

Nationwide Food Consumption Survey 1977-78
Preliminary Report No. 4

FOOD CONSUMPTION AND
DIETARY LEVELS OF HOUSEHOLDS
IN HAWAII, WINTER 1978

U.S. Department of Agriculture
Science and Education Administration

April 1981

ABSTRACT

This report presents findings on the money value, quantity, and nutritive value of food used at home and on expenditure for food away from home for 1,153 housekeeping households surveyed in Hawaii in the winter of 1978. Also included are data on the percentage of meals eaten at home, their average cost, and their nutrient return per dollar's worth of food. The nutrient content of the food used at home was derived from information collected on the kinds and quantities of food used by the households during 7 days and from U.S. Department of Agriculture food composition tables. The nutrient levels of food used for each household are expressed as percentages of the 1974 Recommended Dietary Allowances set by the Food and Nutrition Board of the National Research Council, National Academy of Sciences. Findings are given for households classified by income, household size, and race of respondent.

KEYWORDS: Dietary levels, expenditures, food away from home, food consumption survey, food cost, household food in Hawaii, meals at home, meals away from home, Recommended Dietary Allowances.

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A free copy of this publication is available from the Consumer Nutrition Center, Human Nutrition, Federal Building, Hyattsville, Md. 20782.

Science and Education Administration, Nationwide Food Consumption Survey 1977-78, Preliminary Report No. 4, April 1981

Published by the Office of the Director, Science and Education Administration, U.S. Department of Agriculture, Washington, D.C. 20250

FOOD CONSUMPTION AND DIETARY LEVELS OF HOUSEHOLDS IN HAWAII, WINTER 1978¹

SUMMARY

The food consumption survey of 1,153 housekeeping households in Hawaii during the winter of 1978 indicated that--

- o Housekeeping households in Hawaii averaged 3.5 household members and used food with a money value of \$85 in a week (value of food used at home plus expense for food eaten away from home). Food at home accounted for \$64 (75 percent), and food bought and eaten away from home averaged \$21 (25 percent).
- o About 80 percent of meals eaten by household members were from home food supplies, 15 percent were bought and eaten away from home, and 5 percent were eaten away from home without direct expense.
- o As the income of households increased, the percentage of the home food dollar allocated to vegetables and fruit decreased and the percentage to meat, poultry, fish, and alcoholic beverages increased.
- o Milk and milk products were used in larger quantities by white households (8.0 pounds per person in a week) than by nonwhite households (5.1 pounds). Also, white households used more vegetables, fruit, sugar, sweets, and alcoholic beverages. In contrast, more meat, poultry, fish, and grain products were used by the nonwhite households than by the white households.
- o Average dietary levels of households in Hawaii exceeded the 1974 Recommended Dietary Allowances (RDA). Averages were similar for high and low income households, but were notably higher for white households than for nonwhite households in those nutrients provided abundantly by milk and milk products--calcium, magnesium, phosphorus, and riboflavin.
- o Calcium was the nutrient most often short in diets of households in Hawaii. About 67 percent of the white household diets provided the RDA for calcium, and 40 percent of the nonwhite households did so.
- o About 2 out of 5 households (39 percent) studied in Hawaii had diets that provided the RDA for all of the 11 nutrients studied (protein,

¹Prepared by the Consumer Nutrition Center, Human Nutrition, Science and Education Administration, U.S. Department of Agriculture, Hyattsville, Md. 20782.

calcium, iron, magnesium, phosphorus, vitamin A, thiamin, riboflavin, vitamin B₆, vitamin B₁₂, and ascorbic acid). Only 1 of 3 diets (34 percent) of households with incomes under \$10,000 met the RDA for all 11 nutrients. About one of two white (50 percent) and one of three non-white (32 percent) household diets met these criteria.

SCOPE OF 1977-78 SURVEY

The Nationwide Food Consumption Survey (NFCS) 1977-78 is the sixth such survey conducted by the U.S. Department of Agriculture. The most recent was in 1965-66. This is the second survey to include households in all four seasons of the year and to obtain information nationwide on diets of selected individual household members as well as food consumption for the total household. It is the first time that USDA has made a comprehensive household food consumption survey in Hawaii.

The survey provides detailed information on food consumption of households at home and the expense of food bought away from home by household members. From this information the nutritional quality of household food supplies can be appraised. Data were collected on home production and preservation of food, household income, participation in food programs, education and employment of household heads, and other factors that might affect household food consumption. Information was collected on selected practices of households in the purchase of foods, on food and nutrient intakes of individual household members at home and away from home, as well as the time of day food was eaten, how many times individuals ate per day, and where meals and snacks were obtained.

From January to March 1978, an area probability sample of households in Hawaii was surveyed. Data were obtained from approximately 1,250 households and 3,000 individuals from these households. From April 1977 to March 1978, data were obtained also from approximately 15,000 households and 34,000 individuals in the 48 conterminous States. Supplemental surveys yielded information on about 5,000 households in the 48 States where at least 1 member was 65 years or older, 4,700 households in the 48 States with members participating or eligible to participate in the Food Stamp Program, 3,100 households in Puerto Rico, and 1,100 urban households in Alaska. All of these supplemental surveys provided data on household food consumption and individual food intake.

DATA COLLECTION

Information on food used by a surveyed household was obtained through an interview with the person identified as most responsible for food planning and preparation. Trained interviewers, who were residents of Hawaii, used an aided recall schedule to obtain the kind (such as ground beef and skim milk), the form (as fresh, canned, and frozen), the quantity used, and the cost, if purchased, of each food or beverage used in the household during 7 days prior to the interview. Households were contacted at least 7 days before the interview and asked to keep informal notes, such as shopping lists, menus, and prices of foods used, to assist them in recalling the food consumed during the 7-day period.

In addition to information on food used, respondents reported the number of meals eaten from home food supplies during the week by household members and others, including guests. They also provided data needed to classify households by income, size, and other household characteristics. Race of the respondent was recorded by observation.

The methodology for the food consumption survey in Hawaii was the same as that used in the NFCS 1977-78 in the 48 conterminous States. The interviews in Hawaii, however, were made only during January through March of 1978. For this reason, care should be exercised in comparing the data from Hawaii and the 48 conterminous States (4-6).²

ESTIMATION OF NUTRITIVE VALUE OF FOOD USED

Nutritive value of diets and nutrient levels (nutritive value compared to the Recommended Dietary Allowances) in this report were calculated from information collected on kinds and quantities of food used by the households in Hawaii during winter of 1978 and from tables of the nutritive value of foods. The nutritive values are for the edible portion of food as brought into the household except that vitamin values were adjusted for losses during cooking. Edible portion in this report includes all food used in the form as brought into the household except those parts of foods that are clearly inedible, such as bones in meat. All fat on meat cuts is considered to be edible, and its energy and nutrient content is a part of the nutritive value of food used by the household.

The basis for nutritive value is "Composition of Foods...Raw, Processed, Prepared," U.S. Department of Agriculture Handbook No. 8 (10), its revised supplements (1-3), and "Pantothenic Acid, Vitamin B₆, and Vitamin B₁₂ in Foods" (8). Some values from these sources were updated to reflect nutritive values of foods available at the time of the survey. The updating was performed by the Nutrient Data Research Group, Consumer Nutrition Center (CNC) of the Department's Science and Education Administration. Updating was based on results from new food composition research, on information from industry about new food products, on enrichment of foods in accordance with regulations, and on other known changes in the food supply. When a nutritive value for a food reported was not available, a value was imputed from similar foods by the CNC staff members. Nutritive values of some foods specific to Hawaii were derived from data obtained through a cooperative agreement with the University of Hawaii. Although nutrient data are limited for some foods and for some nutrients, particularly magnesium, vitamin B₆, and vitamin B₁₂, they were considered the best available at the time of the survey.

The nutritive value of household food includes values not only of food eaten by people in the household but also some food that is not eaten, such as food discarded in the kitchen and at the table and leftovers fed to animals. Some households customarily do not eat all edible parts of certain foods, such

²Underlined numbers in parentheses refer to Literature Cited at the end of this report.

as fat that can be trimmed from meat. Therefore, although this report reflects the nutrient levels available to households from food they reported having used, levels overestimate somewhat the food energy and nutrients in foods actually eaten in many households.

USE OF RECOMMENDED DIETARY ALLOWANCES

The nutritive value of household diets is compared with recommended amounts of nutrients for persons eating in each household. The Recommended Dietary Allowances (RDA), published in 1974³ by the Food and Nutrition Board (7), are used as the standard.

When using the RDA to assess the nutritional quality of diets, one should remember that the RDA are intakes of nutrients judged to be adequate for maintaining good nutrition in essentially all healthy persons in the United States. The Food and Nutrition Board (7, p. 3) stated:

"RDA should not be confused with requirements. Differences in the nutrient requirements of individuals that derive from differences in their genetic makeup are ordinarily unknown. Therefore, as there is no way of predicting whose needs are high and whose are low, RDA (except for energy) are estimated to exceed the requirements of most individuals, and thereby insure that the needs of nearly all are met."

The assessment of dietary levels of households is complicated by the differences in nutritional needs related to age and sex of persons eating in the household and the number of meals they have from household food supplies. In order to make comparison with the standard selected, dietary levels of households in Hawaii were expressed as the amounts of each nutrient per nutrition unit. A nutrition unit is equal to the RDA for a nutrient for males from 23 to 50 years of age. The number of nutrition units for a given nutrient in a household is the sum of the RDA for that nutrient for persons eating in the household (adjusted for meals eaten away from home) divided by the RDA for the adult male. The percentage of the RDA provided by food used in a household or by a group of households is calculated by dividing the nutritive value per nutrition unit for the household or group of households by the RDA for the adult male.

Diets of some individual household members may not meet their RDA even though the household diet as calculated meets the RDA. Unless the household food is divided according to nutritional need, some members may not have diets with levels as high as household food use indicates. On the other hand, if the household food does not meet the RDA, some of the household members, if not all of them, have diets that do not meet the RDA.

³The revision of the Recommended Dietary Allowances in 1980 is not believed to change substantially the results reported here.

MONEY VALUE OF FOOD AT HOME AND AWAY

Housekeeping households⁴ in Hawaii used food with an average money value (value of food used at home plus expense for food eaten away from home) of \$85 in a week (table 1). Of this money value, food used at home⁵ accounted for \$64 and the expense for meals and snacks away from home accounted for \$21, of which \$17 was for meals and \$4 for snacks away from home. Excluded from this survey were value of expense-account meals, which were reimbursed, and the total or partial cost of school lunches and breakfasts, which were federally subsidized. Households averaged 3.47 members, and the per-member average⁶ for food in 1 week was as follows:

| | |
|--|---------|
| All food..... | \$24.59 |
| Money value of food at home..... | 18.49 |
| Expense for meals away from home..... | 4.93 |
| Expense for snacks away from home..... | 1.17 |

Of the money value for all food, 75 percent was for food used at home and 25 percent for food bought and eaten away from home. Of the expenditures for food away from home, meals accounted for 81 percent and snacks for 19 percent.

Differences by Income⁷

Households at successively higher income levels (1977 money income before taxes) contained more people and had higher average money value of food at home and higher average expense for food away from home (table 1 and fig. 1). Households with incomes of \$20,000 or more used food at home worth \$73 compared with \$50 for households with incomes under \$10,000. With increasing income, the percentage of dollars for food eaten away from home rose--from 15 percent for households under \$10,000 to 30 percent for households of \$20,000 or more (fig. 2).

⁴Those with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview. Of all reporting households in Hawaii, 92 percent met this criterion.

⁵Includes value of food used at home by household members, roomers, boarders, employees, and guests that was bought, home produced, or received as gift or pay. Value of food received without direct expense by a household is based on average price per pound paid for that food by survey households in Hawaii.

⁶Average values per household member (table 1) and per 21-meal-at-home equivalent person (tables 3-5 and 7) were calculated using population ratio procedure--aggregate value for all households divided by aggregate number of household members or 21-meal-equivalent persons in all households.

⁷According to the Survey of Income and Education by the U.S. Bureau of the Census in spring 1976, the median incomes of families and of unrelated individuals in Hawaii were higher than their counterparts for all the United States (9). Income groups presented in this report represent incomes prevalent in Hawaii.

TABLE 1.--Money value of food used in a week by households¹ in Hawaii

| Income, number of people in household, and race | People living in household ² | Money value per household ³ | | | | | Money value per household member ³ | | | | |
|--|---|--|----------------------|-----------------------|--------|-------|---|----------------------|-----------------------|--------|-------|
| | | Total | At home ⁴ | Bought away from home | | | Total | At home ⁴ | Bought away from home | | |
| | | | | Total | Snacks | Meals | | | Total | Snacks | Meals |
| | Number | Dollars | | | | | | | | | |
| All households..... | 3.47 | 85.40 | 64.21 | 21.19 | 4.05 | 17.14 | 24.59 | 18.49 | 6.10 | 1.17 | 4.93 |
| Income (1977) before taxes: | | | | | | | | | | | |
| Under \$10,000..... | 2.70 | 58.89 | 50.36 | 8.54 | 2.09 | 6.45 | 21.82 | 18.65 | 3.16 | .77 | 2.39 |
| \$10,000-\$19,999..... | 3.44 | 81.59 | 64.52 | 17.07 | 4.36 | 12.71 | 23.69 | 18.73 | 4.96 | 1.27 | 3.69 |
| \$20,000 or more..... | 3.97 | 103.71 | 72.60 | 31.12 | 4.77 | 26.34 | 26.11 | 18.28 | 7.84 | 1.20 | 6.63 |
| Not reported..... | 3.34 | 83.77 | 61.62 | 22.15 | 4.31 | 17.84 | 25.07 | 18.44 | 6.63 | 1.29 | 5.34 |
| People living in household: ² | | | | | | | | | | | |
| 1..... | 1.00 | 34.03 | 25.54 | 8.49 | 1.70 | 6.79 | 34.03 | 25.54 | 8.49 | 1.70 | 6.79 |
| 2..... | 2.00 | 66.33 | 48.17 | 18.16 | 2.74 | 15.42 | 33.16 | 24.09 | 9.08 | 1.37 | 7.71 |
| 3..... | 3.00 | 78.96 | 60.30 | 18.67 | 3.62 | 15.04 | 26.32 | 20.10 | 6.22 | 1.21 | 5.02 |
| 4..... | 4.00 | 94.84 | 70.96 | 23.88 | 4.69 | 19.18 | 23.71 | 17.74 | 5.97 | 1.17 | 4.80 |
| 5..... | 5.00 | 109.15 | 79.73 | 29.42 | 5.69 | 23.73 | 21.83 | 15.95 | 5.89 | 1.14 | 4.75 |
| 6 or more..... | 7.00 | 139.47 | 110.04 | 29.43 | 6.74 | 22.69 | 19.92 | 15.72 | 4.20 | .96 | 3.24 |
| Race: ⁵ | | | | | | | | | | | |
| White..... | 3.07 | 79.62 | 58.57 | 21.05 | 3.63 | 17.42 | 25.97 | 19.10 | 6.86 | 1.18 | 5.68 |
| Other ⁶ | 3.71 | 88.83 | 67.48 | 21.35 | 4.24 | 17.11 | 23.93 | 18.18 | 5.75 | 1.14 | 4.61 |

¹Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview. See table 3 for count of households.

²Excludes roomers, boarders, and employees. Average value per household member calculated using population ratio procedure--aggregate value for all households divided by aggregate number of members in all households.

³Parts may not total to the whole because of rounding.

⁴Includes value of food used by household members and guests that was bought, home produced, or received as gift or pay. Value of food received without direct expense by a household is based on average price per pound paid for that food by survey households in Hawaii.

⁵Refers to race of respondent as observed by interviewer.

⁶Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

The number of people averaged from 2.7 members for households with incomes under \$10,000 to 4.0 in households of \$20,000 or more (table 1). Little difference in the average money value of food at home per household member was found among income levels. At successively higher income levels, expenditures for food away from home increased substantially--from \$3.16 per member for households under \$10,000 to \$7.84 for households of \$20,000 or more.

Food used at home accounted for a smaller percentage of total money value as income increased--from 85 percent for households with income under \$10,000 to 70 percent for households of \$20,000 or more (fig. 2).

Differences by Number of People Living in Household

As would be expected, money value of food used at home and expense for food away from home were highest in households with most members (table 1 and fig. 3). Total food (at home and away) used by one-member households was valued at \$34, whereas households of six or more members used food at \$139. The money value of food at home varied from \$26 for one-member households to \$110 for six-or-more-member households (table 1). Expense for food eaten away from home increased from \$8 for one-member households to \$29 for households of six or more members.

As in other food consumption studies, the money value of food per household member decreased as the number of people living in the household increased. The money value of all food per household member in households of six or more members was \$20--substantially less than in one-member households with \$34 per member.

Differences by Race of Respondent

The average money value of food used per household was lower for households with respondents of the white race (white households) than for households with respondents of other races (nonwhite households)⁸--\$80 and \$89, respectively (table 1). Although white households spent about the same as nonwhite households for food eaten away from home, they had lower money value of food at home. Food away from home accounted for 26 percent of the total food dollar among white households and 24 percent among nonwhite households. White households averaged 3.1 members, whereas nonwhite households averaged 3.7 members. Both the money value of food used at home per member and the expense of food away from home per member were greater for white households than for nonwhite households (fig. 4).

⁸Race of household refers to race of respondent--"white" and "nonwhite"--as observed by the interviewer. Households with black respondents, which accounted for less than 1 percent of those surveyed, are not included with nonwhites in this report.

MEALS AT HOME AND AWAY FROM HOME

Four out of five meals (80 percent) eaten by household members (excluding meals eaten by guests, boarders, roomers, and employees) were from home food supplies in the housekeeping households studied (table 2). These are meals eaten at home or carried from home in packed lunches, as picnics and the like. Fifteen percent of the meals were purchased and eaten away from home--at restaurants or at school, for example. Five percent of the meals were eaten away from home without direct expense to the household--as guest meals, free school meals, or meals received as pay.⁹

The percentage of meals eaten from household food supplies varied with income and with the household size. Households at lower levels of income ate more meals at home (84 percent) than did the higher income households (77 percent). As the number of people living in the household increased, the proportion of meals eaten from household supplies decreased--which may relate to the number of school lunches eaten by children and teenagers in larger households. The proportion of meals from household food supplies was similar for white and nonwhite households.

Relative costs per meal at home and away from home for housekeeping households are presented (table 2). In such comparisons, difficulties arise in defining "a meal" unit and in isolating its cost from the cost of other food used. However, cost per "meal unit" at home and away has been estimated based on available information from the survey data using the following procedure.

Cost of food at home could not be subdivided into cost of food eaten as meals and as snacks and cost of that eaten by household members and by guests, roomers, boarders, and employees. Therefore, the money value of all food at home was divided by the number of meals eaten by household members and others plus the meal equivalent of refreshments served to guests to determine the cost per meal unit at home. Meal units at home (meals and meal equivalent of snacks eaten were counted as meals) were counted in determining the household size in equivalent persons (p. 10).

The cost per meal unit away from home that could be derived from these survey data and that is most comparable to the cost per meal unit at home was calculated as follows: The expense for meals and snacks away from home by household members was divided by the number of bought meals they reported as eaten away from home, adjusted to account for skipped meals and snacks that might substitute for or supplement meals.

Based on these procedures, the average cost per meal at home was \$1.04 and the average cost per meal unit purchased and eaten away from home was \$1.90--1.8 times as much as the meal unit at home (table 2). Although there was

⁹If nonhousekeeping households, for which data were collected but not reported here, were included, the proportion of meals eaten at home would be lower--about 78 percent compared with 80 percent for housekeeping households only.

TABLE 2.--Meals at home and away from home in a week by households¹ and cost per unit in Hawaii

| Income, number of people in household, and race | Meals eaten by household members | | | Cost per "meal unit" | |
|--|----------------------------------|----------------|------------------|---|--|
| | From home food supplies | Away from home | | From home food supplies ² | Purchased and eaten away from home ³ |
| | -----Percent----- | | | -----Dollars----- | |
| | | Purchased | As a gift or pay | | |
| All households..... | 80 | 15 | 5 | 1.04 | 1.90 |
| Income (1977) before taxes: | | | | | |
| Under \$10,000..... | 84 | 10 | 6 | 1.01 | 1.45 |
| \$10,000-\$19,999..... | 81 | 14 | 6 | 1.03 | 1.75 |
| \$20,000 or more..... | 77 | 18 | 5 | 1.06 | 2.06 |
| Not reported..... | 79 | 16 | 5 | 1.03 | 1.97 |
| People living in household: ⁴ | | | | | |
| 1..... | 86 | 9 | 5 | 1.29 | 4.30 |
| 2..... | 83 | 13 | 4 | 1.27 | 3.39 |
| 3..... | 81 | 14 | 5 | 1.09 | 2.18 |
| 4..... | 79 | 16 | 5 | 1.00 | 1.78 |
| 5..... | 77 | 18 | 5 | .94 | 1.57 |
| 6 or more..... | 78 | 16 | 6 | .91 | 1.24 |
| Race: ⁵ | | | | | |
| White..... | 81 | 14 | 5 | 1.05 | 2.29 |
| Other ⁶ | 79 | 16 | 5 | 1.03 | 1.73 |

¹Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview. See table 3 for count of households.

²Money value of all food used at home in a week divided by number of meals from home food supplies eaten by household members (adjusted to include skipped meals) and by roomers, boarders, employees, and guests.

³Expense for all food bought and eaten away from home by household members divided by number of meals they bought and ate away from home (adjusted to include skipped meals).

⁴Excludes roomers, boarders, and employees.

⁵Refers to race of respondent as observed by interviewer.

⁶Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

little variation in the cost per meal unit from home food supplies among the income groups, cost per meal unit for food away from home was more for higher income groups. Cost per meal unit for food away from home in households of six or more members was \$1.24--substantially less than the \$4.30 in one-member households.

FOOD USED AT HOME

Information about the kind, quantity, and money value of food used at home contributes greatly to the knowledge of food consumption patterns of households in Hawaii.

Money Value of Food at Home

The value of food used in a week at home by households surveyed varied from less than \$12 to more than \$30 per equivalent person (table 3). An equivalent person is counted as 21 meals at home in a week. Average money value of food per equivalent person was somewhat higher than the average value for food at home per household member but lower than the total money value of food per household member (table 1).

The equivalent person (based on three meals a day for a week) is used to attempt to adjust for variation among households in the number of meals eaten from home food supplies. Household size in terms of equivalent persons was determined as follows: Total the number of (1) meals reported as eaten at home (adjusted proportionately with meals eaten away from home to total 21 meals in a week--3 meals for each of 7 days--to account for skipped meals and snacks that might substitute for or supplement meals); (2) meals eaten from household food supplies by guests, boarders, roomers, and employees; and (3) meal equivalents of refreshments served to guests (one or two foods equal one-fourth meal; over two foods equal one-half meal). Next divide the total meals by 21 to calculate the household size in 21-meal-at-home equivalent persons.

Although those with means to afford food were likely to spend more than those who did not have the income at their disposal, the difference was small. Also there was little difference in the distribution of white and nonwhite households by money value of food per person. However, households containing few people were more likely to use food at high cost.

Share of the Home Food Dollar

The largest portion of the home food dollar (purchased food plus money value of nonpurchased foods used), 36 cents, was allotted to meat, poultry, and fish, and the next largest, 22 cents, to vegetables and fruit, including juices (table 4). About 12 cents out of each dollar went for flour, cereals, and bakery products; about 10 cents was for milk and milk products other than butter; and 6 cents was distributed to sugar and sweets, including soft drinks, punches, and prepared desserts. Fats, eggs, legumes, nuts, and all other foods took the remaining money.

TABLE 3.--Households¹ by money value of food used at home² in a week per person³ in Hawaii

| Income, number of people in household, and race | Money value per 21-meal person ³ | Total house- holds ⁴ | Households using food worth-- | | | | |
|--|---|---------------------------------------|-------------------------------|---------------------|---------------------|---------------------|--------------------|
| | | | Under \$12.00 | \$12.00- \$15.99 | \$16.00- \$19.99 | \$20.00- \$29.99 | \$30.00 or more |
| | Dollars | Number | -----Percent----- | | | | |
| All households..... | 21.77 | 1,153 | 6 | 17 | 21 | 36 | 20 |
| Income (1977) before taxes: | | | | | | | |
| Under \$10,000..... | 21.13 | 231 | 4 | 18 | 26 | 36 | 16 |
| \$10,000-\$19,999..... | 21.68 | 339 | 8 | 17 | 19 | 37 | 19 |
| \$20,000 or more..... | 22.23 | 419 | 5 | 17 | 20 | 37 | 22 |
| Not reported..... | 21.54 | 164 | 9 | 17 | 18 | 32 | 24 |
| People living in household: ⁵ | | | | | | | |
| 1..... | 27.05 | 115 | 3 | 15 | 15 | 37 | 30 |
| 2..... | 26.76 | 288 | 3 | 9 | 18 | 36 | 34 |
| 3..... | 22.88 | 244 | 5 | 16 | 21 | 37 | 21 |
| 4..... | 21.10 | 217 | 7 | 22 | 22 | 36 | 12 |
| 5..... | 19.71 | 153 | 8 | 25 | 22 | 38 | 7 |
| 6 or more..... | 19.08 | 135 | 12 | 21 | 27 | 31 | 7 |
| Race: ⁶ | | | | | | | |
| White..... | 22.15 | 428 | 5 | 16 | 20 | 35 | 23 |
| Other ⁷ | 21.60 | 714 | 6 | 17 | 21 | 37 | 18 |

¹Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview.

²Includes value of food used by household members and guests that was bought, home produced, or received as a gift or pay. Value of food received without direct expense by a household is based on average price per pound paid for that food by survey households in Hawaii.

³A person equal to 21 meals at home during past 7 days (based on 3 meals a day for 7 days for 1 person) is used to adjust for variation among households in proportion of meals eaten from home food supplies. Average money value per person

is calculated using population ratio procedure-- aggregate value for all households divided by aggregate number of persons in all households.

⁴Counts weighted to compensate for different sample rate used in various segments of population. Parts may not total to the whole because of rounding.

⁵Excludes roomers, boarders, and employees.

⁶Refers to race of respondent as observed by interviewer.

⁷Refers to other than white or black race-- excludes black race, which accounted for less than 1 percent of the sample.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

TABLE 4.--Money value of food at home per person¹ and share of food dollar used by households² in a week by income in Hawaii

| Food group ³ | Money value ⁴ of food per person by income ⁵ | | | | | Share of food dollar by income ⁵ | | | | |
|---|--|----------------|-------------------|------------------|--------------|---|----------------|-------------------|------------------|--------------|
| | All income | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported | All income | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported |
| | -----Dollars----- | | | | | -----Percent----- | | | | |
| Milk, cream, cheese..... | 2.13 | 2.07 | 2.08 | 2.22 | 2.02 | 9.8 | 9.8 | 9.6 | 10.0 | 9.4 |
| Meat, poultry, fish..... | 7.88 | 7.49 | 7.74 | 8.11 | 8.01 | 36.2 | 35.5 | 35.7 | 36.5 | 37.2 |
| Eggs, dry legumes, nuts ⁶ | 1.06 | 1.07 | 1.03 | 1.12 | .94 | 4.9 | 5.0 | 4.7 | 5.0 | 4.4 |
| Vegetables..... | 2.94 | 3.25 | 2.86 | 2.92 | 2.84 | 13.5 | 15.4 | 13.2 | 13.1 | 13.2 |
| Fruit..... | 1.82 | 1.99 | 1.82 | 1.79 | 1.75 | 8.4 | 9.4 | 8.4 | 8.0 | 8.1 |
| Grain products..... | 2.63 | 2.45 | 2.75 | 2.71 | 2.40 | 12.1 | 11.6 | 12.7 | 12.2 | 11.1 |
| Fats, oils..... | .50 | .51 | .52 | .50 | .47 | 2.3 | 2.4 | 2.4 | 2.3 | 2.2 |
| Sugar, sirup, jelly, candy... | .40 | .41 | .44 | .38 | .39 | 1.9 | 1.9 | 2.0 | 1.7 | 1.8 |
| Soft drinks, punches, prepared desserts..... | .83 | .72 | .90 | .83 | .82 | 3.8 | 3.4 | 4.2 | 3.7 | 3.8 |
| Alcoholic beverages..... | .95 | .57 | .93 | .99 | 1.34 | 4.4 | 2.7 | 4.3 | 4.4 | 6.2 |
| Other food..... | .63 | .60 | .61 | .66 | .56 | 2.9 | 2.8 | 2.9 | 3.0 | 2.6 |
| Total food..... | 21.77 | 21.13 | 21.68 | 22.23 | 21.54 | 100 | 100 | 100 | 100 | 100 |
| Household size in number of 21-meal persons..... | (2.95) | (2.38) | (2.98) | (3.27) | (2.86) | --- | --- | --- | --- | --- |

¹A person equal 21 meals at home during past 7 days (based on 3 meals a day for 7 days for 1 person) is used to adjust for variation among households in proportion of meals eaten from home food supplies. Average money value per person is calculated using population ratio procedure.

²Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview. See table 3 for count of households.

³Mixtures and soups included with group totals of main ingredients.

⁴Includes value of food that was bought, home produced, or received as gift or pay used by household members and guests. Value of food received without direct expense by a household is based on average price per pound paid by survey households in Hawaii.

⁵Money income before taxes in 1977.

⁶Includes plate dinners with main ingredients mostly meat, poultry, and fish.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Share of the food dollar among the different income levels indicated that the most income responsive food group was alcoholic beverages with much less response for meat, poultry, fish, and grain products (table 4). In contrast, the lower income households used a larger proportion of their food money for fruit and vegetables.

Further breakdown of the food group indicated within-food-group variability in the food dollar among the income levels. Within the meat, poultry, and fish group, the proportion of the dollar allocated to beef increased with successive income levels, but remained virtually the same for pork and for poultry. There was a substantial decrease in the fish group share of the food dollar between the lowest and middle income groups.

Quantity of Food Used

Food consumption generally shows some relationship to income in most surveys. Among the households in Hawaii, however, very little variation was found in the quantities per equivalent person of major food groups consumed (table 5 and fig. 5).

Use of the food group comprised of milk and milk products increased with successively higher income from 5.67 pounds per person per week for households with income under \$10,000 to 6.36 pounds for those with income of \$20,000 or more--a difference of 0.69 pound or approximately 1-1/4 cups of milk per person per week. High income households also used more alcoholic beverages. Compared with lower income households, those with incomes of \$20,000 or more used slightly more of the meat, poultry, and fish group, with higher consumption of beef more than offsetting lower consumption of fish. In contrast, higher income groups used less vegetables and fruit, especially dark-green and deep-yellow vegetables and fruit other than citrus.

Food used per person differed by race (table 5 and fig. 6). Greatest variation was in milk and milk products--8.0 pounds per person in a week for white households and only 5.1 pounds for nonwhite households. The difference is equivalent to almost 5-1/2 cups of whole milk per person per week. White households also used more vegetables and fruit--particularly potatoes; fats and oils--particularly butter and margarine; and alcoholic beverages. The non-white households used more from the meat, poultry, and fish group--particularly fish. Grain products were more popular among the nonwhite households--a difference of about 0.75 pound per person in a week or equivalent to more than 1-1/2 cups of uncooked rice.

NUTRIENTS PER DOLLAR'S WORTH OF FOOD

Diets of middle income households provided the same or more of food energy and nine nutrients per dollar than did those of households of other income levels (table 6): Major exceptions were vitamin A and ascorbic acid, for which the lower income households, with their greater consumption of vegetables and fruit, reported the highest returns. Large households had a greater return per dollar than small households in food energy and all nutrients except vitamin A and

TABLE 5.--Quantity of food used per person¹ in a week by income and race in Hawaii

| Food group ² | All households | Income (1977) before taxes | | | | Race ³ | |
|--|----------------|----------------------------|-------------------|------------------|--------------|-------------------|--------------------|
| | | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported | White | Other ⁴ |
| -----Pounds----- | | | | | | | |
| Milk, cream, cheese (calcium equivalent)..... | 6.04 | 5.67 | 6.00 | 6.36 | 5.64 | 7.96 | 5.06 |
| Meat, poultry, fish..... | 5.25 | 5.01 | 5.32 | 5.30 | 5.23 | 4.57 | 5.58 |
| Beef..... | 1.88 | 1.58 | 1.92 | 1.95 | 1.95 | 1.77 | 1.93 |
| Pork..... | .99 | 1.05 | .96 | 1.02 | .90 | .82 | 1.07 |
| Poultry..... | 1.07 | 1.03 | 1.06 | 1.09 | 1.07 | .92 | 1.14 |
| Fish..... | .77 | .81 | .80 | .73 | .78 | .54 | .89 |
| Other protein foods ⁵ | 1.21 | 1.24 | 1.26 | 1.22 | 1.04 | 1.22 | 1.21 |
| Eggs (fresh equivalent)..... | .58 | .56 | .63 | .55 | .57 | .59 | .57 |
| Dry beans (dry weight)..... | .12 | .13 | .12 | .12 | .10 | .12 | .12 |
| Nuts, nut butter (shelled weight)..... | .16 | .14 | .17 | .18 | .12 | .21 | .14 |
| Vegetables..... | 4.94 | 5.44 | 4.91 | 4.80 | 4.81 | 5.16 | 4.83 |
| Potatoes (fresh equivalent)..... | .76 | .73 | .85 | .75 | .65 | .95 | .67 |
| Dark green..... | .35 | .45 | .33 | .32 | .37 | .34 | .36 |
| Deep yellow..... | .39 | .56 | .38 | .34 | .34 | .34 | .42 |
| Tomatoes..... | .73 | .70 | .76 | .74 | .66 | .86 | .67 |
| Fruit..... | 3.93 | 4.26 | 3.94 | 3.86 | 3.74 | 4.26 | 3.78 |
| Citrus (single strength juice equivalent)..... | 1.53 | 1.34 | 1.54 | 1.52 | 1.72 | 1.68 | 1.45 |
| Grain products (flour equivalent)..... | 2.88 | 2.96 | 3.10 | 2.77 | 2.70 | 2.43 | 3.12 |
| Enriched or whole grain (flour equivalent)..... | 2.49 | 2.57 | 2.65 | 2.38 | 2.40 | 2.21 | 2.63 |
| Fats, oils..... | .63 | .63 | .65 | .63 | .57 | .68 | .60 |
| Sugar, sweets (sugar equivalent)..... | .96 | .88 | 1.08 | .91 | .94 | 1.03 | .93 |
| Sugar, sirup, jelly, candy..... | .52 | .53 | .58 | .47 | .50 | .57 | .49 |
| Other sweets (sugar equivalent) ⁶ | .44 | .36 | .50 | .44 | .43 | .45 | .44 |
| Alcoholic beverages..... | 1.57 | 1.06 | 1.59 | 1.61 | 2.00 | 2.16 | 1.29 |

¹A person equal 21 meals at home during past 7 days (based on 3 meals a day for 7 days for 1 person) is used to adjust for variation among households in proportion of meals eaten from home food supplies. Average quantity per person is calculated using population ratio procedure.

²Mixtures and soups included with group totals of main ingredients.

³Refers to race of respondent as observed by interviewer.

⁴Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

⁵Includes soups, mixtures, and plate dinners with main ingredients mostly meat, poultry, fish, or legume.

⁶Includes soft drinks; beverage powders with lemon; ades, punches, nectars with sugar; coffee, tea, cocoa; and prepared desserts.

Source: USDA Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

TABLE 6.--Nutrients per dollar's worth of food used at home¹ by households² in Hawaii

| Income, number of people in household, and race | Food energy | Pro- tein | Cal- cium | Iron | Magne- sium | Phos- phorus | Vita- min A | Thia- min | Ribo- flavin | Pre- formed niacin | Vita- min B ₆ | Vita- min B ₁₂ | Ascorbic acid |
|--|----------------|--------------|--------------|-----------|----------------|-----------------|----------------|--------------|-----------------|--------------------------|--------------------------------|---------------------------------|------------------|
| | <u>Cal</u> | <u>G</u> | <u>Mg</u> | <u>Mg</u> | <u>Mg</u> | <u>Mg</u> | <u>IU</u> | <u>Mg</u> | <u>Mg</u> | <u>Mg</u> | <u>Mg</u> | <u>Mcg</u> | <u>Mg</u> |
| All households..... | 936 | 33 | 283 | 6.7 | 123 | 537 | 2,456 | 0.58 | 0.71 | 9 | 0.71 | 2.1 | 52 |
| Income (1977) before taxes: | | | | | | | | | | | | | |
| Under \$10,000..... | 934 | 33 | 286 | 7.0 | 126 | 539 | 2,924 | .60 | .72 | 9 | .73 | 2.1 | 54 |
| \$10,000-\$19,999..... | 983 | 34 | 292 | 7.0 | 126 | 555 | 2,501 | .61 | .74 | 9 | .73 | 2.2 | 53 |
| \$20,000 or more..... | 916 | 32 | 282 | 6.4 | 122 | 530 | 2,294 | .56 | .70 | 9 | .68 | 2.0 | 51 |
| Not reported..... | 895 | 32 | 266 | 6.3 | 117 | 516 | 2,306 | .55 | .68 | 8 | .70 | 1.9 | 53 |
| People living in household: ³ | | | | | | | | | | | | | |
| 1..... | 720 | 27 | 244 | 5.4 | 113 | 457 | 2,422 | .46 | .57 | 7 | .62 | 1.9 | 60 |
| 2..... | 806 | 29 | 249 | 5.7 | 117 | 483 | 2,558 | .49 | .62 | 8 | .65 | 1.9 | 51 |
| 3..... | 904 | 32 | 283 | 6.6 | 121 | 522 | 2,594 | .56 | .69 | 9 | .69 | 2.0 | 53 |
| 4..... | 949 | 33 | 295 | 6.6 | 126 | 540 | 2,358 | .59 | .73 | 9 | .71 | 2.1 | 53 |
| 5..... | 987 | 34 | 301 | 6.9 | 123 | 558 | 2,374 | .62 | .76 | 9 | .73 | 2.2 | 53 |
| 6 or more..... | 1,076 | 37 | 297 | 7.8 | 130 | 597 | 2,398 | .67 | .78 | 10 | .78 | 2.1 | 50 |
| Race ⁴ | | | | | | | | | | | | | |
| White | 924 | 32 | 327 | 6.5 | 131 | 554 | 2,499 | .57 | .76 | 9 | .70 | 1.9 | 53 |
| Other ⁵ | 940 | 33 | 260 | 6.7 | 119 | 527 | 2,424 | .58 | .68 | 9 | .71 | 2.1 | 52 |

¹ Includes value of food used by household members and guests that was bought, home produced, or received as gift or pay. Value of food received without direct expense by a household is based on average price per pound paid for that food by survey households in Hawaii.

² Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview. See table 3 for count of households.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

³ Excludes roomers, boarders, and employees.

⁴ Refers to race of respondent as observed by interviewer.

⁵ Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

ascorbic acid. White households had more return per dollar in those nutrients found abundantly in milk--calcium, magnesium, phosphorus, and riboflavin.

A higher average return in nutrients per dollar does not mean necessarily that households consciously choose more nutritious foods. Diets that are low in cost usually include some relatively inexpensive foods in large quantities. Some of these foods, such as enriched and whole-grain flour, bread, rice, and some cereals, as well as dry beans and potatoes, furnish substantial amounts of a number of nutrients.

NUTRITIVE VALUE OF FOOD USED

Differences in food consumption patterns may be reflected in the average nutritive value of diets per person (table 7). Although this measure quantifies the average amount of nutrients available from the food used during a 7-day period per 21-meal-at-home equivalent persons on a daily basis, no adjustment is made for the differences in the sex-age composition of the households.

In deriving findings shown in tables 8 and 9, the special procedure as described on page 4 was used to compare nutritive values of households with different sex-age composition of those persons eating in the household to their RDA. Based on this procedure, the average nutritive value of food used by households in Hawaii exceeded the RDA for all nutrients (table 8). Protein, vitamin B₁₂, and ascorbic acid averages were two to four times the RDA. Averages, however, conceal the large variation of food used by different households. When the households were examined in terms of those that met the Recommended Dietary Allowances (table 9), approximately 75 percent of the households had diets that met the allowances for food energy. More than 90 percent of the households used food that supplied the 1974 allowances for protein, phosphorus, and ascorbic acid. The allowances for iron, vitamin A, thiamin, riboflavin, and vitamin B₁₂ were met by over 80 percent of the households, whereas 70 percent or fewer of the households had food that provided the RDA for calcium, magnesium, and vitamin B₆. Only 39 percent of the households met the RDA for all 11 nutrients (protein, calcium, iron, magnesium, phosphorus, vitamin A, thiamin, riboflavin, vitamin B₆, vitamin B₁₂, and ascorbic acid). Caution: Failure to meet the RDA for one or more nutrients does not mean necessarily that food practices are poor or that malnutrition exists.

Differences by Income

Average nutritive value of food used by households exceeded the RDA at each of the three income levels (table 8). Values were well above the allowances for protein, phosphorus, vitamin A, vitamin B₁₂, and ascorbic acid. On the average, the households in the lowest income category used food that was as high relative to the RDA as households in other income categories. Low income households had, by far, the highest average values for vitamin A, reflecting the greater use of vegetables.

The percentage of households that met the RDA for each of the nutrients varied little with income (table 9 and fig. 7). For example, at each of the income levels, 98 percent met the RDA for protein. Only percentages for magnesium and

TABLE 7.--Average nutritive values¹ per 21-meal person per day by income and race of households² in Hawaii

| Nutrient (unit) | All households | Income (1977) before taxes | | | | Race ³ | |
|--|----------------|----------------------------|-------------------|------------------|--------------|-------------------|--------------------|
| | | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported | White | Other ⁴ |
| Food energy..... <u>Cal</u> ... | 2,912 | 2,816 | 3,044 | 2,910 | 2,752 | 2,923 | 2,900 |
| Protein..... <u>g</u> | 102.5 | 98.3 | 105.7 | 103.2 | 98.8 | 101.6 | 102.7 |
| Fat..... <u>g</u> | 133.1 | 125.9 | 137.4 | 135.9 | 124.5 | 137.0 | 130.9 |
| Carbohydrate..... <u>g</u> | 322.0 | 321.8 | 342.8 | 313.2 | 302.8 | 315.1 | 324.6 |
| Calcium..... <u>mg</u> | 881 | 862 | 903 | 896 | 818 | 1,036 | 801 |
| Iron..... <u>mg</u> | 20.7 | 21.2 | 21.5 | 20.4 | 19.4 | 20.5 | 20.8 |
| Magnesium..... <u>mg</u> | 383 | 379 | 392 | 387 | 361 | 416 | 367 |
| Phosphorus..... <u>mg</u> | 1,671 | 1,626 | 1,719 | 1,685 | 1,586 | 1,753 | 1,628 |
| Vitamin A..... <u>IU</u> | 7,640 | 8,822 | 7,745 | 7,286 | 7,091 | 7,908 | 7,480 |
| Thiamin..... <u>mg</u> | 1.81 | 1.81 | 1.88 | 1.78 | 1.70 | 1.80 | 1.80 |
| Riboflavin..... <u>mg</u> | 2.21 | 2.16 | 2.29 | 2.22 | 2.08 | 2.41 | 2.10 |
| Preformed niacin..... <u>mg</u> | 27.4 | 26.7 | 28.4 | 27.5 | 26.0 | 27.2 | 27.5 |
| Vitamin B ₆ <u>mg</u> | 2.20 | 2.22 | 2.25 | 2.17 | 2.15 | 2.22 | 2.19 |
| Vitamin B ₁₂ <u>mcg</u> | 6.42 | 6.25 | 6.70 | 6.49 | 5.81 | 6.08 | 6.57 |
| Ascorbic acid..... <u>mg</u> | 163 | 164 | 165 | 161 | 163 | 166 | 161 |

¹Average nutritive values per 21-meal person calculated using population ratio procedure.

²Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview.

³Refers to race of respondent as observed by interviewer.

⁴Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

TABLE 8.--Nutritive value of food¹ used as percentage of Recommended Dietary Allowances (1974) by income and race of households² in Hawaii

| Nutrient | All households | Income (1977) before taxes | | | | Race ³ | |
|-------------------------------|----------------|----------------------------|-------------------|------------------|--------------|-------------------|--------------------|
| | | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported | White | Other ⁴ |
| -----Percent----- | | | | | | | |
| Food energy..... | 131 | 133 | 138 | 129 | 124 | 133 | 130 |
| Protein..... | 221 | 218 | 229 | 219 | 209 | 221 | 220 |
| Calcium..... | 104 | 105 | 107 | 104 | 98 | 123 | 94 |
| Iron..... | 157 | 165 | 164 | 152 | 149 | 155 | 158 |
| Magnesium..... | 127 | 130 | 130 | 126 | 117 | 139 | 121 |
| Phosphorus..... | 198 | 199 | 204 | 196 | 190 | 210 | 192 |
| Vitamin A..... | 184 | 220 | 188 | 173 | 169 | 193 | 179 |
| Thiamin..... | 159 | 167 | 167 | 154 | 149 | 160 | 158 |
| Riboflavin..... | 167 | 170 | 174 | 165 | 156 | 184 | 158 |
| Vitamin B ₆ | 124 | 129 | 129 | 120 | 118 | 126 | 122 |
| Vitamin B ₁₂ | 236 | 238 | 249 | 234 | 209 | 226 | 240 |
| Ascorbic acid..... | 370 | 374 | 376 | 364 | 368 | 379 | 365 |

¹Average nutritive value calculated using population ratio procedure.

²Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview.

³Refers to race of respondent as observed by interviewer.

⁴Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

TABLE 9.--Households¹ using food that met Recommended Dietary Allowances (1974) by income and race in Hawaii

| Nutrient | All households | Income (1977) before taxes | | | | Race ² | |
|-----------------------------------|----------------|----------------------------|-------------------|------------------|--------------|-------------------|--------------------|
| | | Under \$10,000 | \$10,000-\$19,999 | \$20,000 or more | Not reported | White | Other ³ |
| -----Percent of households----- | | | | | | | |
| Food energy..... | 77 | 75 | 82 | 75 | 72 | 79 | 75 |
| Protein..... | 98 | 98 | 98 | 98 | 97 | 98 | 98 |
| Calcium..... | 50 | 48 | 53 | 51 | 46 | 67 | 40 |
| Iron..... | 88 | 84 | 91 | 88 | 88 | 86 | 89 |
| Magnesium..... | 70 | 68 | 71 | 73 | 65 | 78 | 65 |
| Phosphorus..... | 96 | 97 | 95 | 97 | 95 | 97 | 96 |
| Vitamin A..... | 83 | 84 | 85 | 82 | 82 | 89 | 79 |
| Thiamin..... | 88 | 87 | 90 | 89 | 86 | 88 | 89 |
| Riboflavin..... | 87 | 86 | 88 | 88 | 86 | 93 | 84 |
| Vitamin B ₆ | 68 | 65 | 69 | 68 | 67 | 70 | 66 |
| Vitamin B ₁₂ | 84 | 79 | 85 | 87 | 83 | 88 | 82 |
| Ascorbic acid..... | 96 | 95 | 95 | 96 | 95 | 95 | 96 |
| All 11 nutrients ⁴ ... | 39 | 34 | 42 | 41 | 35 | 50 | 32 |

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¹Housekeeping households only: Households with at least 1 person having 10 or more meals from household food supply during 7 days preceding interview.

²Refers to race of respondent as observed by interviewer.

³Refers to other than white or black race--excludes black race, which accounted for less than 1 percent of the sample.

⁴Excludes food energy.

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

vitamin B₁₂ increased slightly with income. About 34 percent of households with income under \$10,000, 42 percent of those with \$10,000 to \$19,999, and 41 percent of those with \$20,000 or more used food that met the RDA for all 11 nutrients.

Differences by Race

Average nutritive value of food used by white and nonwhite households exceeded the RDA for each nutrient except calcium (table 8). Food used by nonwhites provided 94 percent of the RDA for calcium; that used by whites provided 123 percent. Values were well above the RDA for protein, phosphorus, vitamin A, vitamin B₁₂, and ascorbic acid for both racial groups. Averages for white households were higher than those for nonwhites for 9 of 11 nutrients, probably reflecting the greater use of milk, vegetables, and fruit. Six of these nine nutrients--calcium, magnesium, phosphorus, vitamin A, riboflavin, and ascorbic acid--were notably higher; the remaining three nutrients--protein, thiamin, and vitamin B₆--were only marginally higher for white households. Many more white than nonwhite households met the allowances for calcium (67 and 40 percent, respectively) and magnesium (78 and 65 percent) (table 9 and fig. 8). One-half of the white households, but fewer than one-third of the nonwhite households, used food that provided the RDA for all 11 nutrients.

LITERATURE CITED

- (1) Consumer and Food Economics Institute.
1976. Composition of foods: Dairy and egg products; raw, processed, prepared. U.S. Dept. Agr. Agr. Handb. 8-1, 157 pp.
- (2) _____
1977. Composition of foods: Spices and herbs; raw, processed, prepared. U.S. Dept. Agr. Agr. Handb. 8-2, 51 pp.
- (3) _____
1978. Composition of foods: Baby foods; raw, processed, prepared. U.S. Dept. Agr. Agr. Handb. 8-3, 231 pp.
- (4) _____
1979. Money value of food used by households in the United States, spring 1977. Nationwide Food Consumption Survey 1977-78, U.S. Dept. Agr. Prelim. Rpt. No. 1, 17 pp.
- (5) Consumer Nutrition Center.
1980. Food and nutrient intakes of individuals in 1 day in the United States, spring 1977. Nationwide Food Consumption Survey 1977-78, U.S. Dept. Agr. Prelim. Rpt. No. 2, 121 pp.
- (6) _____
1981. Nutrient levels in food used by households in the United States, spring 1977. Nationwide Food Consumption Survey 1977-78, U.S. Dept. Agr. Prelim. Rpt. No. 3, 16 pp.
- (7) National Academy of Sciences - National Research Council, Food and Nutrition Board.
1974. Recommended dietary allowances. 8th ed., rev., 129 pp. Washington, D.C.
- (8) Orr, M. L.
1969. Pantothenic acid, vitamin B₆, and vitamin B₁₂ in foods. U.S. Dept. Agr. Home Econ. Res. Rpt. No. 36, 53 pp.
- (9) U.S. Bureau of the Census.
1978. Money income and poverty status in 1975 of families and persons in the United States and the west region, by divisions and States. U.S. Dept. Com. Ser. P-60, No. 113, 211 pp.
- (10) Watt, B. K., and Merrill, A. L.
1963. Composition of foods...raw, processed, prepared. U.S. Dept. Agr. Agr. Handb. 8 (rev.), 190 pp.

Income and Food at Home and Away

Value per household in a week in Hawaii

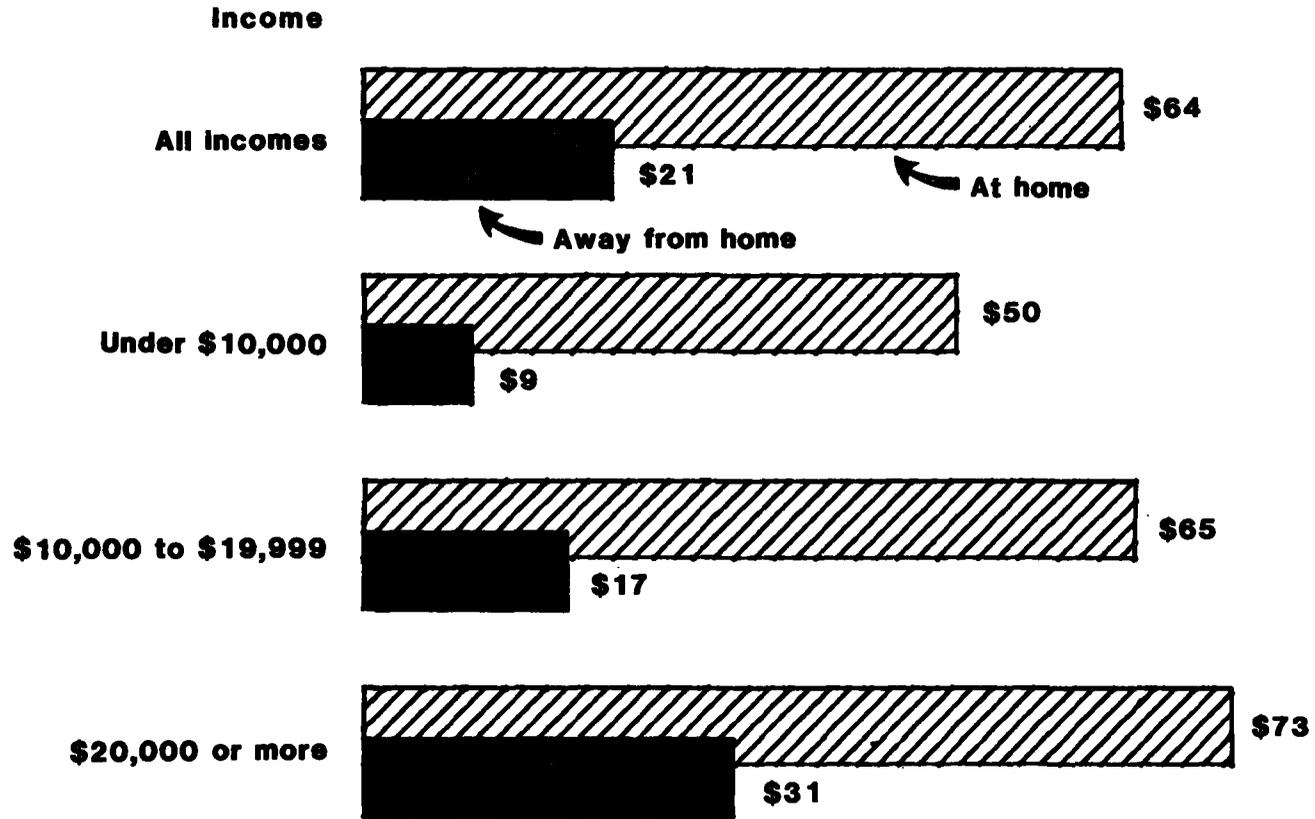


Figure 1

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Household Food Dollar

By income group in Hawaii

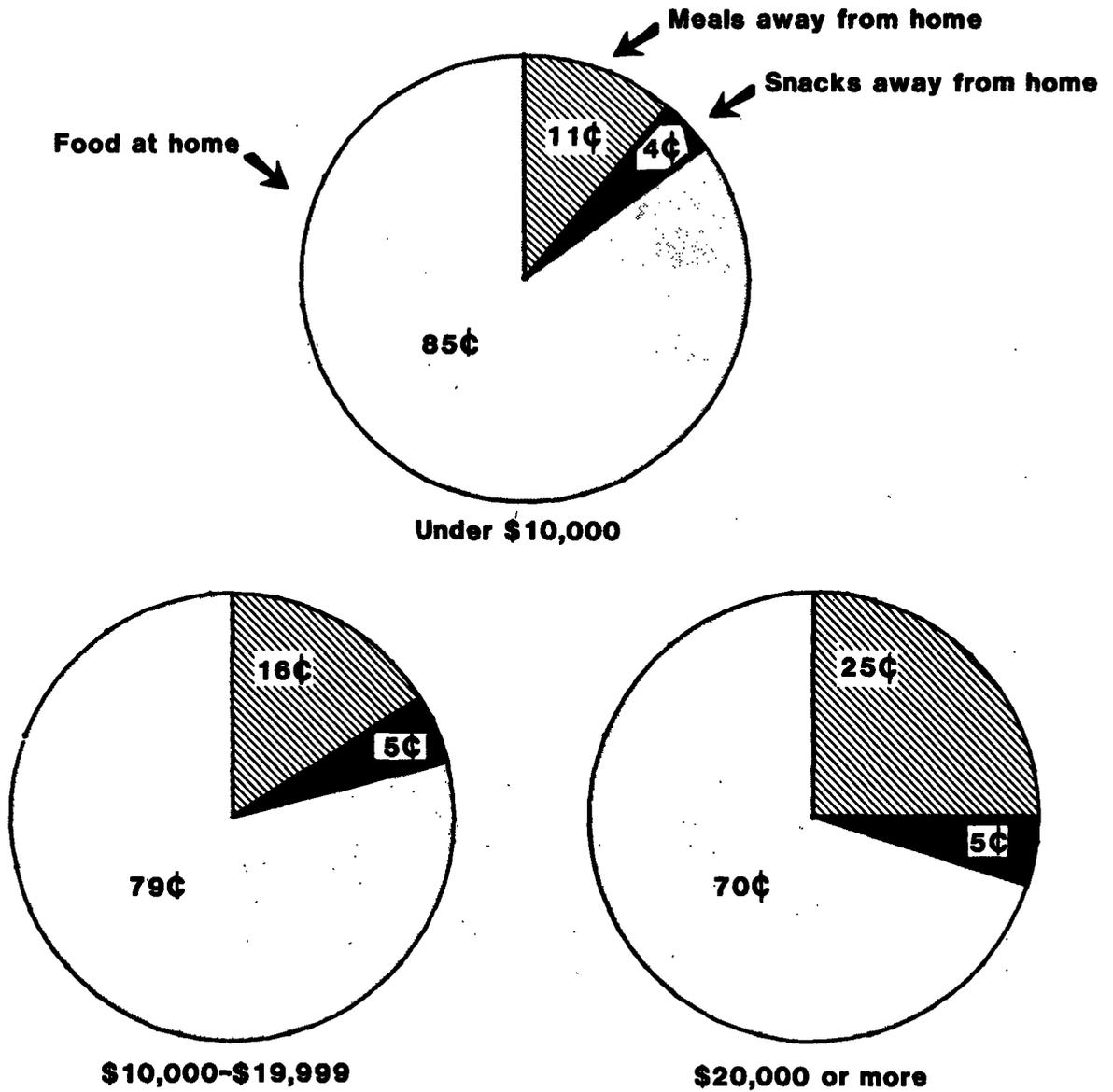


Figure 2

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Household Size and Value of Food in a Week in Hawaii

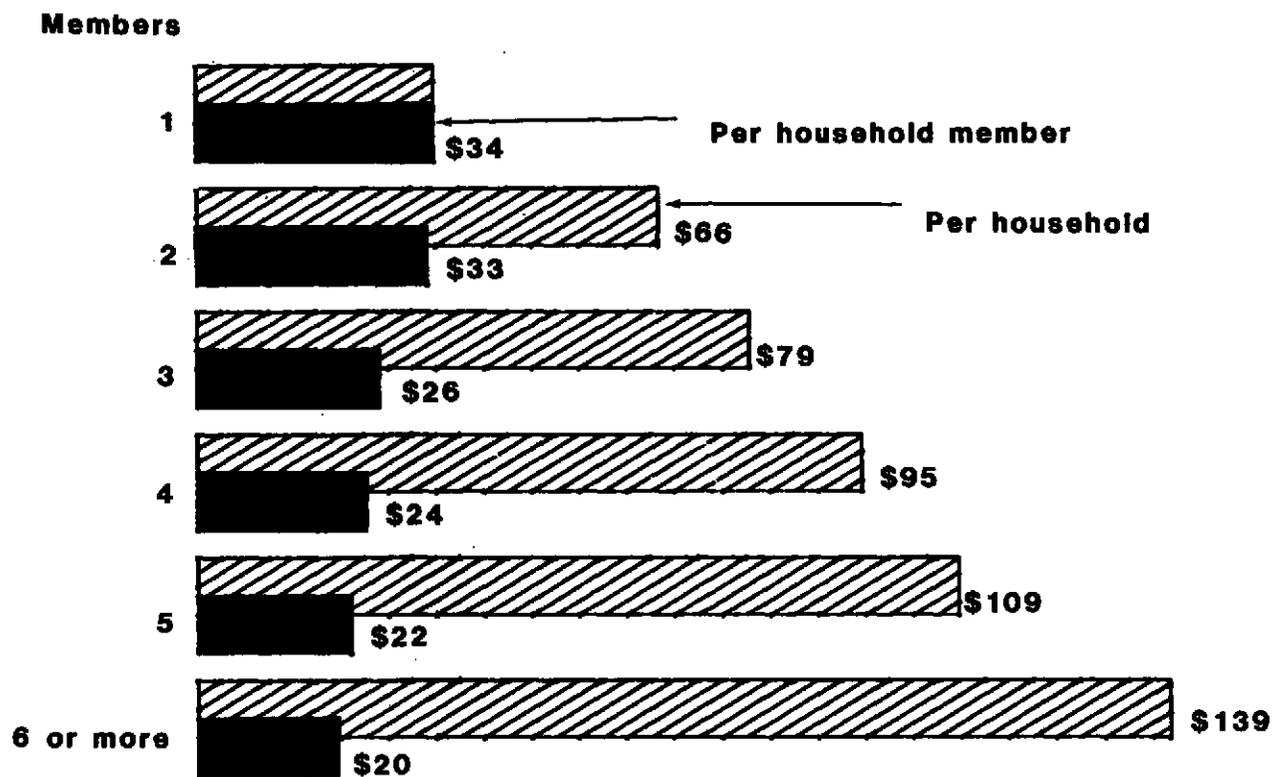


Figure 3

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Race and Food at Home and Away

Value per member in a week in Hawaii

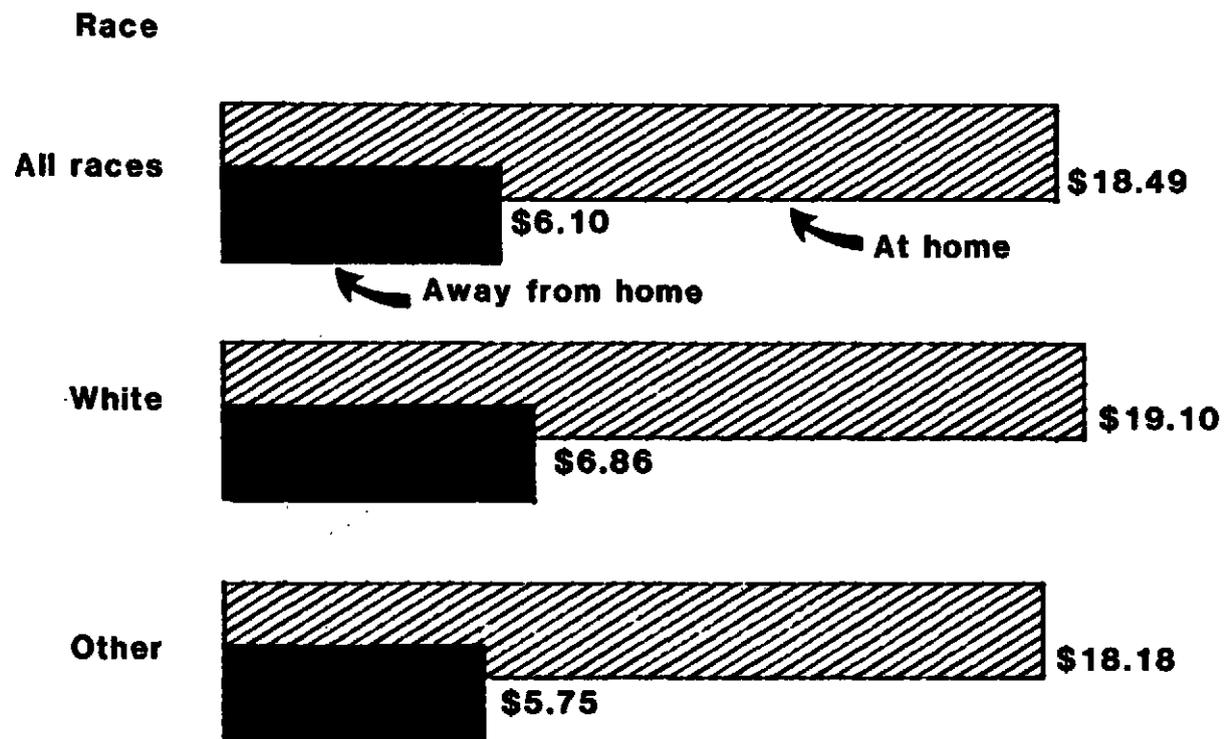


Figure 4

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Food Use per Person in a Week by Income in Hawaii

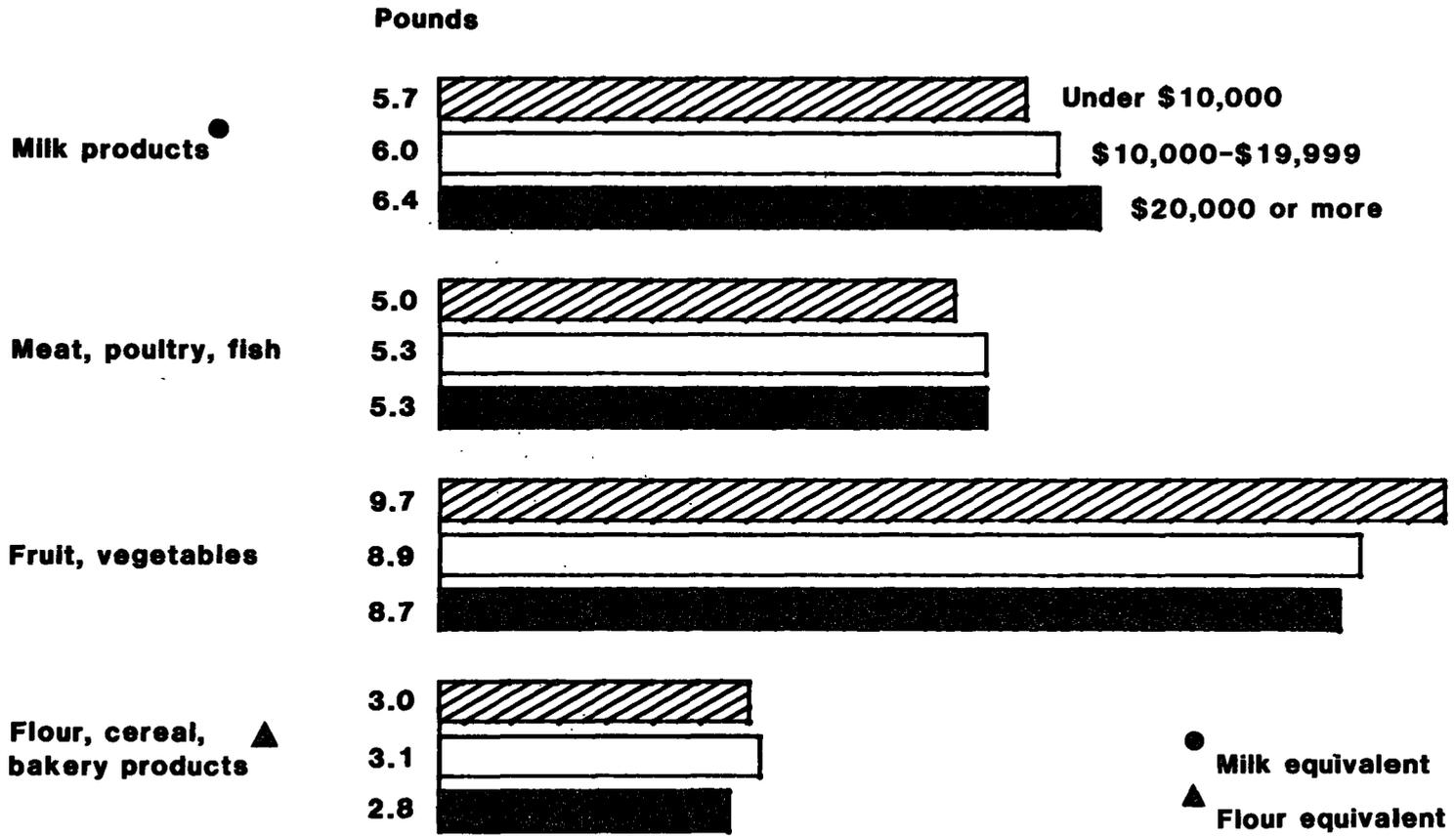


Figure 5

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Food Use per Person in a Week by Race in Hawaii

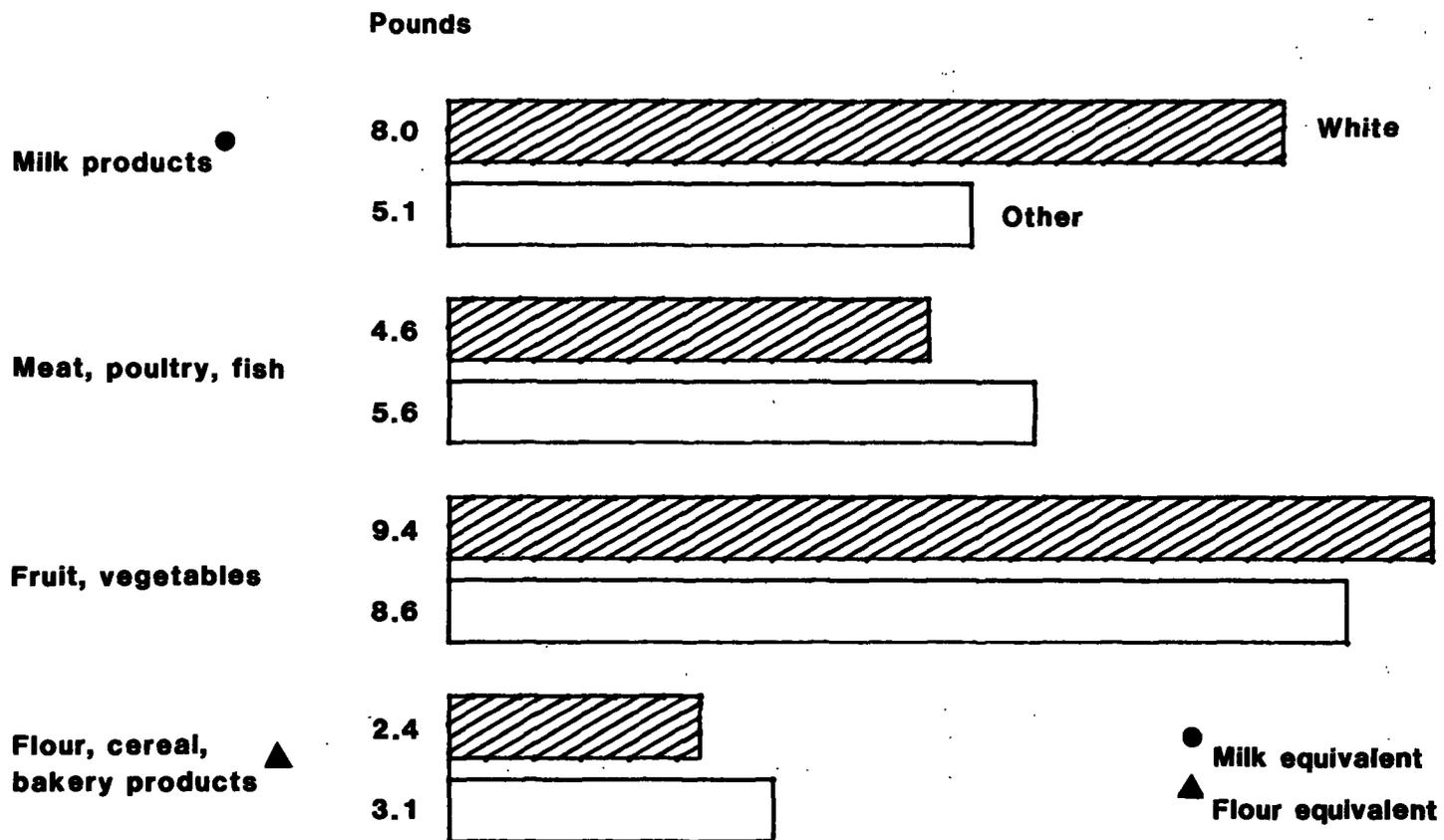


Figure 6

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Household Diets Meeting RDA by Income in Hawaii

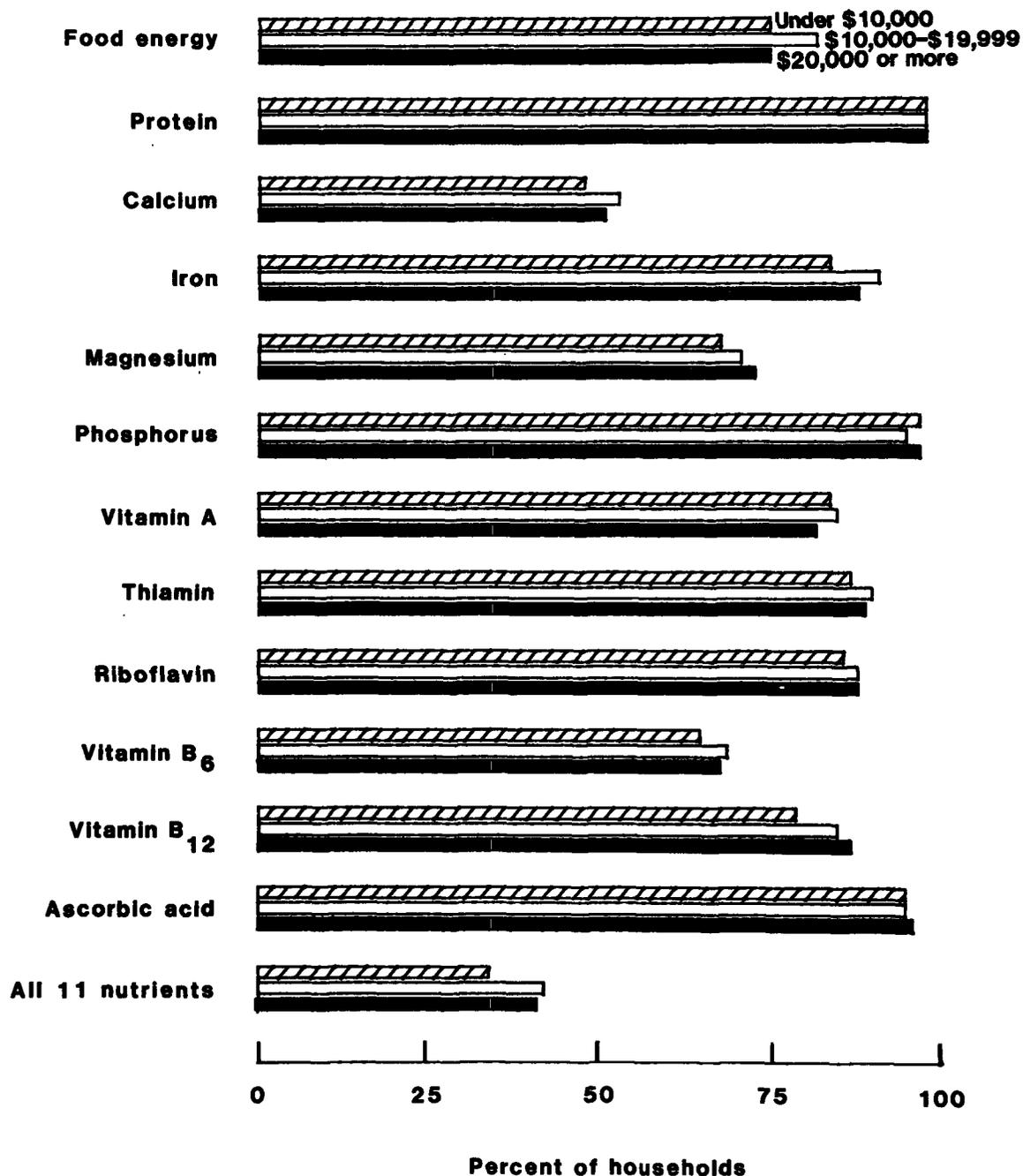


Figure 7

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).

Household Diets Meeting RDA by Race in Hawaii

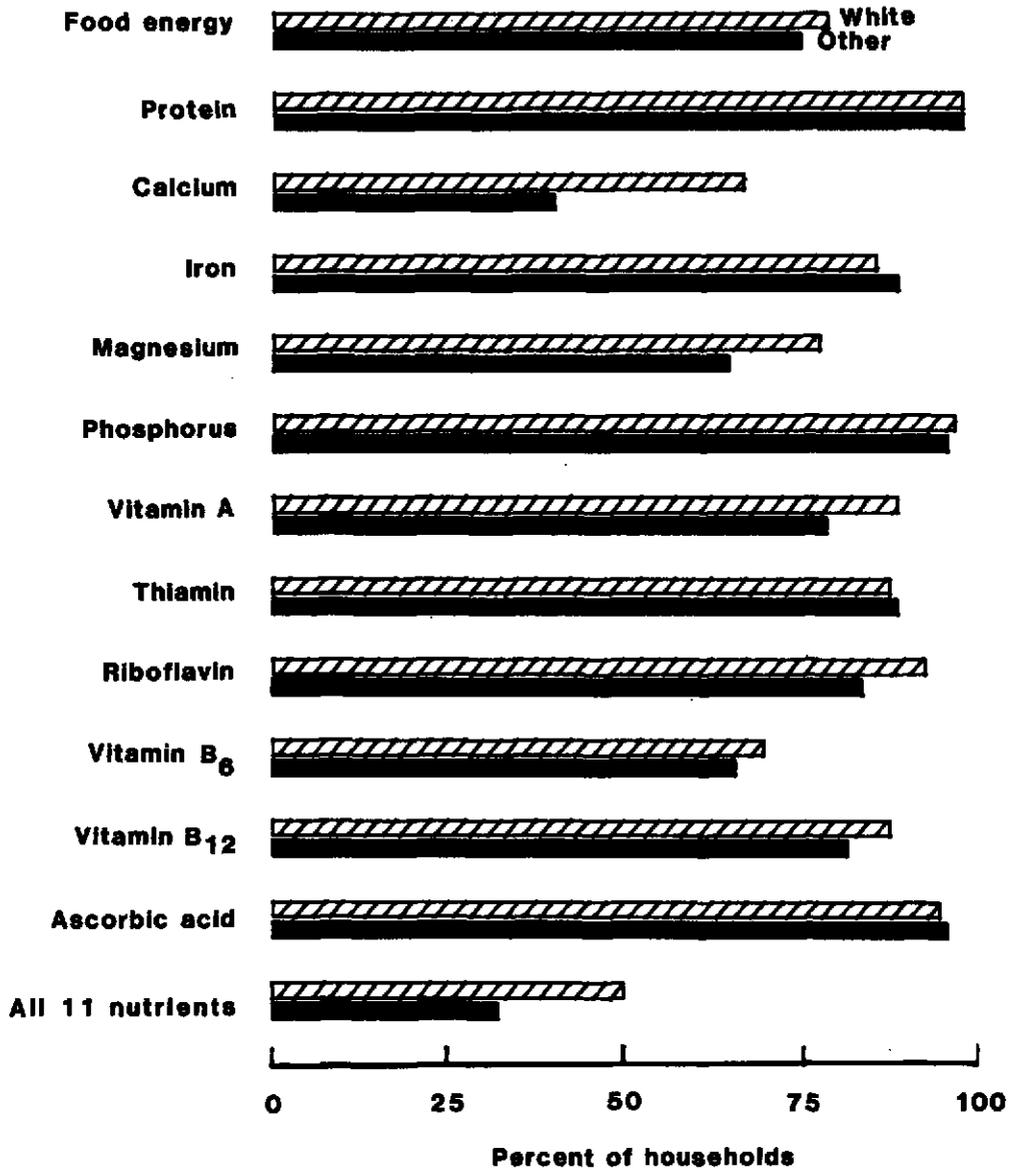


Figure 8

Source: USDA Nationwide Food Consumption Survey 1977-78, Hawaii, winter 1978 (preliminary).