

A STUDY OF VEGETABLE CONSUMPTION AND VEGETABLE
LIKES AND DISLIKES OF PUPILS IN THE
J. M. LINDSAY ELEMENTARY SCHOOL,
GAINESVILLE, TEXAS

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CHAPTER I

INTRODUCTION

Statement of the Problem

The problem of this investigation was to survey the noon-meal vegetable consumption of 248 elementary-school children in the J. M. Lindsay School, Gainesville, Texas, for a period of ten days, and to compile lists of the vegetables which the children indicated that they liked or disliked.

The problem required the cooperation of the principal of the school, the teachers, the lunchroom personnel, and all of the children. It involved research regarding the contribution of vegetables to body-building and to the maintenance of optimum health. Its practical value appeared to be obvious in the light of the interest and whole-hearted participation of all who had a part in making the survey possible.

Sources of Data

Information on the problem was obtained mostly from primary sources. However, secondary references were used for obtaining data on vegetables as they are related to

the health of boys and girls. Reviews of other similar studies were used also as a background for the present study.

Social Implications of the Problem

The child in the elementary school needs guidance in the field of food selection, perhaps, as much as at any other time in his life because the needs for body-building foods are greatest during the period of rapid growth. At this time boys and girls are likely to forget good dietary habits, even if they were formed in early childhood, because pre-adolescents have a tendency to begin to assert their independence and to satisfy a desire to experiment. At this time, too, they are reluctant, sometimes, to accept the suggestions of parents and teachers. All of these factors and probably others lead to the conclusion that much emphasis should be placed upon food selection by elementary-school children. Health is one of the primary objectives of education, and if we are to realize the goals for our nation as a whole, we must see that pre-adolescents receive adequate instruction concerning the relation of food to optimum living.

It is clear that outstanding adjustments are being made in the school curriculum in order to meet the demands of a post-war world. Many leaders in the field of education

are looking forward to the time in which our schools will completely break away from the formalism of the past and endeavor to meet the immediate needs and the future needs of the pupils. No longer can the classroom confine itself to mere factual learnings and skills. Today, those things which pupils learn must be translated into daily living.

The writer believes that one of the most cherished ideals of our American way of life is the high regard in which the individual is held. We say that in our democratic social order all individuals, regardless of race, class, or creed, should have equal opportunity to achieve maximum development. If this thesis is true, our school programs today must build up knowledges and attitudes and appreciations that will promote more satisfying experiences and better living for those boys and girls who sit in our classrooms today, but who will shape the policies of our world tomorrow.

If people are to live together in peace and harmony, they must understand and recognize their dependence upon each other. It is not enough for an individual to desire to be healthy merely for his own sake, but he must take into consideration that his ill health affects others. It therefore becomes his duty, as a contributor

to society, to do everything within his power to be a strong, healthy person. For this reason there is almost universal agreement among educators as to the importance of helping young people to develop healthy bodies and minds as a basis for successful living. With these factors in mind as a beginning point, the writer undertook the study of the food status among the elementary-school pupils in the J. M. Lindsay School, Gainesville, Texas.

Background of the Study

Foods that are rich in health-giving values are called protective foods. Green and yellow leafy vegetables are in this class. Although people have begun to eat more of this type of food, recent dietary studies show that the nation should eat about twice as much as is now consumed.¹

To be physically and mentally alert, people need an ample supply of the seven basic foods, among which vegetables play an important part. This class of foods helps to guard against constipation and satisfies a hunger which many foods do not satisfy.

Vegetables can be served in many different forms. Sometimes we eat the leaves, as in cabbage, lettuce, greens,

¹Hazel K. Stiebeling, Are We Well Fed? Miscellaneous Publication No. 430, Bureau of Home Economics, United States Department of Agriculture, p. 8.

and spinach. Sometimes the stems are served, as in celery and asparagus. Sometimes the roots are eaten, as in beets, carrots, turnips, and sweet potatoes. In other foods, we eat the seed, as in peas and beans; while in others, we eat the pod, for example, green beans. All of these make a contribution to health, and the classroom teacher should give emphasis to the need of including daily green or yellow leafy vegetables in the diet. These vegetables contribute minerals and vitamins which are necessary to body-building.

Jeffries made a study of an adequate diet at a minimum cost in 1941.² She reported that parsley, spinach, turnip greens, carrots, tomatoes, squash, green peppers, lettuce, kale, dandelion greens, collards, chard, and Chinese cabbage are economical sources of vitamin A. She also found that parsley, cabbage, green peppers, and turnip greens provide ascorbic acid.

Sweeny and Buck made a study of the vitamin contributions of vegetables. They arranged vegetables in the following order of their respective vitamin content, the first indicating the highest content and the last the lowest: For vitamin A, spinach, carrots, tomatoes, peas,

²Ollene Jeffries, "Development of an Adequate Diet at a Minimum Cost," Unpublished Master's thesis, Graduate Division, Department of Home Economics, Texas State College for Women, 1941, pp. 55-56.

green beans, broccoli, romaine lettuce, asparagus, and cooked turnips; for vitamins B and G, peas, turnips, greens, collards, spinach, tomatoes, cabbage, carrots, green beans, and lettuce; for vitamin C, canned and raw spinach, canned and raw tomatoes, cabbage, peas, corn, parsley, string beans, beets, steamed potatoes, broccoli, and lettuce. For mineral contribution the following arrangement was made: For calcium, buttered spinach, buttered carrots and celery, buttered cabbage, buttered green beans, buttered beets, buttered peas, canned tomatoes, tomato juice, raw celery, steamed potatoes, and buttered carrots and peas; for phosphorus, raw celery, buttered peas, buttered carrots and peas, buttered spinach, steamed potatoes, buttered green beans, buttered carrots, buttered carrots and celery, buttered beets, buttered cabbage, buttered turnips, tomato juice, shredded raw cabbage, and lettuce; for iron, buttered spinach, buttered peas, buttered cabbage, buttered carrots and peas, buttered green beans, buttered carrots, buttered beets, buttered carrots and celery, steamed potatoes, tomato juice, canned tomatoes, and raw celery.³

Mary E. Sweeny and Dorothy Gurts Buck, How to Feed Young Children in the Home, pp. 26-29.

Government records show that the food shortage is not now so acute as it was last spring (1946), yet a shortage is predicted until the 1947 crops are harvested. As a result, teachers will be called upon to make diets adequate, interesting, and appetizing, instead of merely satisfying hunger.⁴ In the modern school, many children obtain their main meal in the cafeteria or lunchroom; therefore it is imperative that teachers see that an adequate amount of vegetables is included in the menus offered.

Our knowledge of the needs of our bodies and of the contribution made by various foods to meeting their needs is incomplete. Research has shown us some very important principles which should be applied in our daily diets. These findings concerning the contributions of vegetables are very important to the classroom teacher or the lunchroom supervisor who is responsible for planning and preparing food for children whose main meal is their lunch at school.

Much importance has been attached to the part played by nutritional food in the growth of children. Those who have studied the problem maintain that it is not sufficient

⁴Mary Farnam, "School Lunchroom Department," School Management, November, 1946, p. 43.

for children to have enough to eat, but that they must have the right kinds of food. Vegetables are among these required foods.

Observations and scientific research reveal that vegetables are often unpopular with both children and adults. Food specialists agree, however, that regardless of their unpopularity, vegetables should be included frequently and in adequate amounts because of the health development and protection which they afford. Science has shown that this class of foods supplies vitamins and minerals. In addition, they maintain the alkaline reserve of the body. Moreover, they supply bulk, and promote intestinal hygiene, and are therefore indispensable to the abundant living which we hear, read, and talk so much about.

Amidon's conclusion that children can be taught to select and enjoy vegetables is summed up in this statement:

Following several months of nutrition emphasis, follow-up diet surveys in selected grades in a number of Minnesota schools add to existing evidence that eating habits of children can be improved.⁵

⁵Paul S. Amidon, "Cooperative Action in Nutrition Education," School Management, September, 1946, p. 10.

Method of Procedure and Treatment of Data

The first step made in this study was the compilation of a bibliography on the contributions which vegetables make to health. The writer used information gained from this activity as a foundation for the present study.

The second step was reading the reviews of similar studies made of food consumption in America and in other lands. The investigations related to the immediate problem were incorporated as a background.

The third step was enlisting the interest and cooperation of the teachers, the lunchroom personnel, and the student body. This was accomplished by conferences and classroom discussions.

The fourth step was making the survey of the vegetable consumption of the 248 children enrolled in the J. M. Lindsay School for a period of ten school days. The checklist used for this purpose is included in this study as Appendix A. The cooperating teachers checked each food eaten by each child and gave the complete report to the writer at the end of the experimental period.

The fifth step was surveying the vegetable likes and dislikes of the 248 children. The questionnaire used for obtaining these data is included in the present study

as Appendix B. A mimeographed sheet containing a list of twenty-five vegetables, ten of which were of the green or yellow leafy classification, was given to each child, and he checked the vegetables which he liked, disliked, or would eat, under the supervision of the teacher.

The sixth step was organizing the available data into the following chapters: Chapter I, Introduction; Chapter II, A Brief Review of Literature on Vegetable Consumption; Chapter III, A Survey of Vegetable Consumption in the J. M. Lindsay School, together with the Children's Indications of Vegetable Likes and Dislikes; and Chapter IV, Summary and Conclusions.

CHAPTER II

A BRIEF REVIEW OF LITERATURE ON VEGETABLE CONSUMPTION IN AMERICA AND IN FOREIGN LANDS

Studies Made in the United States

Many dietary studies have been made of groups in the United States which revealed alarming food deficiencies. These cases shed some light upon the problem of malnutrition and other food inadequacies.

In 1946, Martha Ware made a report on thirty-five investigations regarding the consumption of vegetables in America.¹ She included a 1918 dietary study made in Gary, Indiana, by the United States Children's Bureau.² The results of the investigation showed that 50.4 per cent of the preschool children visited consumed no vegetables except Irish potatoes on the day of visitation.

A dietary study of young Italian children made in 1924 by Roberts and Waite showed that a large percentage

¹Martha Ware, "A Review of Literature on the Consumption of Vegetables in America" (Unpublished Master's Thesis, Department of Education, North Texas State Teachers College, 1946).

²Ibid., p. 33, quoting Lydia J. Roberts, Nutrition Work with Children, p. 531.

of the group received an inadequate supply of phosphorus, calcium, and iron.³ A later study of the vegetable contribution of minerals, made by McLaughlin and her associates, indicated that a liberal amount of vegetables apparently supply an adequate amount of minerals.⁴

Hosman's 1928 nutritional study of Nebraska's consolidated school children in three districts revealed that sixty-nine per cent of the children ate no vegetables other than potatoes on the day they were questioned.⁵

An investigation of the diets of 2,110 children in representative rural areas of Florida was made by Ahman, Abbott, and Westover in 1929.⁶ They found that on the date of the survey, seventy-three per cent of the children contacted ate no leafy vegetable and forty per cent ate no type of vegetable.

³Ibid., p. 33, quoting H. Roberts and D. Waite, "Diet in a Day Nursery School," Journal of Home Economics, XVII (1925), 142.

⁴Ibid., pp. 33-34, quoting Laura McLaughlin and others, "Vegetables in the Diets of Preschool Children," Journal of Nutrition, IV (May, 1931), 115-117.

⁵Ibid., p. 38, quoting I. Hosman, "A Nutrition Study of Consolidated Schools in Nebraska," Unpublished Master's Thesis, University of Chicago, 1929, reported by Lydia J. Roberts, op. cit., p. 13.

⁶Ibid., p. 38, quoting C. F. Ahman, O. D. Abbott, and G. Westover, Nutritional Study of the White School Children in Five Representative Counties of Florida, Florida Agricultural Experiment Station Bulletin No. 216, reported by Lydia J. Roberts, op. cit., p. 13.

In 1935 Dumas surveyed the food consumption of 181 children in the Boles Orphans' Home at Quinlan, Texas.⁷ Results showed noticeable deficiencies of minerals and vitamin A.

Wilson's 1938 study of food eaten by fifty junior-high-school students indicated that the group did not include an adequate amount of vegetables in their daily diets.⁸

A survey of the nutritional habits of seventy-two girls enrolled in the homemaking department of the high school at Huntsville, Texas, was made by Driskill in 1938.⁹ Results showed that not one student ate the recommended amount of leafy, green, and yellow vegetables during the survey period.

Hambright's investigation of 1942 indicated that the diet of one hundred Latin-American children in Kingsville, Texas, was deficient in most of the protective

⁷Ibid., pp. 39-41, quoting Thelma Lee Dumas, "A Study of the Diet and the Physical Progress of the Children of the Boles Orphans' Home" (Unpublished Master's Thesis, Graduate Division, Department of Home Economics, Texas State College for Women, August, 1935).

⁸Ibid., p. 42, quoting Ruby Wilson, "A Nutritional Study of Denton Children" (Unpublished Master's Thesis, Graduate Division, Department of Home Economics, Texas State College for Women, 1938), pp. 33-34.

⁹Ibid., pp. 44-45, quoting Charlotte Kyle Clark, "A Dietary Study of Farm Families in Denton County on Low Income" (Unpublished Master's Thesis, Graduate Division, Department of Home Economics, Texas State College for Women, 1938), pp. 1-13.

foods. One of the most noticeable deficiencies was in green leafy vegetables.¹⁰

Whitacre made a survey of the diets of four hundred rural Texas families in 1943, including whites, Negroes, and Mexicans. Results showed that leafy, green, and yellow vegetables were used less frequently than others, but that the diets of most of the families were fairly adequate.¹¹

An investigation of the consumption of vegetables by 159 children who ate in one of the cafeterias of the public schools in Fort Worth, Texas, was made by Bailey in 1943-1944.¹² The findings indicated that an abundance of body-building foods was provided, but that the children made poor selections. Not one lunch of the 159 analyzed met the recommended nutritional standards.

¹⁰Ibid., pp. 45-46, quoting Dudley Ben Hambright, "A Nutritional Study of Latin-American Children" (Unpublished Master's Thesis, Graduate Division, Department of Home Economics, Texas State College for Women, 1942), pp. 34, 39, 44-46, 55.

¹¹Ibid., pp. 48-49, quoting Jessie Whitacre, The Food Supply of Texas Rural Families, Bulletin No. 642, Division of Rural Home Research, Texas Agricultural Experiment Station, October, 1943.

¹²Ibid., pp. 49-50, quoting Katherine W. Bailey, "A Study of the Foods Served and Purchased in a Fort Worth Cafeteria During the Year 1943-44" (Unpublished Master's Thesis, Graduate Division, Department of Home Economics, North Texas State Teachers College, 1944).

Dickens' investigation of family diets in Georgia, Mississippi, and South Carolina, was reported in 1938. Findings indicated that at least one cause of the low health status of the Southern people can be attributed to the consumption of insufficient protective foods, including green or yellow leafy vegetables.¹³

Practically all of the other reviews reported by Ware indicated that

preschool children, school children, college students, non-school adults, and families do not, on the average, consume an adequate amount of vegetables for proper development, repair, and maintenance of the body.¹⁴

Review of Food Habits in Other Lands

In 1942 Newton reviewed literature on certain studies made of the nutritional status of foreign people. She found that for almost two centuries various countries have investigated the foods of their citizens.¹⁵

¹³Ibid., pp. 54-55, quoting Dorothy Dickens, "Health in Relation to Prosperity in the South," Journal of Home Economics, XXX (June, 1938), 373.

¹⁴Ibid., p. 70.

¹⁵Emma Pearl Saunders Newton, "A Study of the W. P. A. Lunches Served in a Rural Consolidated School During the Year 1941-42" (Unpublished Master's Thesis, Department of Home Economics, North Texas State Teachers College, August, 1942).

England. -- Newton reported that Bulkley made a survey of the foods of English school children in 1914, and that as far back as 1876 Sir Henry Peck improved the health of students in Rousdon by providing one nutritional food each day.¹⁶ During the South African War, the English Parliament passed the Education Act of 1906 which provided for governmental assistance in provision of adequate meals for school children.

In Anglesey, a survey indicated that rural children were more inadequately nourished than city children.¹⁷ A similar investigation of 2,111 elementary-school children in Liverpool showed that a deficient diet was causing an alarming decadence.¹⁸ In 1910, Chate made a study of the health of 570 children in rural Middlesex and found that a state of malnutrition existed.¹⁹ Improper diet was the main cause of the existing conditions.

Crowley studied the effects of an adequate diet on the status of forty school children from poor districts in Bradford during 1907. Provision of proper foods resulted in improved health conditions.²⁰

¹⁶Ibid., pp. 1-2, quoting M. E. Bulkley, The Feeding of School Children, pp. 7-8.

¹⁷Ibid., pp. 125-126.

¹⁸Ibid., p. 171.

¹⁹Ibid., p. 174.

²⁰Ibid., p. 184.

Norway. -- Newton reported a food experiment in Oslo in which a morning meal of milk, fruit, green vegetables, and whole wheat bread was provided in school.²¹ The purpose of the meal was to overcome deficiencies in home diets. The results were so successful that the plan was put into operation throughout Norway and other Scandinavian countries. Later it was introduced into England.

Scotland. -- In 1878 a soup kitchen was opened in one of the schools of Farnell. For a very small sum the children received a mid-day hot nourishing meal. Soon, improved attendance, less illness, and a happier spirit was noted among the children who took advantage of the food.²²

In 1927 the diets of 1,500 elementary-school children were enriched by the addition of calcium through milk for several months. Increased growth, vigor, and mental alertness were noted.²³

Japan. -- Enrichment of the diets of certain Japanese school children by the addition of calcium through milk resulted in an over-all improvement. The children

²¹Ibid., pp. 4-5, quoting Erceel S. Eppright, "The School Lunch," Texas Outlook, XXV (January, 1941), 31.

²²Ibid., quoting Bulkley, op. cit., p. 246.

²³Ibid., quoting Eppright, op. cit., p. 31.

gained in weight and in height. Their complexions improved. Their dispositions were more cheerful. School attendance improved and success in athletic contests was noted.²⁴

Italy. -- A summer-camp food experiment in Italy was reported by Newton.²⁵ Enriched diets, through the addition of milk, resulted in the controlled group of children gaining more than the uncontrolled group.

Other Reviews of Literature on Vegetable Consumption

Kneeland and Martikainen investigated the Playground Lunch Project for the Hartford Nutrition Committee. The result was a report that many children were receiving inadequate diets. In order to alleviate the condition, well-balanced and nutritious lunches were served to a group of fifty needy children. The observers noted that through the education provoked in connection with the study concerning proper foods, an apparent change in the food likes and dislikes came about.²⁶

Mildred Ward reports that decided improvements have

²⁴Ibid., p. 32.

²⁵Ibid., p. 33.

²⁶Beatrice Hall Kneeland and A. Helen Martikainen, "Playground Lunch Project of Hartford Nutrition Committee," Forecast for Home Economics, LVIII (May, 1942), 29-30, 48, 50.

been made in the Kerrville, Texas, school children's food habits as a result of nutritional education. By the use of personal health evaluation charts, the elementary pupils cultivated tastes for foods which formerly were left on their plates. In addition, the program resulted in definite indications of improved knowledge of food selection and a desirable attitude toward eating health-giving foods.²⁷

Latimer reported a survey made by the Massachusetts Department of Public Health in 1934. Examination was made of 47,000 school lunches in eighty-seven cities and towns. The results indicated that a majority of the pupils had unbalanced and inadequate lunches.²⁸

A special survey of eating habits was reported in 1946 by General Mills, Incorporated.²⁹ Following a nutrition emphasis program, the survey was made in a typical rural elementary school in the Midwest. The results were compared with earlier surveys made in six similar schools in the same county, where no special

²⁷Mildred G. Ward, "Kerrville School Cafeteria Educates While It Feeds," Texas Outlook, XXVI (June, 1942), 40-41.

²⁸Jean V. Latimer, "The School Lunch in Education," Hygeia, XVII (July, 1939), 666-667.

²⁹General Mills, Incorporated, advertisement in School Management, August, 1946.

emphasis had been given. The results showed that fifty per cent of the children ate green and yellow vegetables in the pre-taught school, while only 9.5 per cent ate them in the other six schools.

In 1936 the Bureau of Home Economics and the Bureau of Labor Statistics made an investigation regarding the food status in our country. They made the following report:

Fewer than a fifth of the families in this country had diets that meet the National Research Council's recommendation (1941) for each of the seven nutrients considered (protein, calcium, iron, vitamin A, thiamine, riboflavin, and ascorbic acid). Farm families fared better than city families on the average because the foods they produced at home . . . milk, eggs, meat, vegetables, and fruit . . . are good sources of the nutrients often found to be low in family diets.³⁰

McLaughlin, Tarwater, Lowenberg, and Koch did some research regarding the consumption of vegetables by forty-two preschool children. They kept daily records of foods which were consumed during seasons when fresh vegetables were not in abundance. However, children received more than two servings of vegetables each day. Lettuce, carrots, tomatoes, and snapped beans were used

³⁰Ester F. Phipard, "How Good Is Our National Diet?" Annals of the American Academy of Political and Social Science, CCXXV (January, 1943), 66.

most frequently. Reports on the study showed that the vegetables constituted one seventh of the children's total intake of food, and that seventeen per cent of the total amount of iron needed was provided by the vegetable consumption. In addition, ten per cent of the total energy for the children was furnished in the vegetables. It was noted also that unfamiliar vegetables were not refused, and that the children seemed to favor crisp textures.³¹

Summary

A brief review of literature on the consumption of vegetables in America and in foreign lands indicated that practically all investigations led to the conclusion that people do not eat enough of green or yellow leafy vegetables. The tragedy of this inadequacy lies in the fact that the consumption of vegetables is essential to developing the body in childhood and to the maintenance of optimum health in adult life. The studies which dealt with education tended to show that children can be taught to eat more of the proper foods.

³¹Laura McLaughlin et al., "Vegetables in the Diets of Preschool Children," Journal of Nutrition, IV (May, 1931), 115-117.

CHAPTER III

RESULTS OF FOOD SURVEY IN THE J. M. LINDSAY ELEMENTARY SCHOOL, GAINESVILLE, TEXAS

As previously stated, the writer became particularly interested in the eating habits of the pupils in the J. M. Lindsay Elementary School because of the lunch-room duties assumed by her as a teacher in the school. She often noted that vegetables were seldom chosen by some children but frequently eaten by others.

Method of Survey

For ten school days, beginning February 3, 1947, all the teachers in the J. M. Lindsay Elementary School cooperated in checking the foods consumed by each child who ate his noon meal in the school cafeteria. A sheet containing the menu for the day was prepared for each child. The form used appears in this study as Appendix A. Each teacher daily checked the foods eaten and the foods not eaten.

Menus Served

Table 1 contains ten menus, from which 2,129 meals were served during the present study. The children were

TABLE 1

MENUS SERVED ON THE DATES OF THIS STUDY

Date	Menu
February 3, 1947	Weiners Kraut Creamed potatoes Carrots Cup cakes Sweet milk
February 4, 1947	Meat loaf Lima beans Spinach Ice cream Sweet milk
February 5, 1947	Beef sandwiches Vegetable soup Apple pie Sweet milk
February 6, 1947	Beef roast Dressing Lettuce and tomato salad Corn Pineapple pudding Sweet milk
February 7, 1947	Sausage Creamed potatoes Tomato and cabbage salad Ice cream Sweet milk
February 10, 1947	Meat balls Spaghetti Carrot and cabbage slaw Ice cream Sweet milk

TABLE 1 -- Continued

Date	Menu
February 11, 1947	Salmon croquettes Creamed potatoes Blackeyed peas Cabbage slaw Ginger bread Ice cream Sweet milk
February 12, 1947	Irish stew Blackeyed peas Sliced tomatoes Fruit salad Sweet milk
February 13, 1947	Weiners Kraut Lima beans Raw carrots Ice cream Sweet milk
February 14, 1947	Ham sandwiches Vegetable soup Ice cream Sweet milk

checked on which foods were eaten and which were left on their plates.

Data in Table 1 show that two green or yellow leafy vegetables were served on two of the ten days considered in the study. Only one was served on five days. Vegetable soup was served on two days, and no green or yellow leafy vegetable was served on February 12, 1947. Irish potatoes were served three days, and a canned or a dried vegetable was served four days.

According to Bogert and Porter, every person should have daily one large serving or two small servings of raw salad and one or more liberal servings of vegetables, not including starchy foods, such as potatoes, corn, or peas.¹ Unless each home provided these requirements, it appears that the children in the school under consideration were in danger of having an inadequate daily supply of vegetables.

Classifications of Foods Consumed

Table 2 contains a composite picture of the classification of foods eaten during the study by the 248 children under consideration.

TABLE 2
NUMBER AND PERCENTAGE OF 248 CHILDREN WHO
CONSUMED VEGETABLES, MEAT, MILK,
AND DESSERT

Food	Number Consuming Food	Percentage Consuming Food
Vegetables	208	84
Meat	228	90
Milk	228	90
Dessert	235	95

¹Jean L. Bogert and Mame T. Porter, Dietetics Simplified, p. 89.

Data in Table 2 show that vegetables were eaten by the smallest number of children, in comparison with the number who consumed meat, milk, and dessert. An analysis shows that the following classifications of foods were consumed, with the first named being eaten by the largest percentage and so on down to the smallest: dessert, milk and meat, and vegetables.

Children's Likes and Dislikes of Vegetables

In addition to surveying the daily consumption of the 248 pupils' food, the writer surveyed the children's indicated likes and dislikes of twenty-five vegetables. A list was mimeographed and each child, under the teachers' supervision, checked whether he liked the vegetables, disliked them, or would eat them. The questionnaire used for this survey is included in the present summary of the findings as Appendix B. The results, by grades, including two sixth-grade groups, called 6A and 6B for the sake of designation, are shown in Tables 3 through 10.

Data in Table 3 show that half or more of the first-grade children indicated that they did not like nine of the twenty-five vegetables, including turnips, hominy, asparagus, cabbage, cauliflower, squash, mustard greens,

TABLE 3

THE NUMBER AND PERCENTAGE OF FOURTEEN FIRST-GRADE
PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	10	72	4	28	0	0
Green beans.	9	64	3	21	2	14
Beets...	9	64	4	28	1	8
Turnips.	1	8	11	78	2	14
Onions..	8	57	5	35	1	8
Carrots.	11	78	3	22	0	0
Lettuce.	14	100	0	0	0	0
Corn....	12	86	0	0	2	14
Hominy..	6	43	7	50	1	7
Asparagus...	2	14	11	78	1	8
Cabbage.	5	35	8	57	1	8
Cauliflower	1	8	11	78	2	14

TABLE 3 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who <u>Would Eat</u> Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Celery..	9	64	3	22	2	14
Cucumber	12	84	1	8	1	8
Okra....	8	57	4	29	2	14
Blackeyed peas..	9	64	3	22	2	14
Dried beans.	13	93	0	0	1	7
Squash..	1	8	11	78	2	14
Sweet potatoes..	11	78	4	28	0	0
Irish potatoes..	13	93	0	0	1	7
Mustard greens	0	0	12	86	2	14
Spinach.	7	50	5	36	2	14
Tomatoes	14	100	0	0	0	0
Collards	1	8	11	78	2	14
Eggplant	1	8	11	78	2	14

collards, or eggplant. Seven of these disliked vegetables are classified as green, yellow, or leafy and are recommended as body-builders. It was noted further that lettuce and tomatoes were liked by all of the children, and that eight vegetables, including carrots, lettuce, corn, cucumber, dried beans, sweet potatoes, Irish potatoes, and tomatoes, were liked by at least seventy-five per cent of the group. It was also noted that no more than two children said they would eat any of the vegetables which they disliked. It is to be concluded that many of the first-grade children liked too few vegetables which are necessary to good health.

Data in Table 4 are related to the food likes and dislikes of thirty-three second-grade children. Information is included on the number and percentage of the group who liked or disliked the vegetables included in the checklist. Data are also included on the number and percentage of children who indicated a willingness to eat certain vegetables which they did not like.

An examination of data in Table 4 shows that half or more of the second-grade pupils disliked two vegetables -- collards and eggplant. At least seventy-five per cent of the group liked fourteen vegetables, including

TABLE 4

THE NUMBER AND PERCENTAGE OF THIRTY-THREE SECOND-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	24	73	6	18	3	9
Green beans.	27	82	2	6	4	12
Beets...	26	80	2	6	5	15
Turnips.	11	33	16	48	6	18
Onions..	29	88	3	9	1	3
Carrots.	30	90	1	3	2	6
Lettuce.	29	88	2	6	2	6
Corn....	32	97	0	0	1	3
Hominy..	21	64	9	27	3	9
Asparagus...	16	48	12	36	5	15
Cabbage.	25	76	5	15	3	9
Cauliflower	18	55	14	42	1	3

TABLE 4 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Celery..	23	70	5	15	5	15
Cucumber	25	76	6	18	2	6
Okra....	23	70	6	18	4	12
Black-eyed peas..	29	88	2	6	2	6
Dried beans.	28	85	2	6	3	9
Squash..	16	48	10	30	7	21
Sweet potatoes..	27	82	4	12	2	6
Irish potatoes..	33	100	0	0	0	0
Mustard greens	18	54	8	24	7	21
Spinach.	26	80	2	6	5	15
Tomatoes	29	88	1	3	3	9
Collards	12	36	17	51	4	12
Eggplant	14	44	17	51	2	6

green beans, beets, onions, carrots, lettuce, corn, cabbage, cucumber, blackeyed peas, dried beans, sweet potatoes, Irish potatoes, spinach, and tomatoes. It was noted also that no more than seven pupils indicated that they would eat vegetables which they disliked. It is to be concluded that many of the second-grade children liked most vegetables except collards, eggplant, turnips, asparagus, and squash.

The writer believes that the attitude of the second-grade pupils toward vegetables probably is due to the teacher's personality and supervision. She spends about thirty minutes with her pupils while they eat their noon meal. Her example, as well as her suggestions about eating vegetables, appears to have much influence upon the children.

Table 5 contains data on the number and the percentage of forty-three third-grade children who liked and disliked twenty-five vegetables included on the checklist. Information is also included on the number and the percentage of the group who expressed a willingness to eat certain vegetables which they disliked. Such information seemed valuable to the writer inasmuch as she plans to use information obtained from the survey to construct or revise a health curriculum for her pupils next year.

TABLE 5

THE NUMBER AND PERCENTAGE OF FORTY-THREE THIRD-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	32	72	7	16	4	9
Green beans.	35	80	6	14	2	5
Beets...	26	60	14	33	3	7
Turnips.	14	33	22	51	7	16
Onions...	28	65	9	21	6	14
Carrots.	33	77	4	9	6	14
Lettuce.	37	86	3	7	3	7
Corn....	37	86	4	9	2	5
Hominy..	22	51	14	33	7	16
Aspara- gus...	16	37	20	47	7	16
Cabbage.	29	67	8	19	6	14
Cauli- flower	8	19	28	65	7	16

TABLE 5 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Celery..	33	77	7	16	3	7
Cucumber	33	77	7	16	3	7
Okra....	25	58	15	35	3	7
Black-eyed peas..	33	77	10	23	0	0
Dried beans.	35	80	6	14	2	5
Squash..	15	35	22	51	6	14
Sweet potatoes..	31	72	6	19	6	19
Irish potatoes..	42	98	0	0	1	2
Mustard greens	16	37	22	51	5	12
Spinach.	33	77	9	21	1	2
Tomatoes	37	86	3	7	3	7
Collards	10	23	26	60	7	16
Eggplant	10	23	29	67	4	10

It is hoped that other teachers in the J. M. Lindsay School will do likewise.

Data in Table 5 reveal that six vegetables, including turnips, cauliflower, squash, mustard greens, collards, and eggplant, were disliked by less than half of the third-grade pupils. On the other hand, twelve vegetables, including green beans, carrots, lettuce, corn, celery, cucumber, blackeyed peas, dried beans, sweet and Irish potatoes, spinach, and tomatoes were liked by as many as seventy-five per cent of the group. It was also noted that only a few pupils said they would eat vegetables which they disliked. It is concluded that the third-grade children liked about fifty per cent of the vegetables listed and that the ones which they especially disliked are recommended as particularly contributive to optimum health.

Table 6 contains a resume of the food habits of thirty-nine fourth-grade children. Data are included on the number and the percentage of the group who liked or disliked twenty-five vegetables included in the questionnaire answered by all of the children under the supervision of the homeroom teacher. Information on the number and the percentage of the group who expressed a willingness to eat vegetables which they did not like is also included.

TABLE 6

THE NUMBER AND PERCENTAGE OF THIRTY-NINE FOURTH-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	24	62	4	10	11	28
Green beans.	27	70	3	8	9	21
Beets...	23	60	12	30	4	10
Turnips.	12	30	20	51	7	18
Onions..	24	61	6	15	9	21
Carrots.	30	77	3	8	6	15
Lettuce.	31	79	1	2	7	19
Corn....	29	74	6	15	4	10
Hominy..	18	46	14	35	7	18
Asparagus	6	15	26	66	7	18
Cabbage.	19	49	15	38	5	13
Cauli- flower	4	10	26	66	9	21
Celery..	23	60	9	21	7	18

TABLE 6 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who <u>Would Eat</u> Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cucumber	21	54	11	28	7	18
Okra....	23	60	11	28	5	13
Black-eyed peas..	31	79	6	15	2	6
Dried beans.	28	72	7	18	4	10
Squash..	7	18	25	64	7	18
Sweet potatoes..	31	79	6	15	2	6
Irish potatoes...	33	84	3	8	3	8
Mustard greens	13	35	16	41	10	24
Spinach.	26	66	8	21	5	13
Tomatoes	33	84	4	10	2	6
Collards	7	18	26	66	6	15
Eggplant	3	8	29	74	7	18

An analysis of data in Table 6 shows that six vegetables, including turnips, asparagus, cauliflower, squash, collards, and eggplant, were disliked by at least half of the fourth-grade pupils. Only six of the twenty-five vegetables listed, including carrots, lettuce, blackeyed peas, sweet potatoes, Irish potatoes, and tomatoes, were liked by as many as seventy-five per cent of the group. Only a few children indicated that they would eat vegetables which they disliked. It is concluded that many of the fourth-grade pupils did not like a large number of body-building vegetables.

Table 7 reveals the number and the percentage of thirty-three fifth-grade children in the J. M. Lindsay School who liked or disliked twenty-five vegetables common to this section of the country. The vegetables listed are also recommended by nutritionists as being contributive to the development of optimum health and its maintenance. Information is also included on the number and the percentage of the group who would eat vegetables which they did not particularly like.

An analysis of information contained in Table 7 shows that no vegetable was disliked by as many as fifty per cent of the group. Turnips, asparagus, cauliflower, squash, and eggplant were disliked by about one-third of

TABLE 7

THE NUMBER AND PERCENTAGE OF THIRTY-THREE FIFTH-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who <u>Would Eat</u> Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	22	67	7	21	4	12
Green beans.	21	64	6	18	6	18
Beets...	16	48	6	18	11	33
Turnips.	12	36	10	30	11	33
Onions..	26	80	3	9	4	33
Carrots.	30	90	0	0	3	9
Lettuce.	29	88	2	6	2	6
Corn....	31	94	1	3	1	3
Hominy..	23	70	5	15	5	15
Aspara- gus...	16	48	10	30	7	21
Cabbage.	20	60	7	21	6	18
Cauli- flower	14	42	14	42	5	15

TABLE 7 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Celery..	29	88	2	6	2	6
Cucumber	25	76	2	6	6	18
Okra....	21	64	7	21	5	15
Black-eyed peas..	27	82	3	9	3	9
Dried beans.	23	70	5	15	5	15
Squash..	10	30	14	42	9	27
Sweet potatoes..	25	76	4	12	4	12
Irish potatoes..	29	88	2	6	2	6
Mustard greens	18	54	8	24	7	21
Spinach.	28	85	2	6	3	9
Tomatoes	30	90	0	0	3	9
Collards	14	42	9	27	10	30
Eggplant	10	30	13	39	10	30

the pupils. Ten vegetables, including onions, carrots, lettuce, celery, cucumber, blackeyed peas, sweet potatoes, Irish potatoes, spinach, and tomatoes were liked by as many as seventy-five per cent of the group. Only a few children indicated that they would eat vegetables which they disliked. It is concluded that many fifth-grade pupils did not like a number of vegetables that are recommended for good health.

Table 8 contains data on the number and the percentage of thirty-four 6A-grade pupils who liked and disliked certain vegetables, and the number who expressed a willingness to eat vegetables which they did not like.

An analysis of the data in Table 8 shows that at least half of the 6A pupils did not like five vegetables, including hominy, asparagus, cauliflower, collards, and eggplant. As many as seventy-five per cent of the pupils liked twelve vegetables, among which group were radishes, green beans, beets, onions, lettuce, corn, cucumber, blackeyed peas, dried beans, sweet potatoes, Irish potatoes, and tomatoes. As in other grades, a very few children indicated that they would eat the vegetables which they disliked. It is concluded that many of the 6A group liked about half of the vegetables listed, and that the ones they disliked are among the protective foods recommended as desirable for children.

TABLE 8

THE NUMBER AND PERCENTAGE OF THIRTY-FOUR 6A-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	30	88	0	3	3	9
Green beans.	31	96	2	6	1	3
Beets...	26	77	8	23	0	0
Turnips.	17	50	10	30	30	7
Onions...	28	82	2	6	4	12
Carrots.	22	67	4	11	8	22
Lettuce.	32	94	1	3	1	3
Corn....	31	91	3	9	0	0
Hominy..	22	67	9	74	3	9
Asparagus...	9	24	22	67	3	9
Cabbage.	24	70	8	24	2	6
Cauliflower	9	24	18	56	7	20
Celery..	23	70	11	30	0	0

TABLE 8 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who <u>Would</u> Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cucumber	27	79	6	18	1	3
Okra....	25	74	7	20	2	6
Black-eyed peas..	30	88	3	9	1	3
Dried beans.	29	85	2	6	3	9
Squash..	15	41	15	47	4	12
Sweet potatoes..	28	82	5	15	1	3
Irish potatoes..	33	97	0	0	1	3
Mustard greens	21	66	12	31	1	3
Spinach.	23	70	9	24	2	6
Tomatoes	34	100	0	0	0	0
Collards	12	35	18	53	4	12
Eggplant	10	30	20	58	4	12

The vegetable likes and dislikes of thirty-three 6B-grade pupils are contained in Table 9. Information is also included on the number and the percentage of the group who would eat vegetables that they did not like.

Data in Table 9 reveal that only one vegetable, eggplant, was disliked by as many as half of the 6B group. On the other hand, twelve vegetables, including radishes, beets, onions, carrots, lettuce, corn, cucumber, blackeyed peas, dried beans, sweet potatoes, Irish potatoes, and tomatoes, were liked by at least three-fourths of the pupils. Again, only a few children indicated a willingness to eat disliked vegetables. It is concluded that a noticeably smaller percentage of vegetables were disliked by pupils in this grade than in the lower grades, indicating that a like for health-giving vegetables can be acquired.

Data concerning the vegetables which thirty-three seventh-grade pupils liked or disliked are contained in Table 10. Information on the number and the percentage of the group who would eat vegetables which they did not like is also included in this table.

An analysis of information in Table 10 shows that no vegetable in the checklist was disliked by as many as half of the seventh-grade pupils. Only mustard greens

TABLE 9

THE NUMBER AND PERCENTAGE OF THIRTY-THREE 6B-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-
FIVE VEGETABLES, TOGETHER WITH AN
INDICATION OF WHETHER EACH
DISLIKED VEGETABLE
WOULD BE EATEN

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who <u>Would Eat</u> Vegetable	
Radishes	25	76	4	12	4	12
Green beans.	24	73	3	9	6	18
Beets...	27	82	3	9	3	9
Turnips.	16	48	9	27	8	24
Onions...	26	80	4	12	3	9
Carrots.	30	90	2	6	1	3
Lettuce.	33	100	0	0	0	0
Corn....	29	88	0	0	4	12
Homony..	18	54	10	30	5	15
Aspara- gus...	9	27	16	48	8	24
Cabbage.	23	70	5	15	5	15
Cauli- flower	6	18	16	48	11	33
Celery..	23	70	5	15	5	15

TABLE 9 -- Continued

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cucumber	27	82	3	9	3	9
Okra.....	24	73	4	12	5	15
Black- eyed peas..	31	94	1	3	1	3
Dried beans.	30	90	2	7	1	3
Squash..	8	24	16	48	9	27
Sweet pota- toes..	26	80	4	12	3	9
Irish pota- toes..	32	97	0	0	1	3
Mustard greens	16	48	12	36	5	15
Spinach.	21	64	5	15	7	21
Tomatoes	31	94	2	6	0	0
Collards	10	30	15	45	8	25
Eggplant	9	27	17	51	7	21

TABLE 10

THE NUMBER AND PERCENTAGE OF THIRTY-THREE SEVENTH-
GRADE PUPILS WHO LIKED OR DISLIKED TWENTY-FIVE
VEGETABLES, TOGETHER WITH AN INDICATION
OF WHETHER EACH DISLIKED VEGETABLE
WOULD BE EATEN

Vege- table	Number and Per- centage of Children Liking Vegetable		Number and Per- centage of Children Not Liking Vege- table		Number and Per- centage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	27	82	2	6	4	12
Green beans.	28	85	0	0	5	15
Beets...	20	60	7	21	6	18
Turnips.	8	25	8	25	17	50
Onions..	28	85	2	6	3	9
Carrots.	30	90	0	0	3	9
Lettuce.	31	94	0	0	2	6
Corn....	29	88	2	6	2	6
Hominy..	18	55	6	9	9	27
Aspara- gus...	9	27	9	27	15	46
Cabbage.	19	58	5	15	9	27
Cauli- flower	11	33	9	27	13	40

TABLE 10 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Celery..	24	73	1	3	8	24
Cucumber	24	73	5	15	4	12
Okra....	22	67	6	18	5	15
Black-eyed peas..	28	85	1	3	4	12
Dried beans.	29	88	0	0	4	12
Squash..	10	30	10	30	13	40
Sweet potatoes..	28	85	2	6	3	9
Irish potatoes..	32	97	1	3	0	0
Mustard greens	14	43	6	18	13	39
Spinach.	21	64	4	12	8	24
Tomatoes	31	94	0	0	2	6
Collards	12	36	8	24	13	40
Eggplant	10	30	9	27	14	43

was disliked by over a third of the group. Eleven vegetables, including radishes, green beans, onions, carrots, lettuce, corn, blackeyed peas, dried beans, sweet potatoes, Irish potatoes, and tomatoes, were liked by at least seventy-five per cent of the pupils. It is to be seen that a larger number than noted in previous grades indicated a willingness to eat disliked vegetables. It is concluded that the seventh-grade pupils indicated a cultivation of taste for several body-building vegetables disliked by pupils in lower grades, and an attitude of willingness on the part of a larger group than noted before, to eat body-building vegetables, even if they were not particularly liked.

After the indicated likes and dislikes of vegetables were compiled by grades, the compilations were put together so that an over-all picture of the school's food likes and dislikes might be noted. Table 11 indicates the complete findings of the survey on the children's food tastes.

Data in Table 11 show that only tomatoes and Irish potatoes, among the twenty-five vegetables included on the checklist, were liked by ninety per cent or more of the 248 pupils who answered the questionnaires. Carrots, lettuce, corn, blackeyed peas, and dried beans were liked

TABLE 11

THE NUMBER AND PERCENTAGE OF 248 CHILDREN'S LIKES
AND DISLIKES OF VEGETABLES, TOGETHER WITH AN
INDICATION OF THE VEGETABLES THEY
WOULD EAT

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Radishes	184	74	31	13	33	87
Green beans.	193	78	23	9	32	91
Beets...	164	66	50	20	34	80
Turnips.	90	36	95	38	63	62
Onions..	189	76	29	11	30	89
Carrots.	205	84	14	6	29	94
Lettuce.	222	89	9	4	17	96
Corn....	218	88	16	6	14	94
Hominy..	142	57	67	27	39	73
Asparagus...	81	33	115	46	52	54
Cabbage.	159	64	53	64	36	79
Cauliflower	70	28	125	50	53	50
Celery..	178	70	44	18	26	82

TABLE 11 -- Continued

Vegetable	Number and Percentage of Children Liking Vegetable		Number and Percentage of Children Not Liking Vegetable		Number and Percentage of Children Who Would Eat Vegetable	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cucumber	182	73	40	16	26	84
Okra.....	163	66	56	23	29	77
Black-eyed peas..	209	84	17	7	22	93
Dried beans.	206	84	17	70	20	91
Squash..	81	32	102	41	65	59
Sweet potatoes..	196	79	31	13	21	87
Irish potatoes..	234	94	6	2	8	98
Mustard greens	116	46	84	34	48	66
Spinach.	178	72	39	16	31	84
Tomatoes	225	90	10	4	13	96
Collards	72	29	125	50	51	50
Eggplant	66	26	134	54	48	46

by eighty per cent or more. Radishes, green beans, celery, cucumbers, sweet potatoes, onions, and spinach were liked by seventy per cent or more. Hominy was liked by fifty-seven per cent. The remaining seven vegetables including turnips, asparagus, cauliflower, squash, mustard greens, collards, and eggplant, were liked by less than fifty per cent of the children. It is to be noted that all of these are protective, body-building foods.

An analysis of data in Table 11 indicates that the children in the J. M. Lindsay Elementary School liked potatoes and certain other foods better than green or yellow leafy vegetables. The writer concluded that probably it would be desirable for the teachers to put more stress on the importance of eating health-giving vegetables and to encourage the pupils to want to eat this classification of foods because of the personal and social benefits derived.

Table 12 contains additional data on the vegetable likes and dislikes of the 248 children who cooperated in the present study. In this table, an effort was made to emphasize the percentage of pupils in all grades who indicated a liking for green or yellow leafy vegetables which are said to contribute necessary calcium, phosphorus, iron, and vitamins to the diet for optimum health.

TABLE 12

PERCENTAGE OF THE 248 PUPILS WHO LIKED CERTAIN
VEGETABLES, CLASSIFIED ACCORDING
TO GRADES

Vegetable	Percentages by Grades, Indicated in Units of ten, as 80-89, 70-79, etc.							
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6A	Grade 6B	Grade 7
Radishes...	70-79	70-79	70-79	60-69	60-69	80-89	70-79	80-89
Green beans	60-69	80-89	80-89	70-79	60-69	90-100	70-79	80-89
Beets.....	60-69	80-89	60-69	60-69	40-49	70-79	80-89	60-69
Turnips....	0-20	30-39	30-39	30-39	30-39	50-59	40-49	0-20
Onions.....	50-59	80-89	60-69	60-69	80-89	80-89	80-89	80-89
Carrots....	70-79	90-100	70-79	70-79	90-100	60-69	90-100	90-100
Lettuce....	90-100	80-89	80-89	70-79	80-89	90-100	90-100	90-100
Corn.....	80-89	90-100	80-89	70-79	80-89	90-100	80-89	80-89
Hominy.....	40-49	60-69	50-59	40-49	70-79	60-69	50-59	50-59
Asparagus..	0-20	40-49	30-39	0-20	40-49	0-20	0-20	0-20
Cabbage....	30-39	70-79	60-69	40-49	60-69	70-79	70-79	50-59
Cauliflower	0-20	50-59	0-20	0-20	40-49	0-20	0-20	30-39
Celery.....	60-69	70-79	70-79	60-69	80-89	70-79	70-79	70-79
Cucumbers..	80-89	70-79	70-79	50-59	70-79	70-79	80-89	70-79
Okra.....	50-59	70-79	50-59	60-69	40-49	70-79	70-79	60-69

TABLE 12 -- Continued

Vegetable	Percentages by Grades, Indicated in Units of Ten, as 80-89, 70-79, etc.							
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6A	Grade 6B	Grade 7
Blackeyed peas.....	60-69	80-89	70-79	70-79	80-89	80-89	90-100	80-89
Dried beans	90-100	80-89	80-89	70-79	60-69	80-89	90-100	80-89
Squash.....	0-20	40-49	30-39	0-20	30-39	40-49	0-20	30-39
Sweet potatoes...	70-79	80-89	70-79	70-79	70-79	80-89	80-89	80-89
Irish potatoes...	90-100	90-100	90-100	80-89	80-89	80-100	90-100	90-100
Mustard greens...	-----	50-59	30-39	30-39	50-59	60-69	40-49	40-49
Spinach....	50-59	80-89	70-79	60-69	80-89	70-79	60-69	60-69
Tomatoes...	90-100	80-89	80-89	80-89	90-100	90-100	90-100	90-100
Collards...	0-20	30-39	0-20	0-20	40-49	30-39	30-39	30-39
Eggplant...	0-20	40-49	0-20	0-20	30-39	30-39	0-20	30-39

Data in Table 12 show that no vegetable was liked by ninety per cent or more of all the pupils in all of the grades. However, Irish potatoes were listed by at least ninety per cent in grades 1, 2, 3, 6A, 6B, and 7. The following three vegetables were liked by at least eighty

per cent of all the children: lettuce, Irish potatoes, and tomatoes. At least seventy per cent liked lettuce, corn, sweet potatoes, Irish potatoes, and tomatoes. At least sixty per cent liked radishes, green beans, beets, carrots, lettuce, corn, celery, blackeyed peas, dried beans, sweet potatoes, and tomatoes. At least fifty per cent liked the following fourteen vegetables, among the twenty-five listed: radishes, green beans, onions, carrots, lettuce, corn, celery, cucumbers, blackeyed peas, dried beans, sweet potatoes, Irish potatoes, spinach, and tomatoes.

An examination of data in Table 12 shows that ten green or yellow leafy vegetables were included on the questionnaire answered by the 248 pupils under consideration. It was noted that not one of the ten vegetables was liked by at least ninety per cent of all the children in all the grades. Only lettuce and corn were liked by as many as seventy per cent. Green beans, lettuce, celery, blackeyed peas, and spinach were the five leafy vegetables among the ten leafy varieties listed which were liked by as many as fifty per cent of the group. These data led to the conclusion that the elementary-school pupils considered in this study needed to have their tastes and choices of fresh green or yellow leafy vegetables cultivated to such an extent that they would

include an adequate amount of them in their daily diets.

Summary

A survey of a ten-day period of vegetable consumption and the vegetable likes and dislikes of the 248 elementary-school pupils considered in this study revealed four main theses: first, it appeared that too few green or leafy vegetables were included in the daily menus served during the period of investigation (these menus were typical of those served daily throughout the year); second, a larger percentage of the student body consumed their milk, meat, and dessert than consumed their vegetables; third, practically all of the pupils indicated that they preferred Irish potatoes and certain other non-green vegetables to green vegetables; fourth, only lettuce, among ten green or yellow leafy vegetables listed on the checklist, was liked by as many as seventy per cent of the pupils -- only Irish potatoes, lettuce, and tomatoes, among the twenty-five vegetables listed, were liked by at least seventy per cent of the children.

The writer concluded that a larger variety of vegetables, including fresh green kinds, should be included on the daily menus in the school's lunchroom. She also concluded that a large percentage of the pupils under

consideration appeared to need education as to the value of vegetable consumption for body building, and likewise needed guidance in selecting adequate diets.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

The problem of this study was to survey the noon-meal vegetable consumption of 248 elementary-school children in the J. M. Lindsay School of Gainesville, Texas, for a period of ten school days and to compile lists of vegetables liked, disliked, and of vegetables that would be eaten by the group, though disliked. Necessary data were obtained through the cooperation of the teaching staff, the lunchroom personnel, and pupils enrolled in the seven grades of the school. Mimeographed questionnaires used as media for obtaining the information are included in the present investigation as Appendix A and Appendix B.

The first chapter of the study is an introduction and contains the following discussions: a statement of the problem, sources of data, social implications of the problem, background of the study, methods of procedure, and treatment of the data.

The second chapter contains a brief review of other studies made concerning vegetable consumption and food habits of certain people. The first part of the chapter

is devoted to Ware's review of investigations made in the United States. The second part is a short compilation of Newton's findings about food habits in foreign lands, and the third part contains a few additional investigations not discussed by either Ware or Newton.

The third chapter of this study is an analysis of the results of the food survey made by the writer in the J. M. Lindsay School of Gainesville, Texas, in February, 1947. Main discussions include the five following topics: method of survey, menus served, classification of foods consumed, and the children's likes and dislikes of vegetables.

The fourth and final chapter contains a summary of the investigation, with the writer's conclusions. These conclusions are general in nature and were designed as guideposts for developing at least a portion of the school's health curriculum for 1948 and other future years.

Conclusions

An analysis of information obtained from both primary and secondary sources led to the following seven main conclusions:

1. Vegetables, especially green or yellow leafy ones, are a necessary part of the diet of both children

and adults if good health is to be developed and maintained.

2. Vegetable consumption by young and old in America and in certain foreign lands considered in this study is not large enough for the achievement of optimum health, according to studies made.

3. Since an examination of the daily menus served during the experiment showed the presence of only a few vegetables, it was concluded that more vegetables of the protective classification should be offered the children daily.

4. Since a larger percentage of children considered in this study consumed their milk, meat, and dessert during the survey than consumed their vegetables, it was concluded that more emphasis should be placed upon the value of vegetables to body building.

5. Since beets, turnips, hominy, asparagus, cauliflower, squash, mustard greens, collards, and eggplant were liked by less than fifty per cent of the group, and since these vegetables are recommended as body builders, it was concluded that an effort should be made to cultivate the children's taste for them.

6. Since many pupils in the fifth, sixth, and seventh grades indicated a dislike for only a few of all

the vegetables listed and a willingness to eat those disliked, whereas most pupils in the first four grades disliked several and refused to eat the ones disliked, it was concluded that tastes and choices of health-giving vegetables had been cultivated to some extent, and that as the children gained in knowledge, they were more interested in eating a balanced diet.

7. Since a large number of the second-grade pupils reported a liking for most vegetables, it was concluded that the teacher's personality and supervision were contributive to the children's desirable attitudes concerning the eating of vegetables.

APPENDIX A

SURVEY SHEET FOR CHILDREN'S REPORT ON
VEGETABLES LIKED AND DISLIKED

Please Answer Yes or No

	Yes	No	Will Eat
Radishes			
Green beans			
Beets			
Turnips			
Onions			
Carrots			
Lettuce			
Corn			
Hominy			
Asparagus			
Cabbage			
Cauliflower			
Celery			
Cucumbers			
Okra			

	Yes	No	Will Eat
Blackeyed peas			
Dried beans			
Squash			
Sweet potatoes			
Irish potatoes			
Mustard greens			
Spinach			
Tomatoes			
Collards			
Eggplant			

APPENDIX B

FORM FOR REPORTING NUMBER OF CHILDREN WHO ATE THE VARIOUS ITEMS ON THE MENU

Mrs. Moss			Second			Feb. 6, 1947		
Number eating:			26					
Menu			Number That Ate It			Number That Did Not Eat It		
Roast			23			3		
Dressing			21			5		
Lettuce-tomato salad			23			3		
Corn			24			2		
P. pudding			25			1		
Milk			25			1		

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