Using the Menu Census Survey to Estimate Dietary Intake:

Post Market Surveillance of Aspartame

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INTRODUCTION

MRCA has been monitoring the actual consumption of Aspartame by individuals from their diets since its approval in 1981. This task was mandated by The Food & Drug Administration (FDA) as a condition of its approval of Aspartame as a food additive, as published in the Federal Register on July 24, 1981. One objective of this monitoring was to compare the actual use with the maximum projected consumption level of 34 milligrams per kilogram of body weight of the eater, per day, at the 99th percentile for the total sample. This estimate was computed by MRCA in 1975, using food consumption data from the Menu Census Survey of 1972-73, and the concentrations of Aspartame that were proposed by General Foods Corporation in packets for table-top use, in various powdered mixes, and in several liquid products including carbonated soft drinks. It was included in the petition which was submitted to FDA by General Foods Corporation in March 1976. Thus, MRCA's work in estimating the intake of Aspartame began about seventeen years ago.

The methodology for using food consumption data from Menu Census Surveys to estimate the intake of substances from the diet was originally developed, in the early 1970's, by the National Academy of Sciences GRAS Review Committee Phase I. It has been refined substantially since then, in continued work with The Food & Drug Administration, with the National Academy of Sciences GRAS Review Committee Phase II and Phase III, and with many commercial organizations. Over these years, the Menu Census Surveys were used to estimate the frequency distributions of the intake of close to 2,000 substances from the diet. In order to understand this methodology, it is necessary to describe in detail the Menu Census Surveys.

THE MENU CENSUS SURVEYS

The Menu Census Surveys provide an in-depth continuing record of food and beverage preparation and consumption by U.S. households and individuals. Although the primary use of these data is for marketing and product development, a growing use has developed in the past 20 years for estimating the intake of direct and indirect food additives, by both The Food and Drug Administration and by commercial organizations, in order to meet FDA's regulatory and review requirements. In addition, these data have been used by commercial organizations to estimate the intake of vitamins and minerals from the diet, in order to support nutritional claims, or to explore new product opportunities. Some of their key applications, and typical user groups, are shown in the following table:

APPLICATIONS	USERS
National Food Trends	*Top Management* *Mergers & Acquisitions*
Defining the Marketplace: Market Size Estimates Competitive Framework Product Positioning Copy Theme Development	*Product/Marketing Management* *Advertising Management & Agencies* *Legal Department*
Managing Brands: Line Extension Recipe Ideas Tie-In Promotions Ad Themes	*Product/Marketing Management* *Advertising Management & Agencies* *Nutritionists/Home Economists*
Evaluating New Product Opportunities: Define Markets & Segments Estimate Potential Target Audiences	*New Product Development*

Forecasting:	*Strategic Planning Groups*
Long & Short Range	*Marketing Management*
Detect Trends - Early On	*Proruct Management*
Intake Studies:	*Food Development & Technology*
Nutrition	*Regulatory Affairs*
Food Additives	*Government Agencies*
	Nutritionists

MRCA has been tracking all food preparation and consumption at-home and away-from-home through the Menu Census Surveys since 1957. These surveys were conducted once in five years from 1957 to 1977, and then continuously from 1980 forward. All foods are reported, except the use of table salt, pepper, and tap water. The surveys are currently based on nationally representative rotating samples of 500 households per quarter, or 2,000 households per year, containing about 5,100 members. Each household reports all food preparation and consumption, daily, by mail, in 14 consecutive daily diaries. The households are distributed uniformly throughout the year, with about five or six new households starting their two-week reporting period each day of the year. All diaries are completed by the homemakers, who are also long-term members of MRCA's National Consumer Panel (NCP), the Weekly Purchase Diary Panel, who are therefore experienced in reporting their purchases of food products, in great detail, via diaries by mail.

THE DAILY DIARY

As shown in ATTACHMENT I, pages 1 to 5, each daily diary provides the following information:

1. A detail description of each dish eaten, and items added to it at the table
2. At-home or away-from-home
3. At breakfast, lunch, or dinner meals; or at morning, afternoon, evening, or bedtime snack eating occasions
4. The position of the dish in the meal
5. Which household members ate the dish, and each item added to it at the table

For all dishes eaten at-home, information is provided on:

1. The number of guests who ate it, by children vs. adults
2. First time vs. leftover serving
3. Method of preparation and appliance used
4. Brand names of commercially prepared products
5. Form as obtained, such as fresh, frozen, canned, etc.
6. Packaging material in contact with the food
7. For homemade dishes, the reporting includes a detail description of every product used as an ingredient, fats and oils used as agents for frying, or flour for dusting breadboards. For each ingredient, the diary provides the brand name, form as obtained, packaging material, and whether the ingredient was itself a leftover.
8. Who ate the meal together, at what time, and if it was a special occasion.

For foods eaten away-from-home, information is provided on:

1. The type of place, such as at friends, school, restaurant, lunch counter, etc.
2. The name of the food service facility
3. If from a vending machine
4. If eaten at the place where it was obtained.

DIETS, PSYCHOGRAPHICS, AND HOUSEHOLD DEMOGRAPHICS

A separate questionnaire, administered following the 14th day of reporting, provides, for each household member, detail information on age, sex, pregnancy status, weight, height, special diets followed, reason for the diet, foods encouraged or discouraged from eating, use of table salt, and the consumption of vitamin and mineral supplements, including kind, potency, amount and frequency, as is shown in ATTACHMENT II, pages 1 and 2.

Another questionnaire, completed only by the homemaker, covers attitudes, awareness, and interests in a wide range of subjects dealing with lifestyle, food preparation, cooking skills, nutrition, food additives or preservatives, low-calorie products, sugar substitutes, and the use of information printed on the labels, as is shown in ATTACHMENT III, pages 1 and 2.

In addition, an extensive set of demographic classifications is available for each household, obtained as part of their participation in NCP, the Weekly Purchase Diary Panel.

INTAKE STUDIES

An intake study for a given substance usually includes Frequency Distribution Reports of the Daily Intake of the Substance by Individuals in several age groups, in milligrams (MG) and in milligrams per kilogram of body weight (MPK) of the eaters. Also provided are the corresponding Sources of Mean Intake Reports, which show the contribution of each specific food to the total overall mean intake of the substance, by the same age groups.

The intake study for a given substance is based on a detailed listing of all the foods which contain the substance, or which the manufacturer plans to include in the petition to FDA for the use of this substance.

This list is prepared using the detail Menu Census Food Classification Code Book. At the same time, the manufacturer also provides the actual or the proposed concentrations of the substance in each food item on the list. The amount of the substance consumed by eating any food item on the list is computed by multiplying the concentration of the substance by the quantity of the food eaten.

QUANTITIES OF FOOD EATEN

Note that the 14 daily diaries provide only the incidence of eating each food product by an individual, but not the quantity eaten by each person, since reporting quantities for 14 days would be too burdensome to the homemaker. Instead, the average grams per eating occasion have been calculated from the most recently available USDA National Food Consumption Survey (NFCS), for persons grouped by age and sex, using a linear "smoothing" procedure on these estimates when needed.

Since the USDA Survey provides grams of foods for end dishes as-eaten, these estimated average amounts per eating occasion are used only to quantify dishes as-eaten, such as milk when consumed as a beverage, or sugar when added to coffee or tea, or oil used as a salad dressing. When the products are used at-home as ingredients or as frying agents in preparing other foods, the amounts consumed are computed as percentages of the corresponding amounts of the end dishes in which they were used. These percentages are based on estimates obtained from standard recipes.

INTAKE AMOUNTS

The quantity of the substance consumed by a given individual, from all eating occasions of a given item of food on the list, in a given day, is thus calculated by multiplying the number of such eatings by the average grams per eating occasion, and by the concentration of the substance in that food. This calculation is displayed below, in the case of Aspartame:

The Estimated Total Intake of Aspartame, by a Given Person, on a Given Day, from All Eatings of a Given APM Containing Food Item Eaten that Day, by that Person, is the Result of the Multiplication of the Following Three Terms:

Number of *times* an APM containing item of food was eaten on that day by that person	*	Average number of *grams* per eating occasion of that food for a person of that age & sex group	*	Number of *milligrams* of APM per gram of that food as eaten

These estimated intakes of the substance from different food items are then aggregated, for all eatings of all food items by that same person, **separately for each day,** to provide estimates of intake on a **Person-Day Basis,** treating each day for each person as an independent observation. Intakes are also accumulated for each person **over all 14 days combined,** to provide estimates on a **14-Day Average Daily Basis.**

INTAKE STUDY REPORTS

Frequency distributions of the average daily intake of the substance are then tabulated by age groups, in five percentile increments, for the eaters only, and separately for the total sample of eaters plus non-eaters, from the lowest to the highest, with finer breakouts for the heavier eaters of the substance above the 95th percentile, usually showing the 97.5th, the 99th, the 99.5th, and the 100th percentiles. Separate reports show these intakes in milligrams (MG), vs in milligrams per kilogram (MPK) of the body weight of the eater. Reports are usually produced for the intake of the substance from specific food sub-categories, vs. from broader food categories, and in total from all foods combined.

Multiple reports are frequently produced, separately on a **Person-Day Basis** vs. on a **14-Day Average-Daily Basis,** as needed to differentiate analyses of the potential **"acute"** effects from the **"chronic"** effects of the consumption of the substance.

Corresponding reports are provided for the Sources of Mean Intake, which break out the contributions to the mean intake, by age groups, of each specific food item included in the original list of concentrations of the substance.

CONCENTRATIONS BY BRAND AND FLAVOR

In addition, since the Menu Census Surveys identify the brands of each commercial product, reports can be produced tracking the "actual intake" of a food additive, once it is approved and introduced into the market, and as it expands its distribution over time; instead of the "prospective intake" of the substance, which is estimated when a petition to FDA is first prepared for the use of the substance in specified foods. This is the case, for example, with the Post Marketing Surveillance - Phase II of Aspartame, in which MRCA has been tracking the intake of APM since April 1984, using its actual concentrations in each brand, as reported by their manufacturers.

NUTRITION STUDIES

The intake of any nutrient in the food is estimated using essentially a similar procedure, with the concentrations coming from a standard nutrient composition

database. For this purpose, each food in the Menu Census Survey is assigned its corresponding code in the nutrient composition database, and the associated amount of the nutrient per 100 grams of the food is treated as the appropriate "concentration".

The reports for nutrition studies usually show the contributions of each food category and sub-category to the total daily intake of each vitamin or mineral, for individuals classified by age and sex groups. Additional reports distribute the intakes of nutrients by meal occasion, or by various food consumption patterns of the individuals in the study. These intakes are usually reported by age and sex groups, in absolute quantities, or as averages of the percentages of the Recommended Daily Allowances (RDA's) for the corresponding nutrients, or by ranges of the percent RDA's, and the like.

SPECIAL DIETS

Since the Menu Census Study contains information on any special diets which a person may follow, reports are also produced comparing the intake of food additives, or of vitamins and minerals, by persons who are, for example, on a diet to reduce weight, or to control diabetes.

HOMEMAKER'S ATTITUDES

Using the responses of the homemakers to the attitudes, awareness, and interests questionnaire, which has been administered to all Menu Census households since 1972, MRCA has been able to classify these homemakers by their concern about low-calories, nutrition, food additives, prepared foods, etc., and then correlate these classifications with the frequency of consumption of various food categories by individuals in the same households. Using the same classifications, it is possible to trend the nutrient intakes by the homemakers, and by other household members, over the past 19 years, a period during which interest in proper nutrition has grown substantially. Similar trends can be produced for selected food additives whose consumption may be correlated with specific homemaker's attitudes, such as towards fat or cholesterol, sugar, low-calorie sugar substitutes, caffeine, preservatives, and the like.

THE POST MARKETING SURVEILLANCE OF ASPARTAME - AN INTAKE STUDY EXAMPLE

As stated earlier, the Post Marketing Surveillance (PMS) of Aspartame, PHASE I, was begun in January 1982. It was designed to track the percentage of children 0 to 12 years old who consumed any food containing added Aspartame during an average 14-day period. PHASE I was to continue until the level of about 30% was reached, corresponding to the previously existing level of exposure by children to Saccharin containing products. PHASE II would then begin, in which the frequency distributions of the "actual" amount of Aspartame consumed through the diet will be tracked on a quarterly basis.

PHASE I - EXPOSURE BY CHILDREN 0-12 YEARS OLD

Chart A displays the growth in the exposure of children to Aspartame containing products from April 1982 through June 1984. For the first year, less than 2.1% of children 0-12 years old consumed any products containing Aspartame in an average two-week period. Beginning with April 1983, the exposure to Aspartame grew rapidly, and reached a level of about 24% by June 1984. In fact, the percentage of children 2-5 years old consuming added Aspartame reached 30% by June 1984, thus initiating the Post Market Survey PHASE II.

PHASE II - FREQUENCY DISTRIBUTIONS OF THE INTAKE OF ASPARTAME

PHASE II of the Post Marketing Surveillance of Aspartame began with the second quarter of 1984. Quarterly and annual frequency distribution reports were provided through 1987, and only annual reports were continued since then. They were provided in milligrams and in milligrams per kilogram of body weight of the eater, on a Person-Day basis, and on a 14-day Average Daily basis (14-Day Avg). Reports were produced by age and sex groups, as well as for persons on a Diet to Reduce Weight (Reducers) and on a Diabetic Diet (Diabetics).

The attached charts show quarterly trends in the 90th percentiles of intakes of APM, for eaters only, in MPK, for children 2-5 vs. 6-12 years old, and for reducers vs. diabetics. Each trend line is compared to that for the Total Sample. They start with the second quarter of 1984, and go to the fourth quarter of 1987, when quarterly reports were stopped, and only annual reports were continued. CHARTS B through E are on a person-day basis, and CHARTS F through I on a 14-day average daily basis.

Person-Day Intakes

As can be seen in CHART B, the intake by 2-5 year olds is substantially higher than by the total sample, fluctuating from a low of 8.5 MPK in the fourth quarter of 1984 to a peak of 19 MPK in the first quarter of 1986, and declining to about 10 MPK in the third and fourth

quarters of 1987. During this same period, the average intake by the total sample was below one-half that of children 2-5 years old, and hovered around 5 MPK. This difference is characteristic of intakes expressed in MPK, since small children eat more food in relation to their body weight than adults, and therefore also most food additives.

As can be expected, the intake by children 6-12 year olds, shown in CHART C, is somewhat lower than that by 2-5 years old. It rose from a low of 6.4 MPK in the third quarter of 1984, to about 9 MPK in 1985, with a single extreme value of 17 MPK in the fourth quarter of 1985, and then settled down to about 7 MPK in 1986 and 1987.

The person-day intake of individuals on a diet to reduce weight, and also of those on a diabetic diet, display an unexpected pattern, since they are both essentially lower, instead of higher, than the intake by the total sample, as shown in CHARTS D and E. However, this pattern is once again due to the unit of measure, namely MPK's, since almost all reducers and diabetics are adults, who weight more, and who eat less per kilogram of body weight, than children. Thus, the resulting average MPK intake for the total sample is increased by the higher MPK intakes of the "lighter" children with relatively greater food intake.

The high fluctuations in the APM intake by diabetics is caused primarily by the small sample size for this group.

14-Day Average Daily Intake

CHARTS F through I show a strikingly different pattern in the intake of APM on a 14-day average daily basis than did CHARTS B through E on a person-day basis. Unlike the person-day trends, those for the 14-day average daily intake by 2-5 and 6-12 year olds dropped sharply in the fourth quarter of 1986, and then fluctuated around the intake by the total sample for the next five quarters. Obviously, this difference must be caused by the fact that 14-day averages reflect any existing patterns of consistency or regularity in the intake of APM, whereas such factors are not incorporated into the calculations of the short-term person-day intakes. Specifically, only one-third to one-half as many children eat any APM containing foods as adults do on a day-by-day basis, compared to over eight-tenths to nine-tenths as many children as adults do on a 14-day basis. Thus, more children are infrequent eaters of APM containing foods, and therefore eat less APM on a "long-term" average daily basis as compared to adults.

Similarly, a significant change is reflected in the pattern of APM intake for persons on a reducing or on a diabetic diet, as is shown in CHARTS H and I. Contrary to their person-day intakes, which were essentially below those for the total sample, their 14-day average daily intakes are now larger than those for the total sample, and they also reveal an upward trend in these intakes from 1984 through 1987. These trends may reflect the tendency by these two groups to adopt a pattern of regular consumption of APM containing food products, which is not shared by children, and possibly neither by other adults.

CONCLUSION

The Menu Census Survey has proven over the years to be a very effective instrument for estimating the intake of food additives from the diet for both "chronic" as well as "acute" levels of exposure. The richness of the database has supported the extreme demands of estimating intake from foods which are "ready-to-eat", as well as from those which are used by the homemaker only as ingredients or cooking agents for preparing other dishes. The extended 14-day period of observation is indispensable in estimating the long-term average intake of nutrients from the diet; the "chronic" exposure to direct food additives; to food animal drug residues; as well as to contaminants in the food, such as naturally occurring lead, or that which migrates into the food from sodered cans.

Furthermore, once a substance has been approved by FDA, the same Menu Census database has frequently been used to set priorities for the introduction of the product into different food categories, to define the segments of the prospective market, to estimate trends, to explore for new uses in additional food items, and for various other market research and marketing purposes, as well as for Post Marketing Surveillance of newly approved food additives.

CHART A: APM EATERS IN A 14-DAY PERIOD

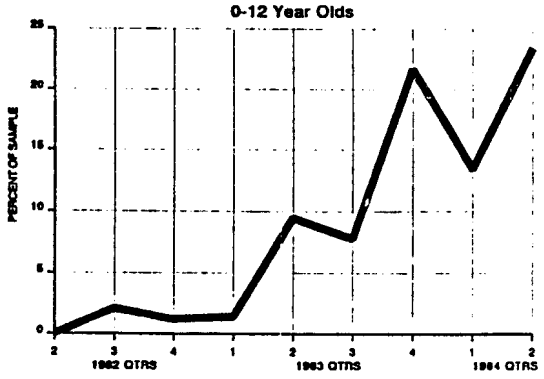


CHART B: PERSON-DAY BY 2-5 YEAR OLDS

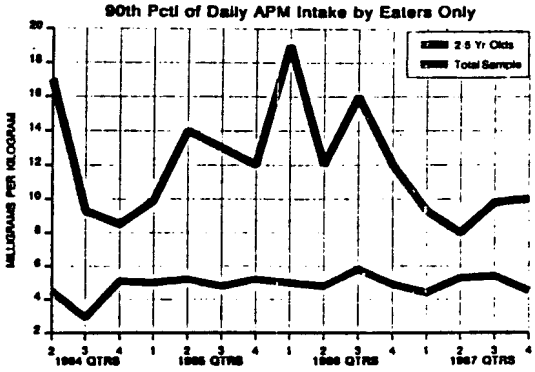


CHART C: PERSON-DAY BY 6-12 YEAR OLDS

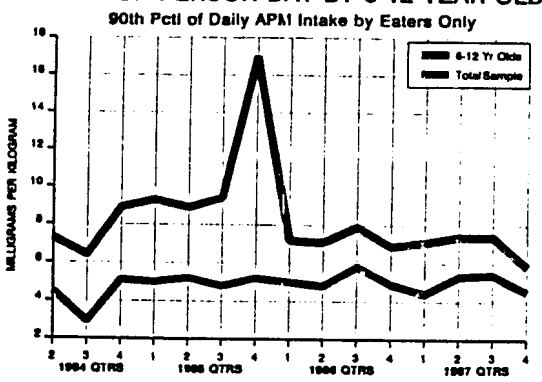


CHART D: PERSON-DAY BY REDUCERS

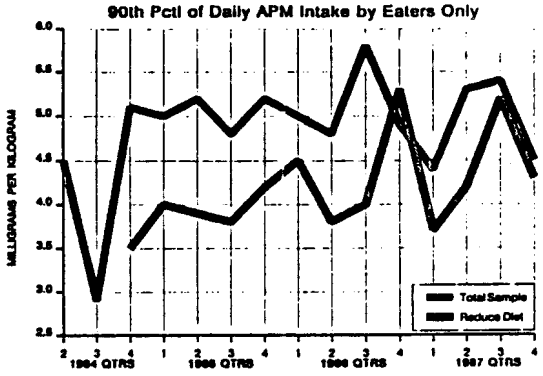


CHART E: PERSON-DAY BY DIABETICS

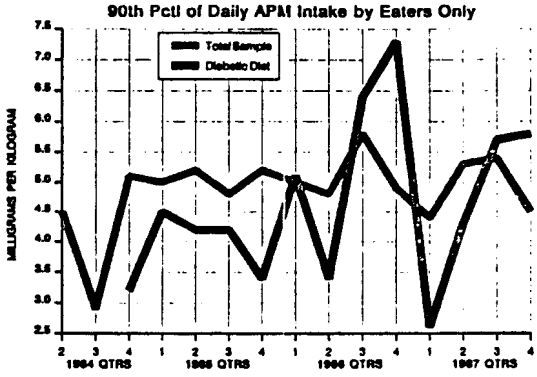


CHART F: 14-DAY AVERAGE BY 2-5 YR. OLDS

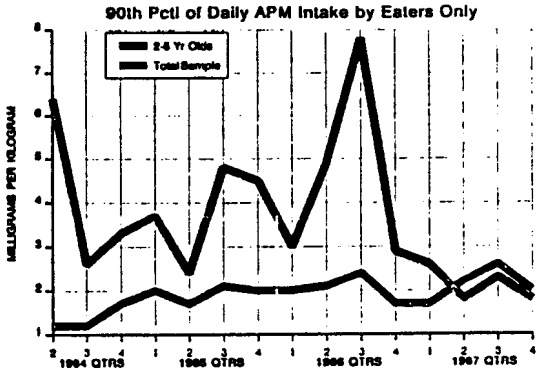


CHART G: 14-DAY AVERAGE BY 6-12 YR OLDS

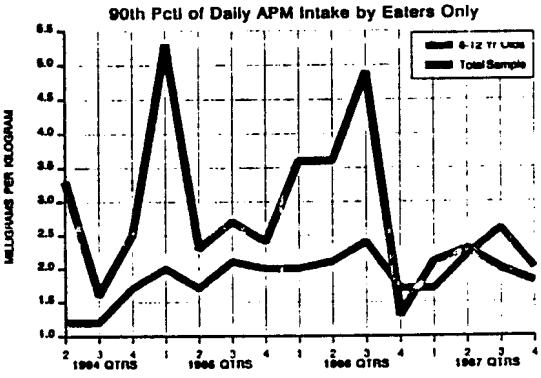


CHART H: 14-DAY AVERAGE BY REDUCERS

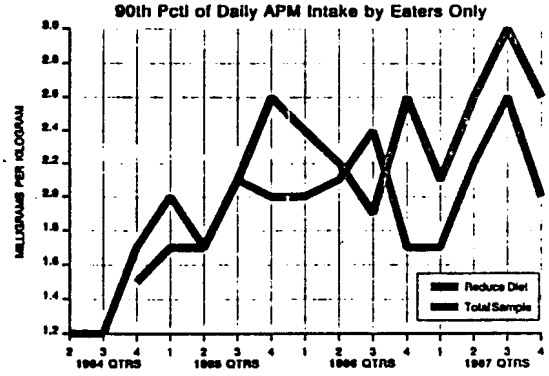
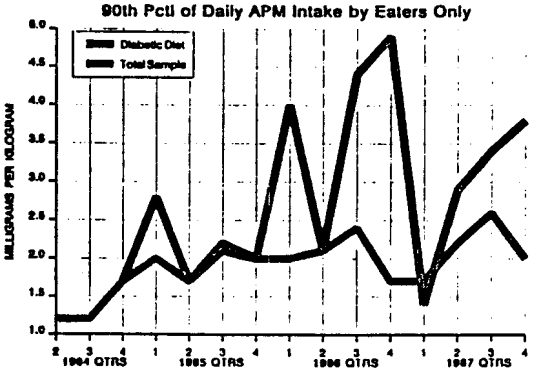
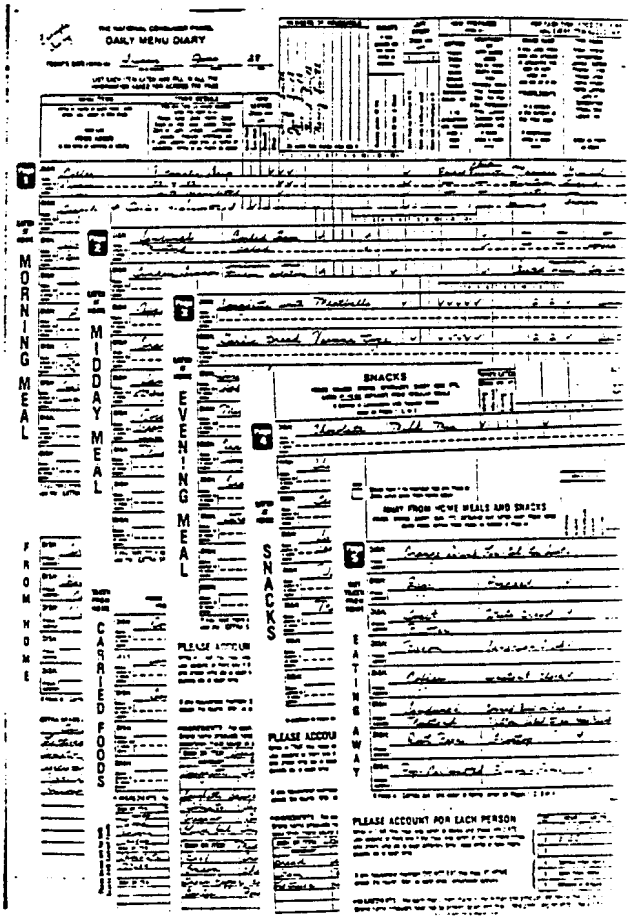
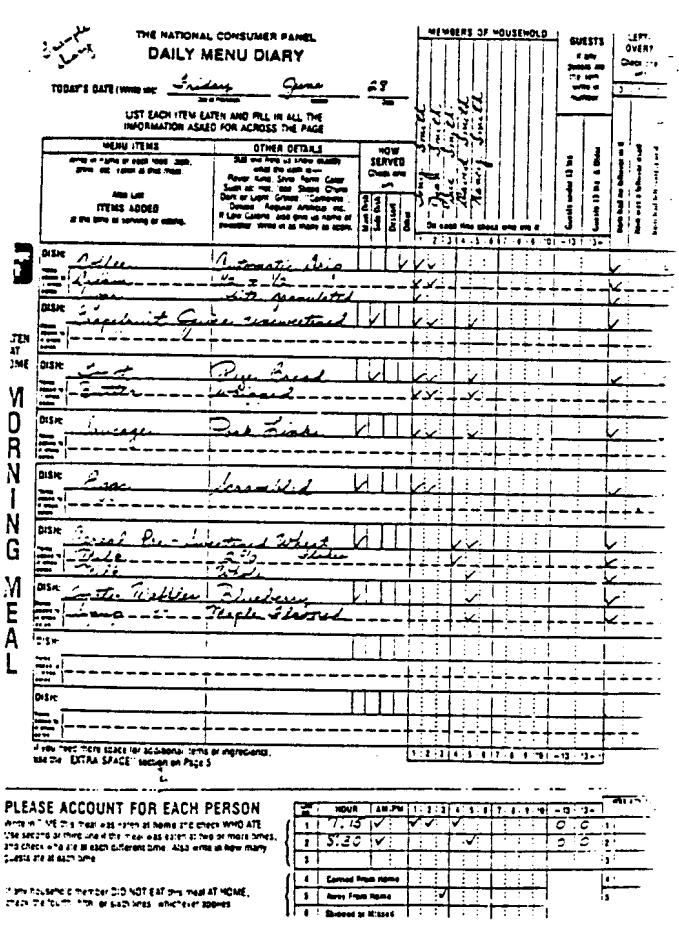
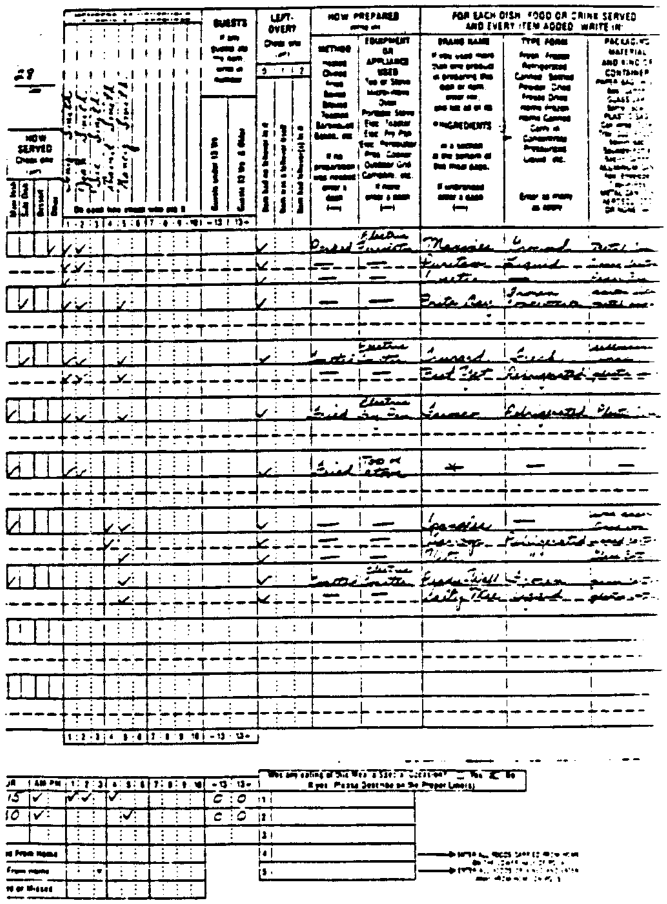


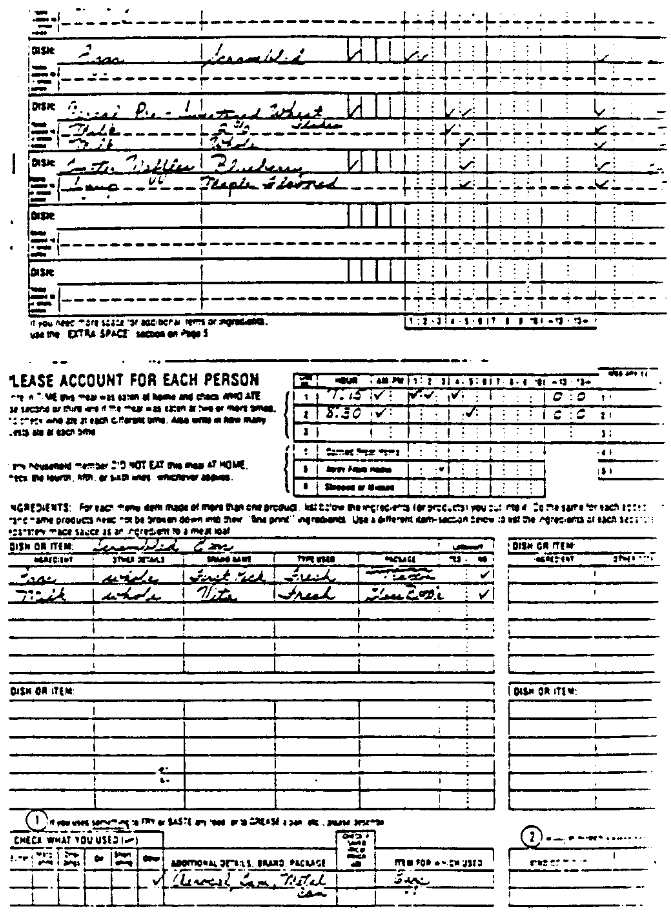
CHART I: 14-DAY AVERAGE BY DIABETICS

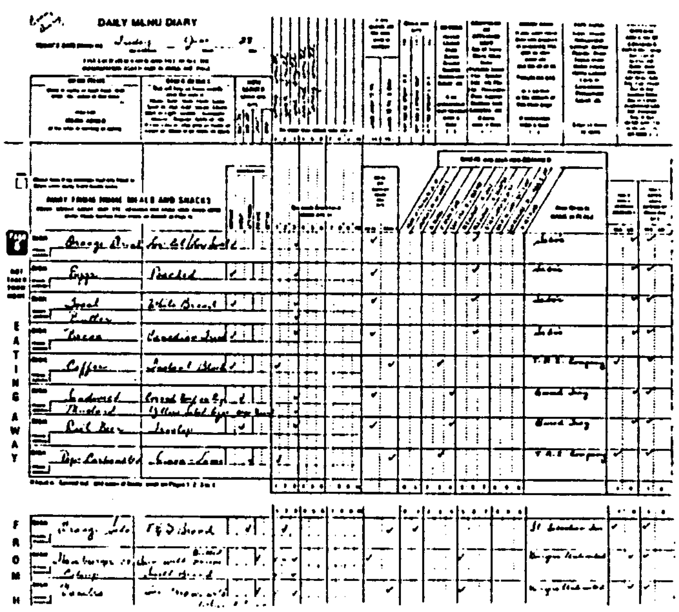



DAILY MENU DIARY
MORNING MEAL
MIDDAY MEAL
EVENING MEAL
SNACKS
FROM HOME
CARRIED FOODS
EATING AWAY
SNACKS
PLEASE ACCOUNT FOR EACH PERSON


THE NATIONAL CONSUMER PANEL
DAILY MENU DIARY
TODAY'S DATE
LIST EACH ITEM EATEN AND FILL IN ALL THE INFORMATION ASKED FOR ACROSS THE PAGE
MENU ITEMS
OTHER DETAILS
HOW SERVED
MEMBERS OF HOUSEHOLD
GUESTS
LEFT-OVER?
MORNING MEAL
PLEASE ACCOUNT FOR EACH PERSON
HOUR
Eaten From Home
Items From Home
Skipped or Missed

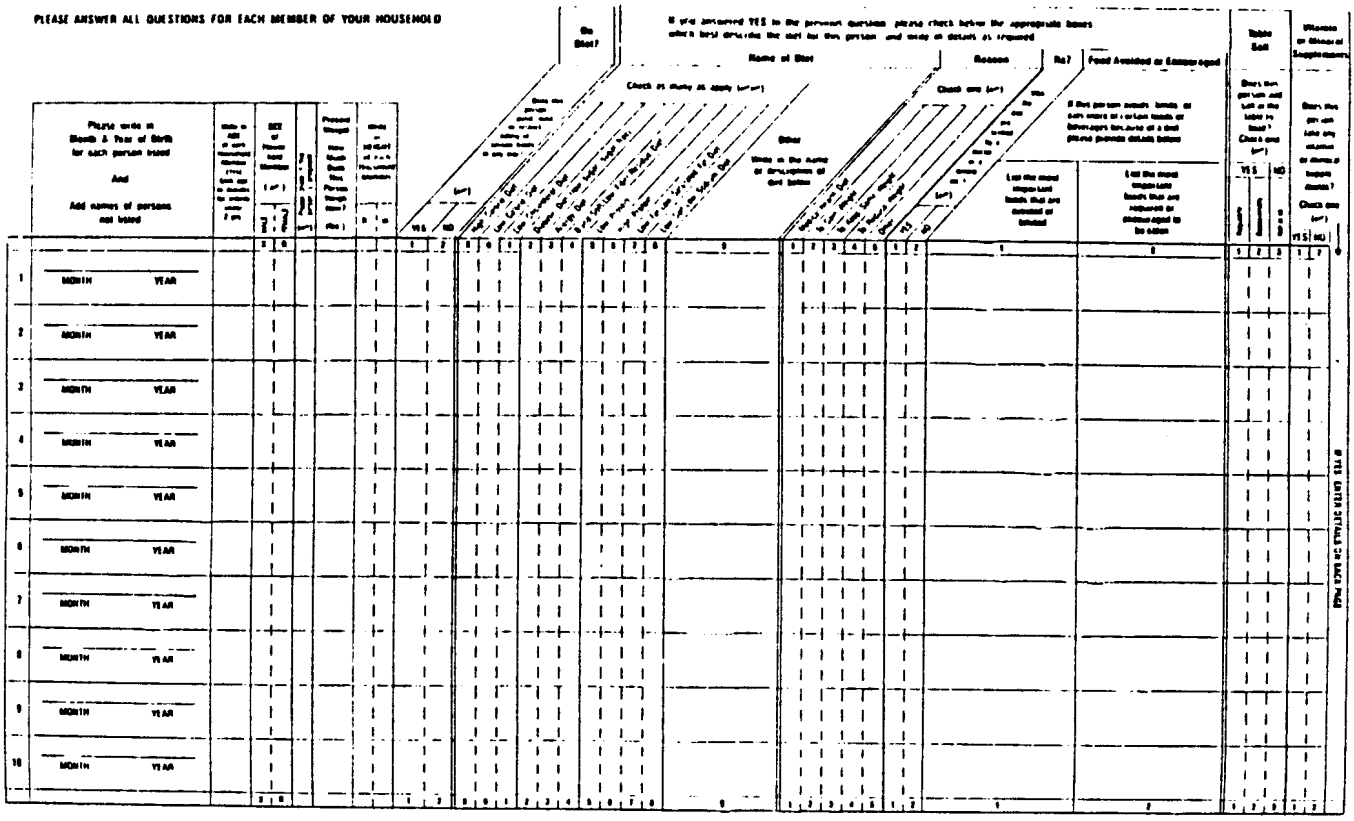

HOW SERVED
GUESTS
LEFT-OVER?
HOW PREPARED
FOR EACH DISH, FOOD OR DRINK SERVED AND EVERY ITEM ADDED WRITE IN:


PLEASE ACCOUNT FOR EACH PERSON
DISH OR ITEM
DISH OR ITEM
CHECK WHAT YOU USED

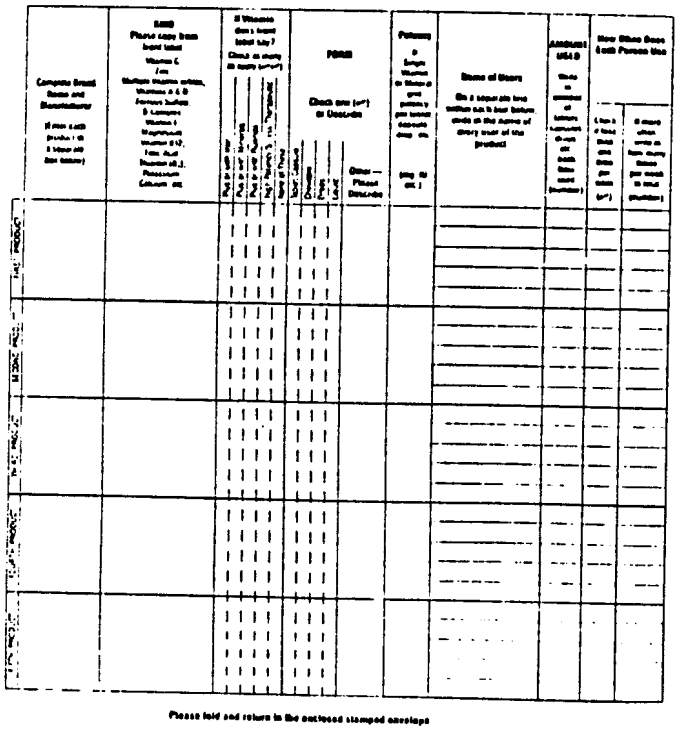

DAILY MENU DIARY
E A T I N G A W A Y
F R O M H

PANEL NUMBER

PLEASE ANSWER ALL QUESTIONS FOR EACH MEMBER OF YOUR HOUSEHOLD



PLEASE COMPLETE THE SECTION BELOW TO TELL US MORE ABOUT THE VITAMINS AND MINERALS YOU AND YOUR HOUSEHOLD MEMBERS TAKE:



Please fold and return in the enclosed stamped envelope

THE NATIONAL CONSUMER PANEL

Special Quiz About Your Household Members

CMC 88/90

THIS QUIZ IS WORTH 50 POINTS

Dear Panel Member,

We have been very pleased with your Daily Menu Diaries. They have been arriving regularly and we are now putting together all the information about your meals (along with the same records from thousands of other families) to prepare reports on the foods fastened in this country serve and eat. The study will be a success, thanks to your fine help.

Some additional information is still very necessary so that we can better understand the uses of food.

This is all covered in the SPECIAL QUIZ pressed inside this folder. Yes, some of the questions may seem personal but we sincerely hope you will answer them all. As you know, all of this information will be treated confidentially, as is all of your reporting.

The Quiz is mainly concerned with special foods eaten because of diets, etc. We hope you will find it interesting and that you will take a few moments to complete it. Note the section about Vitamins and Minerals on the back page. After you've completed the Quiz, mail it back to us in the enclosed stamped envelope. Please do this as soon as possible.

Thanks again for your fine reporting. We are glad we can count on you.

Cordially,

Doris Rust

DR:ch

P.S. The points you will have earned for keeping the 14 Daily Menu Diaries plus the 50 for the Quiz will be shown on your Diary rebate within the next month or two.

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ATTACHMENT II-2

ATTACHMENT III-2

	1 Disagree Completely	2 Disagree Somewhat	3 Disagree Slightly	4 Neither Agree Nor Disagree	5 Agree Slightly	6 Agree Somewhat	7 Agree Completely
89 I really enjoy cooking	☐	☐	☐	☐	☐	☐	☐
90 I enjoy spending time preparing a meal with fancy dishes	☐	☐	☐	☐	☐	☐	☐
91 Children are sure to dislike nutritious foods if they are told to eat them by their parents	☐	☐	☐	☐	☐	☐	☐
92 Members of my family often refuse to eat their vegetables	☐	☐	☐	☐	☐	☐	☐
93 My family is not easy to please	☐	☐	☐	☐	☐	☐	☐
94 I frequently worry about whether the meals I serve are really nourishing	☐	☐	☐	☐	☐	☐	☐
95 I feel that if I give my family a large variety of foods, they will get the proper nutrition	☐	☐	☐	☐	☐	☐	☐
96 I make every possible effort to see that my family eats really nourishing foods	☐	☐	☐	☐	☐	☐	☐
97 I know more about nutrition than most people do	☐	☐	☐	☐	☐	☐	☐
98 Red meat is better for your health than fish	☐	☐	☐	☐	☐	☐	☐
99 Chicken is as good for you as fish	☐	☐	☐	☐	☐	☐	☐
100 I always see to it that my family takes vitamins	☐	☐	☐	☐	☐	☐	☐
101 Our family sometimes discusses various foods and their food values so that they understand nutrition better	☐	☐	☐	☐	☐	☐	☐
102 I prepare each meal to be nutritionally balanced	☐	☐	☐	☐	☐	☐	☐
103 I buy fish because it is very nutritious	☐	☐	☐	☐	☐	☐	☐
104 I keep my recipes in an organized file	☐	☐	☐	☐	☐	☐	☐
105 I'd like to save more recipes but find it hard to keep track of them	☐	☐	☐	☐	☐	☐	☐
106 I'm much more willing to try a new recipe when someone I know tried it out and liked it	☐	☐	☐	☐	☐	☐	☐
107 I get ideas about new dishes from eating in restaurants	☐	☐	☐	☐	☐	☐	☐
108 I often exchange recipes with friends and relatives	☐	☐	☐	☐	☐	☐	☐
109 I frequently collect recipes from magazines	☐	☐	☐	☐	☐	☐	☐

	1 Disagree Completely	2 Disagree Somewhat	3 Disagree Slightly	4 Neither Agree Nor Disagree	5 Agree Slightly	6 Agree Somewhat	7 Agree Completely
110 I frequently collect recipes from the food section of the newspaper	☐	☐	☐	☐	☐	☐	☐
111 I frequently send away for new recipes	☐	☐	☐	☐	☐	☐	☐
112 I prepare foreign dishes more often than I used to	☐	☐	☐	☐	☐	☐	☐
113 Foreign dishes are just the thing to serve when you have important company	☐	☐	☐	☐	☐	☐	☐
114 Sometimes I buy food or other products imported from foreign countries even when they cost a little more	☐	☐	☐	☐	☐	☐	☐
115 I collect recipes for low calorie foods	☐	☐	☐	☐	☐	☐	☐
116 Most foods are as nutritious when they are served as leftovers	☐	☐	☐	☐	☐	☐	☐
117 Most foods are as tasty when they are served as leftovers	☐	☐	☐	☐	☐	☐	☐
118 Though I try to make use of leftovers, I throw most of them away	☐	☐	☐	☐	☐	☐	☐
119 My family can't tell the difference between food that is freshly prepared and that which is left over from a previous meal	☐	☐	☐	☐	☐	☐	☐
120 In our house, leftovers are often eaten as snacks	☐	☐	☐	☐	☐	☐	☐
121 Meats baked in the oven taste better	☐	☐	☐	☐	☐	☐	☐
122 I use my oven frequently	☐	☐	☐	☐	☐	☐	☐
123 My family loves fried foods	☐	☐	☐	☐	☐	☐	☐
124 Health foods are not worth their extra cost	☐	☐	☐	☐	☐	☐	☐
125 The term "natural" means only those foods grown without use of artificial chemicals or fertilizers	☐	☐	☐	☐	☐	☐	☐
126 So-called health foods are not any better for you than the well known brands	☐	☐	☐	☐	☐	☐	☐
127 I would like to know more about what various foods contain and how to avoid possible harmful ingredients	☐	☐	☐	☐	☐	☐	☐
128 You don't really have to worry about nutrition if you include plenty of fresh fruit in your diet	☐	☐	☐	☐	☐	☐	☐

SECTION F The following questions concern your overall attitudes and opinions toward low-calorie sugar substitutes, both those which are available for your own use, and those which come as ingredients in foods and beverages. For each statement, please check (√) the appropriate box which indicates how you feel about these products in general.

	1 Disagree Completely	2 Disagree Somewhat	3 Disagree Slightly	4 Neither Agree Nor Disagree	5 Agree Slightly	6 Agree Somewhat	7 Agree Completely
163 Low-calorie sugar substitutes assist in good nutrition	☐	☐	☐	☐	☐	☐	☐
164 Low-calorie sugar substitutes should be used only by those people who cannot eat sugar because of health or medical reasons	☐	☐	☐	☐	☐	☐	☐
165 You do not get cavities from eating low-calorie sugar substitutes	☐	☐	☐	☐	☐	☐	☐
166 I wish there were more products containing low-calorie sugar substitutes instead of sugar	☐	☐	☐	☐	☐	☐	☐
167 It is all right for children to eat low-calorie sugar substitutes	☐	☐	☐	☐	☐	☐	☐
168 Low-calorie sugar substitutes do not have any long-term harmful health effects	☐	☐	☐	☐	☐	☐	☐
169 Most low-calorie sugar substitutes taste good	☐	☐	☐	☐	☐	☐	☐
170 Some low-calorie sugar substitutes have an unpleasant aftertaste	☐	☐	☐	☐	☐	☐	☐
171 I am concerned that some low-calorie sugar substitutes can cause brain damage	☐	☐	☐	☐	☐	☐	☐
172 You can add low-calorie sugar substitutes to any food or beverage, either hot or cold	☐	☐	☐	☐	☐	☐	☐
173 Whenever possible, I prefer using low-calorie sugar substitutes rather than sugar in recipes or at the table	☐	☐	☐	☐	☐	☐	☐
174 It is all right for pregnant women to eat low-calorie sugar substitutes	☐	☐	☐	☐	☐	☐	☐
175 You can use most low-calorie sugar substitutes for cooking and baking	☐	☐	☐	☐	☐	☐	☐
176 I am concerned that low-calorie sugar substitutes can cause cancer	☐	☐	☐	☐	☐	☐	☐

	1 Disagree Completely	2 Disagree Somewhat	3 Disagree Slightly	4 Neither Agree Nor Disagree	5 Agree Slightly	6 Agree Somewhat	7 Agree Completely
177 I am willing to pay more for products containing low calorie sugar substitutes in place of sugar	☐	☐	☐	☐	☐	☐	☐
178 It is all right for older people to eat low-calorie sugar substitutes	☐	☐	☐	☐	☐	☐	☐
179 All low calorie sugar substitutes are artificial	☐	☐	☐	☐	☐	☐	☐

SECTION G The following questions are about your use of certain information shown on food labels.

	Never 1	Rarely 2	Sometimes 3	Often 4	Always 5
180 When shopping for food, to what extent do you use information shown on the label to decide what brand of a product to buy? Check (√) one	☐	☐	☐	☐	☐
181 In your efforts to plan a balanced dietary intake for your family, to what extent do you use the nutrition information available on the labels of some food products? Check (√) one	☐	☐	☐	☐	☐
182 When buying canned goods, to what extent do you buy brands according to the label's solid weight declaration? (Solid weight is the weight of the contents exclusive of liquid.) Check (√) one	☐	☐	☐	☐	☐

SECTION H For each of the purposes listed below, please check (√) how often you use the ingredient statement or the nutritional information panel available on food labels to:

	Never 1	Rarely 2	Sometimes 3	Often 4	Always 5
183 Avoid or reduce sugar	☐	☐	☐	☐	☐
184 Select products with no sodium or low sodium	☐	☐	☐	☐	☐
185 Avoid products that use chemical preservatives, artificial colors or additives	☐	☐	☐	☐	☐
186 Avoid or reduce amount of fat	☐	☐	☐	☐	☐
187 Control calories	☐	☐	☐	☐	☐
188 Increase protein	☐	☐	☐	☐	☐
189 Increase vitamins/minerals	☐	☐	☐	☐	☐
190 Avoid cholesterol	☐	☐	☐	☐	☐

ATTACHMENT III-2