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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

# SEASONAL VARIATIONS IN U.S. DIETS

Talk by Arletta M. Beloian
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Over the years the Department of Agriculture has conducted surveys to assess the nutritive value of diets and to determine the kinds, quantities, and money value of food used by households. Usually the surveys have been conducted in the spring. The 1965-66 survey program was expanded to include separate surveys for the summer, fall, and winter quarters to determine what variations in consumption and diets occurred from season to season. Separate samples of households were interviewed in each of the four seasons. 1/ Since there were some differences in the size of households from season to season, the descriptive data in this paper are based on per person averages. This procedure permits examination of the seasonal data on a comparable basis and helps clarify seasonal patterns.

Households in the nationwide survey were classified by region, urbanization, and income. This paper focuses on season to season differences among regions and urbanizations. Differences among these categories of households will be described in terms of seasonal changes in dietary adequacy, shortages of key nutrients and their food sources, and variations in per person consumption rates for selected food groups. Seasonal variations in diets of low-income households--that is, those with incomes under $3,000 for the preceding year--will be contrasted with the general patterns. Also, we will consider briefly the seasonal variations in value of food at home and distribution of the food dollar among food groups.

The National Research Council's 1963 Recommended Dietary Allowances (RDA's) were used to evaluate the household diets. The average daily nutritive content of each household's food consumed in a week was compared with the total of the recommended allowances for individuals based on their age and sex. In rating diets of households, an adjustment was made for food eaten away from home by comparing the nutritive value of food at home with the proportion of the recommended allowance for household members represented by their meals at home.

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1/ Reports on Food Consumption of Households, Year 1965-66 and Seasons, are in preparation. HFCS Report 12 contains data for the United States, Report 13 for the Northeast, Report 14 for the North Central, Report 15 for the South, and Report 16 for the West.

Let us start by identifying the seasonality in the adequacy of diets in the United States.

## Seasonality in Dietary Adequacy

In the spring of 1965 about half of the United States household diets met the Recommended Dietary Allowances for all nutrients studied. We call these "good diets." The proportion of good diets varied little from season to season in the April 1965-March 1966 period (fig. 1). However, some seasonal variation was evident in the incidence of "poor diets"--those diets falling short of two-thirds of the RDA's for one or more nutrients. For the spring, 21 percent of the diets in the United States rated as "poor" compared with 18 percent in each of the other three seasons.

The U.S. seasonal pattern of a higher proportion of poor diets in the spring than in the other seasons was found also in the Northeast, North Central, and South. In the West, the only marked seasonal variation was a substantially smaller proportion of poor diets in the fall (table 1).

In each of the several urbanization categories, we found relatively more poor diets in the spring than in the other seasons, just as in the United States and regional totals. The proportion of poor diets during the spring among urban households was somewhat lower than among rural nonfarm and farm households. Compared with the other urbanizations, notably fewer farm diets were rated poor in the summer, 13 percent compared with 18 percent in the urban and rural nonfarm categories.

The all-U.S. pattern of relatively more poor diets in the spring than in other seasons was found also among low-income households; 36 percent of the low-income diets were rated poor compared with 21 percent for all income groups.

## Nutrients Critical for Dietary Quality

When diets were rated poor in quality in the United States, it was most frequently because they failed to provide two-thirds of the allowances recommended for ascorbic acid, vitamin A, and calcium. Although these nutrients were a problem in every season, diets short by one-third or more of the recommended amounts for ascorbic acid and vitamin A value occurred more often in the spring; calcium shortages were more frequent in the summer. Examination of the incidence of these nutrient shortages during the spring revealed that the North Central and South had a higher proportion of diets below two-thirds of RDA for ascorbic acid than the other regions and that the South had relatively more diets low in vitamin A. Calcium shortages occurred more often in the summer in the Northeast, North Central, and South, whereas in the West calcium was more of a problem in the spring (table 2).

Iron was not a problem in the household diets when these were evaluated by the 1963 RDA's. However, there is a strong possibility that if the larger

amounts recommended for most age and sex groups in the 1968 allowances had been used as standards, iron would be short of the allowance in a larger proportion of diets.

When sample households are sorted by urbanization, more diets were below two-thirds of allowances for ascorbic acid and vitamin A in the spring than in other seasons in each urbanization. Relatively more rural than urban diets had problems with ascorbic acid and vitamin A in the spring. In contrast, urban diets were more often below two-thirds of calcium allowances in the summer. The proportion of rural nonfarm diets with calcium shortages in the summer fell between those for rural farm and urban diets.

In brief, it appears that the all-U.S. problem with vitamin A in the spring was heavily influenced by the proportions of the diets of rural nonfarm and farm households which were short one-third of the recommended amounts or more for this nutrient. Ascorbic acid was a problem in the spring for many households in all three urbanizations. For the urban diets ascorbic acid was less of a problem during the rest of the year, but notable proportions of the rural diets fell below two-thirds of the RDA again in the fall and winter. Among low-income households, the same nutrients presented problems, and the proportions falling below two-thirds of the RDA's were almost double those for the total U.S. sample.

## Seasonality in Food Sources of Problem Nutrients

To understand the origins of these dietary problems, we examine next the seasonality in the food groups that are their primary sources. The food grouping used for this discussion is that most relevant to dietary analysis and matches survey reports 6 through 10.

### Food Sources of Ascorbic Acid

Nearly 90 percent of the ascorbic acid in U.S. diets was supplied by vegetables and fruits, in almost equal shares, for the year 1965-66. Fruits supplied more of the ascorbic acid in the winter and spring, while vegetables supplied more in the summer and fall (table 3). The winter peak for fruit was predominantly associated with the availability of citrus. The summer peak in tomato consumption brought the vegetable contribution of ascorbic acid to its high for the year. In the fall quarter of the year, dark green and deep yellow vegetables made their greatest contribution.

During the year as a whole and in the spring quarter, diets in the Northeast, North Central, and West derived more of their ascorbic acid from fruits, whereas the South had more supplied by vegetables. Each region followed the United States seasonal pattern of relatively larger shares contributed to total ascorbic acid supplies by fruit in the winter and spring. Vegetables provided a larger share of ascorbic acid in summer and fall in each region, as in the United States as a whole. The high summer contribution of vegetables to ascorbic acid in the South is particularly notable.

In the urban and rural nonfarm categories the average amount of ascorbic acid supplied by fruit was lower in summer and fall than in winter and spring. Farm supplies from fruit averaged lower in the fall than the other three quarters. Fruit was substantially less important as a source of ascorbic acid among farm households in every season than in urban households. The percentage contributions by vegetables were higher in the summer and fall than in the other two quarters for all three urbanizations.

## Food Sources of Vitamin A

Vegetables contributed more vitamin A value than any other food group in each of the four seasons, but the share of the United States average supply varied from 38 percent in summer to 48 percent in fall (table 4). The relative contribution of fruits swung more widely, from 5 percent in the fall and winter to 16 percent in summer. Therefore, the larger supplies of vitamin A value from fruits in the summer quarter offset the low in vegetable contribution, but no other food source countered the relatively low seasonal supply (in I.U.) from vegetables in the spring months. Thus, the low vegetable consumption rate in spring was the major factor in the vitamin A problem of that period.

The South showed the most season to season variation in vitamin A supplied by vegetables, with the peak contribution in the fall considerably larger than that in the other regions. In all four regions, supplies of this nutrient from fruit were highest in the summer.

Among the three urbanization categories, the seasonal swing in vitamin A value contribution from vegetables consumed by farm households was much greater than in urban or rural nonfarm households. The key element was of course the seasonal availability of home-produced supplies. The seasonal variation in the contribution of fruits to vitamin A was also somewhat greater among farm than urban households.

## Food Sources of Calcium

The third nutrient most often short in the household diets was calcium. Part of the seasonal variation in the adequacy of diets with respect to calcium arose from the slightly higher household requirements in summer months when school children ate more of their meals at home.

The average daily supply of calcium per person for all U.S. households varied only 4 percent from the summer low to the winter high. Consumption of fresh fluid, canned, and dried milk contributed about 10 percent more calcium per person in the winter than in summer (table 5). The relative contributions of other dairy products and of enriched and whole-grain cereal products varied little from season to season.

Seasonal variations in calcium supplied by milk were wider in the Northeast than in the other regions. The contribution of the enriched and whole-grain cereal products to the South's calcium supply varied little among the

four seasons, but it is notable that households in the South obtained almost twice as much calcium from the enriched grain group than in the other three regions. This results in large part from much greater use of self-rising flour and cornmeal in that area than elsewhere.

The calcium contributions of milk products and the enriched and whole-grain cereal group varied seasonally in about the same way and to the same minor degree for the three urbanization categories.

## Seasonality in Food Consumption Averages

Consider next the season to season differences in consumption rates for foods categorized in marketing terms. This is the grouping used in survey reports 1 through 5 and in the forthcoming seasonal reports 12 through 16.

### Fresh Vegetables and Fruits

For the country as a whole, consumption of fresh vegetables and fruits per person exhibited more seasonal variation than other food groups. Summer consumption of fresh produce was considerably higher than in any other season, as expected. During their peak production season, fresh vegetables were consumed at a rate almost 50 percent greater than the annual average. Fruit use averaged almost 33 percent greater (table 6).

Among the regions, summer rates for fresh vegetables were about half again as large as the annual for the Northeast, North Central, and South (fig. 2). Fresh vegetables varied much less in the West from season to season. The major element in the summer highs was greater consumption of tomatoes. Fall rates for dark green and deep yellow vegetables were above the annual average except in the North Central Region.

Farm households varied their fresh vegetable consumption substantially more than either rural nonfarm or urban households. High consumption in the summer reflected heavy use of home-produced supplies. The relatively high proportion of farm households among low-income households in the country contributed to the greater seasonal variability in the use of fresh vegetables, especially tomatoes, by the low-income group than that exhibited by all U.S. households. Low-income households consumed substantially more dark green and deep yellow vegetables per person in a week in the fall than in the year as a whole. This seasonal variation was greater than among all-U.S. households. It reflects the seasonal changes in consumption by substantial numbers of southern farm households who were categorized as low income.

Fresh fruit consumption was higher in the summer than in any other period. Consumption of fresh fruits per person in the several regions during the summer quarter ranged from about 20 to 50 percent above the annual averages for each region. Although overall consumption of fresh fruits increased during the summer, citrus consumption in that period

averaged only about half of the annual rate. However, citrus consumption in the winter substantially exceeded its annual average in all regions.

Season to season variations in consumption of fresh fruits were found in all three urbanizations. Farm use by season varied much more than urban because of the greater variability in use of deciduous fruits. Urban households used more citrus per person in every season than rural households. Seasonal variation in fresh fruit use was substantially greater among low-income households than the all-U.S. average.

## Processed Vegetables and Fruits

Consumption of processed vegetables and fruits showed notable seasonal variation in the United States and regions with the summer averages consistently lower than those in the other seasons (fig. 3). This occurred at a time when consumption rates for fresh vegetables and fruits were highest seasonally and the quantity consumed per person was about six times greater than canned and frozen combined (on an as-purchased basis). Therefore, the substantial increase for fresh vegetables and fruits appears to have more than offset the decrease in processed items. The summer shift to fresh produce from processed by farm households was notably greater than among the urban or rural nonfarm groups.

Commercially canned vegetables and fruits were used more in the winter in all regions. Southern households used less per person of the canned form in every season than those in the other regions. In each season, farm households used less commercially canned vegetables and fruits than other urbanizations. Low-income households consumed canned forms of fruits and vegetables at a slightly lower rate than the average for all incomes, but their season to season changes were similar.

## Milk and Milk Products

Although season to season variation in per person consumption of dairy products (except butter) was slight, dairy products are considered here because of their impact on the diet and because some variations did occur in the use of fluid milk and ice cream. The all-U.S. consumption averages for fluid milk in fresh and processed forms were lower in the summer and higher in the fall and winter. The quantity of ice cream used varied more from season to season than milk or cheese. The summer rate for ice cream was 18 percent higher than the annual average and that for winter was 13 percent lower.

All four regions followed the United States pattern of lower consumption of fluid milk per person in the summer and higher in the fall and winter. The consumption rate in the Northeast for fluid milk, however, varied more from season to season than the other three regions. The South had the lowest rates per person in all four seasons.

Families in the South and North Central consumed more ice cream in the summer than the annual rate and had more season to season variation than the Northeast and West.

Urban, rural nonfarm, and farm households exhibited only slight variation from season to season in milk consumption per person. Ice cream consumption had more season to season variation than milk in each urbanization category. In the summer the urban and farm rates averaged about 18 percent more than the annual average. The rural nonfarm average was 11 percent above that for the year.

Low-income households varied their fluid milk use somewhat more on a per person basis than did households with higher incomes, with the greatest difference occurring in the winter quarter.

### Meats

Although the all-U.S. household average for the consumption of meat showed some seasonal variation, the extent of variation was not notable. Households with incomes under $3,000 varied their meat use with season more than all households in the United States. Their beef consumption was 30 percent higher in the fall than in the summer. Consumption of cured pork per person in the low-income group was about 40 percent higher at the spring peak compared with the fall low. Disappearance data on per capita consumption of pork indicate that the highest rates occur usually in the fall and winter. However, the survey averages for cured pork consumption, particularly for these low-income households, were apparently reduced in the fall and winter quarters by the decrease in pork production and relative high prices that occurred in late 1965 and early 1966.

## Seasonality in Food Dollars

Money value per person for food at home showed very little seasonal variation in the United States and the four regions. However, there were some differences in the annual average values among the regions. These averaged about $9.60 per person for a week in the Northeast, $9.10 in the West, $8.70 in the North Central and $8.00 in the South. The value of home-produced food per person was notably higher in the summer in the three regions outside the West.

There was little season to season variation in value per person of all food consumed at home by urban and rural nonfarm households. Among farm households, the spring to summer increase and the summer to fall decrease amounted to about 10 percent. This season to season change came from the home-produced food in the farm households which averaged $3.21 per person in the summer compared with about $2.50 in the spring and fall.

Little seasonal variation was found in the shares of food groups in the total value of food consumed, except for fresh vegetables and fruits in the

summer. The shares of these foods were higher for that period in most of the regions and urbanizations. In general, there was considerable homogeneity in money value patterns. The four regions and three urbanizations spent their food dollar in much the same way throughout the four seasons. Between 35 cents and 40 cents of the dollar was spent for meat, poultry, fish and eggs in each regional-urbanization subgroup of the household population. About 25 cents was divided between milk products and the flour and cereal products. Between 15 and 20 cents was spent for all fresh and processed vegetables and fruits, and a little more than 20 cents went for all other food.

## Summary and Implications

The key findings regarding seasonality of diets and food consumption pose challenges for consumer educators and for public policymakers. Just what can be done to improve poor diets in the spring of the year when consumption of citrus and of dark green and deep yellow vegetables is seasonally low? The problem was particularly serious among rural households of the North Central and South.

During summer most families used more fresh vegetables and fruits so the problems with vitamin A and ascorbic acid were reduced. But the calcium problem became aggravated in many urban households across the country when children were eating more meals at home. Thereby, they added to calcium requirements from at-home food supplies during the period of slightly lower consumption of milk per person. Rural people used relatively less citrus than urban, resulting in ascorbic acid being a problem nutrient not only in the spring but even in the fall and winter when citrus supplies increased seasonally.

The unfavorable dietary variations in the seasons are generally accentuated by the food budget constraints among low-income households. However, the considerable expansion of the Food Stamp Program in the last two years has undoubtedly improved the diets of many families through the year.

The findings that total food budgets and the division of the food dollar among food groups vary so little from season to season are important facts for consumer educators and policymakers. Improvements in supplies of vitamin A and ascorbic acid, calcium, and iron apparently must come from shifts within food groups or in the composition of individual foods. Emphasis on home preservation of seasonal surpluses is supported, but even greater emphasis on foods high in vitamin A and ascorbic acid is warranted. Recipe and menu innovators should be challenged to help solve these dietary problems at minimum costs in money and food pattern alteration.

Government administrators and scientists are already investigating possibilities of changing standards for enrichment with iron and calcium. Industry-Government discussions of the ascorbic acid content of fruit drinks have been started. Public and scientific awareness of the specific needs for dietary improvements and insistence on their activation are vital to widespread solution of these dietary problems. Perhaps a special milk

program for summer months could be developed to supplement the school milk and school lunch programs. On the other hand, expansion of the Food Stamp Program and/or the proposed Family Assistance Plan may be the preferred way of supporting much-needed minimum levels for food budgets and diets. During the coming months we can expect continued public discussion of alternative ways of meeting the goal of good diets for all.

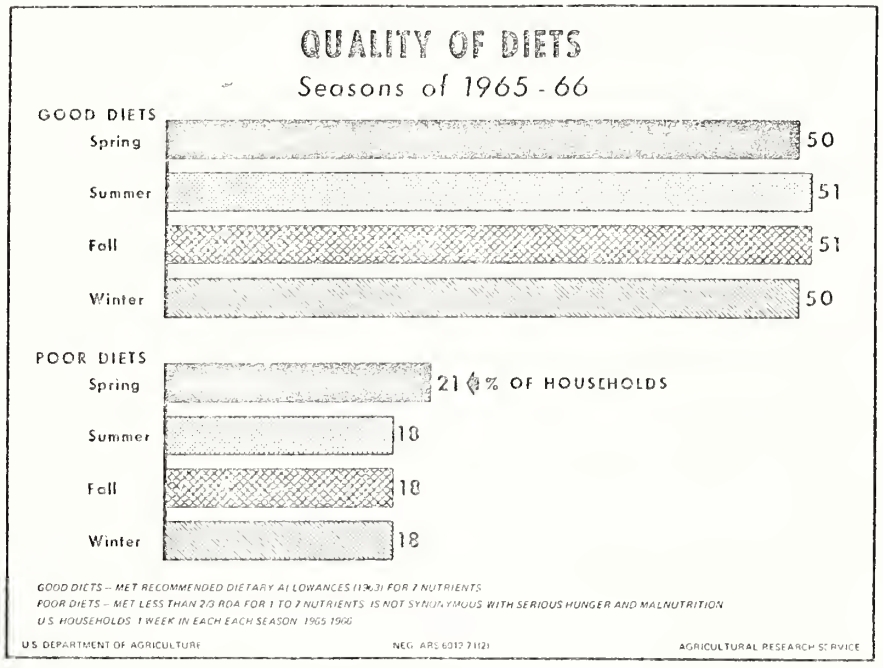


Figure 1

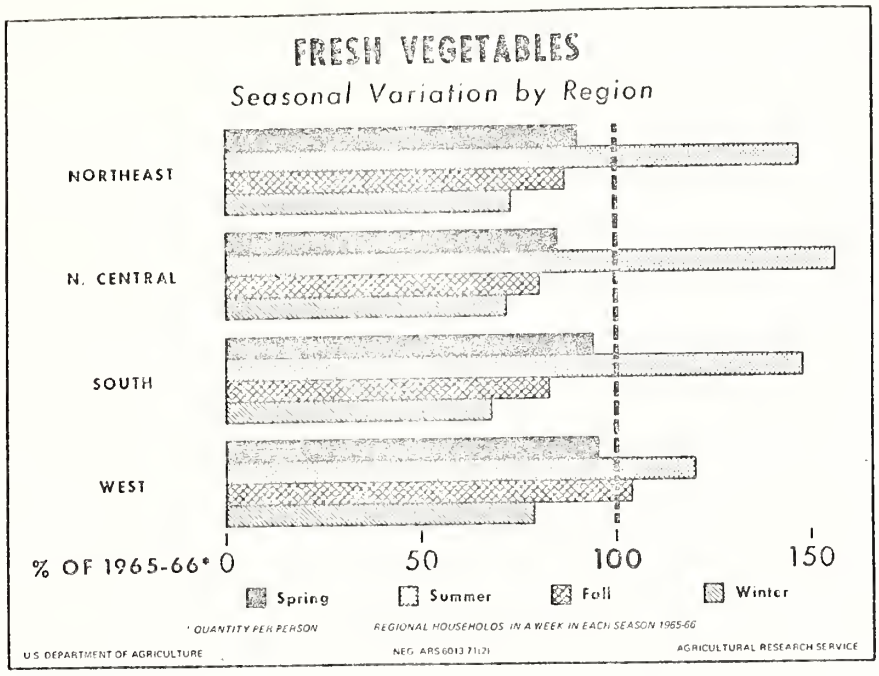


Figure 2

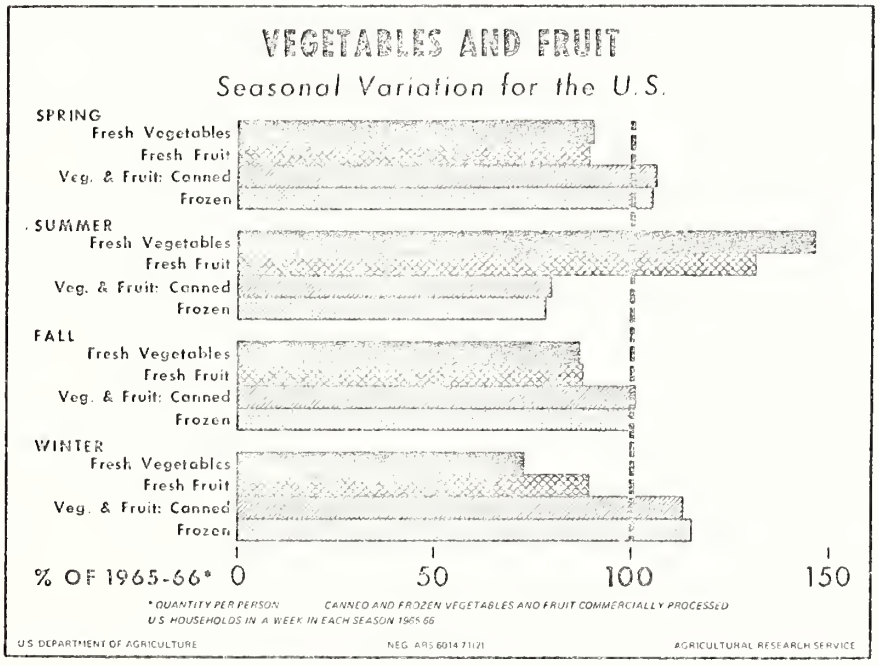


Figure 3

Table 1.--Quality of diets in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66

| Quality of diets by year and season | United States | Region | | | | Urbanization | | | Low-income 1/ |
|---|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm | |
| | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| Good diets 2/ | | | | | | | | | |
| Year | 50.3 | 53.1 | 48.3 | 50.3 | 49.0 | 49.9 | 50.4 | 54.0 | 38.8 |
| Spring | 49.5 | 52.7 | 48.1 | 47.5 | 51.5 | 50.2 | 47.8 | 48.5 | 37.4 |
| Summer | 50.9 | 51.5 | 52.1 | 51.1 | 47.0 | 49.7 | 51.7 | 59.7 | 40.6 |
| Fall | 50.7 | 52.9 | 45.4 | 52.1 | 53.5 | 50.7 | 50.0 | 52.9 | 41.7 |
| Winter | 50.0 | 55.3 | 47.2 | 50.8 | 43.9 | 48.9 | 52.2 | 54.4 | 35.7 |
| Poor diets 3/ | | | | | | | | | |
| Year | 18.6 | 15.4 | 19.5 | 21.1 | 16.5 | 18.1 | 20.0 | 18.1 | 31.9 |
| Spring | 21.0 | 17.4 | 22.2 | 24.2 | 18.0 | 20.6 | 21.8 | 22.8 | 36.0 |
| Summer | 17.9 | 14.9 | 17.6 | 19.9 | 18.7 | 18.4 | 17.8 | 13.1 | 30.9 |
| Fall | 17.5 | 15.3 | 19.6 | 20.2 | 12.2 | 16.8 | 19.4 | 19.0 | 29.6 |
| Winter | 17.7 | 14.1 | 18.6 | 20.1 | 17.1 | 16.7 | 20.9 | 17.8 | 30.3 |

1/ Low-income households had disposable income below $3,000 in preceding year.
2/ Diets rated "good" met the recommended dietary allowances (1963) for 7 nutrients.
3/ Diets rated "poor" met less than two-thirds RDA for 1 to 7 nutrients. This rating is not synonymous with serious hunger and malnutrition.

Table 2.--Proportions of household diets providing NRC allowances and less than two-thirds of allowances for ascorbic acid, vitamin A value, and calcium in the United States by region and urbanization, and for low-income households during the year and seasons, 1965-66 1/

| Nutrients by year and season | United States | Region | | | | Urbanization | | | Low-income 2/ |
|---|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm | |
| | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. | Pct. |
| | | | | ASCORBIC ACID | | | | | |
| Providing allowance | | | | | | | | | |
| Year | 75.1 | 80.8 | 72.6 | 72.1 | 76.6 | 76.6 | 71.4 | 72.2 | 62.1 |
| Spring | 73.0 | 79.1 | 71.1 | 68.1 | 76.7 | 75.0 | 68.6 | 65.6 | 58.3 |
| Summer | 77.6 | 82.8 | 75.7 | 75.4 | 77.4 | 77.7 | 76.2 | 80.3 | 67.5 |
| Fall | 73.1 | 76.2 | 69.3 | 71.5 | 78.7 | 75.5 | 67.6 | 68.4 | 61.6 |
| Winter | 76.5 | 85.1 | 74.2 | 72.9 | 73.7 | 77.8 | 73.1 | 73.9 | 61.9 |
| Providing less than two-thirds of allowance | | | | | | | | | |
| Year | 10.3 | 7.2 | 10.9 | 12.9 | 9.0 | 9.4 | 12.3 | 12.5 | 20.4 |
| Spring | 12.9 | 9.2 | 14.5 | 15.8 | 10.0 | 12.0 | 14.8 | 16.7 | 25.2 |
| Summer | 8.9 | 7.0 | 8.2 | 10.3 | 9.9 | 9.0 | 9.0 | 7.7 | 17.5 |
| Fall | 10.7 | 7.4 | 12.4 | 13.8 | 6.6 | 9.5 | 13.5 | 13.7 | 20.4 |
| Winter | 8.8 | 5.1 | 8.1 | 11.9 | 9.4 | 7.4 | 12.0 | 12.5 | 17.3 |
| | | | | VITAMIN A VALUE | | | | | |
| Providing allowance | | | | | | | | | |
| Year | 76.5 | 79.0 | 73.8 | 74.8 | 80.9 | 77.2 | 74.1 | 76.7 | 66.5 |
| Spring | 74.2 | 76.2 | 72.9 | 71.6 | 79.4 | 75.7 | 71.0 | 69.8 | 63.9 |
| Summer | 78.6 | 82.1 | 76.6 | 75.9 | 83.2 | 79.6 | 75.8 | 79.7 | 67.4 |
| Fall | 78.1 | 79.8 | 73.2 | 77.5 | 85.8 | 78.5 | 76.2 | 81.2 | 70.1 |
| Winter | 74.8 | 77.9 | 72.1 | 74.3 | 75.3 | 75.2 | 73.4 | 75.9 | 64.7 |
| Providing less than two-thirds of allowance | | | | | | | | | |
| Year | 7.7 | 6.3 | 8.0 | 10.0 | 4.4 | 7.0 | 9.6 | 8.1 | 16.2 |
| Spring | 9.5 | 7.7 | 8.7 | 13.3 | 5.7 | 8.6 | 11.7 | 11.7 | 18.5 |
| Summer | 6.7 | 4.6 | 7.5 | 9.0 | 3.5 | 5.9 | 9.0 | 6.1 | 15.2 |
| Fall | 6.9 | 5.9 | 7.0 | 9.5 | 2.9 | 6.4 | 8.4 | 6.6 | 14.8 |
| Winter | 7.8 | 7.1 | 9.0 | 8.5 | 5.5 | 7.2 | 9.4 | 8.2 | 16.1 |
| | | | | CALCIUM | | | | | |
| Providing allowance | | | | | | | | | |
| Year | 69.4 | 69.2 | 68.8 | 70.3 | 69.8 | 67.9 | 72.8 | 76.4 | 62.4 |
| Spring | 69.6 | 69.9 | 69.2 | 70.4 | 68.8 | 68.0 | 73.1 | 74.9 | 64.4 |
| Summer | 67.5 | 65.5 | 69.4 | 68.3 | 65.4 | 66.1 | 69.6 | 75.1 | 62.5 |
| Fall | 71.0 | 69.3 | 68.9 | 71.3 | 76.4 | 69.0 | 74.4 | 78.2 | 62.7 |
| Winter | 70.3 | 72.0 | 67.9 | 71.6 | 68.2 | 68.3 | 74.4 | 77.6 | 59.8 |
| Providing less than two-thirds of allowance | | | | | | | | | |
| Year | 7.7 | 7.5 | 8.0 | 8.0 | 6.8 | 8.1 | 6.5 | 5.9 | 13.0 |
| Spring | 7.9 | 6.6 | 8.2 | 8.1 | 8.4 | 8.4 | 6.5 | 6.8 | 12.5 |
| Summer | 9.2 | 9.1 | 9.8 | 9.3 | 7.3 | 10.1 | 6.8 | 6.4 | 15.6 |
| Fall | 6.3 | 7.6 | 5.9 | 6.6 | 4.6 | 6.8 | 5.3 | 5.3 | 10.6 |
| Winter | 7.1 | 6.4 | 7.7 | 7.4 | 7.0 | 7.3 | 7.0 | 5.1 | 13.8 |

1/ National Research Council's recommended dietary allowances (1963) were used for comparison.
2/ Low-income households had disposable income below $3,000 in preceding year.

Table 3.--Contribution of fruits and vegetables to ascorbic acid supplied by food consumed at home per person in a day, United States by region and urbanization, year and seasons 1965-66 1/

| Food sources by seasons | United States | Region | | | | Urbanization | | |
|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm |
| | Contribution in Milligrams | | | | | | | |
| Fruits | | | | | | | | |
| Year | 46 | 54 | 46 | 41 | 47 | 49 | 42 | 37 |
| Spring | 48 | 57 | 48 | 39 | 52 | 51 | 43 | 37 |
| Summer | 44 | 50 | 43 | 39 | 45 | 45 | 41 | 38 |
| Fall | 42 | 51 | 39 | 38 | 43 | 46 | 35 | 31 |
| Winter | 52 | 59 | 53 | 47 | 50 | 55 | 47 | 43 |
| Vegetables | | | | | | | | |
| Year | 44 | 44 | 42 | 48 | 43 | 43 | 46 | 52 |
| Spring | 42 | 42 | 38 | 44 | 41 | 42 | 41 | 42 |
| Summer | 50 | 48 | 49 | 53 | 46 | 45 | 56 | 65 |
| Fall | 45 | 44 | 39 | 50 | 47 | 44 | 46 | 52 |
| Winter | 41 | 43 | 39 | 43 | 40 | 40 | 43 | 44 |
| | Percentage of Total Supply | | | | | | | |
| Fruits | | | | | | | | |
| Year | 45 | 49 | 46 | 41 | 46 | 47 | 42 | 37 |
| Spring | 47 | 50 | 48 | 42 | 49 | 48 | 45 | 41 |
| Summer | 41 | 45 | 41 | 38 | 43 | 44 | 38 | 33 |
| Fall | 43 | 48 | 43 | 39 | 42 | 45 | 38 | 34 |
| Winter | 50 | 52 | 51 | 47 | 49 | 51 | 46 | 44 |
| Vegetables | | | | | | | | |
| Year | 43 | 40 | 42 | 48 | 42 | 41 | 47 | 52 |
| Spring | 41 | 37 | 39 | 47 | 39 | 40 | 43 | 47 |
| Summer | 47 | 43 | 46 | 52 | 44 | 44 | 51 | 57 |
| Fall | 46 | 41 | 43 | 52 | 46 | 43 | 49 | 56 |
| Winter | 39 | 37 | 37 | 43 | 39 | 38 | 43 | 45 |

1/ Daily average per person computed from (a) total supply of the nutrients from household supplies for a week divided by 7 and (b) by household size (21 meals at home equal one person).

Table 4.--Contribution of vegetables, milk and milk products, liver, and fruits to vitamin A value supplied by food consumed at home per person in a day, United States by region and urbanization, year and seasons, 1965-66 1/

| Food sources by seasons | United States | Region | | | | Urbanization | | |
|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm |
| | Contribution in International Units | | | | | | | |
| Vegetables | | | | | | | | |
| Year | 3,280 | 3,290 | 2,820 | 3,610 | 3,470 | 3,290 | 3,200 | 3,530 |
| Spring | 3,120 | 3,290 | 2,860 | 3,050 | 3,490 | 3,300 | 2,730 | 2,710 |
| Summer | 2,890 | 3,070 | 2,680 | 2,900 | 3,010 | 2,910 | 2,810 | 2,970 |
| Fall | 3,850 | 3,560 | 2,930 | 4,770 | 4,030 | 3,700 | 3,970 | 4,840 |
| Winter | 3,310 | 3,230 | 2,800 | 3,800 | 3,320 | 3,250 | 3,340 | 3,830 |
| Milk, cream, cheese | | | | | | | | |
| Year | 920 | 1,000 | 1,000 | 780 | 960 | 930 | 900 | 1,000 |
| Spring | 910 | 980 | 980 | 780 | 940 | 910 | 890 | 1,000 |
| Summer | 900 | 930 | 1,000 | 790 | 920 | 900 | 870 | 1,000 |
| Fall | 950 | 1,030 | 1,020 | 790 | 1,030 | 950 | 920 | 990 |
| Winter | 930 | 1,050 | 1,000 | 770 | 960 | 940 | 900 | 1,030 |
| Liver | | | | | | | | |
| Year | 770 | 880 | 680 | 750 | 800 | 840 | 620 | 650 |
| Spring | 840 | 1,040 | 750 | 770 | 870 | 990 | 530 | 600 |
| Summer | 670 | 690 | 530 | 710 | 820 | 700 | 610 | 560 |
| Fall | 810 | 890 | 650 | 890 | 790 | 890 | 620 | 690 |
| Winter | 760 | 900 | 800 | 630 | 710 | 780 | 700 | 820 |
| Fruits | | | | | | | | |
| Year | 640 | 640 | 620 | 630 | 740 | 650 | 620 | 690 |
| Spring | 540 | 570 | 500 | 490 | 670 | 570 | 480 | 470 |
| Summer | 1,230 | 1,170 | 1,150 | 1,300 | 1,350 | 1,210 | 1,250 | 1,370 |
| Fall | 400 | 420 | 370 | 340 | 560 | 420 | 360 | 330 |
| Winter | 380 | 400 | 420 | 310 | 380 | 370 | 370 | 400 |
| | Percentage of Total Supply | | | | | | | |
| Vegetables | | | | | | | | |
| Year | 44 | 43 | 40 | 48 | 44 | 43 | 44 | 45 |
| Spring | 42 | 42 | 40 | 44 | 44 | 43 | 42 | 40 |
| Summer | 38 | 40 | 37 | 39 | 38 | 39 | 38 | 38 |
| Fall | 48 | 46 | 42 | 55 | 48 | 47 | 51 | 55 |
| Winter | 46 | 43 | 40 | 52 | 46 | 45 | 46 | 48 |
| Milk, cream, cheese | | | | | | | | |
| Year | 12 | 13 | 14 | 10 | 12 | 12 | 12 | 13 |
| Spring | 12 | 13 | 14 | 11 | 12 | 12 | 14 | 15 |
| Summer | 12 | 12 | 14 | 11 | 12 | 12 | 12 | 13 |
| Fall | 12 | 13 | 15 | 9 | 12 | 12 | 12 | 11 |
| Winter | 13 | 14 | 14 | 11 | 13 | 13 | 12 | 13 |
| Liver | | | | | | | | |
| Year | 10 | 11 | 10 | 10 | 10 | 11 | 8 | 8 |
| Spring | 12 | 13 | 11 | 11 | 11 | 13 | 8 | 9 |
| Summer | 9 | 9 | 7 | 10 | 10 | 9 | 8 | 7 |
| Fall | 10 | 11 | 9 | 10 | 9 | 11 | 8 | 8 |
| Winter | 10 | 12 | 12 | 9 | 10 | 11 | 10 | 10 |
| Fruits | | | | | | | | |
| Year | 9 | 8 | 9 | 8 | 9 | 9 | 9 | 9 |
| Spring | 7 | 7 | 7 | 7 | 8 | 7 | 7 | 7 |
| Summer | 16 | 15 | 16 | 18 | 17 | 16 | 17 | 17 |
| Fall | 5 | 5 | 5 | 4 | 7 | 5 | 5 | 4 |
| Winter | 5 | 5 | 6 | 4 | 5 | 5 | 5 | 5 |

1/ Daily average per person computed from (a) total supply of the nutrients from household food supplies for a week divided by 7 and (b) by household size (21 meals at home equal one person).

Table 5.--Contribution of milk and milk products and enriched grain products to calcium supplied by food consumed at home per person in a day, United States by region and and urbanization, year and seasons, 1965-66 1/

| Food sources by seasons | United States | Region | | | | Urbanization | | |
|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm |
| | | | | Contribution in Milligrams | | | | |
| Milk, cream, cheese | | | | | | | | |
| Year | 682 | 715 | 715 | 610 | 722 | 677 | 687 | 712 |
| Spring | 673 | 704 | 694 | 618 | 699 | 668 | 680 | 692 |
| Summer | 658 | 655 | 709 | 599 | 696 | 652 | 661 | 696 |
| Fall | 698 | 740 | 725 | 613 | 761 | 696 | 700 | 715 |
| Winter | 702 | 762 | 735 | 613 | 732 | 696 | 707 | 757 |
| Milk (fluid, canned, and dried) | | | | | | | | |
| Year | 528 | 560 | 553 | 473 | 546 | 518 | 539 | 572 |
| Spring | 514 | 543 | 526 | 477 | 522 | 508 | 523 | 542 |
| Summer | 496 | 493 | 535 | 454 | 519 | 485 | 509 | 545 |
| Fall | 548 | 596 | 578 | 473 | 573 | 540 | 557 | 592 |
| Winter | 555 | 605 | 576 | 489 | 571 | 543 | 570 | 625 |
| Enriched or whole grain products | | | | | | | | |
| Year | 147 | 112 | 116 | 212 | 118 | 126 | 184 | 209 |
| Spring | 146 | 110 | 119 | 210 | 118 | 128 | 177 | 206 |
| Summer | 142 | 110 | 113 | 203 | 112 | 122 | 175 | 206 |
| Fall | 151 | 115 | 117 | 221 | 122 | 128 | 194 | 218 |
| Winter | 148 | 115 | 117 | 214 | 119 | 127 | 192 | 204 |
| | | | | Percentage of Total Supply | | | | |
| Milk, cream, cheese | | | | | | | | |
| Year | 61 | 64 | 64 | 54 | 64 | 62 | 59 | 58 |
| Spring | 60 | 64 | 63 | 55 | 63 | 61 | 59 | 57 |
| Summer | 61 | 63 | 64 | 55 | 64 | 62 | 58 | 57 |
| Fall | 61 | 65 | 65 | 53 | 65 | 62 | 59 | 57 |
| Winter | 62 | 66 | 65 | 55 | 65 | 63 | 59 | 60 |
| Milk (fluid, canned, and dried) | | | | | | | | |
| Year | 47 | 50 | 50 | 42 | 49 | 48 | 46 | 46 |
| Spring | 46 | 49 | 48 | 42 | 47 | 47 | 45 | 45 |
| Summer | 46 | 47 | 48 | 41 | 48 | 46 | 45 | 45 |
| Fall | 48 | 53 | 52 | 41 | 49 | 48 | 47 | 48 |
| Winter | 49 | 52 | 51 | 44 | 51 | 49 | 48 | 50 |
| Enriched or whole grain products | | | | | | | | |
| Year | 13 | 10 | 10 | 19 | 10 | 12 | 16 | 17 |
| Spring | 13 | 10 | 11 | 19 | 11 | 12 | 15 | 17 |
| Summer | 13 | 11 | 10 | 19 | 10 | 12 | 15 | 17 |
| Fall | 13 | 10 | 10 | 19 | 10 | 11 | 16 | 18 |
| Winter | 13 | 10 | 10 | 19 | 11 | 12 | 16 | 16 |

1/ Daily average per person computed from (a) total supply of the nutrients from household food supplies divided by 7 and (b) by household size (21 meals at home equal one person).

Table 6.--Quantity of selected food groups consumed at home per person in a week in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66 1/

| Food group and season | United States | Region | | | | Urbanization | | | Low-income 2/ |
|---|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm | |
| | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. |
| Fresh vegetables (excl. potatoes) | | | | | | | | | |
| Year | 2.45 | 2.34 | 2.34 | 2.62 | 2.45 | 2.30 | 2.59 | 3.36 | 2.58 |
| Spring | 2.23 | 2.11 | 2.00 | 2.48 | 2.34 | 2.22 | 2.18 | 2.43 | 2.18 |
| Summer | 3.60 | 3.46 | 3.67 | 3.89 | 2.96 | 3.14 | 4.17 | 5.59 | 3.98 |
| Fall | 2.13 | 2.08 | 1.89 | 2.18 | 2.56 | 2.09 | 2.11 | 2.61 | 2.21 |
| Winter | 1.79 | 1.76 | 1.69 | 1.79 | 1.94 | 1.72 | 1.86 | 2.24 | 1.86 |
| Dark green and deep yellow | | | | | | | | | |
| Year | .33 | .37 | .26 | .34 | .37 | .33 | .31 | .36 | .39 |
| Spring | .32 | .34 | .26 | .33 | .35 | .34 | .27 | .27 | .36 |
| Summer | .28 | .34 | .23 | .25 | .32 | .28 | .25 | .29 | .27 |
| Fall | .41 | .47 | .28 | .45 | .47 | .40 | .42 | .52 | .54 |
| Winter | .31 | .33 | .24 | .31 | .34 | .31 | .30 | .37 | .42 |
| Tomatoes | | | | | | | | | |
| Year | .43 | .37 | .43 | .48 | .41 | .39 | .47 | .62 | .44 |
| Spring | .33 | .31 | .28 | .40 | .32 | .33 | .34 | .28 | .28 |
| Summer | .80 | .64 | .92 | .91 | .57 | .68 | .95 | 1.34 | .95 |
| Fall | .32 | .28 | .29 | .29 | .47 | .31 | .32 | .40 | .30 |
| Winter | .24 | .26 | .19 | .24 | .25 | .23 | .25 | .30 | .18 |
| Fresh fruits | | | | | | | | | |
| Year | 2.79 | 2.78 | 2.78 | 2.74 | 2.94 | 2.73 | 2.80 | 3.30 | 2.60 |
| Spring | 2.49 | 2.70 | 2.52 | 2.21 | 2.71 | 2.52 | 2.43 | 2.43 | 2.06 |
| Summer | 3.67 | 3.24 | 3.43 | 4.14 | 3.78 | 3.44 | 3.91 | 4.85 | 3.97 |
| Fall | 2.45 | 2.62 | 2.39 | 2.25 | 2.68 | 2.44 | 2.41 | 2.67 | 2.28 |
| Winter | 2.51 | 2.57 | 2.74 | 2.23 | 2.57 | 2.51 | 2.40 | 2.96 | 2.08 |
| Citrus | | | | | | | | | |
| Year | .73 | .84 | .72 | .66 | .74 | .79 | .65 | .55 | .56 |
| Spring | .76 | .88 | .74 | .62 | .93 | .83 | .67 | .50 | .68 |
| Summer | .33 | .41 | .34 | .28 | .32 | .35 | .32 | .26 | .25 |
| Fall | .68 | .83 | .58 | .71 | .51 | .73 | .57 | .56 | .48 |
| Winter | 1.19 | 1.22 | 1.25 | 1.08 | 1.23 | 1.25 | 1.03 | 1.09 | .85 |
| Commercially canned vegetables and fruits | | | | | | | | | |
| Year | 1.29 | 1.34 | 1.34 | 1.16 | 1.44 | 1.35 | 1.27 | .84 | 1.06 |
| Spring | 1.38 | 1.43 | 1.47 | 1.21 | 1.47 | 1.44 | 1.31 | 1.02 | 1.13 |
| Summer | 1.03 | 1.08 | 1.02 | .92 | 1.25 | 1.09 | 1.03 | .57 | .79 |
| Fall | 1.31 | 1.34 | 1.33 | 1.19 | 1.48 | 1.39 | 1.24 | .82 | 1.14 |
| Winter | 1.47 | 1.48 | 1.57 | 1.33 | 1.56 | 1.50 | 1.50 | 1.03 | 1.21 |

See footnotes at end of table.

--Continued

Table 6.--Quantity of selected food groups consumed at home per person in a week in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66 1/--Continued

| Food group and season | United States | Region | | | | Urbanization | | | Low-income 2/ |
|---|---|---|---|---|---|---|---|---|---|
| | | North-east | North Central | South | West | Urban | Rural nonfarm | Rural farm | |
| | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. |
| Commercially frozen vegetables and fruits | | | | | | | | | |
| Year | .19 | .24 | .16 | .16 | .23 | .22 | .14 | .07 | .09 |
| Spring | .20 | .25 | .17 | .17 | .25 | .23 | .16 | .10 | .10 |
| Summer | .15 | .17 | .13 | .13 | .20 | .18 | .12 | .05 | .07 |
| Fall | .19 | .26 | .16 | .14 | .24 | .22 | .14 | .06 | .08 |
| Winter | .22 | .29 | .17 | .21 | .24 | .26 | .15 | .08 | .10 |
| Milk and milk products (calcium equivalent basis) | | | | | | | | | |
| Year | 8.87 | 9.31 | 9.30 | 7.94 | 9.39 | 8.81 | 8.93 | 9.29 | 7.61 |
| Spring | 8.75 | 9.16 | 9.02 | 8.04 | 9.09 | 8.68 | 8.84 | 9.03 | 7.77 |
| Summer | 8.55 | 8.52 | 9.22 | 7.78 | 9.06 | 8.47 | 8.59 | 9.08 | 7.54 |
| Fall | 9.08 | 9.64 | 9.44 | 7.97 | 9.90 | 9.05 | 9.11 | 9.34 | 8.08 |
| Winter | 9.14 | 9.92 | 9.56 | 7.97 | 9.52 | 9.05 | 9.19 | 9.89 | 6.99 |
| Fluid milk (calcium equivalent basis) | | | | | | | | | |
| Year | 6.05 | 6.62 | 6.70 | 5.08 | 6.02 | 6.02 | 5.98 | 6.66 | 4.54 |
| Spring | 5.82 | 6.32 | 6.40 | 4.96 | 5.68 | 5.82 | 5.66 | 6.31 | 4.52 |
| Summer | 5.66 | 5.84 | 6.24 | 5.02 | 5.72 | 5.59 | 5.61 | 6.42 | 4.21 |
| Fall | 6.36 | 7.10 | 7.17 | 5.11 | 6.35 | 6.34 | 6.30 | 6.81 | 5.17 |
| Winter | 6.40 | 7.21 | 7.06 | 5.24 | 6.30 | 6.33 | 6.38 | 7.31 | 4.29 |
| Ice cream | | | | | | | | | |
| Year | .38 | .40 | .42 | .34 | .36 | .38 | .38 | .40 | .26 |
| Spring | .40 | .42 | .44 | .36 | .37 | .39 | .41 | .44 | .29 |
| Summer | .45 | .44 | .51 | .42 | .38 | .45 | .42 | .47 | .30 |
| Fall | .36 | .39 | .37 | .31 | .38 | .36 | .35 | .34 | .25 |
| Winter | .33 | .37 | .36 | .27 | .30 | .33 | .32 | .31 | .18 |

1/ Household consumption at home divided by household size based on 21 meals at home equal to one person.

2/ Low income households had disposable income below $3,000 in preceding year.