.41[ab]	.08[ab]
41-50 years	34	.00[b]	.00[b]	2.05[a]	.23[ab]
51-60 years	34	.00[b]	.19[a]	1.40[ab]	.38[ab]
61 and older	136	.05[b]	.01[b]	1.40[b]	.61[a]
F	5,248	.0003	.007	.03	.017

significantly more frozen orange (presumably juice) and fresh cauliflower than the other age groups. The 51-60 year old consumed significantly more fresh pumpkin than those in other age groups, while the 61 and older ate significantly more fresh sweet potato than the 21-30 year old shoppers.

Marital Status

The t-test determination indicated that marital status significantly ($P \leq 0.05$) affected the consumption of three fruits and five vegetables as shown in Table XXV. Married consumers consumed more fruits and vegetables except for sweet potato and fresh corn on the cob which was eaten more often by the widowed consumers.

As in previous sections in this report, sweet potato and fresh corn on cob are easily prepared for consumption by one individual, whereas, the other fruits and vegetables such as canned peaches, frozen cherries and apple juice, frozen corn on cob and canned green beans are in larger packages.

Children Living at Home Under Eighteen

The consumption of fruits and vegetables was significantly different ($p \leq 0.05$) for the respondents with and without children under 18 years of age living at home by t-test determinations (Table XXVI). Except for canned mushrooms and frozen broccoli which were consumed

Table XXV

T-TEST DETERMINATIONS ON CONSUMPTION OF FRUITS AND VEGETABLES BY MARITAL STATUS OF RESPONDENTS

		Married		Widowed		
FRUIT/VEGETABLE	FORM	N	Mean	N	Mean	P-value
peaches	canned	190	1.00	61	0.61	.039
cherries	frozen	190	0.13	61	0.02	.042
apple juice	frozen	190	0.42	61	0.14	.024
corn on cob	fresh	189	0.17	63	0.69	.008
corn on cob	frozen	189	0.53	63	0.14	.0001
sweet potato	fresh	189	0.32	63	0.71	.04
green beans[1]	canned	189	2.21	64	1.54	.014
potato[1]	fresh	189	3.67	64	2.67	.0005

1 denotes equal variance in t-test

more by those with children under 18, ten other fruits and vegetables were consumed more by those without children under 18 at home. The difference could perhaps be due to size of packaging, personal likes and dislikes or preferences for specific fruits and vegetables by older consumers.

Impact of Opinion Towards Consumption

Respondent Concern Towards Nutrition Now Compared to A Few Years Ago

The majority of the respondents were "more concerned about nutrition as compared to a few years ago" (N=184 or 185), while one fourth of the respondents (N=58 or 59) stated that there was "no change" in their concern about nutrition. Because of this difference in opinion, those who were more concerned about nutrition significantly ate more fruits and vegetables ($p \leq 0.05$) than consumers who felt otherwise. Twenty fruits and vegetables eaten more often by those more concerned about nutrition are listed in Table XXVII).

Respondents Eating Habits

Standard statistical procedures did not yield significant results to indicate a difference between earlier and current eating habits. The researcher will therefore not discuss this topic further.

Table XXVI

T-TEST DETERMINATIONS ON CONSUMPTION OF FRUITS AND VEGETABLES RESPONDENTS WHO HAVE CHILDREN UNDER 18 LIVING AT HOME

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
prunes	fresh	63	0.10	187	0.69	.0001
pears	canned	63	0.17	187	0.65	.0001
pineapple	canned	63	0.49	187	1.05	.001
avacado	canned	63	0.02	187	0.19	.003
okra	fresh	64	0.33	188	0.62	.007
lima beans	canned	64	0.16	188	0.39	.02
peas	frozen	64	0.87	188	0.38	.0175
spinach	frozen	64	0.05	188	0.21	.0277
lentils	canned	64	0.02	188	0.15	.023
blackeyed peas	frozen	64	0.07	187	0.21	.04
mushroom	canned	64	0.68	187	0.21	.0034
sweet potato	fresh	64	0.17	187	0.51	.0029
broccoli[1]	frozen	64	1.08	187	0.57	.015

[1] denotes equal variance in t-test

Table XXVII

CONSUMPTION OF FRUITS AND VEGETABLES BY THE RESPONDENT'S CONCERN TOWARD NUTRITION NOW COMPARED TO A FEW YEARS AGO

FRUIT/VEGETABLE	FORM	More concerned		No change		P-value
		N	mean	N	mean	
apple	canned	184	0.44	59	0.13	.0025
peach	canned	184	1.06	59	0.55	.0017
cherries	canned	184	0.42	59	0.15	.0064
honeydew	fresh	184	0.14	59	0.03	.022
strawberry	fresh	184	0.88	59	0.52	.04
pineapple	canned	184	1.02	59	0.57	.017
plums	canned	184	0.19	59	0.05	.0339
okra	fresh	185	0.20	58	0.05	.0289
asparagus	fresh	185	0.45	58	0.16	.019
asparagus	canned	185	0.30	58	0.13	.045
carrots	canned	185	0.37	58	0.16	.017
lima beans	canned	185	0.35	58	0.13	.017
pumpkin	canned	185	0.23	58	0.03	.0006
chinese cabbage	fresh	185	0.34	58	0.09	.05
cucumber	fresh	185	0.86	58	0.49	.023
navy beans	canned	185	0.22	57	0.06	.05
zucchini squash	fresh	185	0.39	57	0.03	.0001
brussel sprouts	frozen	185	0.18	57	0.03	.008
sweet potato	canned	185	0.13	57	0.11	.027
broccoli[1]	fresh	185	1.39	57	0.73	.015

[1] denotes equal variance in t-test

How Informed Respondents Are About Nutrition

ANOVA determinations indicated that "how informed the respondent felt they were about nutrition", was significantly ($p \leq 0.05$) associated with their consumption of fresh oranges and canned mustard greens. Duncan multiple range test (Table XXVIII), showed that those who felt they were "not informed about nutrition" (N=10) ate significantly more fresh orange and canned mustard greens. The later are presumably home grown and canned as they are only available fresh or frozen in the supermarket. Availability of products may be the reason why they are consumed.

Opinion Towards Carbohydrate Content On Labels

Table V (p. 41) shows the overall frequency and percentage of the nutrients respondents believe should appear on fruit and vegetable labels. Respondents who did not believe that carbohydrate should be listed on the labels significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who believed otherwise by t-test determinations (Table XXIX). It is of interest that except for apple juice, the vegetables consumed the most were fresh and generally low in carbohydrates.

Table XXVIII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUIT AND VEGETABLE BY HOW INFORMED THE RESPONDENT IS ABOUT NUTRITION

Informed	N	Fresh Orange	Canned Mustard Greens
Very well	109	.06[b]	.05[b]
Fairly	129	.05[b]	.02[b]
Not informed	10	.55[a]	.35[a]
F	3,248	.046	.007

Means with the same letter are not different by Duncan's test

Table XXIX

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD CARBOHYDRATE CONTENT ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
apple juice	frozen	23	0.07	220	0.40	.002
cauliflower	fresh	22	0.55	226	1.36	.0001
radish	fresh	22	0.36	226	1.18	.0007
crook neck squash	fresh	22	0.07	225	0.30	.02
broccoli	fresh	22	0.59	225	1.32	.0097
green onion	fresh	22	0.36	225	1.30	.0001
sweet pepper	fresh	22	0.30	225	1.07	.0007

Opinion Towards Protein Content On Label

Except for fresh orange, respondents who felt that protein content should appear on the labels significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who felt otherwise as shown by t-test determinations (Table XXX). Fruits and vegetables are not generally known for their protein content yet 11 percent of the homemakers (Table V) indicated that protein should be on the labels. Nutrition education could perhaps dispel this opinion.

Opinion Towards Sugar Content On Label

The respondents who did not feel that sugar content should appear on the label significantly ($p \leq 0.05$) consumed more frozen peaches, frozen lima beans, fresh cauliflower, fresh apples and canned green beans while those who felt otherwise consumed more fresh garlic and frozen crook neck squash as shown by t-test determinations (Table XXXI). Except for frozen peaches and fresh apples, the vegetables consumed were generally low in sugar.

Opinion Towards Sodium Content On Label

The respondents who felt that sodium should appear on labels, significantly ($p \leq 0.05$) consumed more fruit and vegetables as shown by t-test determinations than those

Table XXX

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD PROTEIN CONTENT ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
tangerine	fresh	25	0.06	218	0.27	.01
peach	fresh	25	0.06	218	0.25	.0399
peach	canned	25	0.44	218	0.96	.014
kiwi	fresh	25	0.06	218	0.26	.02
apple juice	frozen	25	0.06	218	0.40	.0012
rhubarb	fresh	26	0.06	222	0.37	.002
mushroom	canned	26	0.12	221	0.36	.01
orange[1]	fresh	25	3.38	218	2.33	.02

[1] denotes equal variance in t-test

Table XXXI

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD SUGAR CONTENT ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
peach	frozen	143	0.36	100	0.12	.02
lima beans	frozen	145	0.26	103	0.04	.004
cauliflower	fresh	145	1.75	103	1.45	.03
crook neck squash	frozen	144	0.02	103	0.18	.01
garlic	fresh	144	0.48	103	0.88	.02
apple[1]	fresh	143	2.88	100	2.24	.01
green beans[1]	canned	145	2.22	103	1.72	.04

[1] denotes equal variance in t-test t

Table XXXII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD SODIUM CONTENT ON THE LABEL

FRUIT or VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
okra	frozen	178	0.62	70	0.33	.01
carrots	frozen	178	0.27	70	0.07	.02
rhubarb	fresh	178	0.42	70	0.14	.017
cucumber	fresh	178	0.88	70	0.54	.034
brussel sprouts	fresh	177	0.18	70	0.02	.009
egg plant	fresh	177	0.13	70	0.02	.03

who felt differently (Table XXXII). Produce consumed were frozen or fresh and are not high in sodium content as compared with canned or processed ones.

Opinion Towards Calories Content On Label

The respondents who did not think that calories should appear on a fruit or vegetable labels significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who thought otherwise by t-test determinations (Table XXXIII). It is of interest to the researcher that except for canned tangerines, lima beans, beeets and apple, the fruits and vegetables consumed were fresh and generally not high in calories. Again, nutrition education could perhaps assist consumers im making better choices.

Opinion Toward Fat Content On Label

Except for canned lima beans, fresh radish and fresh celery, respondents who felt that fat should not appear on the labels significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who felt otherwise as shown by t-test determinations (Table XXXIV). Fruits and vegetables are generally not known for their fat content (except for the avocado), yet around one third of the homemakers indicated that fat should be on the labels. Again, nutrition education might be indicated.

Table XXXIII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD CALORIES ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
tangerine	canned	110	0.01	133	0.16	.035
kiwi	fresh	110	0.13	133	0.33	.047
lima beans	canned	113	0.21	135	0.44	.04
beets	canned	113	0.38	135	0.81	.005
acorn squash	fresh	113	0.10	135	0.32	.021
mustard greens	fresh	113	0.03	135	0.23	.007
navy beans	fresh	113	0.18	134	0.51	.0022
zucchini squash	fresh	113	0.19	134	0.47	.03
apple	canned	113	0.18	133	0.43	.04
orange[1]	fresh	110	2.11	133	2.71	.03

[1] denotes equal variance in t-test

Table XXXIV

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD FAT CONTENT ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
orange juice	canned	73	0.08	170	0.37	.019
lima beans	canned	78	0.58	170	0.22	.022
peas	frozen	78	0.28	170	0.63	.006
radish	fresh	78	1.54	170	0.91	.014
celery[1]	fresh	78	2.30	170	1.59	.012

[1] denotes equal variance in t-test

Opinion Toward Vitamin and Mineral Content On Label

Except for canned peas which were significantly ($p \leq 0.05$) consumed more by those who wish to see vitamins and minerals listed on the labels, all other fruits and vegetables in this section were consumed more by those who believed otherwise as shown by t-test determinations (Table XXXV). In this section, it is noted that a wider variety of fruits and vegetables in the three market forms are identified. Hopefully, consumers relate vitamin and minerals with fruits and vegetables.

Food Additives/Preservatives Appear On Label

Except for frozen green beans, respondents who thought that food additives/preservatives should appear on the labels significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who felt otherwise as shown by t-test determinations (Table XXXVI). These results are difficult to interpret since the fruits and vegetables which were consumed do not generally require additives or preservatives aside from the fact that some fresh produce may be washed, rinsed, sprayed and waxed.

Better Tasting As Meaning of Lite

Only two percent of the respondents thought that "lite" meant better tasting. Those who believed this, by t-test

Table XXXV

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD VITAMIN AND MINERAL ON THE LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
grapes	fresh	50	0.88	193	1.44	.03
apricots	fresh	50	0.03	193	0.18	.02
pineapple	canned	50	0.57	193	1.00	.018
asparagus	fresh	51	0.09	197	0.45	.0004
lima beans	frozen	51	0.06	197	0.20	.03
peas	canned	51	1.36	197	0.76	.02
cauliflower	fresh	51	0.66	197	1.45	.0001
spinach	frozen	51	0.03	197	0.19	.015
lentil	canned	51	0.03	197	0.15	.043
blackeyed peas	canned	51	0.18	196	0.50	.002
nany beans	canned	51	0.03	196	0.21	.003
crook neck squash	fresh	51	0.06	196	0.33	.002
brussel sprouts	fresh	51	0.03	196	0.16	.025

Table XXXVI

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD FOOD ADDITIVES/PRESERVATIVES ON LABEL

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
kiwi	fresh	117	0.39	125	0.10	.009
green beans	frozen	117	0.25	130	0.55	.04
zucchini squash	fresh	117	0.54	129	0.16	.005
crook neck squash	fresh	117	0.46	129	0.11	.008

Table XXXVII

CONSUMPTION OF FRUITS AND VEGETALES BY RESPONDENTS' OPINION TOWARD BETTER TASTING AS MEANING OF "LITE"

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
grapes	fresh	8	0.38	232	0.34	.005
strawberry	fresh	8	0.19	232	0.77	.o19
strawberry	frozen	8	0.19	232	0.65	.049
celery	fresh	8	0.75	237	1.82	.006
cabbage	fresh	8	0.75	237	1.53	.029
radish	fresh	8	0.38	237	1.12	.019
broccoli	fresh	8	0.38	236	1.25	.008

determinations (Table XXXVII) ate more grapes than others. Everyone else significantly ($p \leq 0.05$) consumed more fresh and frozen strawberries, fresh celery, fresh cabbage, fresh radish and fresh broccoli. Except for frozen strawberries, all these fruits and vegetables are fresh and low calorie foods.

Better for You As Meaning of Lite

Except for fresh potato, respondents who did not feel that "better for you" could be a meaning of the term "lite" significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who felt otherwise as shown by t-test determinations (Table XXXVIII). It is interesting to note that a wider variety of fruits and vegetables in the three market forms are identified. Perhaps, consumers relate fruits and vegetables to a healthy diet.

No Added Salt As Meaning of Lite

Respondents who indicated that "no added salt" is the meaning of the term "lite" significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who believed otherwise by t-test determinations (Table XXXIX). Canned sauerkraut which is associated with a high salt content was listed, and those who did not feel that "no added salt" was a meaning of the term "lite" ate more of it.

Table XXXVIII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD BETTER FOR YOU AS MEANING OF "LITE"

VEGETABLE	FORM	N	Yes		No		P-value
			mean	N	mean	N	
peach	canned	53	0.54		187	1.06	.003
limes	fresh	53	0.09		187	0.29	.0288
cherries	canned	53	0.14		187	0.41	.007
blackberries	frozen	53	0.06		187	0.24	.023
apple juice	frozen	53	0.03		187	0.46	.0001
mandarine orange	canned	53	0.06		187	0.25	.005
pumpkin	canned	53	0.09		192	0.22	.05
lentil	fresh	53	0.03		192	0.24	.0013
mustard green	fresh	53	0.03		192	0.18	.01
mushrooms	canned	53	0.14		192	0.39	.01
brussel sprouts	fresh	53	0.03		191	0.13	.03
bean sprouts	fresh	53	0.12		191	0.38	.016
potato[1]	fresh	53	2.75		192	3.62	.004

[1] denotes equal variance in t-test

Table XXXIX

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD NO ADDED SALT AS MEANING OF "LITE"

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
kiwi	fresh	38	0.04	202	0.25	.002
sauerkraut	canned	38	0.12	207	0.34	.016
broccoli	fresh	38	0.63	206	1.35	.0019

Low in Calories As Meaning of "Lite"

The respondents who thought that "low in calories" was not the meaning of the term "lite" significantly ($p \leq 0.05$) consumed more fresh lentil and canned tomato (Table XL) by t-test determinations. Lentils are not that low in calories and are generally cooked with ham or as an ingredient in soups. Depending on how it is used it could be high in calories.

No Added Sugar As Meaning of "Lite"

The respondents who felt that "no added sugar" was a meaning of the term "lite", significantly ($p \leq 0.05$) consumed more fruits and vegetables as shown by t-test determinations than those who felt otherwise (Table XLI). Except for canned tomato and beets, the produce consumed were fresh and not high in added sugar in comparison with canned or processed ones.

Impact of Practices Towards Consumption

Amount of Time Engaged in Physical Activity

ANOVA determinations indicated that the amount of time respondents stated they engaged in physical activity is significantly associated with the consumption of certain fruits and vegetables. Duncan multiple range tests (Table XLII), showed that for most of the fruits,

Table XL

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD LOW IN CALORIES AS MEANING OF "LITE"

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
lentil	fresh	163	0.08	82	0.42	.006
tomato[1]	canned	163	0.95	82	1.44	.035

[1] denotes equal variance in t-test

Table XLI

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' OPINION TOWARD NO ADDED SUGAR AS MEANING OF "LITE"

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
tomato	canned	121	1.35	124	0.89	.03
beets	canned	121	0.79	124	0.46	.04
lentils	fresh	121	0.31	124	0.08	.014
brussel sprouts	fresh	121	0.21	123	0.01	.003
green onion	fresh	121	1.46	123	0.93	.02
apple[1]	fresh	115	2.91	125	2.28	.018
potato[1]	fresh	121	3.72	124	3.15	.024
celery[1]	fresh	121	2.07	124	1.51	.024
broccoli[1]	fresh	121	1.46	124	0.98	.034

[1] denotes equal variance in t-test

Table XLII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH FRUITS AND VEGETABLES BY AMOUNT OF TIME ENGAGED IN PHYSICAL ACTIVITY

Amount of time	N	Apple	Avacodo	Banana	Grapes	Orange	Strawberry	Lentil	Cabbage
Less 1/2 hour	52	2.32^{b}	$.41^{b}$	2.47^{b}	1.32^{ab}	2.39^{ab}	$.58^{a}$	$.11^{b}$	$.94^{a}$
1/2 to 1 hour	67	2.18^{ab}	$.60^{ab}$	3.07^{ab}	1.04^{b}	1.96^{b}	$.11^{b}$	$.41^{a}$	$.87^{ab}$
1 to 2 hours	46	2.18^{ab}	$.33^{b}$	3.21^{ab}	$.95^{b}$	2.12^{ab}	$.14^{b}$	$.00^{b}$	$.35^{b}$
Over 2 hours	80	3.27^{a}	$.99^{a}$	3.52^{a}	1.83^{a}	2.95^{a}	$.49^{ab}$	$.17^{ab}$	1.25^{a}
F	4,244	.002	.02	.03	.04	.03	.04	.02	.01

Means with the same letter are not different by Duncan's tests

if the respondents exercised over 2 hours, they consumed significantly ($p \leq 0.05$) more. The pattern was not as clearly indicated for the consumption of fresh strawberries and vegetables.

Nutritional Labeling

Except for canned peas, respondents who stated they did read and use nutritional labeling on processed fruits and vegetables products, significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who did not use nutritional labeling, as shown by t-test determinations (Table XLIII). It is of interest that of the ten listed fruits and vegetables, only canned peas, canned pumpkin and canned green beans were not fresh, as fresh produce usually does not have nutritional labeling.

Weekly Specials As A Promotional Technique

Beginning with this section, the reader is reminded that Table IX has the overall frequency and percentage of what influence various promotional techniques have on the consumption of fruits and vegetables. ANOVA determinations indicated that weekly specials was significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables. Duncan multiple range test (Table XLIV - XLVIII), showed that those who were "sometimes" influenced by weekly specials (N=4) ate

Table XLIII

CONSUMPTION OF FRUITS AND VEGETABLES BY USE OF NUTRITIONAL LABELING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
avocado	fresh	193	0.76	43	0.37	.036
prune	fresh	193	0.65	43	0.08	.0001
pears	fresh	193	0.24	43	0.04	.004
apricots	fresh	193	0.18	43	0.04	.038
peas	canned	193	1.35	44	1.79	.04
pumpkin	canned	193	0.23	44	0.07	.02
rhubarb	fresh	193	0.43	44	0.13	.05
zucchini squash	fresh	193	0.39	43	0.12	.02
broccoli	fresh	193	1.31	43	0.78	.03
green beans[1]	canned	193	1.87	44	2.60	.0211

[1] denotes equal variance in t-test

Table XLIV

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FROZEN FRUITS AND VEGETABLES BY THE INFLUENCE OF WEEKLY SPECIAL AS PROMOTIONAL TECHNIQUE

Degree of Influence	N	Strawberries	Broccoli	Corn
Sometimes	4	1.37[a]	2.62[a]	1.75[a]
Never	234	.30[b]	.70[b]	.39[b]
F	2,237	.04	.004	.003

Means with the same letter are not different by Duncan's test

Table XLV

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH FRUITS BY THE INFLUENCE OF WEEKLY SPECIAL AS PROMOTIONAL TECHNIQUE

Influence	N	Tangerine	Peach	Kiwi	Lemon	Prune	Cherries	Apricots	Watermelon
Sometimes	4	1.37[a]	1.37[a]	1.37[a]	2.25[a]	2.70[a]	1.37[a]	1.37[a]	2.25[a]
Never	234	.23[b]	.20[b]	.19[b]	.55[b]	.50[b]	.06[b]	.13[b]	.12[b]
F df	237	.01	.01	.002	.01	.001	.0001	.0008	.0001

Means with the same letter are not different by Duncan's test

Table XLVI

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH VEGETABLES BY THE INFLUENCE OF WEEKLY SPECIAL AS PROMOTIONAL TECHNIQUE

Influence	N	Asparagus	Lima Bean	Acorn Squash	Spinach	Zucchini Squash	Crook neck squash	Sweet Potato	Turnips
Sometimes	4	2.25[a]	.87[a]	2.25[a]	1.37[a]	1.37[a]	1.37[a]	1.75[a]	1.37[a]
Never	234	.30[b]	.09[b]	.19[b]	.33[b]	.30[b]	.23[b]	.40[b]	.20[b]
F	2,237	.0001	.0005	.0001	.003	.03	.01	.01	.0001

Means of the same letter are not different by Duncan's test

Table XLVII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF CANNED FRUITS AND VEGETABLES BY THE INFLUENCE OF WEEKLY SPECIALS AS PROMOTIONAL TECHNIQUE

Influence	N	Apple juice	Plums	Asparagus	Green beans	Carrots	Lima beans	Pumpkin
Sometimes	4	1.75[a]	1.37[a]	2.25[a]	4.12[a]	1.37[a]	1.37[a]	1.37[a]
Never	234	.43[b]	.10[b]	.24[b]	1.97[b]	.31[b]	.32[b]	.17[b]
F	2,237	.03	.0001	.008	.02	.03	.02	.0003

Means of the same letter are not different by Duncan's test

Table XLVIII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF CANNED VEGETABLES BY THE INFLUENCE OF WEEKLY SPECIALS AS PROMOTIONAL TECHNIQUE

Influence	N	Lentils	Cabbage	Sauerkraut	Blackeyed peas	Mushroom	Navy beans
Sometimes	4	1.37[a]	1.37[a]	1.37[a]	2.25[a]	1.37[a]	1.37[a]
Never	234	.09[b]	.02[b]	.29[b]	.42[b]	.30[b]	.15[b]
F	2,237	.0001	.0001	.01	.0003	.01	.0004

Means of the same letter are not different by Duncan's test

significantly more fruits and vegetables. It is interesting to note the wider variety of fruits and vegetables in the three market forms which are identified. Possibly, weekly specials influence the consumers' choices in purchasing fruits and vegetables because most consumers are interested in purchasing a product at a reasonable cost

Discounts As A Promotional Technique

Consumption of frozen potato, fresh and frozen green beans and fresh carrots are significantly ($p \leq 0.05$) associated with the influence of discounts as a promotional technique as indicated by ANOVA determinations. Duncan multiple range tests (Table XLIX) showed that for frozen potato, and fresh and frozen green beans, the consumer was "never" influenced by the use of discounts as a promotional technique, whereas, fresh carrots was influenced "often and always" by the use of discounts. Green beans and potatoes are populare foods in this area of the country. Perhaps the consumers eat these vegetables whether they are discounted or not, however, the consumers tend to eat more fresh carrots if their price is discounted.

Appearance of Display As A Promotional Technique

ANOVA determinations indicated that the appearance of

Table XLIX

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH AND FROZEN VEGETABLES BY THE INFLUENCE OF DISCOUNTS AS PROMOTIONAL TECHNIQUE

Influence	N	Potato (frozen)	Green beans (fresh)	Green beans (frozen)	Carrots (fresh)
Never	12	.45[a]	1.13[a]	1.31[a]	1.18[b]
Sometimes	84	.02[b]	.34[b]	.36[b]	2.04[ab]
Often	90	.00[b]	.12[b]	.43[b]	2.40[a]
Always	53	.00[b]	.42[b]	.23[b]	2.83[a]
F	4,138	.0005	.01	.04	.02

Means with the same letter are not different by Duncan's test

Table L

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRESH AND FROZEN FRUITS AND VEGETABLES BY THE INFLUENCE OF THE APPEARANCE OF THE DISPLAY

Influence	N	Peaches (fresh)	Blueberries (frozen)	Pumpkin (fresh)	Bean sprouts (fresh)	Egg plant (fresh)	Apricots (fresh)
Never	7	.78[a]	.78[a]	.50[a]	1.20[a]	.78[a]	.12[b]
Sometimes	86	.41[ab]	.39[ab]	.04[b]	.40[b]	.02[b]	.09[b]
Often	88	.09[b]	.09[b]	.02[b]	.19[b]	.07[b]	.04[b]
Always	30	.05[b]	.00[b]	.00[b]	.10[b]	.05[b]	.47[a]
F	4,210	.04	.02	.0004	.01	.0009	.03

Means with the same letter are not different by Duncan's test

displays was significantly ($p \leq 0.05$) associated with their consumption of certain fruits and vegetables. Duncan multiple range tests (Table L) determined that except for fresh apricots, those who were "never" influenced by the appearance of the display, ate significantly ($p \leq 0.05$) more fresh peaches, frozen blueberries, fresh pumpkin, fresh bean sprouts and fresh eggplant. These vegetables and fruits are likely to be used for specific purposes (such as pies, salads) and are not purchased routinely. Because of this fact, the homemaker would not be influenced by the appearance of the display when purchasing these items. The consumption of fresh apricots was "always" influenced by the appearance of the display perhaps because the consumers know they are nutritious so the appearance of the display may entice them to purchase some.

Daily Specials As A Promotional Technique

ANOVA determinations indicated that daily specials was significantly ($p \leq 0.05$) associated with the consumption of fresh and frozen green beans, fresh leeks, canned corn and fresh turnips. Duncan multiple range tests (Table LI) showed that those who were "always" influenced by daily specials, consumed significantly ($p \leq 0.05$) more fresh green beans, fresh leeks and fresh turnips. These vegetables are more expensive and generally not routinely purchased. Thus, one would likely purchase these vegetables when they were on

Table LI

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY THE INFLUENCE OF DAILY SPECIALS

Influence	N	Green beans (fresh)	Green beans (frozen)	Leeks (fresh)	Corn (canned)	Turnips (fresh)
Never	39	.13[b]	.41[a]	.04[b]	.16[a]	.13[b]
Sometimes	90	.20[b]	.08[b]	.00[b]	.02[b]	.23[b]
Often	40	.25[b]	.09[b]	.06[a]	.00[b]	.11[b]
Always	24	.81[a]	.06[b]	.06[a]	.00[b]	.70[a]
F	4,192	.02	.01	.008	.04	.01

Means with the same letter are not different by Duncan's test

a special, whereas, frozen green beans and canned corn are more common consumed and one would less likely be influenced by specials when purchasing them.

Personal Recommendations As A Promotional Technique

Consumption of fresh orange, fresh okra, frozen and canned green beans, frozen lima beans, fresh potato, and fresh turnips are significantly ($p \leq 0.05$) associated with personal recommendations as a promotional technique as indicated by the ANOVA determinations. Duncan multiple range tests (Table LII) indicated that the purchase of fresh orange, okra, potato, and turnips were "always" or "often" influenced by personnal recommendations. These results would indicate that the respondents would ask the service personnal for their advice before purchasing fresh produce but would not necessarily be influenced by service personnel when purchasing such vegetables as frozen green beans and lima beans. The pattern for purchasing canned green beans was not as clear.

Consumption of Fruits and Vegetables By Roasting

Table VIII (p. 45) shows the overall frequency and percentage of the cooking methods for fruits and vegetables which the respondents used in the past two weeks. Respondents who did not use roasting as a cooking method

Table LII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY THE INFLUENCE OF PERSONNAL RECOMMENDATIONS

Influence	N	Orange (fresh)	Okra (fresh)	Green beans (frozen)	Green beans (canned)	Lima beans (frozen)	Potato (fresh)	Turnips (fresh)
Never	26	2.94^{b}	$.25^{b}$	1.15^{a}	$.86^{b}$	$.50^{a}$	2.69^{b}	$.12^{ab}$
Sometimes	93	2.20^{b}	$.12^{b}$	$.48^{b}$	2.44^{a}	$.17^{ab}$	3.73^{ab}	$.17^{ab}$
Often	52	2.44^{b}	$.18^{b}$	$.17^{b}$	2.28^{a}	$.05^{b}$	3.96^{a}	$.50^{a}$
Always	15	3.80^{a}	$.80^{a}$	$.00^{b}$	1.70^{ab}	$.23^{ab}$	3.50^{ab}	$.00^{b}$
F	4,185	.03	.02	.002	.001	.04	.04	.03

Means with the same letter are not different by Duncan's test

Table LIII

CONSUMPTION OF FRUIT AND VEGETABLES BY THOSE WHO COOKED BY ROASTING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
peach	fresh	76	0.08	173	0.29	.019
asparagus	fresh	76	0.17	176	0.46	.0225
lima beans	frozen	76	0.06	176	0.22	.01
potato	frozen	76	0.05	176	0.22	.039

consumed significantly ($p \leq 0.05$) more fruit and vegetables than those who did use roasting as shown by t-test determinations (Table LIII).Only 30 percent of the respondents used roasting as a cooking method in the past two week. One generally does not use roasting as a cooking method for fruits and vegetables except perhaps corn on cob or potatoes.

Consumption of Fruits and Vegetables By Stewing or Braising

Respondents who did use stewing or braising significantly ($p \leq 0.05$) consumed more canned okra and fresh green beans than those who did not use stewing or braising as shown by t-test determinations (Table LIV). Okra and green beans are often used in soups or stews in this part of the country. Okra is also deep fat fried or pan fried.

Consumption of Fruits and Vegetables By Broiling or Grilling

Except for fresh peach, respondents who did use broiling or grilling as a cooking method significantly ($p<0.05$) consumed more fruits and vegetable than those who did not use broiling or grilling as shown by t-test determinations (Table LV). Some individuals may broil a banana as a type of dessert or use lemon, peach, apple and orange juice for flavoring when they grill some food items.

Table LIV

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY STEWING OR BRAISING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
okra	canned	79	0.41	173	0.08	.01
green beans	fresh	79	0.63	173	0.18	.014

Table LV

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY BROILING OR GRILLING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
avacodo	fresh	45	1.12	204	0.57	.045
lemon	fresh	45	1.13	204	0.46	.02
cabbage	fresh	47	1.56	204	0.78	.008
peach	fresh	67	0.05	182	0.29	.003
apple[1]	fresh	45	3.48	204	2.43	.0017
banana[1]	fresh	45	3.63	204	2.94	.03
orange juice[1]	fresh	47	2.12	205	1.40	.01

[1] denotes equal variance in t-test

Consumption of Fruits and Vegetables By Pan Frying

Except for fresh potatoes, the respondents who did not use the cooking method of pan frying consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who did use pan frying as shown by t-test determinations (Table LVI). A very common cooking method used for potatoes is pan frying.

Consumption of Fruits and Vegetables By Stir Frying

Except for canned plums, canned green beans, and fresh celery, respondents who did use the method of stir frying consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who did not use stir frying as shown by t-test determinations (Table LVII). The majority of the vegetables listed were fresh and could be indeed stir fried by the consumer.

Consumption of Fruits and Vegetables By Microwaving

The respondents who did use microwaving as a cooking method significantly ($p \leq 0.05$) consumed more canned mandarin orange, canned asparagus, frozen green peas, canned mushrooms and fresh potato, while those who did not use microwaving consumed more fresh corn on cob, fresh sweet potato and fresh turnips as shown by t-test determinations (Table LVIII). Canned asparagus, frozen

Table LVI

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY PAN FRYING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
melon	fresh	67	0.07	182	0.22	.025
honeydew	fresh	67	0.02	182	0.14	.015
blueberry	frozen	67	0.02	182	0.28	,0018
asparagus	canned	65	0.14	187	0.30	.047
acorn squash	fresh	65	0.09	187	0.26	.0388
chinese cabbage	fresh	65	0.07	187	0.36	.002
sweet pepper	fresh	65	0.70	186	1.11	.034
potato[1]	fresh	65	3.91	187	3.24	.019

[1] denotes equal variance in t-test

Table LVII

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY STIR FRYING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
avocado	fresh	43	1.27	206	0.55	.015
strawberry	frozen	43	1.15	206	0.51	.04
plums	canned	43	0.04	206	0.18	.019
green beans	frozen	45	0.81	207	0.31	.05
cabbage	fresh	45	2.20	207	1.39	.017
mushroom	fresh	45	1.07	206	0.35	.009
zucchini squash	frozen	45	0.24	206	0.02	.03
broccoli	fresh	45	2.28	206	1.02	.001
bean sprouts	fresh	45	0.77	206	0.24	.03
sweet pepper	fresh	45	1.70	206	0.85	.012
green bean[1]	canned	45	1.39	207	2.16	.013
carrots[1]	fresh	45	2.88	206	2.17	.027
celery[1]	fresh	45	2.54	207	1.65	.005
radishes[1]	fresh	45	1.63	207	0.99	.024
rice[1]	fresh	45	1.70	207	1.18	.05

[1] denotes equal variance in t-test

Table LVIII

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY MICROWAVING

FRUIT/VEGETABLE	METHOD	Yes		No		P-value
		N	mean	N	mean	
mandarine orange	canned	165	0.29	82	0.09	.01
asparagus	canned	165	0.32	85	0.15	.04
green peas	frozen	165	0.64	85	0.28	.005
mushroom	canned	164	0.42	85	0.17	.012
corn on cob	fresh	164	0.20	85	0.51	.04
sweet potato	fresh	164	0.30	85	0.65	.0211
potato	fresh	165	3.62	85	3.06	.03
turnips	fresh	164	0.15	85	0.35	.048

green peas, canned mushroom and fresh potatoes were all vegetables which could be cooked in the microwave, whereas, fresh corn on cob and fresh turnips are generally boiled and sweet potatoes are baked or broiled in the oven.

Consumption of Fruits and Vegetables By Pressure Cooking

Except for fresh prunes, canned green peas and fresh orange, the respondents who did not use pressure cooking consumed significantly more fruit and vegetables than those who did use pressure cooking as shown by t-test determinations (Table LIX). Most fruits and vegetables are not generally cook by using a pressure cooker except in canning.

Consumption of Fruits and Vegetables By Crock Pot

Fresh okra, fresh green beans, and fresh sweet potato were significantly ($p \leq 0.05$) eaten more by those who did not use the crock pot as a cooking method, whereas, those who did use the crock pot, ate significantly ($p \leq 0.05$) more canned tomato and canned green beans as shown by t-test determinations (Table LX). The crock pot is usually used to slow cook casserole type items in which tomato sauces are used.

Table LIX

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY PRESSURE COOKING

FRUIT/VEGETABLE	METHOD	Yes		No		P-value
		N	mean	N	mean	
peaches	frozen	32	0.05	217	0.25	.003
peaches	fresh	32	0.05	217	0.29	.011
limes	fresh	32	0.05	217	0.28	.006
prunes	fresh	32	1.28	217	0.43	.03
green peas	canned	31	1.58	221	0.80	.025
spinach	fresh	31	0.10	221	0.43	.001
lentil	fresh	31	0.05	221	0.21	.02
zucchini squash	fresh	30	0.05	221	0.37	.0003
orange[1]	fresh	32	3.14	217	2.31	.04

[1] denotes equal variance in t-test

Table LX

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY CROCK POT

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
okra	fresh	50	0.03	202	0.22	.003
tomato	canned	50	1.70	202	0.94	.019
green beans	fresh	50	0.15	202	0.37	.03
sweet potato	fresh	50	0.15	201	0.50	.0009
green beans[1]	canned	50	2.54	202	1.90	.03

[1] denotes equal variance in t-test

Table LXI

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY DEEP FAT FRYING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
pineapple	fresh	29	0.10	220	0.36	.015
green beans	fresh	28	0.05	224	0.36	.001
carrots	frozen	28	0.05	224	0.25	.02
chinese cabbage	fresh	28	0.05	224	0.32	.004
sweet potato	fresh	28	0.11	223	0.47	.0008
tomato[1]	fresh	28	2.50	224	1.71	.04

[1] denotes equal variance in t-test

Consumption of Fruits and Vegetables By Deep Fat Frying

Except for fresh tomato, the respondents who did not use deep fat frying consumed significantly ($p \leq 0.05$) more fruits and vegetables by t-test determinations (Table LXI). Vegetables as potatoes, okra, zucchini mushrooms are sometimes deep fat fried.

Consumption of Fruits and Vegetables By Baking

Frozen spinach was consumed significantly more ($p \leq 0.05$) by the respondents who did not use baking as a cooking method, and frozen corn on cob was consumed significantly ($p \leq 0.05$) more by those who did use baking as shown by t-test determinations (Table LXII). The researcher found these results interesting, because 58 percent of the respondents said they did use baking in the past two weeks as a cooking method for fruits and vegetables (Table X). Possibly, the fruit or vegetable was used in a casserole.

Consumption of Fruits and Vegetables By Steaming

Except for frozen broccoli and peaches, the respodents who did use steaming consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who did not use steaming as shown by t-test determinations (Table LXIII). It is interesting to note that a wider variety of fruits and

Table LXII

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY BAKING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
spinach	frozen	146	0.08	106	0.31	.04
corn on cob	frozen	145	0.58	106	0.26	.005

Table LXIII

CONSUMPTION OF FRUITS AND VEGETABLES BY THOSE WHO COOKED BY STEAMING

FRUIT/VEGETABLE	FORM	Yes		No		P-value
		N	mean	N	mean	
peaches	canned	85	0.52	164	0.12	.0065
limes	fresh	85	0.53	164	0.10	.0092
pears	canned	85	0.82	164	0.37	.008
honeydew	fresh	85	0.25	164	0.04	.017
asparagus	frozen	86	0.26	166	0.05	.011
green beans	frozen	86	0.63	166	0.28	.04
lima beans	canned	86	0.53	166	0.24	.04
cauliflower	fresh	86	1.86	166	1.03	.0004
radish	fresh	86	1.49	166	0.90	.01
mushroom	fresh	86	0.71	165	0.26	.04
navy beans	fresh	86	0.61	165	0.23	.007
broccoli	frozen	86	0.48	165	0.32	.028
peaches	frozen	59	0.08	179	0.33	.004
apple[1]	fresh	85	2.98	164	2.43	.04
orange juice[1]	frozen	85	2.25	164	1.54	.023
strawberries[1]	frozen	85	0.89	164	0.48	.02
carrots[1]	fresh	86	2.73	165	2.07	.011
celery[1]	fresh	86	2.30	165	1.56	.004
cabbage[1]	fresh	86	1.24	165	0.76	.014
broccoli[1]	fresh	86	1.62	165	1.05	.015
green onion[1]	fresh	86	1.51	165	1.04	.04

[1] denotes equal variance in t-test

vegetables in the three market forms are identified as being consumed in a two week period. Hopefully, consumers are steaming more of their vegetables, rather than deep fat frying them, a common practice in this part of the country.

Consumption of Fruits and Vegetables By Boiling

Standard statistical procedures did not yield significant results to indicate a difference between the respondents consumption of fruits and vegetables and boiling as a cooking method. The researcher will therefore not discuss this topic further.

Consumption of Fruits and Vegetables By Where Fruits Are Obtained

The consumption of frozen blackberries, fresh pineapple, and canned carrots is significantly ($p < 0.05$) influenced by where fruits are obtained as shown by ANOVA determinations. Duncan multiple range (Table LXIV) showed that for all of the fruits and vegetable, the homemaker obtained their fruit and vegetable significantly more from the grocery store. Since fresh pineapple are not grown locally, one would expect it to be purchased from the grocery store and frozen blackberries and canned carrots are also readily accessible from the grocery store.

Table LXIV

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY WHERE FRUITS OBTAINED

Place	N	Blackberries (frozen)	Pineapple (frozen)	Carrots (canned)
Grocery store	200	.91[a]	.93[a]	1.40[a]
Garden, fruit/veg stand	54	.17[b]	.50[b]	.29[b]
F	df 253	.03	.0004	.004

Means with the same letter are not different by Duncan's test

Consumption of Fruits and Vegetables By Where Vegetables Are Obtained

ANOVA determinations indicated that where vegetables are obtained is significantly ($p \leq 0.05$) associated with the consumption of certain fruit and vegetables. Duncan multiple range tests (Table LXV) showed that those who consumed frozen asparagus, canned asparagus, fresh cabbage and fresh corn, obtained their vegetables significantly ($p \leq 0.05$) more from the grocery store. Those who consumed canned blackberries, frozen okra and frozen green beans obtained their vegetables significantly ($p \leq 0.05$) more from the garden or a fruit/vegetable stand. Corn and cabbage have a limited season and because this questionnaire was sent during the month of April, one would expect the respondents to obtain these vegetables from the grocery store. Blackberries, okra and frozen green beans were likely home grown and perhaps the respondents froze or canned these fruit and vegetables themselves.

Impact of Beliefs Toward Consumption

Respondents' Perception of Their Weight Status

ANOVA determinations indicated that the respondents' perception of their weight status is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables. Duncan multiple range tests (Table LXVI)

Table LXV

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY WHERE VEGETABLES OBTAINED

Place	N	Blackberries (canned)	Okra (frozen)	Asparagus (frozen)	Asparagus (canned)	Green beans (frozen)	Cabbage (fresh)	Corn (fresh)
Grocery store	190	.00[b]	.39[b]	.19[a]	.35[a]	.25[b]	1.75[a]	.42[a]
Garden, fruit/veg stand	65	.16[a]	.66[a]	.04[b]	.16[b]	.54[a]	1.31[b]	.17[b]
F	2,253	.02	.01	.01	.04	.04	.04	.04

Means with the same letter are not different by Duncan's test

showed that those who were trying to gain 1-10 pounds consumed significantly ($p \leq 0.05$) more of the listed fruits and vegetables. The blackberries and strawberries could be used to make pies and one would expect the frozen potatoes to be french fried, making these foods are high in calories. The reader is reminded, however, that only four individuals out of the 245 that responded to this question stated they wished to gain weight.

Respondents' Concern Over Their Diet

The respondent's concern over their diet is significantly ($p \leq 0.05$) associated with the consumption of certain fruits and vegetables by ANOVA determinations. Duncan multiple range tests (Table LXVII), showed that the respondents who said they were not concerned "about calories, nutrients, and all other warnings" consumed significantly ($p \leq 0.05$) more fresh strawberries, fresh green beans, canned peas and chinese cabbage. The respondents who stated that they "feel very strongly about eating only what is nutritious" consumed more fresh chinese cabbage. These results are difficult to interpret since fruit and vegetables are generally nutritious. Again,nutrition education could perhaps assist consumers in obtaining healthier meals.

Table LXVI

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF CANNED AND FRESH FRUITS BY RESPONDENT'S WEIGHT STATUS

Weight status	N	Blackberries (frozen)	Blueberries (canned)	Strawberries (canned)	Peas (fresh)	Potato (frozen)
Gain 10+ lbs	1	.00[b]	3.50[a]	.00[b]	3.50[a]	3.50[a]
Gain 1-10 lbs	3	2.33[a]	.50[b]	.50[a]	.00[b]	.00[b]
Satisfied w/weight and does not worry about maintaining wt	40	.00[b]	.00[b]	.09[b]	.23[b]	.16[b]
Satisfies w/weight but counts calories to maintain weight	26	.33[b]	.00[b]	.00[b]	.22[b]	.20[b]
Lose 1-10 lbs	87	.14[b]	.09[b]	.03[b]	.25[b]	.06[b]
Lose 10+ lbs	88	.22[b]	.00[b]	.00[b]	.15[b]	.24[b]
F	6,244	.0003	.0001	.04	.007	.001

Means with the same letter are not different by Duncan's tests

Table LXVII

ANOVA AND DUNCAN MULTIPLE RANGE TEST ON CONSUMPTION OF FRUITS AND VEGETABLES BY THE RESPONDENT'S CONCERN OVER THEIR DIET

Concern	N	Strawberries (fresh)	Green beans (fresh)	Peas (canned)	Chinese cabbage (fresh)	Cabbage (frozen)
NOT concerned	4	1.75[a]	1.38[a]	1.75[a]	.00[b]	.88[a]
Only calories	31	.56[b]	.21[b]	.21[ab]	.44[ab]	.00[b]
Eats a balanced diet	182	.22[b]	.23[ab]	1.02[ab]	.16[ab]	.04[b]
Feels strongly about eating nutritiously	30	.77[b]	.77[ab]	.53[b]	.98[a]	.12[b]
F	4,246	.004	.004	.048	.0001	.0001

Means with the same letter are not different by Duncan's test

Impact of Attitudes Towards Consumption

A Serving of French Fries As A Serving of Vegetable

Beginning with this section, the reader is reminded that Table IX has the overall frequency and percentages of the respondents' attitudes toward fruits and vegetables. Except for fresh potato, the respondents who disagreed with the statement that a serving of french fries is like a serving of vegetables consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who felt otherwise by t-test determinations (Table LXVIII). The researcher found it interesting that those who consumed significantly ($p \leq 0.05$) more fresh potatoes agreed that a serving of french fries is like a serving of vegetables. Possibly, those who consumed potatoes, thought that a potato was a serving of vegetable even if the potato had been deep fat fried.

Fruits Are Good For Them

Fresh tomato, canned green beans and frozen corn on cob were consumed significantly ($p \leq 0.05$) more by the respondents who disagreed that fruits are good for them and canned asparagus and frozen potato were consumed significantly more by those who agreed that fruits are good for them as showed by t-test determinations (Table LXIX). The researcher found it interesting that of the foods listed, none of them were fruits.

Table LXVIII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD FRENCH FRIES AS A SERVING OF VEGETABLE

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
green bean	frozen	59	0.14	181	0.49	.008
carrots	frozen	59	0.13	181	0.43	.006
lima beans	canned	59	0.14	181	0.43	.002
pumpking	canned	59	0.08	181	0.22	,02
acorn squash	fresh	59	0.05	181	0.28	.004
zucchini squash	fresh	59	0.17	180	0.39	.04
crook neck squash	fresh	59	0.11	180	0.33	.03
turnips	fresh	59	0.03	180	0.28	.0002
orange juice[1]	frozen	59	1.18	179	2.01	.01
potato[1]	fresh	59	3.90	181	3.30	.04

[1] denotes equal variance in t-test

Table LXIX

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD FRUITS AS BEING GOOD FOR THEM

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
asparagus[1]	canned	240	0.23	5	0.90	.029
tomato[1]	fresh	240	1.76	5	3.60	.03
green beans[1]	canned	240	2.03	5.	4.30	.008
potato[1]	fresh	240	3.50	5	1.30	.0133
corn on cob[1]	frozen	239	0.43	5	1.30	.046

[1] denotes equal variance in t-test

Attitude Toward Most Vegetables As Low In Calories

The respondents who agreed that most vegetables are low in calories consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who felt otherwise by t-test determinations (Table LXX). Except for canned mushrooms and frozen broccoli, the rest of the produce listed were fresh.

Atitude Toward Catsup As A Vegetable

The respondents who disagreed that a serving of catsup is like a serving of vegetable consumed significantly ($p \leq 0.05$) more fruits and vegetable than those who felt otherwise by t-test determinations (Table LXXI). Catsup is not generally considered a vegetable poor source of vegetable yet, 11 percent of the respondents agreed with this statement (Table IX). Nutrition education could possibly change this attitude.

Attitude Toward Fruits As A Source of Vitamin C

The respondents who agreed that fruits are a good source of vitamin C consumed significantly ($p \leq 0.05$) more frozen green peas and fresh potatoes by t-test determinations (Table LXXII). It is of interest to the researcher that of the foods listed, most are not high in vitamin C.

Table LXX

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD VEGETABLES BEING LOW IN CALORIES

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
pineapple	fresh	193	0.35	37	0.08	.007
asparagus	fresh	196	0.43	36	0.17	.02
rice	fresh	196	1.42	36	0.75	.005
mushroom	canned	195	0.40	36	0.09	.001
broccoli	frozen	195	0.78	36	0.43	.04
banana[1]	fresh	193	3.28	37	1.96	.0003
carrots[1]	fresh	195	2.42	36	1.64	.02
potato[1]	fresh	196	3.61	36	2.72	.011

1 denotes equal variance in t-test

Table LXXI

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD CATSUP BEING LIKE A SERVING OF VEGETABLE

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
peach	frozen	24	0.06	209	0.27	.02
limes	fresh	24	0.06	209	0.29	.02
strawberry	frozen	24	0.21	209	0.67	.017
cauliflower	fresh	23	0.76	211	1.37	.024

Table LXXII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD FRUITS BEING A SOURCE OF VITAMIN C

FRUIT/VEGETABLE	FORM	Agree N	Agree mean	Disagree N	Disagree mean	P-value
green peas	frozen	233	0.57	14	0.11	.001
potato[1]	fresh	233	3.52	14	2.36	.03

[1] denotes equal variance in t-test

Table LXXIII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD GRAPEFRUIT BURNING BODY FAT

FRUIT/VEGETABLE	FORM	N(agree)	mean	N(disagree)	mean	P-value
peach	canned	137	0.12	91	0.12	.04
blueberries	frozen	137	0.02	91	0.02	.0008
pineapple	fresh	137	0.14	91	0.14	.022
lima beans	frozen	136	0.08	91	0.08	.044
green beans	frozen	136	0.37	91	0.37	.039
turnip	fresh	136	0.34	91	0.34	.03
bean sprouts	fresh	136	0.20	91	0.20	.03
sweet pepper	frozen	136	0.03	91	0.03	.007

Attitude Toward Grapefruit Burning Body Fat

Except for fresh turnips, the respondents who disagreed that grapefruit will help burn body fat consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who agreed as shown by t-test determinations (Table LXXIII). Forty-one percent (Table IX) of the respondents agreed that grapefruit would help burn body fat. Nutrition education is needed to dispel this attitude.

Attitude Toward Fruits Being Too Expensive

Except for frozen green beans, the respondents who disagreed that fruits are too expensive to purchase, ate significantly ($p \leq 0.05$) more fruits and vegetables than those who agreed as shown by t-test determinations (Table LXXIV). Green beans juice are commonly eaten in this part of the country so one would expect these items to be purchased by most of the respondents.

Attitude Toward Vegetable Being Good For Me

The respondents who disagreed that vegetables are good for them consumed significantly ($p \leq 0.05$) more fruits and vegetable than those who felt otherwise by t-test determinations (Table LXXV). It is of particular interest to the researcher that except for frozen broccoli, the

Table LXXIV

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD FRUITS BEING TOO EXPENSIVE

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
apple juice	frozen	65	0.10	169	0.47	.0027
strawberry	fresh	65	0.15	169	0.47	.01
green beans	frozen	65	2.11	172	2.08	.04
lima beans	frozen	65	0.07	172	0.22	.03
mushrooms	canned	64	0.15	172	0.42	.011
zucchini squash	fresh	64	0.02	172	0.07	.04
broccoli	frozen	64	0.45	172	0.84	.0255
bean sprouts	fresh	64	0.13	172	0.43	.005
garlic	fresh	64	0.38	172	0.73	.023
orange juice[1]	frozen	65	1.32	169	2.06	.03
carrots[1]	fresh	65	1.91	171	2.50	.04
cauliflower[1]	fresh	65	0.97	172	1.47	.04
potato[1]	fresh	65	3.06	172	3.66	.03

[1] denotes equal variance in t-test

Table LXXV

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD VEGETABLES BEING GOOD FOR THEM

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
apple	canned	215	0.39	21	0.07	.002
peaches	frozen	215	0.27	21	0.07	.03
peaches	canned	215	1.00	21	0.38	.008
orange juice	frozen	215	1.84	21	0.83	.01
apple juice	canned	215	0.49	21	0.07	.0004
pineapple	canned	215	0.99	21	0.45	.024
broccoli	frozen	218	0.77	21	0.31	.03

foods listed were all fruits and not vegetables.

Attitude Toward Canned Vegetables Being More Nutritious Than Fresh

The respondents who disagreed that canned vegetables are more nutritious than fresh vegetables consumed significantly ($p \leq 0.05$) more fruits and vegetables than those who thought otherwise by t-test determinations (Table LXXVI). The fruits and vegetables listed are frozen or fresh. Possibly the consumers ate this type of fruit or vegetable because they thought they were more nutritious in these market forms.

Attitude Toward Vegetables Being Good Source of Iron

The respondents who agreed that vegetables are a good source of iron consumed significantly ($p \leq 0.05$) more fruits than those who disagreed by t-test determinations (Table LXXVII). It is difficult to draw conclusions from these results as no vegetables were listed.

Attitude Toward Vegetables Being A Good Source of Fiber

The respondents who agreed that they liked vegetables because they are a good source of fiber, significantly ($p \leq 0.05$) consumed more fruits and vegetables than those who disagreed with this attitude by t-test determinations

Table LXXVI

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD CANNED VEGETABLES BEING MORE NUTRITIOUS THAN FRESH

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
orange juice	frozen	18	0.28	219	1.94	.0001
strawberry	frozen	18	0.17	219	0.68	.0012
green peas	frozen	20	0.15	222	0.55	.003
mushroom	fresh	20	0.15	221	0.51	.0093

Table LXXVII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD VEGETABLES BEING A GOOD SOURCE OF IRON

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
peach[1]	canned	174	1.04	51	0.56	.03
orange juice[1]	frozen	174	2.07	51	1.28	.03

[1] denotes equal variance in t-test

Table LXXVIII

CONSUMPTION OF FRUITS AND VEGETABLES BY RESPONDENTS' ATTITUDE TOWARD VEGETABLES BEING A GOOD SOURCE OF FIBER

FRUIT/VEGETABLE	FORM	Agree		Disagree		P-value
		N	mean	N	mean	
limes	fresh	190	0.30	44	0.10	.04
pears	fresh	190	0.25	44	0.03	.002
apple juice	fresh	190	0.18	44	0.03	.04
strawberry	frozen	190	0.33	44	0.07	.004
mandarine orange	canned	190	0.26	44	0.03	.0007
okra	fresh	190	0.21	45	0.03	.009
asparagus	fresh	190	0.42	45	0.31	.0003
tomato	fresh	190	1.99	45	1.13	.001
peas	fresh	190	0.27	45	0.03	.0019
blackeyed peas	fresh	190	0.14	45	0.03	.034
corn on cob	fresh	190	0.35	45	0.10	.011
sweet potato	fresh	190	0.47	45	0.13	.0001
sweet pepper	frozen	190	0.19	45	0.03	.02

(Table LXXVIII). Except for canned mandarin oranges, the listed fruits and vegetables were all either fresh or frozen which would provide a better source of fiber for the consumer.

Canned Vegetables As High In Sodium Content

Standard statistical procedures did not yield significant results to indicate a difference between the respondents' attitude toward canned vegetables being higher in sodium content than fresh vegetables are and their consumption of fruits and vegetables. The researcher will therefore not discuss this topic further.

Baked Potato As High In Calories

Standard statistical procedures did not yield significant results to indicate a difference between the respondents' attitude towards a baked potato being high in calories and their consumption of fruits and vegetables. The researcher will therefore not discuss this topic further.

Testing of Hypotheses

H_1 There is no significant association between the intake of fruits with:

1. age
2. race

3. marital status
4. size of household
5. education level
6. size of community
7. job status
8. income
9. purchaser of food
10. preparer of food

The variables identified in the study (with the exception of race which was not analyzed) did significantly ($p \leq 0.05$) affect the intake of fruits as showed by Tables XII through XXVI, hence, the researcher rejects the H_1.

H_2 There is no significant association between the intake of vegetables of Oklahoma Homemakers and selected demographic variables as in H_1.

The variables identified in the study, with the the noted exception, did significantly ($p \leq 0.05$) affect the intake of vegetables as showed by Tables XII through XXVI, hence,the researcher rejects the H_2.

H_3 There is no significant association between the intake of fruits of Oklahoma Homemakers and their opinions, practices, beliefs and attitudes.

The variables identified in the study did significantly affect the intake of fruits of Oklahoma Homemakers as showed by Tables XXVII through LXXVIII, hence, the researcher rejects the H_3.

H_4 There is no significant association between the

consumption of vegetables of Oklahoma Homemakers and their opinions, attitudes, practices and beliefs.

The variables identified in the study did significantly affect the intake of fruits of Oklahoma Homemakers as showed by Tables XXVII through LXXVIII, hence, the researcher rejects the H_4.

Discussion/Summary

Most of the respondents in this study were over 60 years of age, Caucasian, married and graduated from highschool or have some College education (or degree). Over half of the respondents lived in a rural community (less than 2,500 people). The majority of the respondents' household had only two people, and they purchased and cooked the food themselves.

Consumption of Fruits

Most of the fruits were either consumed 1-3 times or 5 or more times in a two week period. Fresh apples, oranges and bananas were consumed 1-2 times during a two week period and fresh pineapple, peaches, cherries, pears and apples were consumed 5 or more times during a two week period (Table X).

Consumption of Vegetables

Green beans, green peas, beets, tomatoes, blackeyed peas, spinach, mushrooms and asparagus were eaten five or

more times in a two weeks period (Table XI). Okra and asparagus are grown widely by Oklahoma residents, results indicated a high consumption of these two vegetables.

Demographic Variables

Those who were married consumed significantly ($p \leq 0.05$) more fresh and frozen fruits and vegetables. If the respondents are married, they may spend more time and effort on meal preparation, thus using less canned products. Those without children under 18 years of age, consumed significantly more canned fruits and vegetables, possibly because of convenience or personnal preference and the respondents may have canned their own fruits and vegetables. Those over 60 years of age, retired and living alone consumed significantly more fresh sweet potatoes. For the 60 and older age group, the sweet potato has probably been a staple food item for them and it can be prepared as needed.

Those with higher education, consumed significantly ($p \leq 0.05$) more fresh and rather expensive produce such as honeydew, fresh cauliflower and mushrooms. Those with higher education might have been exposed to a wider variety of food and probably had the financial ability to purchase these foods. The researcher also found that those living in larger communities (over 25,000 people) consumed significantly more fresh fruits and vegetables. Possibly these individuals had more access to a wide variety of food

items. Similarily, those who worked part-time consumed significantly more frozen peas, fresh grapes, rice and fresh sweet potato than those working full-time (Table XV and XVI). These individuals might have more time for a garden and more time to shop in different grocery stores.

Respondents' Opinions

In general, the respondents gave themselves a higher score on how concerned they are toward nutrition and how informed they are about nutrition than they did their spouse (Table IV). The three nutrients stated with the greatest frequency which the respondents felt should be on fruit and vegetable label were sodium, sugar, and food additive/preservatives (Table V). "Low in calories" and "no added sugar" were the two most frequent responses given as respondents' perception of the term "lite" (Table VI).

Respondents' Practices

There was a wide range as to the amount of time the respondents spent on physical activity, whereas, the spouses either seemed to exercise over 2 hours or less than 1/2 hour (Table V). The appearance of the display and service personnel recommendations as promotional techniques did not influence the volume of purchasing by Oklahoma homemakers except for fresh orange, fresh okra and fresh potato (Table LII). Weekly specials as a promotional technique had the most influence on purchasing (Table VII).

Microwaving, baking and boiling were the three most frequently used cooking methods used for fruits and vegetables by the respondents (Table VIII). The frequent use of the microwave might indicate the use of TV dinners, the respondents preparing food in volume and reheating serving portions or an increase use of the microwave because of demonstrations by the food science specialist. Since the majority of the respondents stated they were more concerned about nutrition at the present time than before, they may be baking and boiling their foods instead of frying them. The least frequently used cooking methods was deep fat frying and pressure cooking. These two cooking methods are usually used for cooking meat and not generally used to cook fruits or vegetables.

About 80 percent of the respondents indicated that they obtained their fruits from a grocery store and 75 percent of the respondents said they obtained their vegetables from the grocery store. Frozen blackberries, canned pineapple and canned carrots were consumed more by those who purchased their fruits from the grocery store (Table LXIV). Fresh cabbage, frozen okra and fresh corn were the vegetables that were consumed significantly more by those who obtained their vegetables from the garden or a fruit/vegetable stand (Table LXV). Canned blackberries, frozen okra and frozen green beans were consumed more by those who obtained their vegetables from the garden or a fruit/vegetable stand (Table LXV). This data was collected

in April, a fact which could have affected the responses to this question.

Respondents' Beliefs

Only 4 individuals out of the 245 that responded to the question concerning their perception of their weight status stated that they wanted to gain weight (Table IV). Frozen potatoes, canned blueberries and canned strawberries were consumed significantly more by those who wanted to gain weight (Table LXVI). Frozen potatoes (probably french fries) and the berries which would probably be made into pies are all high in calories and were consumed by those wishing to gain weight.

Respondents' Attitudes

The majority of the respondents did feel that fruits and vegetables were good for them and that fruits were high in vitamin C. Around 90 percent of the respondents did not consider catsup as a vegetable or that a baked potato is a high caloried food. Over 40 percent of the respondents, however, believed that grapefruit would burn body fat. Nutritional education would perhaps enlighten these respondents.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

There are many consumption studies in the literature but few which specifically look at fruit and vegetable intake. The intent of this research was to determine the kind and amount of fruits and vegetables consumed by Oklahoma homemakers and how their opinions, practices, beliefs and attitudes influences their consumption of fruits and vegetables. Four hypotheses were postulated to determine if the Oklahoma homemakers' consumption of fruits and vegetables were affected by demographic variables and their opinions, practices, beliefs and attitudes.

The results of the data collected from the questionnaires completed by the Oklahoma homemakers are presented in Chapter IV. The sample used was randomly drawn from the membership of the Oklahoma Extension Homemakers Council. Data obtained from the 264 questionnaires usable for analysis were analyzed using frequencies, percentages, t-tests, ANOVA and Duncan Multiple Range Tests. Numerous fruits and vegetables were consumed frequently by the Oklahoma homemakers as shown in Tables X and XI.

The majority of the respondents were concerned about

nutrition and most did want to lose weight. Microwaving, baking and boiling were the three cooking methods used most often by the respondents to cook fruits and vegetables. Sodium, sugar and food additive/ preservative were the nutrients with the greatest frequency the respondents wished to be on a fruit and vegetable label. They though that "no added salt" and "no added sugar" were the meaning of the term "lite".

Pineapple, peaches, apples, oranges and bananas were the fruits consumed most frequently (Table X). The vegetables consumed most often were green beans, peas, okra, cauliflower, celery, carrots and rice (Table XI).Married respondents used more fresh and frozen products (Table XXV) and those living in a larger community and with a college education consumed more honeydew, cauliflower and spinach (Table XIV, XV and XVI). The respondents who obtained their produce from gardens or a fruit/vegetable stand consumed more cabbage, corn blackberries, okra, green beans and asparagus (Table LXIV and LXV). Most of the respondents believed fruits and vegetables are high in vitamin and minerals and are needed for good health (Table IX). Selected demographic variables as well as the homemakers' opinions, practices, beliefs and attitudes did affect their consumption of certain fruits and vegetables.

Implications

The Oklahoma homemakers are more concerned about

nutrition now compared to a few years ago and are using appropriate cooking methods which do not add more calories to the food items. Although homemakers were interested in weight loss, they were not particularly interested in doing exercise to increase energy expenditure. Weight loss requires not only a decrease in food intake but also an increase in engery expenditure. Hence, nutrition education to make individuals aware of the relationship of food intake and energy expenditure could perhaps benefit the homemakers.

Recommendations

Recommendations regarding the research instrument are concerned with the fact that the questionnaire seem to cover a very broad area. For future research, perhaps a shorter version of the instrument limiting the study to only the homemakers' fruit consumption or their vegetable consumption would have allowed for a more in depth analysis of the data. Many of the respondents had difficulty in answering the questions regarding their consumption of fruits and vegetables. Many of the respondents' did not seem to understand that the amount of fruit as well as the market form of the fruit or vegetable were being sought. Focusing in on only either fruits or vegetables would allow for simpler question to be asked and possibly a better understanding of the question by the respondent.

In the question regarding where one purchased or

obtained their fruits and vegetables, a more explicitly worded question might be helpful as the respondents did not give a detailed answer to this question. Giving them possibilities such as "garden, grocery store or fruit/vegetable stand" could perhaps result in a better response.

Additional research need to be conducted to survey a random number of Oklahoma homemakers statewide, by region or nation-wide. One could also do surveys at different seasons to determine what affect this variable has on consumption of fruits and vegetables.

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APPENDIXES

APPENDIX A

TABLES

Table LXXIX

CONSUMPTION OF FRUITS BY RESPONDENTS IN A TWO WEEK PERIOD

	Frequency of Servings in two weeks								
	1-2			3-4			5 or more		
Fruit	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED
Apple	75	54	63	1	2	0	21	9	5
Tangerine	16	4	5	2	0	1	4	4	1
Peaches	10	4	5	13	7	3	62	25	8
Avocado	44	12	11	0	0	0	2	0	1
Banana	73	58	83	1	2	0	0	1	2
Grapes	44	26	32	1	0	1	1	0	1
Grapefruit	38	21	28	0	0	0	1	0	2
kiwi	20	4	3	0	0	0	0	0	0
lemon	34	8	12	0	0	0	0	0	0
limes	10	4	6	0	0	0	0	0	0
orange	63	44	64	2	2	0	2	0	3
prunes	18	10	14	0	0	0	2	4	6
nectarine	5	2	4	0	0	0	2	2	0
pears	19	2	3	1	0	1	35	17	4
cherries	5	1	2	7	3	1	37	2	5
apricots	10	2	3	4	2	0	24	8	1
watermelon	18	2	2	1	0	0	0	0	0
honeydew	9	4	0	1	0	0	0	0	0
raspberry	3	2	1	9	2	4	1	0	1
orange juice	9	11	22	22	23	59	4	2	11
blackberries	2	2	0	13	2	4	4	1	2
blueberries	3	1	1	9	3	5	4	2	0
strawberries	41	17	14	31	13	11	2	0	0
apple juice	7	2	3	9	9	8	16	12	10
mandarin orange	4	0	1	1	0	1	21	5	1
pineapple	17	8	5	3	0	0	67	12	15
plums	2	2	1	0	1	0	12	4	1

Table LXXX

CONSUMPTION OF VEGETABLES BY RESPONDENTS
IN A TWO WEEK PERIOD

	Frequency of Servings in two weeks								
	1 - 2			3 - 4			5 or more		
Vegetable	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED
okra	12	5	2	68	8	1	4	0	0
asparagus	19	10	6	13	3	0	26	6	1
tomato	60	53	32	4	8	3	47	29	20
green beans	16	7	6	12	14	6	75	60	35
carrots	74	64	44	8	8	3	20	10	3
lima beans	7	3	2	13	5	1	27	8	3
green peas	12	6	3	40	14	4	60	24	10
pumpkin	3	1	0	1	1	0	21	3	1
rutabagas	2	0	0	0	0	0	4	0	0
beets	3	3	0	6	1	0	54	9	9
acorn squash	16	4	3	2	2	0	1	0	0
cauliflower	78	33	17	27	9	1	2	1	1
spinach	32	7	5	10	2	4	34	8	5
rhubarb	10	7	10	3	3	1	1	0	0
potato	51	71	98	5	5	3	4	2	1
chinese cabbage	14	4	6	1	0	0	0	0	0
celery	76	40	37	1	1	0	3	0	0
chard	9	1	2	0	0	0	0	0	0
cucumber	64	13	11	1	0	0	5	2	0
green leeks	5	1	3	0	0	0	1	0	0
lentils	12	8	1	1	0	0	5	5	1

Table LXXX

CONSUMPTION OF VEGETABLES BY RESPONDENTS
IN A TWO WEEK PERIOD
(CONTINUED)

Vegetables	Frequency of servings in two weeks								
	1 - 2			3 - 4			5 or more		
	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED	FRESH	FROZEN	CANNNED
cabbage	85	40	22	3	2	0	2	1	1
mustard greens	12	2	2	1	1	1	6	1	0
radishes	45	26	22	1	0	0	1	0	0
rice	70	38	15	1	0	0	4	3	1
sauerkraut	17	1	2	2	1	0	33	3	3
blackeyed peas	17	1	0	16	4	1	44	7	4
mushroom	31	10	7	3	3	0	30	6	3
navy beans	34	8	2	2	1	0	18	2	2
zucchini squash	19	8	5	7	1	0	5	0	0
crook neck squash	14	4	6	11	0	1	1	0	0
broccoli	50	32	23	49	16	9	2	0	0
brussel sprouts	12	1	2	14	1	2	3	0	0
corn	23	1	7	43	10	2	5	1	0
sweet potato	37	7	5	4	1	0	12	2	0
turnips	22	3	2	1	0	0	1	0	0
bean sprouts	23	9	4	2	0	0	3	1	0
green onion	51	28	23	1	0	0	0	0	0
eggplant	8	2	1	1	1	0	0	0	0
garlic	36	18	8	0	0	0	6	0	0
sweet pepper	54	24	16	10	2	3	0	0	1

APPENDIX B

QUESTIONNAIRE

OSU

Oklahoma State University

DEPARTMENT OF FOOD, NUTRITION AND INSTITUTION ADMINISTRATION
COLLEGE OF HOME ECONOMICS

STILLWATER, OKLAHOMA 74078-0337
HOME ECONOMICS WEST 425
405-624-5039

March 30, 1987

Dear Homemaker,

There has been considerable interest in consumer attitudes, purchasing and consumption patterns of fruits and vegetables from a diet-health issue perspective. The attached questionnaire focuses on your attitudes, buying patterns, and consumption of fruits and vegetables. We would appreciate if you would take 15 minutes to answer all of the questions. All responses will be kept strictly confidential and not linked to any particular individual. Please return it, completed by April 17, 1987.

Once the questionnaire is completed, fold it in thirds and staple it closed. The return address should be visible after stapling. Return postage is provided.

After we receive your completed questionnaire, we will send you some special fruit and vegetable booklets to show our appreciation for your active participation.

Thank you for participating in this project. Your response will be extremely important to the outcome of this study. We look forward to hearing from you soon.

Sincerely,

Ruth Blair
Graduate Student

Lea L Ebro
Lea L. Ebro Ph.D.
Major Advisor

CENTENNIAL DECADE
1980 • 1990

General Information

Please place a (X) beside the response that is most correct for you. Thank you.

1. What is your present age?
   ( ) Less than 20 years old ( ) 41-50 years
   ( ) 21-30 years ( ) 51-60 years
   ( ) 31-40 years ( ) 61 years and Over

2. What ethnic or racial background are you?
   ( ) Black ( ) Oriental
   ( ) American Indian ( ) Caucasian (White)

3. What is your present marital status?
   ( ) Single/Never Married ( ) Married ( ) Widowed/Divorced/Separated

4. What is the highest level of education that you received?
   ( ) Less than high school graduate ( ) Attended college
   ( ) High school graduate ( ) College graduate/post graduate

5. What size of community do you live in?
   ( ) Large city (over 250,000 people) ( ) Town (2,500 to 25,000 people)
   ( ) Small city (25,000 to 250,000 people) ( ) Rural Community (under 2,500 people)

6. You are presently ...
   ( ) Employed full-time ( ) Unemployed
   ( ) Employed part-time (less than 30 hrs/Wk) ( ) Retired
   ( ) Full-time homemaker

7. If you have co-wage earner in your household what is their employment status?
   ( ) Employed full-time ( ) Unemployed
   ( ) Employed part-time ( ) Retired
   ( ) Full-time homemaker ( ) Not applicable

8. What was your net family income from all sources, before taxes in 1986?
   ( ) Less than $10,000 ( ) $25,000-39,999
   ( ) $10,000-$14,999 ( ) $40,000-More
   ( ) $15,000-$24,999

9. The number of people currently living in your household for more than four months during the year is _____ (Please specify the number).

10. Do you have children under 18 years old living in your household?
    ( ) Yes ( ) No

11. Who has the primary responsibility for food purchasing for your household?
    ( ) Self ( ) Child ( ) Shared
    ( ) Spouse or Housemate ( ) Parent ( ) Other

12. What is the age of the principle shopper?
    ( ) Less than 20 years old ( ) 41-50 years
    ( ) 21-30 years ( ) 51-60 years
    ( ) 31-40 years ( ) 61 years and Over

13. Who has the primary responsibility for cooking in your household?
    ( ) Self ( ) Child ( ) Shared
    ( ) Spouse or Housemate ( ) Parent ( ) Other

II. Fruit and Vegetable Survey

For question 1-7, first (X) the individuals that makes up your household. Then (X) the statements that fit you and/or your spouse in your household.

	Yourself	Your Spouse
	( )	( )
1. Compared to a few years ago, how do you think this person feels about nutrition?		
More Concerned	( )	( )
Less Concerned	( )	( )
No Real Change	( )	( )
Not Sure	( )	( )
2. Compared to a few years ago, how do you think this person's eating habits are now?		
Eat More Nutritiously	( )	( )
Eat Less Nutritiously	( )	( )
No Real Change	( )	( )
Not Sure	( )	( )
3. How informed would you say that this person is about general nutrition?		
Very Well Informed	( )	( )
Fairly Well Informed	( )	( )
Not That Well Informed	( )	( )
Not Sure	( )	( )
4. How much time does this person engage in physical activity (such as walking, jogging, aerobics) per week?		
Less than 1/2 hour	( )	( )
1/2 to 1 Hour	( )	( )
1-2 Hours	( )	( )
More Than 2 Hours	( )	( )
5. Do you or your spouse belong to : (X those that apply)		
Weight Watchers?	( )	( )
Weigh Off?	( )	( )
Shape Up?	( )	( )
6. Which statement best describes this person's weight status?		
Trying to Gain More Than 10 Pounds	( )	( )
Trying to Gain 1-10 pounds	( )	( )
Satisfied With Current Weight and DOES NOT Have to Worry About Maintaining Weight	( )	( )
Satisfied With Current Weight But DOES Have to Count Calories to Maintain This Weight	( )	( )
Trying to Lose 1-10 Pounds	( )	( )
Trying to Lose More Than 10 Pounds	( )	( )
7. Which Statement best describes this person's concern about his/her diet? (Check only one per person)		
DOES NOT Worry About Calories, Nutrients, and All Other Warnings	( )	( )
Main Concern is Calories	( )	( )
Tries to Eat a Balanced Diet, But DOES NOT Make a Big Deal About It	( )	( )
Feels Very Strongly About Eating Only What is Nutritious	( )	( )

8. Do you read and use nutritional labeling on processed fruit and vegetable products?

( ) yes ( ) No

9. In your opinion, which 3 of the following are most important and should appear on a food label of fruits and vegetables? (X) ONLY 3

( ) Carbohydrate ( ) Calories
( ) Protein ( ) Fat
( ) Sugar ( ) Vitamin and Minerals
( ) Sodium (Salt) ( ) Food Additives/Preservatives

10. On many canned fruit labels the term "Lite" is used. In your opinion, which of the following statements best describes what "Lite" means. (X) all that apply.

( ) Better Tasting ( ) Low in Calories
( ) Better for you ( ) No added sugar
( ) No added salt ( ) Other _____

11. Of the listed promotional techniques how much do they influences your food purchases?

	Never	Sometimes	Often	Always
a. Weekly Specials	_____	_____	_____	_____
b. Discounts	_____	_____	_____	_____
c. Appearance of Display	_____	_____	_____	_____
d. Daily Specials	_____	_____	_____	_____
e. Service Personnel recommendations	_____	_____	_____	_____

12. Place a (X) mark beside the cooking methods (for fruits or vegetables) that you or the person who cooks for you has used in the last two weeks.

a. ___ roasting
b. ___ stewing or braising
c. ___ broiling or grilling
d. ___ pan frying
e. ___ stir frying
f. ___ microwaving
g. ___ pressure cooking
h. ___ crock pot
i. ___ deep fat frying
j. ___ baking
k. ___ steaming
l. ___ boiling
m. ___ OTHER _____

13. Where do you purchase or obtain your FRUITS_____
and where do you purchase or obtain your VEGETABLES?_____

14. For this question, circle the number which tells how strongly you agree or disagree with each statement. SA=strongly agree, A=agree, D=disagree, SD=strongly disagree.

How strongly do you AGREE with these statements about Fruits and Vegetables?

	SA	A	D	SD
a. A serving of french fries is like a serving of vegetables.	1	2	3	4
b. FRUITS are good for me.	1	2	3	4
c. Most VEGETABLES are low in calories.	1	2	3	4
d. A serving of catsup is like a serving of VEGETABLES.	1	2	3	4
e. FRUITS are a good source of vitamin C.	1	2	3	4
f. Grapefruit will help burn body fat.	1	2	3	4
g. Fruits are too expensive to purchase.	1	2	3	4
h. VEGETABLES are good for me.	1	2	3	4
i. Canned vegetables are more nutritious than fresh vegetables.	1	2	3	4
j. VEGETABLES are a good source of iron.	1	2	3	4
k. I like VEGETABLES because they are a good source of fiber.	1	2	3	4
l. Canned VEGETABLES are higher in sodium (salt) than fresh.	1	2	3	4
m. A baked potatoe is high in calories.	1	2	3	4

15. In the last two weeks, how often AND how much did you eat of the following FRUIT items? Please specify the form you purchased it in.

	0			1-2			3-4			5 or more		
	fresh	frozen	canned	fresh	frozen	canned	fresh	frozen	canned	fresh	frozen	canned
a. apples (one)												
b. tangerines (one)												
c. peaches (one)												
d. avacodo (1/2)												
e. banana (one)												
f. grapes (1/2cup)												
g. grapefruit (1/2)												
h. kiwi (whole)												
i. lemons (1 slice)												
j. limes (1 slice)												
k. oranges (one)												
l. tangerine (one)												
m. prunes (two)												
n. nectarine (one)												
o. pears (one)												
p. cherries (1/2c)												
r. apricots (one) (1/2 cup)												
s. watermelon (1 slice)												
t. honeydew (1/8 melon)												
u. raspberries (1/2 cup)												
v. orange juice (1/2 cup)												
w. blackberries (1/2 cup)												
x. blueberries (1/2 cup)												
y. strawberries (1/2 cup)												
z. apple juice (1/2 cup)												
aa. strawberries (1/2 cup)												
bb. mandarine orange (one)												
cc. pineapple (1/2 cup)												
dd. plums (1/2 cup)												

ee. OTHER_____

16. In the last two weeks how often AND how much did you eat of the following VEGETABLE items? Please specify the form you purchased it in.

(1/2 cup portions or as stated)	0			1-2			3-4			5 or more		
	fresh	frozen	canned	fresh	frozen	canned	fresh	frozen	canned	fresh	frozen	canned
a. okra												
b. asparagus												
c. tomatoes												
d. green beans												
e. carrots												
f. lima beans												
g. green peas												
h. pumpkin												
i. rutabagas												
j. beets												
k. acorn squash												
l. cauliflower												
m. spinach												
n. rhubarb												
o. potato												
p. chinese cabbage												
q. celery												
r. chard												
s. cucumber (one)												
t. green leeks												
u. lentils												
v. cabbage (1 cup)												
w. mustard greens												
x. radishes (one)												
y. rice												
z. sauerkraut												
aa. cabbage												
bb. blackeyed peas												
cc. mushrooms												
dd. navy beans												
ee. zucchini squash												
ff. crook neck squash												
gg. broccoli												
hh. brussel sprouts												
ii. corn on cob (one)												
jj. sweet potato												
kk. turnips												
ll. bean sprouts												
mm. green onions (one)												
nn. eggplant (one slice)												
oo. garlic (1/4 clove)												
pp. sweet pepper (1/4 cup)												

qq. OTHER _____

VITA

Ruth Ann Blair

Candidate for the Degree of

Master of Science

Thesis: OPINIONS, PRACTICES, BELIEFS, ATTITUDES AND CONSUMPTION OF FRUITS AND VEGETABLES OF OKLAHOMA HOMEMAKERS

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Personal Data: Born in Lester Prairie, Minnesota, March 29, 1958, the daugher of M. Austin and Mariann Otto. Married to Roger Blair on March 27, 1982.

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