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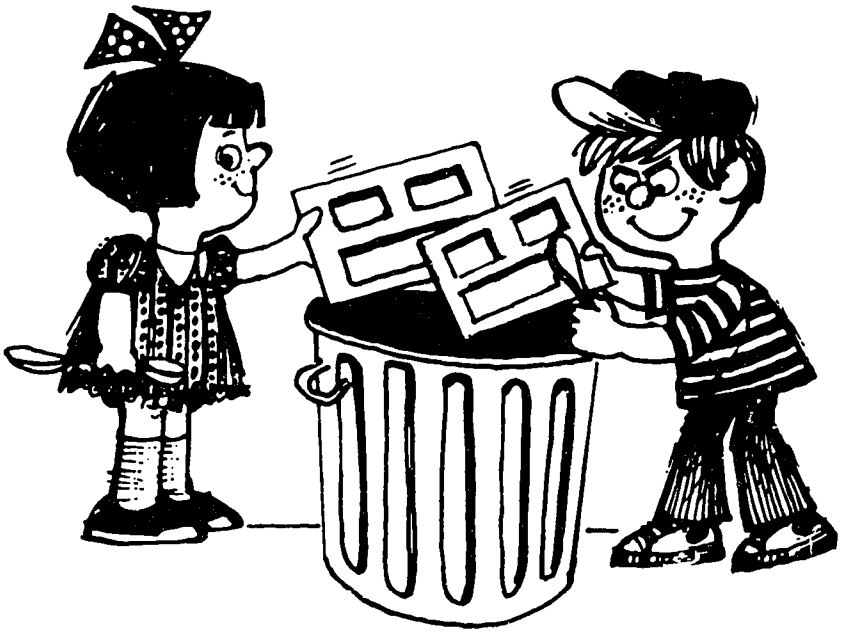
ABSTRACT

In a study to evaluate various factors affecting food waste in the school lunch program, data were collected from grades 1-6 in four districts, using three schools from each district on three consecutive days. The average number of participants per school was 384. More than 13,824 individual sets of data were collected. Thirty-six menus were represented in the study. Each child rated each component of the meal (main dish, bread, vegetables, dessert, and milk) on a five-point scale. The students handed in their forms at the waste return line in the lunchroom before they left their tray at the return stand. At that time the amount of waste for each of the five food items remaining on the returned tray was recorded by an observer. The report presents rank order tables for both food preference and plate waste scores. Recommendations are made to incorporate the more desirable items as often as practical and to serve the less desirable or unknown foods accompanied by a nutrition education emphasis. (Author/MLF)

PLATE WASTE STUDY
STATE OF UTAH

Spring 1975



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Salt Lake City, Utah

Spring 1975

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Also, thanks go to the children, aides, teachers and principals of the Tooele, Provo, Salt Lake and Alpine school districts who participated in the "Plate Waste" study.

This report is the result of the efforts of all those mentioned above.

H. H. Winawer, Specialist
School Food Services
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SUMMARY

Data was collected from four districts, using three schools from each district on three consecutive days. The average number of participants per school was 384. Therefore, more than 13,824 individual sets of data were collected. Thirty-six menus were represented in this study.

A rank order of menu components indicates that children in grades 1-6 have a high degree of preference and correspondingly low plate waste scores for the following items: Corn Dogs, Tacos, Hamburgers, and Sloppy Joe sandwiches; French Fries, carrot sticks, fresh orange and apple slices; sweet rolls and French bread, ice cream, chocolate chip cookies, brownies and bananas.

On the other hand, they had the least preference for the following menu items. Plate waste values were high for: Ham and Cheese, Spanish Rice, Seaburgers, and Spaghetti and Meat Balls; Vegetable Gelatin Salad, peas and green salad, mixed vegetables and tossed salad; Cream Puffs and sherbet; garlic bread and bread slices.

Trying to optimize the menu cycle by incorporating the more desirable items as often as practical (from a cost, nutrition and fatigue factor standpoint) would most probably increase overall acceptance and decrease plate waste to reasonable levels.

By exposing children to less desirable or unknown foods at planned intervals, with a nutrition education emphasis, plate waste might be decreased, more foods might become acceptable, and more nutrition could be consumed.

BACKGROUND

The Type A pattern was designed to provide balanced nutritional intake and until a new standard is developed and adopted (such as a nutrient standard), we must try to optimize the current system. Therefore, maximum consumption vis à vis portion size, and minimal waste is the goal.

At the State School Lunch Director's meeting in Phoenix in December 1974, Edward Heckman, F.N.S. Administrator emphasized the need to decrease the amount of plate waste in schools. His concern has been reiterated by Herbert Rorex and William Boling of the F.N.S.

Current child nutrition legislation is awaiting a vote in Washington. Among the provisions of the proposed bill is a clause that has a direct implication on plate waste. Currently, the meals must be served--meaning that all components of the Type A pattern must be served on the tray and at the prescribed quantities. New legislation would have the food offered. Some of the implications of this provision are:

1. Plate waste would probably be cut down.
2. Less nutrition would be consumed.
3. Children would not necessarily be motivated to try new foods or those less desirable to them.
4. Unbalanced meals would result.

Perhaps it would be better to vary the portion size, depending upon the child's size or preference for the food.

The proposed legislation might be acceptable in secondary schools where the students are (possibly) more knowledgeable about nutrition education, but it is doubtful that elementary school children would benefit from the "must be offered" provision.

RESULTS

The following graphs indicate a rank order for each menu component of the 36 menus represented in this study. In instances where items were common to two or more menus, the median rank was calculated and inserted. Thus, less than 36 individual items may be listed for each part of the meal, e.g., 24 main dishes, 32 vegetable combinations, etc.

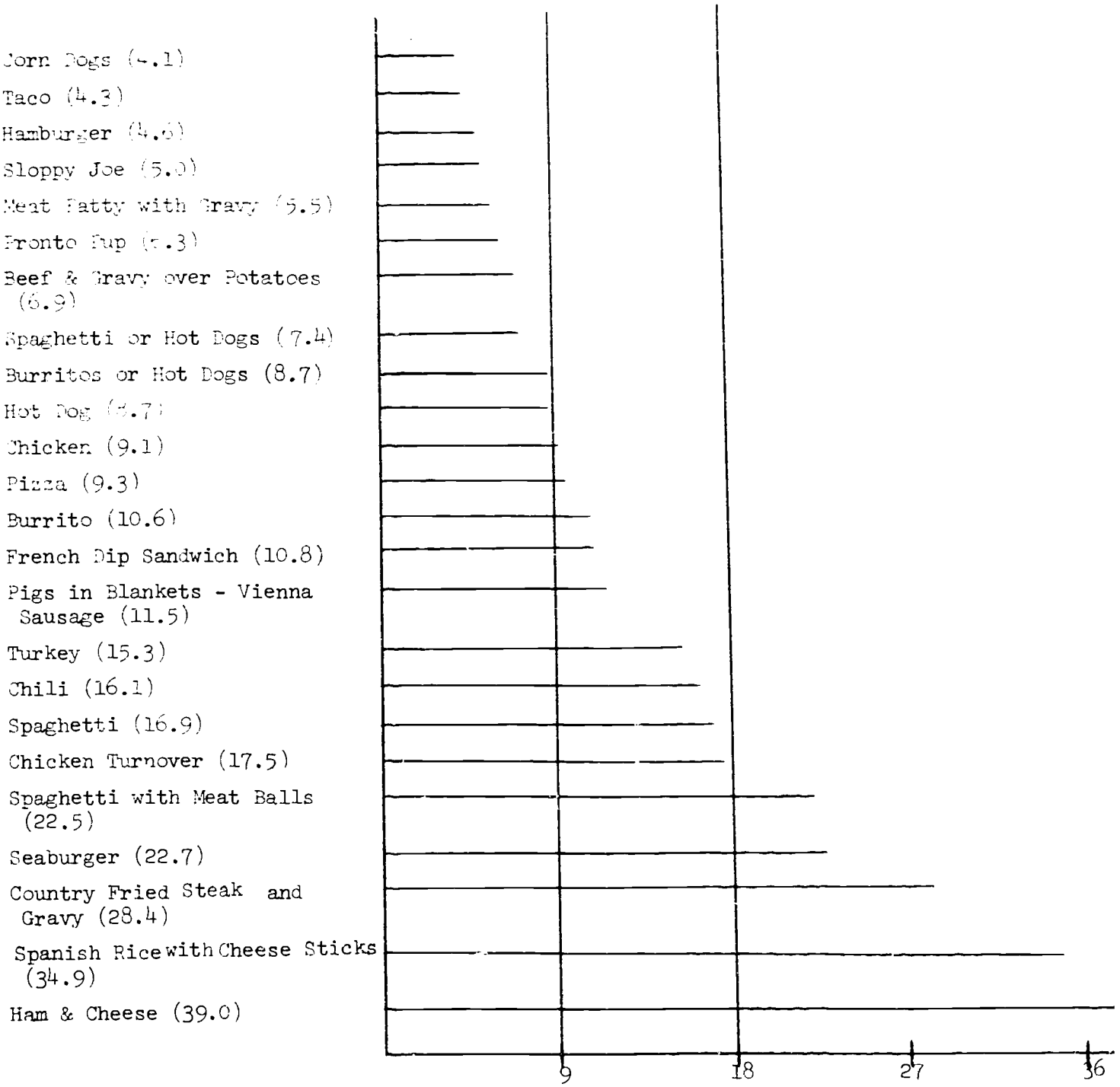
While it is generally evident that items displaying high acceptance values also have correspondingly low plate waste scores, cases do exist where acceptance is relatively high and the associated plate waste value is also high. Portion size, as well as other factors, are possible explanations for this phenomenon. A comprehensive list of potential contributory factors is listed later on in the Discussion Section of this report.

Main Dish - Graphs # 1 and # 2

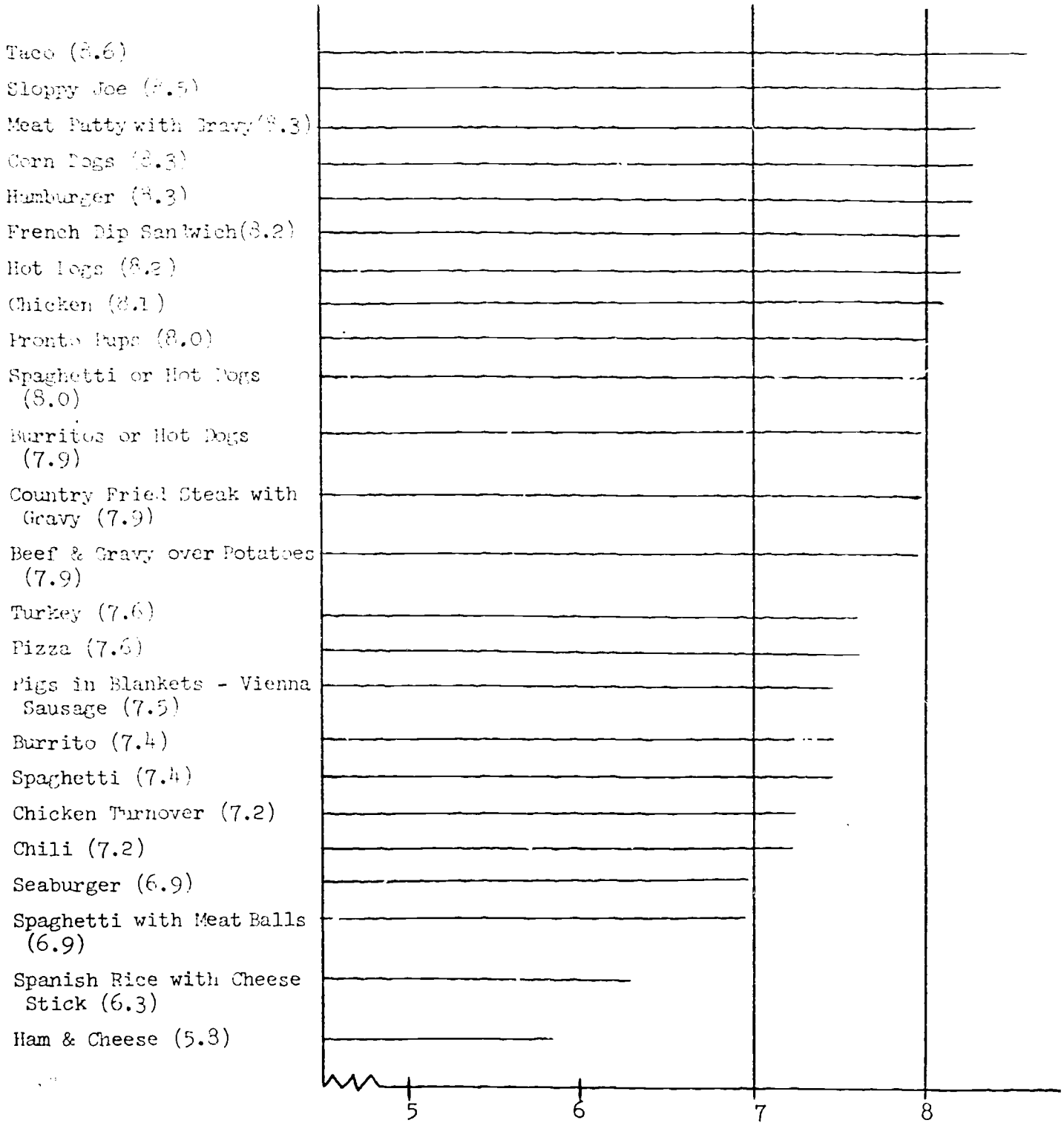
The majority of items showed values below 15% waste. Note that the meals least wasted, such as Corn Dogs, Tacos, Hamburgers, and Sloppy Joe sandwiches had plate waste values ranging from 4.1% to 5.0%. At the top of the range (those with highest plate waste scores) were the following: Spaghetti with Meat Balls, Seaburger, Country Fried Steak, Spanish Rice with Cheese, and Ham and Cheese. Waste values ranged from 22.5% to 39.0% for these items.

Regarding acceptance, Sloppy Joe Sandwiches, Corn Dogs and Hamburgers were highly rated, while Ham and Cheese, Spanish Rice with Cheese, Seaburger and Spaghetti with Meat Balls were least acceptable. A close inverse correlation exists between plate waste and acceptance for these items; high acceptance, low waste and low acceptance, high waste.

GRAPH #1


Corn Dogs (4.1)
Taco (4.3)
Hamburger (4.6)
Sloppy Joe (5.0)
Meat Patty with Gravy (5.5)
Fronto Pup (5.3)
Beef & Gravy over Potatoes (6.9)
Spaghetti or Hot Dogs (7.4)
Burritos or Hot Dogs (8.7)
Hot Dog (8.7)
Chicken (9.1)
Pizza (9.3)
Burrito (10.6)
French Dip Sandwich (10.8)
Pigs in Blankets - Vienna Sausage (11.5)
Turkey (15.3)
Chili (16.1)
Spaghetti (16.9)
Chicken Turnover (17.5)
Spaghetti with Meat Balls (22.5)
Seaburger (22.7)
Country Fried Steak and Gravy (28.4)
Spanish Rice with Cheese Sticks (34.9)
Ham & Cheese (39.0)
9
18
27
36
MAIN DISH
PERCENT WASTE

GRAPH #2


Taco (8.6)
Sloppy Joe (8.5)
Meat Patty with Gravy (8.3)
Corn Dogs (8.3)
Hamburger (8.3)
French Dip Sandwich (8.2)
Hot Dogs (8.2)
Chicken (8.1)
Pronto Pups (8.0)
Spaghetti or Hot Dogs (8.0)
Burritos or Hot Dogs (7.9)
Country Fried Steak with Gravy (7.9)
Beef & Gravy over Potatoes (7.9)
Turkey (7.6)
Pizza (7.6)
Pigs in Blankets - Vienna Sausage (7.5)
Burrito (7.4)
Spaghetti (7.4)
Chicken Turnover (7.2)
Chili (7.2)
Seaburger (6.9)
Spaghetti with Meat Balls (6.9)
Spanish Rice with Cheese Stick (6.3)
Ham & Cheese (5.8)
5
6
7
8
MAIN DISH
ACCEPTANCE

Vegetables - Graphs #3 and #4

Generally speaking, the majority of vegetable combinations had waste values exceeding 20%. Only the following had scores under 10% waste: French fries and orange slice; carrot stick, orange slice and French fries; carrot sticks. Among the items exhibiting extremely high waste scores were the following: Gelatin salad and lettuce, peas and green salad; potatoes, cabbage and apple salad; Spring Salad. Waste values for these items ranged from 43.7% to 72.5%.

Acceptance scores were relatively low for most items. Only 1/4 of the vegetable combinations had scores of 7.0 or greater (7.0 or higher on the 9-point scale is considered to be a good rating). The following items had extremely low acceptance scores--ranging from 3.8 to 4.8: Potatoes, Mandarin oranges and cranberry salad; beets and carrot sticks; Spring Salad: vegtable gelatin salad with lettuce.

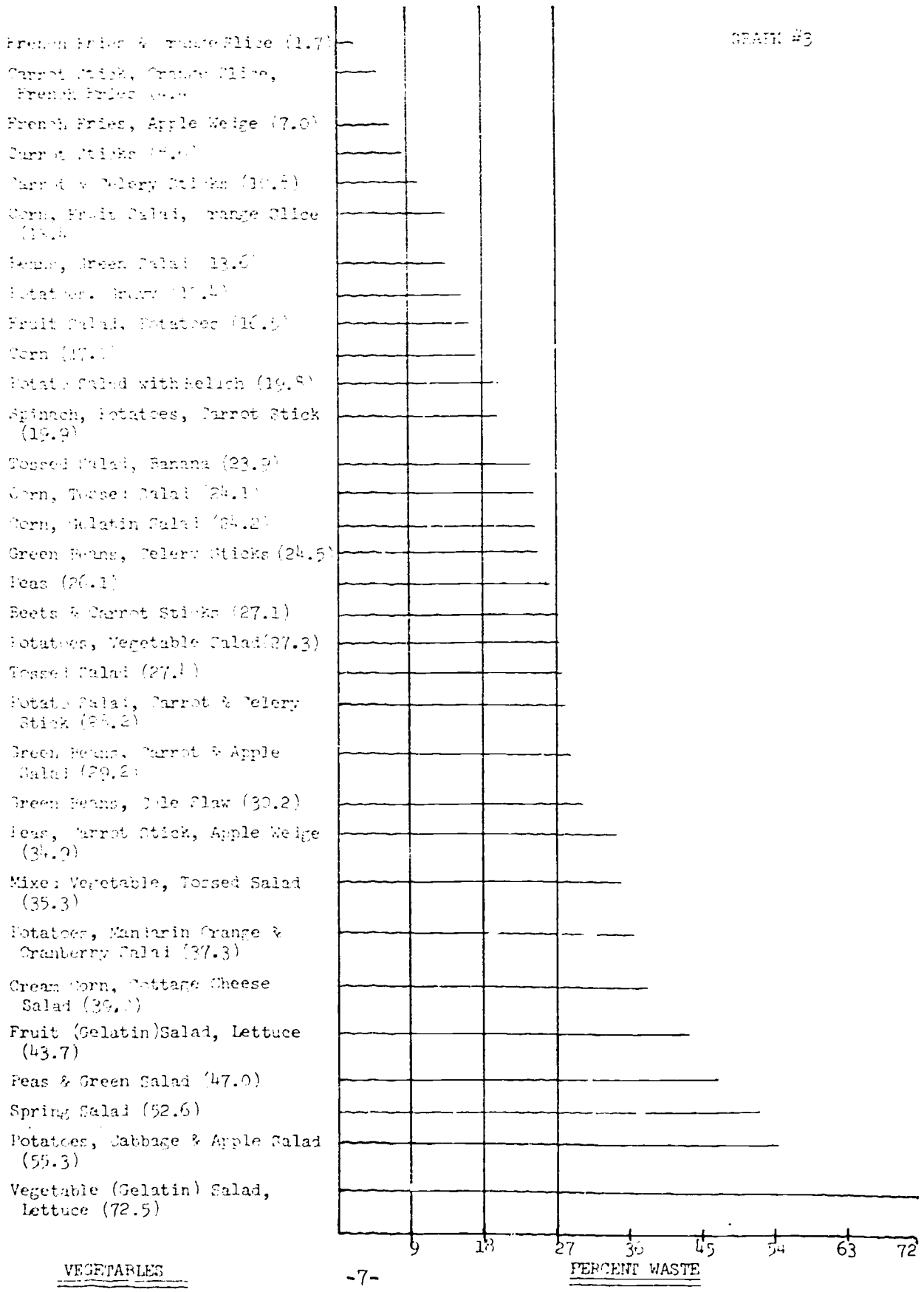
Bread - Graphs #5 and #6

Approximately 2/3 of the bread items received plate waste scores under 9.0%, with Sloppy Joe, Burrito, Pizza and Pronto Pup all having less than 2% waste. Note that these four bread products are served in conjunction with a meat or cheese item. Therefore, they are all an integral part of the main dish. The form in which they are served, rather than the bread products themselves may contribute to the low plate waste scores. Garlic bread with a waste value of 22.1% and bread slices with 18.0% headed the list with the highest degree of plate waste.

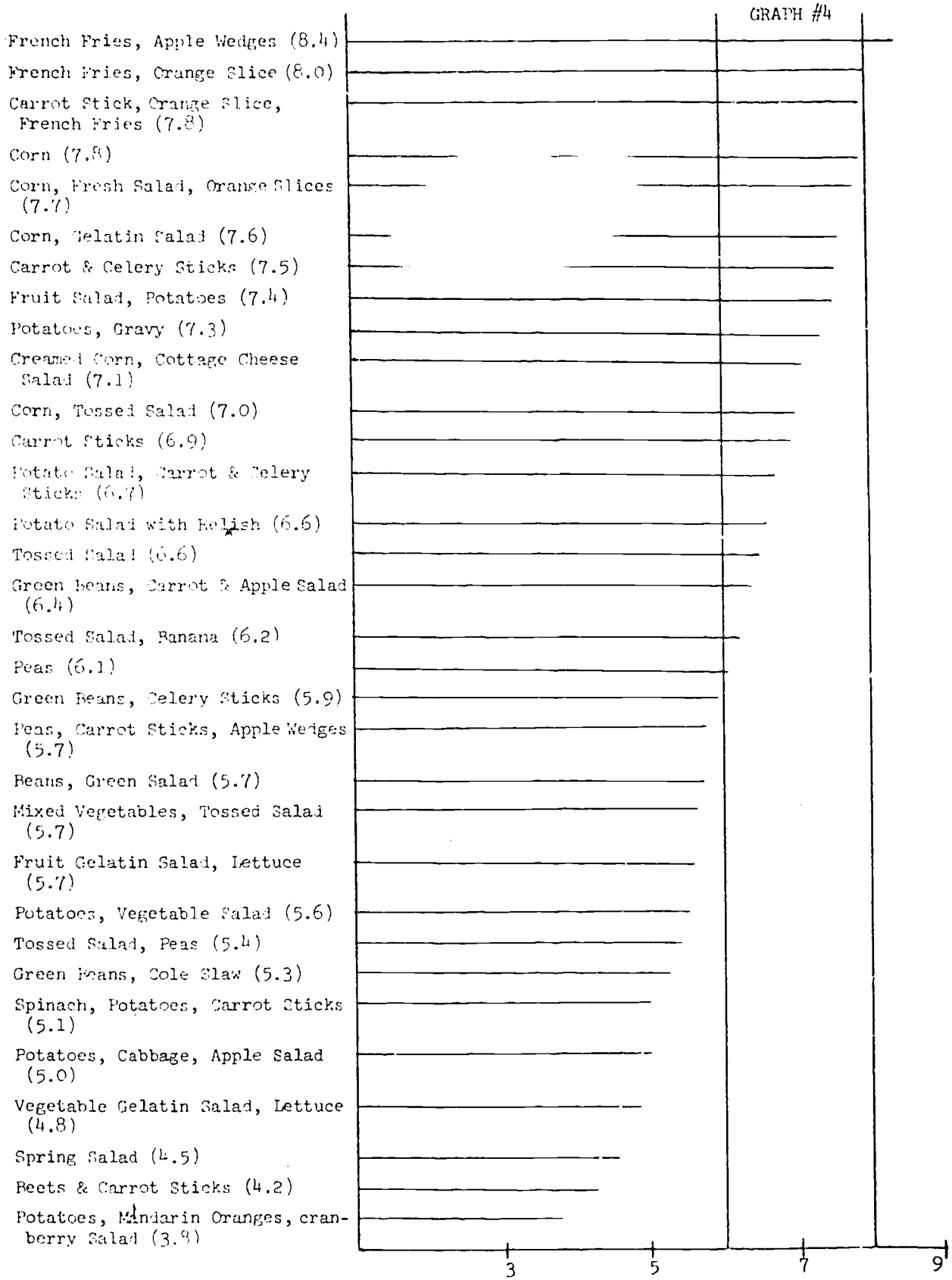
Only garlic bread had a score less than 7.0 on the 9-point acceptance scale, even though 1/3 of the bread items had waste values above 10%.

Sweet Rolls lead the list with an acceptance rating of 8.6.

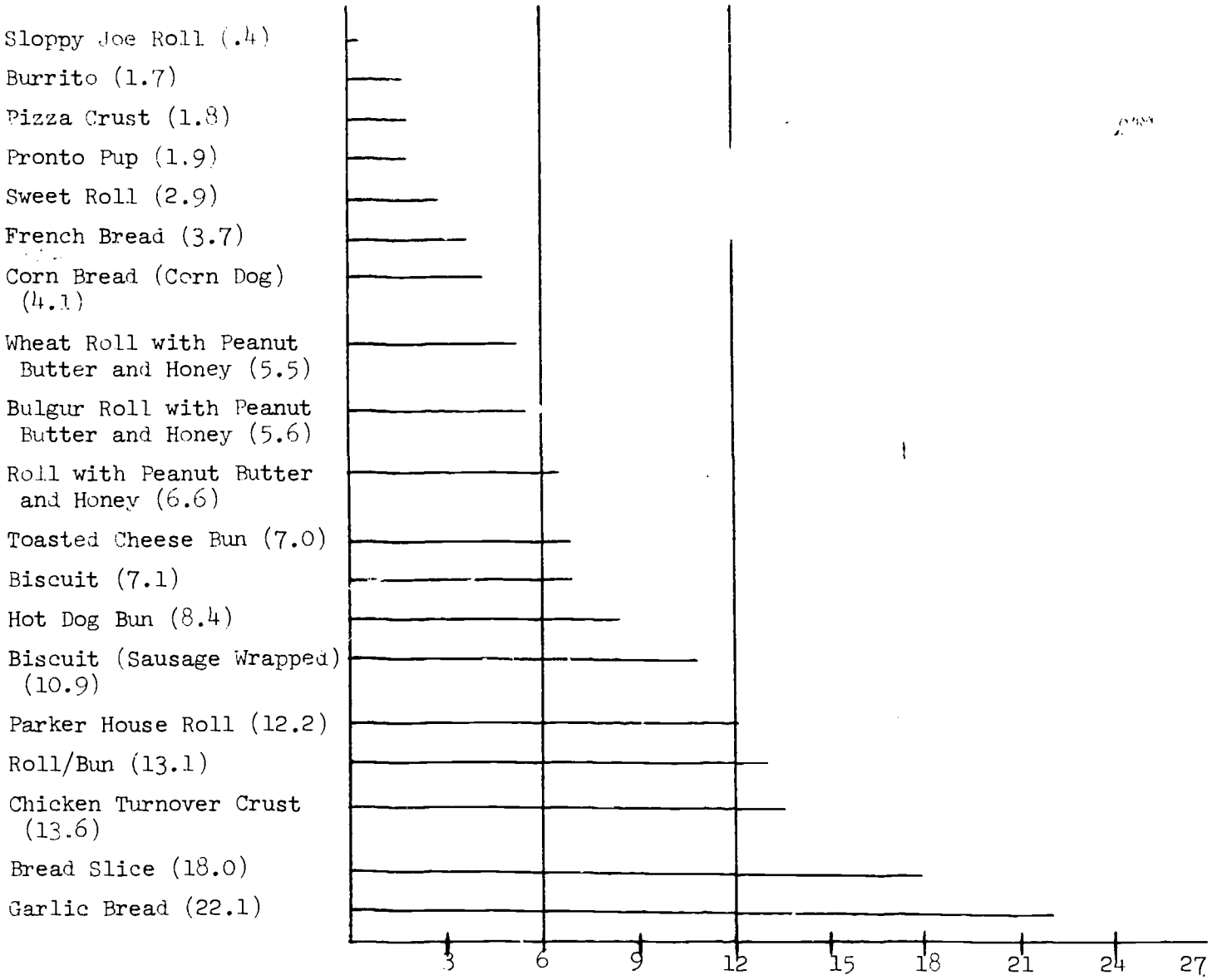
GRAPH #3


French Fries & Orange Slice (1.7)
Carrot Stick, Orange Slice, French Fries (4.4)
French Fries, Apple Wedge (7.0)
Carrot Sticks (8.4)
Carrot & Celery Sticks (10.5)
Corn, Fruit Salad, Orange Slice (13.8)
Beans, Green Salad (13.6)
Potatoes, Gravy (14.4)
Fruit Salad, Potatoes (16.5)
Corn (17.7)
Potato Salad with Relish (19.8)
Spinach, Potatoes, Carrot Stick (19.9)
Tossed Salad, Banana (23.9)
Corn, Tossed Salad (24.1)
Corn, Gelatin Salad (24.2)
Green Beans, Celery Sticks (24.5)
Peas (26.1)
Beets & Carrot Sticks (27.1)
Potatoes, Vegetable Salad (27.3)
Tossed Salad (27.4)
Potato Salad, Carrot & Celery Stick (28.2)
Green Beans, Carrot & Apple Salad (29.2)
Green Beans, Cole Slaw (30.2)
Peas, Carrot Stick, Apple Wedge (34.9)
Mixed Vegetable, Tossed Salad (35.3)
Potatoes, Mandarin Orange & Cranberry Salad (37.3)
Cream Corn, Cottage Cheese Salad (39.1)
Fruit (Gelatin)Salad, Lettuce (43.7)
Peas & Green Salad (47.0)
Spring Salad (52.6)
Potatoes, Cabbage & Apple Salad (55.3)
Vegetable (Gelatin) Salad, Lettuce (72.5)
9
18
27
36
45
54
63
72
VEGETABLES
PERCENT WASTE

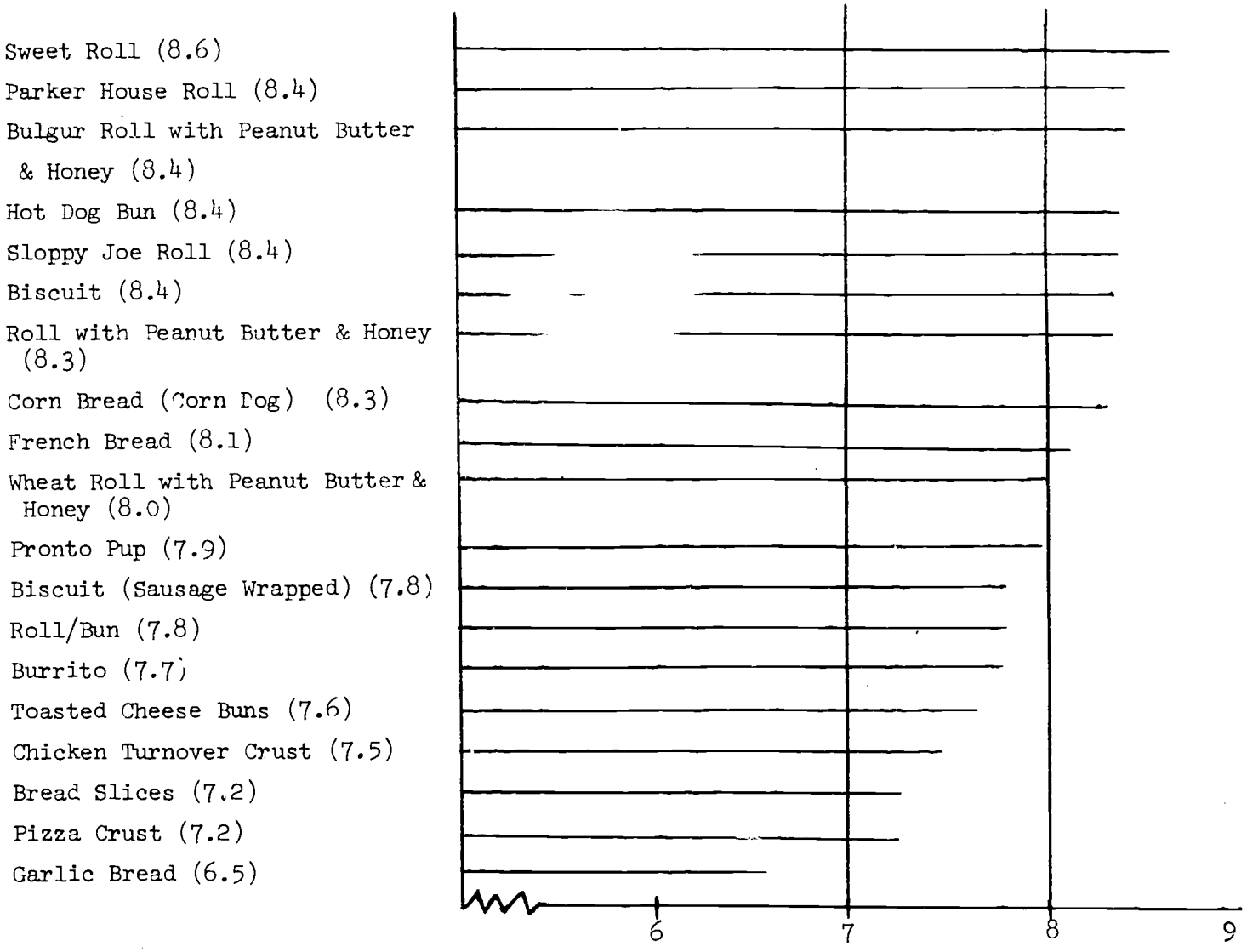
GRAPH #4


French Fries, Apple Wedges (8.4)
French Fries, Orange Slice (8.0)
Carrot Stick, Orange Slice, French Fries (7.8)
Corn (7.8)
Corn, Fresh Salad, Orange Slices (7.7)
Corn, Gelatin Salad (7.6)
Carrot & Celery Sticks (7.5)
Fruit Salad, Potatoes (7.4)
Potatoes, Gravy (7.3)
Creamed Corn, Cottage Cheese Salad (7.1)
Corn, Tossed Salad (7.0)
Carrot Sticks (6.9)
Potato Salad, Carrot & Celery Sticks (6.7)
Potato Salad with Relish (6.6)
Tossed Salad (6.6)
Green Beans, Carrot & Apple Salad (6.4)
Tossed Salad, Banana (6.2)
Peas (6.1)
Green Beans, Celery Sticks (5.9)
Peas, Carrot Sticks, Apple Wedges (5.7)
Beans, Green Salad (5.7)
Mixed Vegetables, Tossed Salad (5.7)
Fruit Gelatin Salad, Lettuce (5.7)
Potatoes, Vegetable Salad (5.6)
Tossed Salad, Peas (5.4)
Green Beans, Cole Slaw (5.3)
Spinach, Potatoes, Carrot Sticks (5.1)
Potatoes, Cabbage, Apple Salad (5.0)
Vegetable Gelatin Salad, Lettuce (4.8)
Spring Salad (4.5)
Beets & Carrot Sticks (4.2)
Potatoes, Mandarin Oranges, cranberry Salad (3.9)
3
5
7
9
VEGETABLES
ACCEPTANCE

GRAPH #5


Sloppy Joe Roll (.4)
Burrito (1.7)
Pizza Crust (1.8)
Pronto Pup (1.9)
Sweet Roll (2.9)
French Bread (3.7)
Corn Bread (Corn Dog) (4.1)
Wheat Roll with Peanut Butter and Honey (5.5)
Bulgur Roll with Peanut Butter and Honey (5.6)
Roll with Peanut Butter and Honey (6.6)
Toasted Cheese Bun (7.0)
Biscuit (7.1)
Hot Dog Bun (8.4)
Biscuit (Sausage Wrapped) (10.9)
Parker House Roll (12.2)
Roll/Bun (13.1)
Chicken Turnover Crust (13.6)
Bread Slice (18.0)
Garlic Bread (22.1)
3
6
9
12
15
18
21
24
27
BREAD
PERCENT WASTE

GRAPH #6


Sweet Roll (8.6)
Parker House Roll (8.4)
Bulgur Roll with Peanut Butter & Honey (8.4)
Hot Dog Bun (8.4)
Sloppy Joe Roll (8.4)
Biscuit (8.4)
Roll with Peanut Butter & Honey (8.3)
Corn Bread (Corn Dog) (8.3)
French Bread (8.1)
Wheat Roll with Peanut Butter & Honey (8.0)
Pronto Pup (7.9)
Biscuit (Sausage Wrapped) (7.8)
Roll/Bun (7.8)
Burrito (7.7)
Toasted Cheese Buns (7.6)
Chicken Turnover Crust (7.5)
Bread Slices (7.2)
Pizza Crust (7.2)
Garlic Bread (6.5)
6
7
8
9
BREAD
ACCEPTANCE

Dessert - Graphs #7 and #8

Two-thirds of the dessert items had plate waste values less than 10% with ice cream, orange juice, chocolate chip cookies, Brownies and bananas showing scores of only 1.5% to 4.3%. On the other hand, chilled fruit, sherbet, orange meringue pie, apple pie and cream puffs had relatively high waste scores, ranging from 16.4% to 27.0%.

With the sole exception of Picnic Cake, all dessert items were rated above 7.0 on a 9-point [illegible] though many items [illegible] high plate waste scores, [illegible] relatively high [illegible]ce.

Milk - Graphs #9 and #10

Since there were only two types of milk products served during the course of the study and the waste values for low-fat milk overlapped those for regular milk, the graphic illustration could be misinterpreted. The percent waste ranged from 0-29.9% for low-fat, with a median value of 15.0%. Values for regular milk ranged from 4.8% to 16.5% waste, with a median value of 10.6%.

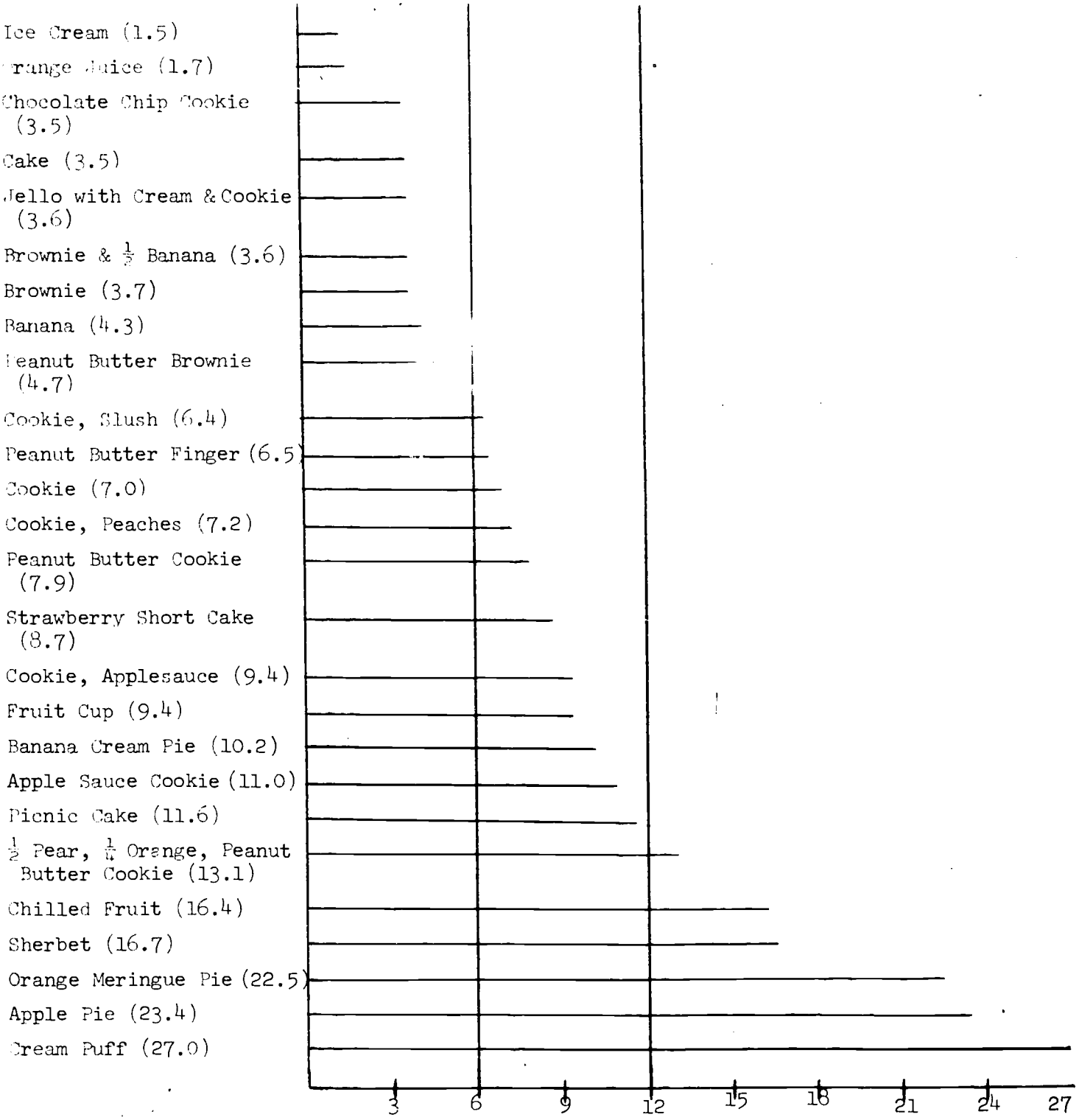
There was no significant difference between the two types of milk relative to acceptance. Median values were very nearly the same; low-fat 7.8, regular 7.6.

Major Meal Components/Average Values- Graphs #11 & #12

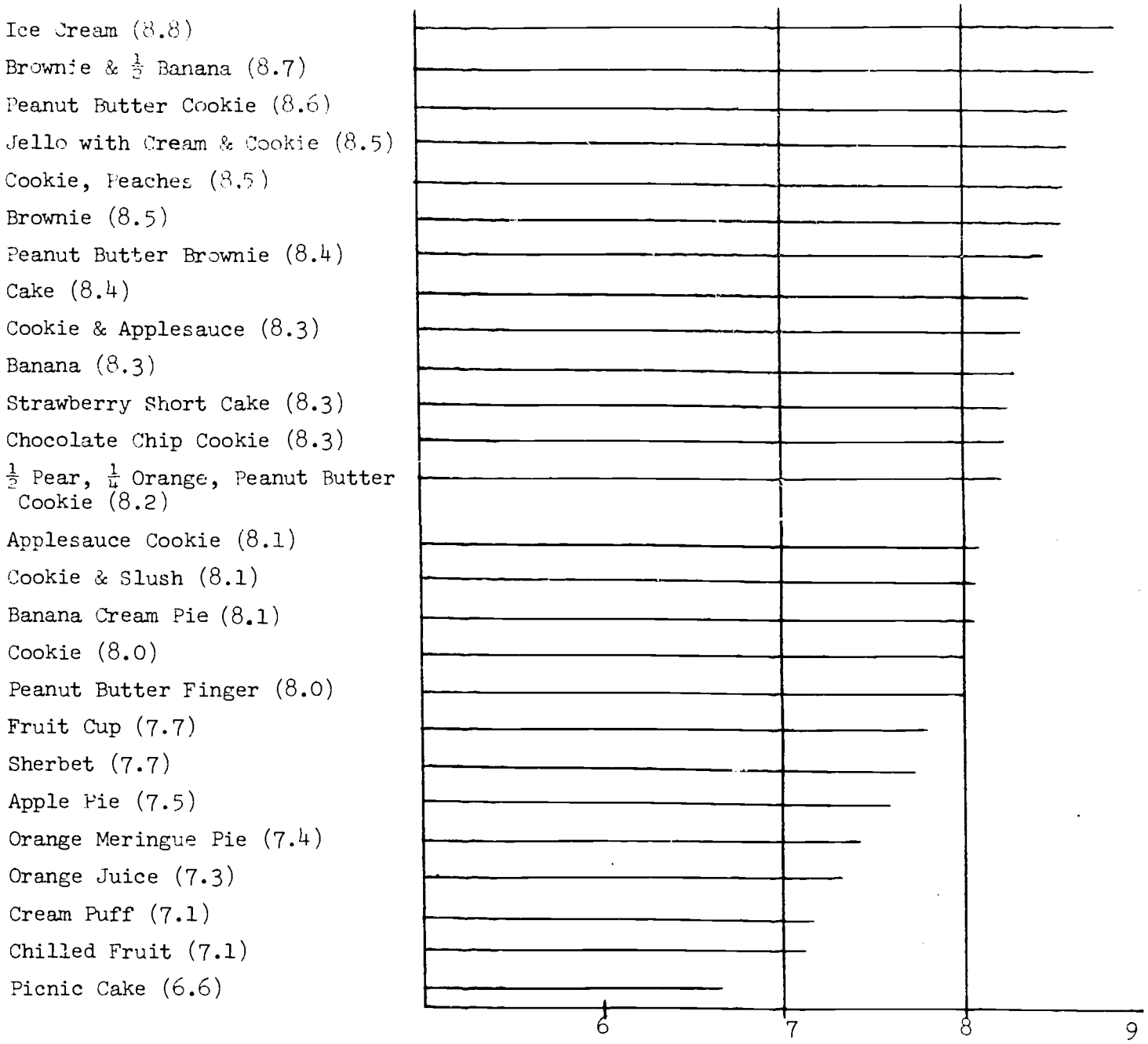
The average plate waste value for all vegetables served in the 36 meals of this study was 28.3%. The main dish and milk were 14.3% and 13.1% respectively, with bread and the dessert both having less than 10% waste.

In the acceptance area, only vegetables had a rating less than 7.0, with the dessert leading the other meal components with a score of 8.1 (on a 9-point scale).

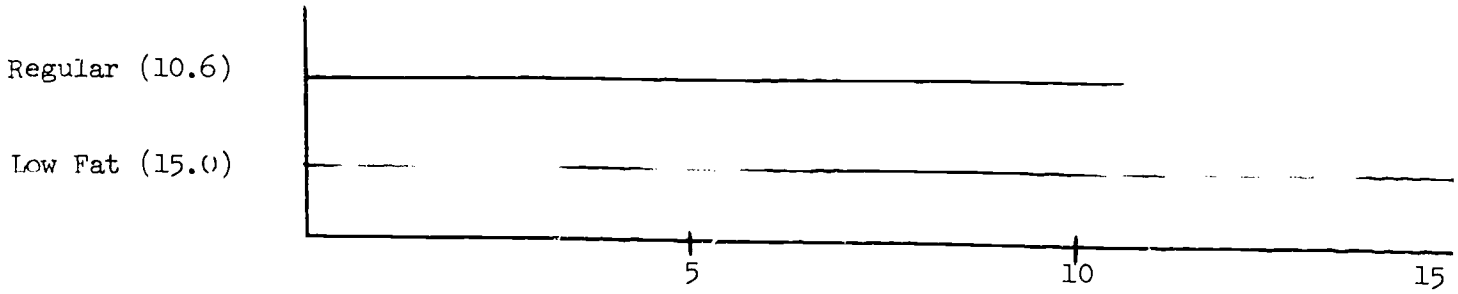
GRAPH #7


Ice Cream (1.5)
Orange Juice (1.7)
Chocolate Chip Cookie (3.5)
Cake (3.5)
Jello with Cream & Cookie (3.6)
Brownie & ⅕ Banana (3.6)
Brownie (3.7)
Banana (4.3)
Peanut Butter Brownie (4.7)
Cookie, Slush (6.4)
Peanut Butter Finger (6.5)
Cookie (7.0)
Cookie, Peaches (7.2)
Peanut Butter Cookie (7.9)
Strawberry Short Cake (8.7)
Cookie, Applesauce (9.4)
Fruit Cup (9.4)
Banana Cream Pie (10.2)
Apple Sauce Cookie (11.0)
Picnic Cake (11.6)
½ Pear, ¼ Orange, Peanut Butter Cookie (13.1)
Chilled Fruit (16.4)
Sherbet (16.7)
Orange Meringue Pie (22.5)
Apple Pie (23.4)
Cream Puff (27.0)
3
6
9
12
15
18
21
24
27
DESSERT
PERCENT WASTE

GRAPH #8


Ice Cream (8.8)
Brownie & ½ Banana (8.7)
Peanut Butter Cookie (8.6)
Jello with Cream & Cookie (8.5)
Cookie, Peaches (8.5)
Brownie (8.5)
Peanut Butter Brownie (8.4)
Cake (8.4)
Cookie & Applesauce (8.3)
Banana (8.3)
Strawberry Short Cake (8.3)
Chocolate Chip Cookie (8.3)
½ Pear, ¼ Orange, Peanut Butter Cookie (8.2)
Applesauce Cookie (8.1)
Cookie & Slush (8.1)
Banana Cream Pie (8.1)
Cookie (8.0)
Peanut Butter Finger (8.0)
Fruit Cup (7.7)
Sherbet (7.7)
Apple Pie (7.5)
Orange Meringue Pie (7.4)
Orange Juice (7.3)
Cream Puff (7.1)
Chilled Fruit (7.1)
Picnic Cake (6.6)
6
7
8
9
DESSERT
ACCEPTANCE

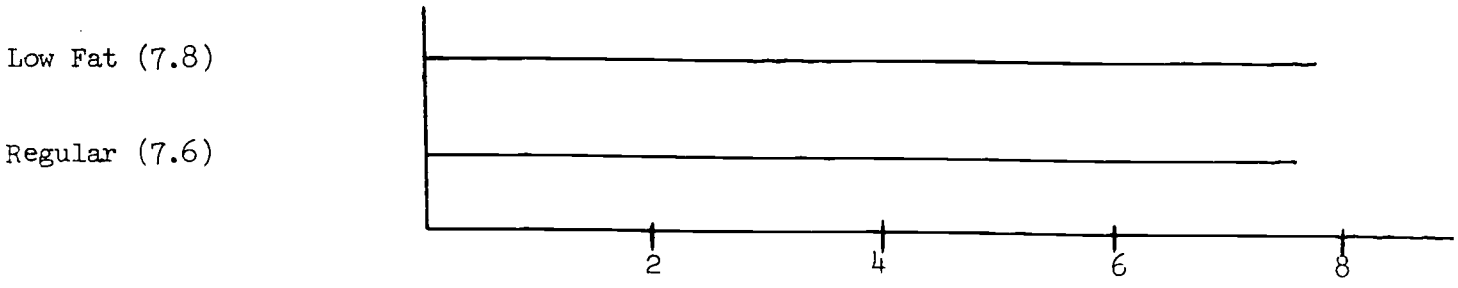
GRAPH #9



MILK

PERCENT WASTE

GRAPH #10



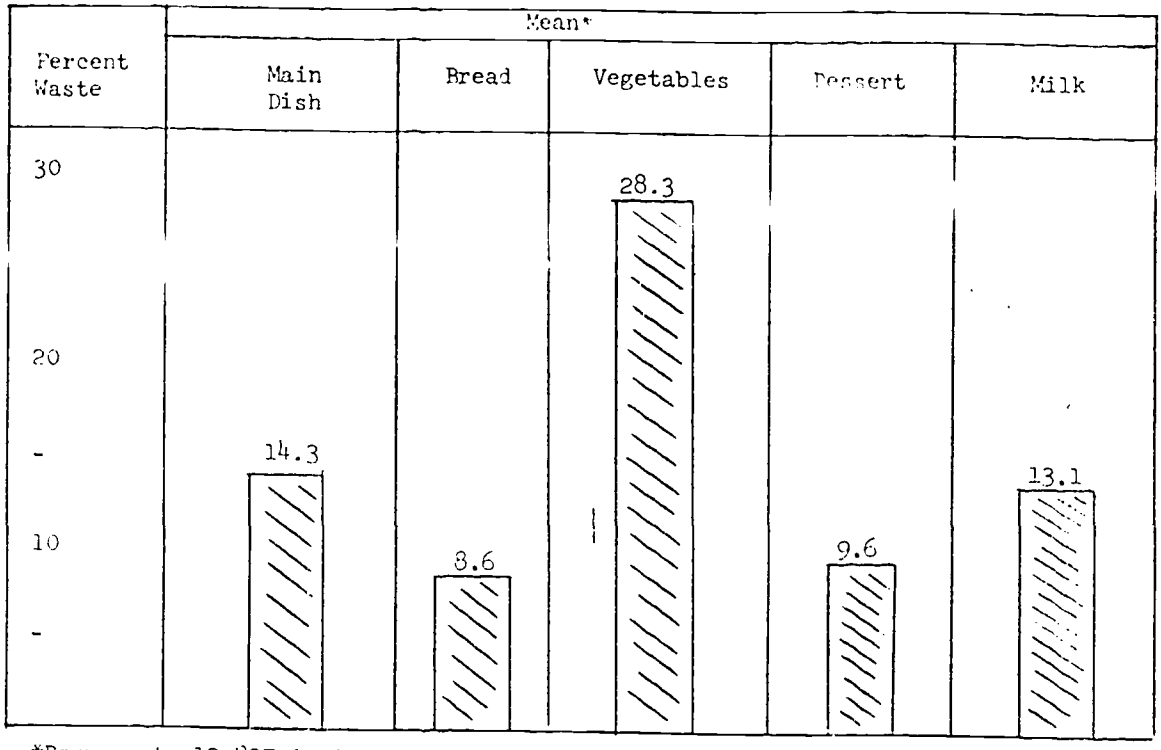
MILK

ACCEPTANCE

COMPOSITE OF ALL MEALS

PERCENT WASTE

GRAPH #11

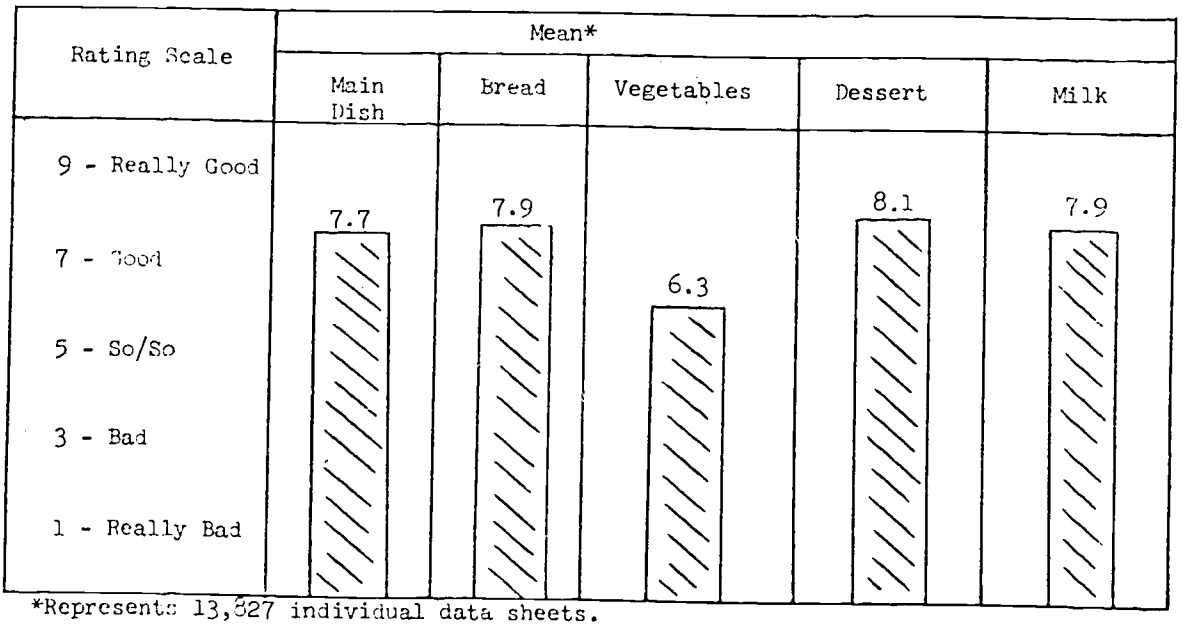


*Represents 13,827 individual data sheets.

COMPOSITE OF ALL MEALS

ACCEPTANCE

GRAPH #12



*Represents 13,827 individual data sheets.

DISCUSSION AND CONCLUSION

The data that has been presented in this report reflects analysis across grades (1-6). No attempt has been made to analyze differences between grades. Graphs 11 and 12 are representative of 13,827 individual data sheets. Graphs 1-10 each represent data from at least 384 children; two, three or four times that amount could be represented if the menu item was served two, three or four times during the data collection period. Consequently, data from each grade and in turn from each menu item could be represented by as few as 64 children. It is recognized that there may be differences between, e.g., grades 1-2 and 5-6, relative to acceptance and plate waste, but probably no facility exists at the elementary school level for individually catering to the consumption patterns of each grade in a school. If time permits, a follow-up report could be written analyzing any data that has not been reported here. At that time, a technical discussion involving the correlation potential of all data collected could be included. However, for the purpose of our immediate needs, it is felt that a rank order of each menu item involved in this study would be beneficial for those planning menus and responsible for school feeding programs.

It is easy to say that food kids like will have low plate waste values; those disliked high waste values. But, numerous other factors may have a direct or indirect effect on the amount of waste left on the child's tray. The following list is far from complete, but will give an idea of the difficulty of controlling and eradicating wasted food in the school feeding area:

1. Quality
2. Quantity (Portion Size)
3. Temperature
4. Color
5. Texture
6. Grade (Age of Child)
7. Length of meal period

9. Location of c
   [illegible]sphere
10. Employee attitudes
11. Sanitation
12. Serving method
13. Parent attitudes
14. Teacher attitudes
15. Meal patterns at home
16. Weather conditions

It is recommended that the rank order of each menu item presented in this report be used as a general guide in planning menus. Try to include as many of the more desirable ones (from a low waste standpoint) as possible. Consider nutrition, cost and the monotony factor. Plan to introduce new foods or those somewhat less desirable, at planned intervals. Incorporating nutrition education into the classroom is an excellent way of teaching children which foods are most beneficial for them. Even if your school does not have a formal nutrition education program, the food service staff can provide much of the education; posters in the lunchroom; food oriented contests; different preparation methods of less desirable or new foods; and above all, selling the children on the benefits of these foods ("try it -- you'll like it" approach). All these can contribute to reducing plate waste in our schools. We may not be able to totally eliminate all waste by all children for all menus, but we can do much to significantly reduce the high plate waste currently being observed.

The Type A pattern is designated to provide 1/3 of the Recommended Daily Dietary Allowance. It doesn't make sense to put 28% of the vegetables, 14% of the entrees and 13% of the milk (with all their body-building nutrients) into the trash.

APPENDIX A

WASTED NUTRIENTS*

Item	Protein (gms.)	Calcium (mg.)	Iron (mg.)	Vit. A (I.U.)	Vit. B_1 (mg.)	Vit. B_2 (mg.)	Vit. C (mg.)
Milk (regular)	.9	28.4	Trace	33.7	.01	.05	.24
Milk (low-fat)	1.2	40.2	Trace	Trace	.02	.07	.34
Ham & Cheese	5.1	78.2	.45	134.9	.07	.08	-
Seaburger	2.14	1.42	.06	0	.01	.01	-
Turkey	2.74	.7	.16	-	.01	.02	-
Peas	1.29	24.9	.23	270.7	.1	.05	6.2
Cabbage	.41	15.4	.13	40.8	.02	.02	14.7
Creamed Corn	.7	1	78.3	109.5	.02	.02	1.7
Bread Slice	.5	3.6	.13	Trace	.02	.01	Trace
Roll/Bun	.3	1.8	.08	3	.01	.01	Trace
Apple Pie	.3	1.1	.04	4	.01	.01	.14
Sherbet	.09	1.5	Trace	5.7	.01	.01	.2

*Represents nutritional waste per food item per serving.

APPENDIX B

DESIGNING A PLATE WASTE STUDY

The following outline gives a chronological breakdown of how a state or local school district can develop their own study.

Try to choose those variables which you feel might be most significant for your particular state and local problems, and design the project around them. Make the instructions explicit to avoid any misinterpretation. Rather than include a large number of variables, try to concentrate on a few and collect comprehensive data on these. Future studies can be designed around other factors influencing plate waste.

I. Literature Review

A) National Agricultural Library - Beltsville, Maryland

B) Trade Journals

C) University Studies

D) Personal Experience

II. Initial Experimental Design

A) Adapt to your school/district needs and problems

B) Design forms for data collection

C) Develop procedures and instructions

D) Draw up checklist for observers

III. Pre-Test (One Day)

A) Select test sites

B) Choose aides and observers

C) Train observers

D) Modify and refine forms and instructions

IV. Experimental Design

A) Sample size

1. If state-wide, 10% of districts

2. If district study, 10% of schools in district

B) Repetitions - 3 consecutive days

C) Management - work through district supervisor

V. Plate Waste Test

A) Test simultaneously in all districts/schools

B) Coordinate from your office

C) Data collection

1. Teacher instructions

2. Observer checklist

3. Acceptance forms (9-point scale)

4. Plate waste forms

VI. Data Analysis

A) Keypunch plate waste, acceptance, etc.

B) Computer run

C) Interpret results

D) Issue report and make recommendations

OFFICE OF THE UTAH STATE BOARD OF EDUCATION
SCHOOL FOOD SERVICES
1730 University Club Building
Salt Lake City, Utah 84111

Dear Teacher:

The School Food Services Section of the Office of the State Board of Education is conducting a study to evaluate various factors affecting food waste in the Lunch Program. Among the most important, is the acceptance of each component of the meal.

The five-faces form is the part the children will fill out (in the lunchroom). Would you kindly take a few minutes to explain to the children how the form is to be filled out? Please explain the following instructions to your class before they leave for the lunchroom.

1. Distribute forms only to those children eating school lunch.

2. In the classroom - Children should fill out the bottom of the form--School, Grade, Date.

3. Announce to class the "Main Dish" on today's menu.

4. Forms should not be folded.

5. Children should take pencils (or crayons) to lunchroom along with their form.

6. In the lunchroom - After eating meal, children should mark an "X" in the box corresponding to how they feel about each component of the meal. This will result in 5 "X"'s--one for Main Dish, one for Bread, etc. (They should not mark the back of the form.)

7. Children are to hand in their forms at the waste return line in the lunchroom before they leave their tray at the return stand.

* * * * *

Your efforts in helping to reduce plate waste (by participating in this study) and thereby to increase nutritional intake are greatly appreciated. I, therefore, want to thank you in advance for your cooperation regarding this important project.

Sincerely,

H. H. Winawer

H. H. Winawer, Specialist
School Food Services

CHECKLIST FOR OBSERVERS

1. Arrive at school at least one hour before lunch is to be served.

2. Give the "five-face forms and teacher letters" to the principal. The principal or upper grade students should count out the appropriate number of forms (for students eating school lunch only) and distribute them to the classrooms at least one-half hour before lunch period. Do not leave extra forms.

3. Bring: Clipboard, pen, box (for completed forms).

4. Explain to the School Lunch Manager that you are participating in a "Plate Waste Study" being conducted by the State Board of Education (School Food Services) and that it is only a survey. The school will not be identified regarding results. General recommendations will be made (statewide to help reduce plate waste)and thereby increase nutritional intake.

5. Estimate "Portion Size" for grades 1-2, 3-4, and 5-6 during meal periods.

6. Position yourself in front of return line(s) and record plate waste on back of "five-face" form before child leaves tray at return station.

7. Please make every effort to record plate waste for each child handing in a form. If children back up on return line don't panic.

8. If there is "No Waste," mark large "X" across form.

9. If (for example) approximately $\frac{1}{2}$ of everything is left on tray, draw a line across page through the $\frac{1}{2}$ category.

10. $\frac{1}{4}$ = 25% waste, $\frac{1}{2}$ = 50% waste, 3/4 = 75% waste, 1 = 100% waste.

11. If there are two or more vegetables on tray, all vegetables combined equal 100%. Therefore, if all peas left and all potatoes eaten, that constitutes 50% waste or $\frac{1}{2}$ left.

12. Take all forms with you at end of each day's test. Do NOT leave them at school. At end of three-day test period, give forms to district supervisor or coordinator. Please keep forms separated by day.

* * * * * * * * * * * * *

Note: If you have any questions, phone me at my office.

GOOD LUCK!

H. H. Winawer, Specialist
School Food Services

School_____ Date:_____ Your Name:_____

Today's Menus:

Main Dish:_____

Bread:_____

Vegetable(s):_____

Dessert:_____

Milk: Regular_____ Low Fat_____ Chocolate_____

Start of lunch period: Time - _____

Last tray returned: Time - _____

Portion Size Observation*

(Visual Estimate by Grades)

Grades	Too Small	Adequate	Too Large
1 - 2			
3 - 4			
5 - 6			

*If Adequate, check box.

If Too Small or Too Large, list component(s),in box.

NOTE: Please keep the completed forms with the Acceptance/Plate Waste Forms at end of each day's test.

PLATE WASTE OBSERVATION

	MAIN DISH	BREAD	VEGETABLES	DESSERT	MILK
1/4					
1/2					
3/4					
1					

ACCEPTANCE

	MAIN DISH	BREAD	VEGETABLES	DESSERT	MILK
REALLY GOOD 					
GOOD 					
SO-SO 					
BAD 					
REALLY BAD 					

SCHOOL:_____ GRADE:_____ DATE:_____