



United States  
Department of  
Agriculture

Human  
Nutrition  
Information  
Service

Agriculture  
Handbook  
Number 8-11

# Composition of Foods:

## Vegetables and Vegetable Products

- Raw
- Processed
- Prepared

By Nutrition Monitoring Division

**Principal Investigators:**

**David B. Haytowitz**  
**Ruth H. Matthews**



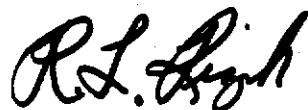
Revised August 1984

## FOREWORD

Agriculture Handbook No. 8 represents a traditional function of the U.S. Department of Agriculture. The development of the basic food composition tables used in the United States began more than 80 years ago. Data on the nutritive value of foods were first compiled and evaluated in the Department by W. O. Atwater in the 1890's. This nutrition pioneer organized and became the first director of the Office of Experiment Stations in the USDA. In 1896, the now classic USDA Bulletin No. 28, "The Chemical Composition of American Food Materials," by W. O. Atwater and C. D. Woods was published. This document was the first in a long series of food composition tables that have been issued by the Department.

The scope of succeeding tables has been expanded with the discovery of the presence and role of vitamins, minerals, and other dietary essentials in foods. Values from these tables have been used in many other compilations, both in this country and abroad. Nutritionists and scientists working in health-related fields depend on these composition data. Increasing emphasis on food and nutrition in national policies and programs has accelerated the need for comprehensive, up-to-date tabulations of the nutrient content of foods. USDA is continuing to expand and improve these food data.

This publication is a major revision of the 1963 edition of USDA Agriculture Handbook No. 8, "Composition of Foods... Raw, processed, prepared," currently a basic source of food composition data in this country. Dr. Atwater stated in Bulletin No. 28, "This table is intended to replace previous ones and to serve as a standard reference until it shall in its turn be replaced by a larger and more complete compilation." This revision of Agriculture Handbook No. 8 will, in its turn, also be replaced. The task of deriving representative nutritive values of foods is a historical responsibility of USDA. This task is never ending and is essential in providing more complete knowledge so that we can use our food resources wisely.



Robert L. Rizek, Director  
Nutrition Monitoring Division  
Human Nutrition Information Service

| Nutrients and units              | Amount in 100 grams, edible portion |                |                   | Amount in edible portion of common measures of food |                       | Refuse: Outer leaves, core and trimmings 36% |  |
|----------------------------------|-------------------------------------|----------------|-------------------|---|-----------------------|--|--|
|                                  | Mean                                | Standard error | Number of samples | Approximate measure and weight                      |                       |  |  |
|                                  |                                     |                |                   | 1 leaf = 10 g                                       | 1/2 c shredded = 28 g |  |  |
| A                                | B                                   | C              | D                 | E   | F                     | G  |  |
| <b>PROXIMATE:</b>                |                                     |                |                   |   |                       |  |  |
| Water . . . . .                  | g . . . . .                         | 94.00          |                   | 9.40  | 26.32                 | 272.88                                       |  |
| Food energy . . . . .            | { kcal . . . . .                    | 18             |                   | 2   | 5                     | 52   |  |
|                                  | kJ . . . . .                        | 75             |                   | 8   | 21                    | 219  |  |
| Protein (N X 6.25) . . . . .     | g . . . . .                         | 1.30           |                   | 0.13  | 0.36                  | 3.77   |  |
| Total lipid (fat) . . . . .      | g . . . . .                         | 0.30           |                   | 0.03  | 0.08                  | 0.87   |  |
| Carbohydrate, total . . . . .    | g . . . . .                         | 3.50           |                   | 0.35  | 0.98                  | 10.16  |  |
| Fiber . . . . .                  | g . . . . .                         | 0.70           |                   | 0.07  | 0.20                  | 2.03   |  |
| Ash . . . . .                    | g . . . . .                         | 0.90           |                   | 0.09  | 0.25                  | 2.61   |  |
| <b>MINERALS:</b>                 |                                     |                |                   |   |                       |  |  |
| Calcium . . . . .                | mg . . . . .                        | 68             |                   | 7   | 19                    | 197  |  |
| Iron . . . . .                   | mg . . . . .                        | 1.40           |                   | 0.14  | 0.39                  | 4.06   |  |
| Magnesium . . . . .              | mg . . . . .                        | 11             |                   | 1   | 3                     | 32   |  |
| Phosphorus . . . . .             | mg . . . . .                        | 25             |                   | 3   | 7                     | 73   |  |
| Potassium . . . . .              | mg . . . . .                        | 264            |                   | 26  | 74                    | 766  |  |
| Sodium . . . . .                 | mg . . . . .                        | 9              |                   | 1   | 3                     | 26   |  |
| Zinc . . . . .                   | mg . . . . .                        |                |                   |   |                       |  |  |
| Copper . . . . .                 | mg . . . . .                        |                |                   |   |                       |  |  |
| Manganese . . . . .              | mg . . . . .                        |                |                   |   |                       |  |  |
| <b>VITAMINS:</b>                 |                                     |                |                   |   |                       |  |  |
| Ascorbic acid . . . . .          | mg . . . . .                        | 18.0           |                   | 1.8   | 5.0                   | 52.3   |  |
| Thiamin . . . . .                | mg . . . . .                        | 0.050          |                   | 0.005   | 0.014                 | 0.145  |  |
| Riboflavin . . . . .             | mg . . . . .                        | 0.080          |                   | 0.008   | 0.022                 | 0.232  |  |
| Niacin . . . . .                 | mg . . . . .                        | 0.400          |                   | 0.040   | 0.112                 | 1.161  |  |
| Pantothenic acid . . . . .       | mg . . . . .                        | 0.200          |                   | 0.020   | 0.056                 | 0.581  |  |
| Vitamin B6 . . . . .             | mg . . . . .                        | 0.055          |                   | 0.006   | 0.015                 | 0.160  |  |
| Folacin . . . . .                | mcg . . . . .                       |                |                   | 0   | 0                     | 0  |  |
| Vitamin B12 . . . . .            | mcg . . . . .                       | 0              |                   | 19  | 53                    | 552  |  |
| Vitamin A . . . . .              | { RE . . . . .                      | 190            |                   | 190   | 532                   | 5,516  |  |
|                                  | IU . . . . .                        | 1,900          |                   |   |                       |  |  |
| <b>LIPIDS:</b>                   |                                     |                |                   |   |                       |  |  |
| Fatty acids:                     |                                     |                |                   |   |                       |  |  |
| Saturated, total . . . . .       | g . . . . .                         | 0.039          |                   | 0.004   | 0.011                 | 0.113  |  |
| 4:0 . . . . .                    | g . . . . .                         |                |                   |   |                       |  |  |
| 6:0 . . . . .                    | g . . . . .                         |                |                   |   |                       |  |  |
| 8:0 . . . . .                    | g . . . . .                         |                |                   |   |                       |  |  |
| 10:0 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 12:0 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 14:0 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 16:0 . . . . .                   | g . . . . .                         | 0.035          |                   | 0.004   | 0.010                 | 0.102  |  |
| 18:0 . . . . .                   | g . . . . .                         | 0.004          |                   | 0.000   | 0.001                 | 0.012  |  |
| Monounsaturated, total . . . . . | g . . . . .                         | 0.012          |                   | 0.001   | 0.003                 | 0.035  |  |
| 16:1 . . . . .                   | g . . . . .                         | 0.003          |                   | 0.000   | 0.001                 | 0.009  |  |
| 18:1 . . . . .                   | g . . . . .                         | 0.009          |                   | 0.001   | 0.003                 | 0.026  |  |
| 20:1 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 22:1 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| Polyunsaturated, total . . . . . | g . . . . .                         | 0.159          |                   | 0.016   | 0.045                 | 0.462  |  |
| 18:2 . . . . .                   | g . . . . .                         | 0.047          |                   | 0.005   | 0.013                 | 0.136  |  |
| 18:3 . . . . .                   | g . . . . .                         | 0.113          |                   | 0.011   | 0.032                 | 0.328  |  |
| 18:4 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 20:4 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 20:5 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 22:5 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| 22:6 . . . . .                   | g . . . . .                         |                |                   |   |                       |  |  |
| Cholesterol . . . . .            | mg . . . . .                        | 0              |                   | 0   | 0                     | 0  |  |
| Phytosterols . . . . .           | mg . . . . .                        | 38             |                   | 4   | 11                    | 110  |  |
| <b>AMINO ACIDS:</b>              |                                     |                |                   |   |                       |  |  |
| Tryptophan . . . . .             | g . . . . .                         | 0.009          |                   | 0.001   | 0.003                 | 0.026  |  |
| Threonine . . . . .              | g . . . . .                         | 0.059          |                   | 0.006   | 0.017                 | 0.171  |  |
| Isoleucine . . . . .             | g . . . . .                         | 0.084          |                   | 0.008   | 0.024                 | 0.244  |  |
| Leucine . . . . .                | g . . . . .                         | 0.079          |                   | 0.008   | 0.022                 | 0.229  |  |
| Lysine . . . . .                 | g . . . . .                         | 0.084          |                   | 0.008   | 0.024                 | 0.244  |  |
| Methionine . . . . .             | g . . . . .                         | 0.016          |                   | 0.002   | 0.004                 | 0.046  |  |
| Cystine . . . . .                | g . . . . .                         | 0.016          |                   | 0.006   | 0.015                 | 0.160  |  |
| Phenylalanine . . . . .          | g . . . . .                         | 0.055          |                   | 0.003   | 0.009                 | 0.093  |  |
| Tyrosine . . . . .               | g . . . . .                         | 0.032          |                   | 0.007   | 0.020                 | 0.203  |  |
| Valine . . . . .                 | g . . . . .                         | 0.070          |                   | 0.007   | 0.020                 | 0.206  |  |
| Arginine . . . . .               | g . . . . .                         | 0.071          |                   | 0.002   | 0.006                 | 0.064  |  |
| Histidine . . . . .              | g . . . . .                         | 0.022          |                   | 0.006   | 0.016                 | 0.163  |  |
| Alanine . . . . .                | g . . . . .                         | 0.056          |                   | 0.014   | 0.040                 | 0.412  |  |
| Aspartic acid . . . . .          | g . . . . .                         | 0.142          |                   | 0.018   | 0.051                 | 0.528  |  |
| Glutamic acid . . . . .          | g . . . . .                         | 0.182          |                   | 0.006   | 0.016                 | 0.165  |  |
| Glycine . . . . .                | g . . . . .                         | 0.057          |                   | 0.005   | 0.013                 | 0.139  |  |
| Proline . . . . .                | g . . . . .                         | 0.048          |                   | 0.004   | 0.011                 | 0.113  |  |
| Serine . . . . .                 | g . . . . .                         | 0.039          |                   |   |                       |  |  |

| Nutrients and units              | Amount in 100 grams, edible portion |                |                   | Amount in edible portion of common measures of food |                          | Amount in edible portion of 1 pound of food as purchased<br>Refuse: Core 6% |
|----------------------------------|-------------------------------------|----------------|-------------------|---|--------------------------|---|
|                                  | Mean                                | Standard error | Number of samples | Approximate measure and weight                      | 1/2 c shredded<br>= 28 g |   |
|                                  |                                     |                |                   | 1 inner leaf<br>= 10 g                              |                          |   |
| A                                | B                                   | C              | D                 | E   | F                        | G   |
| <b>PROXIMATE:</b>                |                                     |                |                   |   |                          |   |
| Water . . . . .                  | g . . . . .                         | 94.91          | 0.288             | 9   | 9.49                     | 26.58   |
|                                  |                                     | 16             |                   |   | 2                        | 4   |
| Food energy . . . . .            | { kcal . . . . .                    | 67             | *                 |   | 7                        | 19  |
|                                  |                                     |                |                   |   |                          | 284   |
| Protein (N X 6.25) . . . . .     | g . . . . .                         | 1.62           | 0.037             | 3   | 0.16                     | 0.45  |
| Total lipid (fat) . . . . .      | g . . . . .                         | 0.20           |                   | 1   | 0.02                     | 0.06  |
| Carbohydrate, total . . . . .    | g . . . . .                         | 2.37           |                   |   | 0.24                     | 0.66  |
| Fiber . . . . .                  | g . . . . .                         | 0.70           |                   |   | 0.07                     | 0.20  |
| Ash . . . . .                    | g . . . . .                         | 0.90           |                   |   | 0.09                     | 0.25  |
| <b>MINERALS:</b>                 |                                     |                |                   |   |                          |   |
| Calcium . . . . .                | mg . . . . .                        | 36             |                   | 1   | 4                        | 10  |
| Iron . . . . .                   | mg . . . . .                        | 1.10           |                   | 1   | 0.11                     | 0.31  |
| Magnesium . . . . .              | mg . . . . .                        | 6              |                   |   | 1                        | 2   |
| Phosphorus . . . . .             | mg . . . . .                        | 45             |                   | 1   | 5                        | 13  |
| Potassium . . . . .              | mg . . . . .                        | 290            | 41.764            | 4   | 29                       | 81  |
| Sodium . . . . .                 | mg . . . . .                        | 8              | 0.657             | 4   | 1                        | 2   |
| Zinc . . . . .                   | mg . . . . .                        |                |                   |   |                          | 1,235   |
| Copper . . . . .                 | mg . . . . .                        |                |                   |   |                          | 32  |
| Manganese . . . . .              | mg . . . . .                        |                |                   |   |                          |   |
| <b>VITAMINS:</b>                 |                                     |                |                   |   |                          |   |
| Ascorbic acid . . . . .          | mg . . . . .                        | 24.0           |                   | 1   | 2.4                      | 6.7   |
| Thiamin . . . . .                | mg . . . . .                        | 0.100          |                   | 1   | 0.010                    | 0.028   |
| Riboflavin . . . . .             | mg . . . . .                        | 0.100          |                   | 1   | 0.010                    | 0.028   |
| Niacin . . . . .                 | mg . . . . .                        | 0.500          |                   | 1   | 0.050                    | 0.140   |
| Pantothenic acid . . . . .       | mg . . . . .                        |                |                   |   |                          | 2.132   |
| Vitamin B6 . . . . .             | mg . . . . .                        |                |                   |   |                          |   |
| Folacin . . . . .                | mcg . . . . .                       | 135.7          | 32.743            | 7   | 13.6                     | 38.0  |
| Vitamin B12 . . . . .            | mcg . . . . .                       | 0              |                   |   | 0                        | 0   |
| Vitamin A . . . . .              | { RE . . . . .                      | 260            |                   | 1   | 26                       | 73  |
|                                  | { IU . . . . .                      | 2,600          |                   | 1   | 260                      | 728   |
|                                  |                                     |                |                   |   |                          | 1,109   |
|                                  |                                     |                |                   |   |                          | 11,086  |
| <b>LIPIDS:</b>                   |                                     |                |                   |   |                          |   |
| Fatty acids:                     |                                     |                |                   |   |                          |   |
| Saturated, total . . . . .       | g . . . . .                         | 0.026          |                   |   | 0.003                    | 0.007   |
| 4:0 . . . . .                    | g . . . . .                         |                |                   |   |                          | 0.111   |
| 6:0 . . . . .                    | g . . . . .                         |                |                   |   |                          |   |
| 8:0 . . . . .                    | g . . . . .                         |                |                   |   |                          |   |
| 10:0 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 12:0 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 14:0 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 16:0 . . . . .                   | g . . . . .                         | 0.023          |                   |   | 0.002                    | 0.006   |
| 18:0 . . . . .                   | g . . . . .                         | 0.003          |                   |   | 0.000                    | 0.001   |
| Monounsaturated, total . . . . . | g . . . . .                         | 0.008          |                   |   | 0.001                    | 0.002   |
| 16:1 . . . . .                   | g . . . . .                         | 0.002          |                   |   | 0.000                    | 0.0034  |
| 18:1 . . . . .                   | g . . . . .                         | 0.006          |                   |   | 0.001                    | 0.009   |
| 20:1 . . . . .                   | g . . . . .                         |                |                   |   | 0.001                    | 0.026   |
| 22:1 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| Polyunsaturated, total . . . . . | g . . . . .                         | 0.106          |                   |   | 0.011                    | 0.030   |
| 18:2 . . . . .                   | g . . . . .                         | 0.031          |                   |   | 0.003                    | 0.009   |
| 18:3 . . . . .                   | g . . . . .                         | 0.075          |                   |   | 0.008                    | 0.021   |
| 18:4 . . . . .                   | g . . . . .                         |                |                   |   |                          | 0.320   |
| 20:4 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 20:5 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 22:5 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| 22:6 . . . . .                   | g . . . . .                         |                |                   |   |                          |   |
| Cholesterol . . . . .            | mg . . . . .                        | 0              |                   |   | 0                        | 0   |
| Phytosterols . . . . .           | mg . . . . .                        |                |                   |   |                          | 0   |
| <b>AMINO ACIDS:</b>              |                                     |                |                   |   |                          |   |
| Tryptophan . . . . .             | g . . . . .                         | 0.012          |                   |   | 0.001                    | 0.003   |
| Threonine . . . . .              | g . . . . .                         | 0.074          |                   |   | 0.007                    | 0.021   |
| Isoleucine . . . . .             | g . . . . .                         | 0.105          |                   |   | 0.011                    | 0.029   |
| Leucine . . . . .                | g . . . . .                         | 0.098          |                   |   | 0.010                    | 0.027   |
| Lysine . . . . .                 | g . . . . .                         | 0.105          |                   |   | 0.011                    | 0.029   |
| Methionine . . . . .             | g . . . . .                         | 0.020          |                   |   | 0.002                    | 0.006   |
| Cystine . . . . .                | g . . . . .                         | 0.019          |                   |   | 0.002                    | 0.005   |
| Phenylalanine . . . . .          | g . . . . .                         | 0.068          |                   |   | 0.007                    | 0.019   |
| Tyrosine . . . . .               | g . . . . .                         | 0.040          |                   |   | 0.004                    | 0.011   |
| Valine . . . . .                 | g . . . . .                         | 0.087          |                   |   | 0.009                    | 0.024   |
| Arginine . . . . .               | g . . . . .                         | 0.088          |                   |   | 0.009                    | 0.025   |
| Histidine . . . . .              | g . . . . .                         | 0.028          |                   |   | 0.003                    | 0.008   |
| Alanine . . . . .                | g . . . . .                         | 0.070          |                   |   | 0.007                    | 0.020   |
| Aspartic acid . . . . .          | g . . . . .                         | 0.177          |                   |   | 0.018                    | 0.050   |
| Glutamic acid . . . . .          | g . . . . .                         | 0.227          |                   |   | 0.023                    | 0.064   |
| Glycine . . . . .                | g . . . . .                         | 0.071          |                   |   | 0.007                    | 0.020   |
| Proline . . . . .                | g . . . . .                         | 0.060          |                   |   | 0.006                    | 0.017   |
| Serine . . . . .                 | g . . . . .                         | 0.049          |                   |   | 0.005                    | 0.014   |
|                                  |                                     |                |                   |   |                          | 0.209   |

**LETTUCE, BUTTERHEAD, Raw**  
*Lactuca sativa*

Includes Boston and Bibb types.

| Nutrients and units               | Amount in 100 grams, edible portion |                |                   | Amount in edible portion of common measures of food |                             | Amount in edible portion of 1 pound of food as purchased<br>Refuse: Outer leaves and core 25% |
|-----------------------------------|-------------------------------------|----------------|-------------------|---|-----------------------------|---|
|                                   | Mean                                | Standard error | Number of samples | 2 leaves<br>= 15 g <sup>1</sup>                     | 1 head = 163 g <sup>2</sup> |   |
|                                   |                                     |                |                   | E   | F                           |   |
| A                                 | B                                   | C              | D                 |   |                             | G   |
| PROXIMATE:                        |                                     |                |                   |   |                             |   |
| Water . . . . .                   | 95.58                               | 0.407          | 8                 | 14.34   | 154.84                      | 320.86  |
| Food energy . . . . .             | 13                                  |                |                   | 2   | 21                          | 45  |
| { kcal . . . . .                  | 56                                  |                |                   | 8   | 91                          | 186   |
| Food energy . . . . .             | 1.29                                |                | 1                 | 0.19  | 2.09                        | 4.32  |
| Protein (N X 6.25) . . . . .      | 0.22                                |                | 1                 | 0.03  | 0.36                        | 0.74  |
| Total lipid (fat) . . . . .       | 2.32                                |                |                   | 0.35  | 3.76                        | 7.80  |
| Carbohydrate, total . . . . .     | g . . . . .                         |                |                   |   |                             |   |
| Fiber <sup>3</sup> . . . . .      | 0.59                                |                | 1                 | 0.09  | 0.96                        | 1.98  |
| Ash . . . . .                     | g . . . . .                         |                |                   |   |                             |   |
| MINERALS:                         |                                     |                |                   |   |                             |   |
| Calcium . . . . .                 | mg . . . . .                        | 0.30           |                   | 1   | 0.04                        | 0.99  |
| Iron . . . . .                    | mg . . . . .                        |                |                   |   |                             |   |
| Magnesium . . . . .               | mg . . . . .                        |                |                   |   |                             |   |
| Phosphorus . . . . .              | mg . . . . .                        | 257            | 20.332            | 4   | 39                          | 862   |
| Potassium . . . . .               | mg . . . . .                        | 5              | 2.818             | 4   | 1                           | 18  |
| Sodium . . . . .                  | mg . . . . .                        | 0.17           |                   | 1   | 0.03                        | 0.57  |
| Zinc . . . . .                    | mg . . . . .                        | 0.023          |                   | 1   | 0.003                       | 0.077   |
| Copper . . . . .                  | mg . . . . .                        | 0.133          |                   | 1   | 0.020                       | 0.446   |
| Manganese . . . . .               | mg . . . . .                        |                |                   |   | 1.2                         | 26.9  |
| VITAMINS:                         |                                     |                |                   |   | 13.0                        |   |
| Ascorbic acid . . . . .           | mg . . . . .                        | 8.0            |                   |   | 0.098                       | 0.201   |
| Thiamin . . . . .                 | mg . . . . .                        | 0.060          |                   |   | 0.098                       | 0.201   |
| Riboflavin . . . . .              | mg . . . . .                        | 0.060          |                   |   | 0.489                       | 1.007   |
| Niacin . . . . .                  | mg . . . . .                        | 0.300          |                   |   |                             |   |
| Pantothenic acid . . . . .        | mg . . . . .                        |                |                   |   |                             |   |
| Vitamin B <sub>6</sub> . . . . .  | mcg . . . . .                       | 73.3           | 25.427            | 3   | 11.0                        | 246.0   |
| Folacin . . . . .                 | mcg . . . . .                       | 0              |                   |   | 0                           | 0   |
| Vitamin B <sub>12</sub> . . . . . | mcg . . . . .                       | 97             |                   |   | 15                          | 326   |
| Vitamin A . . . . .               | { IU . . . . .                      | 970            |                   |   | 146                         | 3,256   |
| LIPIDS:                           |                                     |                |                   |   |                             |   |
| Fatty acids:                      |                                     |                |                   |   |                             |   |
| Saturated, total . . . . .        | g . . . . .                         | 0.029          |                   |   | 0.004                       | 0.047   |
| 4:0 . . . . .                     | g . . . . .                         |                |                   |   |                             |   |
| 6:0 . . . . .                     | g . . . . .                         |                |                   |   |                             |   |
| 8:0 . . . . .                     | g . . . . .                         |                |                   |   |                             |   |
| 10:0 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 12:0 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 14:0 . . . . .                    | g . . . . .                         | 0.026          |                   |   | 0.004                       | 0.042   |
| 16:0 . . . . .                    | g . . . . .                         | 0.003          |                   |   | 0.000                       | 0.005   |
| 18:0 . . . . .                    | g . . . . .                         | 0.008          |                   |   | 0.001                       | 0.013   |
| Monounsaturated, total . . . . .  | g . . . . .                         | 0.002          |                   |   | 0.000                       | 0.003   |
| 16:1 . . . . .                    | g . . . . .                         | 0.006          |                   |   | 0.001                       | 0.010   |
| 18:1 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 20:1 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 22:1 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| Polysaturated, total . . . . .    | g . . . . .                         | 0.117          |                   |   | 0.018                       | 0.190   |
| 18:2 . . . . .                    | g . . . . .                         | 0.034          |                   |   | 0.005                       | 0.055   |
| 18:3 . . . . .                    | g . . . . .                         | 0.083          |                   |   | 0.012                       | 0.134   |
| 18:4 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 20:4 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 20:5 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 22:5 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| 22:6 . . . . .                    | g . . . . .                         |                |                   |   |                             |   |
| Cholesterol . . . . .             | mg . . . . .                        | 0              |                   |   | 0                           | 0   |
| Phytosterols . . . . .            | mg . . . . .                        |                |                   |   |                             |   |
| AMINO ACIDS:                      |                                     |                |                   |   |                             |   |
| Tryptophan . . . . .              | g . . . . .                         | 0.009          | 97                | 0.001   | 0.015                       | 0.030   |
| Threonine . . . . .               | g . . . . .                         | 0.059          | 100               | 0.009   | 0.096                       | 0.198   |
| Isoleucine . . . . .              | g . . . . .                         | 0.083          | 100               | 0.012   | 0.134                       | 0.279   |
| Leucine . . . . .                 | g . . . . .                         | 0.078          | 100               | 0.012   | 0.126                       | 0.262   |
| Lysine . . . . .                  | g . . . . .                         | 0.084          | 104               | 0.013   | 0.136                       | 0.282   |
| Methionine . . . . .              | g . . . . .                         | 0.016          | 104               | 0.002   | 0.026                       | 0.054   |
| Cystine . . . . .                 | g . . . . .                         | 0.015          | 3                 | 0.002   | 0.024                       | 0.050   |
| Phenylalanine . . . . .           | g . . . . .                         | 0.054          | 100               | 0.008   | 0.088                       | 0.181   |
| Tyrosine . . . . .                | g . . . . .                         | 0.032          | 8                 | 0.005   | 0.052                       | 0.107   |
| Valine . . . . .                  | g . . . . .                         | 0.069          | 100               | 0.010   | 0.112                       | 0.232   |
| Arginine . . . . .                | g . . . . .                         | 0.070          | 100               | 0.011   | 0.113                       | 0.235   |
| Histidine . . . . .               | g . . . . .                         | 0.022          | 100               | 0.003   | 0.036                       | 0.074   |
| Alanine . . . . .                 | g . . . . .                         | 0.055          | 7                 | 0.008   | 0.089                       | 0.185   |
| Aspartic acid . . . . .           | g . . . . .                         | 0.141          | 7                 | 0.021   | 0.228                       | 0.473   |
| Glutamic acid . . . . .           | g . . . . .                         | 0.180          | 7                 | 0.027   | 0.292                       | 0.604   |
| Glycine . . . . .                 | g . . . . .                         | 0.057          | 7                 | 0.009   | 0.092                       | 0.191   |
| Proline . . . . .                 | g . . . . .                         | 0.048          | 7                 | 0.007   | 0.078                       | 0.161   |
| Serine . . . . .                  | g . . . . .                         | 0.039          | 7                 | 0.006   | 0.063                       | 0.131   |

<sup>1</sup> Inner leaves.

<sup>2</sup> With refuse = 220 g, 5-in diam.

<sup>3</sup> Insoluble dietary fiber as determined by the neutral detergent fiber method = 0.7 g per 100 g.

**LETTUCE, ICEBERG, Raw**  
*Lactuca sativa*

Includes crisphead types.

| Nutrients and units               | Amount in 100 grams, edible portion |                     |                        | Amount in edible portion of common measures of food |                                  | Refuse: Core 5%<br>1 pound of food as purchased |  |
|-----------------------------------|-------------------------------------|---------------------|------------------------|---|----------------------------------|---|--|
|                                   | Mean<br>A                           | Standard error<br>B | Number of samples<br>C | Approximate measure and weight                      |                                  |   |  |
|                                   |                                     |                     |                        | 1 leaf = 20 g<br>E                                  | 1 head = 539 g <sup>1</sup><br>F |   |  |
| <b>PROXIMATE:</b>                 |                                     |                     |                        |   |                                  |   |  |
| Water . . . . .                   | g . . . . .                         | 95.89               | 0.091                  | 110   | 19.18<br>3<br>11 *               | 516.85<br>70<br>286                             |  |
| Food energy . . . . .             | kcal . . . . .                      | 13                  |                        |   |                                  | 413.21<br>55<br>229                             |  |
| Protein (N X 6.25) . . . . .      | g . . . . .                         | 53                  | 0.035                  | 21  | 0.20                             | 5.44<br>4.34                                    |  |
| Total lipid (fat) . . . . .       | g . . . . .                         | 1.01                | 0.035                  | 21  | 0.04                             | 1.02<br>0.81                                    |  |
| Carbohydrate, total . . . . .     | g . . . . .                         | 0.19                |                        |   | 0.42                             | 11.26<br>8.99                                   |  |
| Fiber . . . . .                   | g . . . . .                         | 2.09                |                        |   | 0.11                             | 2.86<br>2.28                                    |  |
| Ash . . . . .                     | g . . . . .                         | 0.53                | 0.028                  | 15  | 0.10                             | 2.59<br>2.07                                    |  |
| <b>MINERALS:</b>                  |                                     |                     |                        |   |                                  |   |  |
| Calcium . . . . .                 | mg . . . . .                        | 0.48                | 0.636                  | 91  | 4                                | 102<br>2.70                                     |  |
| Iron . . . . .                    | mg . . . . .                        | 19                  | 0.144                  | 97  | 0.10                             | 80<br>2.17                                      |  |
| Magnesium . . . . .               | mg . . . . .                        | 13                  | 0.412                  | 93  | 2                                | 37  |  |
| Phosphorus . . . . .              | mg . . . . .                        | 20                  | 0.509                  | 91  | 4                                | 88<br>680                                       |  |
| Potassium . . . . .               | mg . . . . .                        | 158                 | 3.650                  | 100   | 32                               | 39<br>852                                       |  |
| Sodium . . . . .                  | mg . . . . .                        | 9                   | 0.718                  | 102   | 2                                | 0.94<br>48                                      |  |
| Zinc . . . . .                    | mg . . . . .                        | 0.22                | 0.009                  | 73  | 0.04                             | 0.121<br>0.006                                  |  |
| Copper . . . . .                  | mg . . . . .                        | 0.028               | 0.003                  | 48  | 0.006                            | 0.151<br>0.651                                  |  |
| Manganese . . . . .               | mg . . . . .                        | 0.151               | 0.011                  | 82  | 0.030                            | 0.814   |  |
| <b>VITAMINS:<sup>3</sup></b>      |                                     |                     |                        |   |                                  |   |  |
| Ascorbic acid . . . . .           | mg . . . . .                        | 3.9                 | 0.379                  | 17  | 0.8                              | 21.0<br>0.248                                   |  |
| Thiamin . . . . .                 | mg . . . . .                        | 0.046               | 0.005                  | 18  | 0.009                            | 0.198<br>0.162                                  |  |
| Riboflavin . . . . .              | mg . . . . .                        | 0.030               | 0.004                  | 18  | 0.006                            | 0.129<br>0.806                                  |  |
| Niacin . . . . .                  | mg . . . . .                        | 0.187               | 0.044                  | 7   | 0.037                            | 0.198<br>1.008                                  |  |
| Pantothenic acid . . . . .        | mg . . . . .                        | 0.046               | 0.003                  | 5   | 0.009                            | 0.248<br>0.216                                  |  |
| Vitamin B <sub>6</sub> . . . . .  | mg . . . . .                        | 0.040               | 0.002                  | 14  | 0.008                            | 0.172<br>241.3                                  |  |
| Folacin . . . . .                 | mcg . . . . .                       | 56.0                | 10.000                 | 12  | 11.2                             | 301.8<br>0                                      |  |
| Vitamin B <sub>12</sub> . . . . . | mcg . . . . .                       | 0                   |                        |   | 7                                | 178<br>0  |  |
| Vitamin A . . . . .               | {RE.<br>IU . . . . .                | 33                  | 14.693                 | 7   | 66                               | 1,779<br>1,420                                  |  |
| <b>LIPIDS:</b>                    |                                     |                     |                        |   |                                  |   |  |
| Fatty acids:                      |                                     |                     |                        |   |                                  |   |  |
| Saturated, total . . . . .        | g . . . . .                         | 0.025               |                        |   | 0.005                            | 0.135<br>0.108                                  |  |
| 4:0 . . . . .                     | g . . . . .                         |                     |                        |   |                                  |   |  |
| 6:0 . . . . .                     | g . . . . .                         |                     |                        |   |                                  |   |  |
| 8:0 . . . . .                     | g . . . . .                         |                     |                        |   |                                  |   |  |
| 10:0 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 12:0 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 14:0 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 16:0 . . . . .                    | g . . . . .                         | 0.022               |                        |   | 0.004                            | 0.119<br>0.016                                  |  |
| 18:0 . . . . .                    | g . . . . .                         | 0.003               |                        |   | 0.001                            | 0.038<br>0.030                                  |  |
| Monounsaturated, total . . . . .  | g . . . . .                         | 0.007               |                        |   | 0.001                            | 0.011<br>0.009                                  |  |
| 16:1 . . . . .                    | g . . . . .                         | 0.002               |                        |   | 0.001                            | 0.032<br>0.026                                  |  |
| 18:1 . . . . .                    | g . . . . .                         | 0.006               |                        |   |                                  |   |  |
| 20:1 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 22:1 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| Polyunsaturated, total . . . . .  | g . . . . .                         | 0.100               |                        |   | 0.020                            | 0.539<br>0.156                                  |  |
| 18:2 . . . . .                    | g . . . . .                         | 0.029               |                        |   | 0.006                            | 0.383<br>0.306                                  |  |
| 18:3 . . . . .                    | g . . . . .                         | 0.071               |                        |   | 0.014                            |   |  |
| 18:4 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 20:4 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 20:5 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 22:5 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| 22:6 . . . . .                    | g . . . . .                         |                     |                        |   |                                  |   |  |
| Cholesterol . . . . .             | mg . . . . .                        | 0                   |                        |   | 0                                | 0   |  |
| Phytosterols . . . . .            | mg . . . . .                        | 10                  |                        |   | 2                                | 54<br>43  |  |
| <b>AMINO ACIDS:</b>               |                                     |                     |                        |   |                                  |   |  |
| Tryptophan . . . . .              | g . . . . .                         | 0.008               |                        |   | 0.002                            | 0.043<br>0.034                                  |  |
| Threonine . . . . .               | g . . . . .                         | 0.053               |                        |   | 0.011                            | 0.286<br>0.228                                  |  |
| Isoleucine . . . . .              | g . . . . .                         | 0.075               |                        |   | 0.015                            | 0.404<br>0.323                                  |  |
| Leucine . . . . .                 | g . . . . .                         | 0.070               |                        |   | 0.014                            | 0.377<br>0.302                                  |  |
| Lysine . . . . .                  | g . . . . .                         | 0.075               |                        |   | 0.015                            | 0.404<br>0.323                                  |  |
| Methionine . . . . .              | g . . . . .                         | 0.014               |                        |   | 0.003                            | 0.075<br>0.060                                  |  |
| Cystine . . . . .                 | g . . . . .                         | 0.014               |                        |   | 0.003                            | 0.264<br>0.211                                  |  |
| Phenylalanine . . . . .           | g . . . . .                         | 0.049               |                        |   | 0.010                            | 0.156<br>0.125                                  |  |
| Tyrosine . . . . .                | g . . . . .                         | 0.029               |                        |   | 0.006                            | 0.334<br>0.267                                  |  |
| Valine . . . . .                  | g . . . . .                         | 0.062               |                        |   | 0.012                            | 0.340<br>0.271                                  |  |
| Arginine . . . . .                | g . . . . .                         | 0.063               |                        |   | 0.013                            | 0.108<br>0.086                                  |  |
| Histidine . . . . .               | g . . . . .                         | 0.020               |                        |   | 0.004                            | 0.270<br>0.215                                  |  |
| Alanine . . . . .                 | g . . . . .                         | 0.050               |                        |   | 0.010                            | 0.684<br>0.547                                  |  |
| Aspartic acid . . . . .           | g . . . . .                         | 0.127               |                        |   | 0.025                            | 0.873<br>0.698                                  |  |
| Glutamic acid . . . . .           | g . . . . .                         | 0.162               |                        |   | 0.032                            | 0.275<br>0.220                                  |  |
| Glycine . . . . .                 | g . . . . .                         | 0.051               |                        |   | 0.010                            | 0.232<br>0.185                                  |  |
| Proline . . . . .                 | g . . . . .                         | 0.043               |                        |   | 0.009                            | 0.189<br>0.151                                  |  |
| Serine . . . . .                  | g . . . . .                         | 0.035               |                        |   | 0.007                            |   |  |

<sup>1</sup> With refuse = 567 g, approx. 6-in diam.

<sup>2</sup> Insoluble dietary fiber as determined by the neutral detergent fiber method = 0.9 g per 100 g.

<sup>3</sup> Alpha-tocopherol = 0.40 mg per 100 g.