



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Division**

**Fresh  
Products  
Branch**

# **United States Standards for Grades of Carrots for Processing**

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## United States Standards for Grades of Carrots for Processing

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### **§51.4140 General.**

(a) Compliance with the provisions of these standards shall not excuse failure to comply with provisions of applicable Federal or State laws.

(b) The accompanying grades for carrots are intended to facilitate transactions between growers and processors who may wish to use a purchasing system based upon the quality of carrots delivered.

(c) In the application of these standards it is assumed that in most instances sellers will not sort their carrots into lots of U.S. No. 1 and U.S. No. 2 grades before delivery to the buyer. Upon delivery, the inspector will select representative samples and determine the percentage of each grade. Under such a procedure, there is no need for tolerances.

### **§51.4141 Grades.**

(a) "U.S. No. 1" consists of carrots which meet the following requirements:

(1) Basic requirements:

(i) Similar varietal characteristics;

(ii) Firm;

(iii) Fairly well colored;

(iv) Fairly well formed;

(v) Fairly smooth; and,

(vi) Not woody.

(2) Free from: Unusable material.

(3) Free from damage by:

(i) Soft rot;

(ii) Growth cracks;

(iii) Sunburn;

(iv) Green core;

(v) Pithy core;

(vi) Watercore;

(vii) Internal discoloration;

(viii) Oil spray;

(ix) Freezing;

(x) Dry rot;

(xi) Other disease;

- (xii) Insects; and,
- (xiii) Mechanical or other means.
- (4) Free from serious damage by: Soft rot.
- (b) "U.S. No. 2" consists of carrots which meet the following requirements:
  - (1) Basic requirements:
    - (i) Similar varietal characteristics;
    - (ii) Firm;
    - (iii) Fairly well colored;
    - (iv) Not badly misshapen;
    - (v) Not excessively rough; and,
    - (vi) Not woody.
  - (2) Free from: Unusable material.
  - (3) Free from damage by: Soft rot.
  - (4) Free from serious damage by:
    - (i) Soft rot; and,
    - (ii) Any other cause.
  - (c) For crowning and topping requirements see §51.4142.
  - (d) For size requirements see §51.4143.
  - (e) For tolerances see §51.4144.

**§51.4142 Crowning or topping requirements.**

- (a) Carrots shall be specified as crowned or topped.
  - (1) Crowned carrots shall have the crowns cut off the root reasonably perpendicular to the longitudinal axis. All uncrowned carrots shall be separated from crowned carrots and the percentage of such carrots determined.
  - (2) Topped carrots shall have the tops or sprouts cut, snapped, or twisted off to within three-fourths inch of the crown of the root, or to any other specified length. All portions of leaf stems or sprouts over three-fourths inch long, or any other specified length, shall be considered as unusable material. (section §51.4145).

**§51.4143 Size.**

- (a) Unless otherwise specified, the minimum length shall be not less than 3 inches, provided that roots under 2 inches in length shall be considered unusable material.
- (b) The minimum and maximum diameters for U.S. No. 1 and U.S. No. 2 grades may be specified by agreement between the buyer and the seller.

**§51.4144 Tolerances.**

In the application of these standards to determine the percentages of carrots in the lot which meet the requirements of the respective grades, no tolerances apply. However, for the purpose of determining compliance with one of the foregoing grades the following tolerances, by weight, are provided in order to allow for variations incident to proper grading and handling:

- (a) For defects. Ten percent for carrots in any lot which fail to meet the requirements of the specified grade, including therein not more than 3 percent for carrots which are damaged by soft rot and included in this latter amount not more than 1 percent for carrots which are seriously damaged by soft rot.
- (b) For unusable material. Two percent in any lot.

(c) For size. Ten percent for carrots in any lot which fail to meet the specified size requirements, included therein not more than 5 percent for carrots which fail to meet the specified minimum diameter or length.

**§51.4145 Definitions.**

(a) "Similar varietal characteristics" means that the carrots are of the same general type.

(b) "Firm" means that the carrot is not soft, flabby or shriveled.

(c) "Fairly well colored" means that the outside and inside color of the carrot is orange, orange red, or orange scarlet but not a pale orange or distinct yellow color.

(d) "Fairly well formed" means that the carrot is not forked, or materially crooked, or otherwise misshapen to the extent that, in the process of trimming, a loss of over 5 percent, by weight, of the root is incurred in excess of that which would occur if the root were perfect.

(e) "Fairly smooth" means the carrot is not rough, ridged, or covered with secondary rootlets to the extent that, in the process of trimming, a loss of over 5 percent, by weight, of the root is incurred in excess of that which would occur if the root were perfect.

(f) "Woody" means that the flesh of the carrot is tough and fibrous.

(g) "Unusable material" means pieces of carrots under 2 inches in length, loose tops, loose dirt, adhering caked dirt, weeds or other foreign matter, portions of attached tops or sprouts in excess of the specified length or, loose crowns or portions of crowns. Carrots with adhering caked dirt, and tops or sprouts longer than the required or specified length shall not be scored against U.S. No. 1 or U.S. No. 2 grades, but such material shall be removed from the carrot and scored as unusable material.

(h) "Diameter" means the greatest dimension of the root taken at right angles to the longitudinal axis.

(i) "Badly misshapen" means that the carrot is forked or misshapen to the extent that, in the process of trimming, a loss of over 15 percent, by weight, of the root is incurred in excess of that which would occur if the root were perfect.

(j) "Excessively rough" means that the carrot is rough or ridged to the extent that in the process of trimming, a loss of over 15 percent, by weight, of the root is incurred in excess of that which would occur if the root were perfect.

(k) "Damage" means any specific defect defined in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the processing quality of the carrot, or which cannot be removed in the process of trimming without a loss of more than 5 percent, by weight, in excess of that which would occur if the root were perfect. The following specific defects shall be considered as damage:

(1) Watercore when moderately discolored.

(2) Oil spray when materially detracting from the processing quality of the carrot, or causing an oily flavor.

(3) Growth cracks when not smooth or not shallow, or when materially detracting from the processing quality of the carrot.

(4) Air cracks when excessively deep or wide, or when materially detracting from the processing quality of the carrot.

(5) Freezing when any amount affects the root.

(6) Soft rot when any amount affects the root.

(1) "Serious damage" means any specific defect defined in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the processing quality of the carrot, or which cannot be removed in the process of trimming without a loss of more than 15 percent, by weight, in excess of that which would occur if the root were perfect. The following specific defects shall be considered as serious damage:

(1) Watercore when severely discolored.

(2) Oil spray when seriously detracting from the processing quality of the carrot, or causing an oily flavor.

(3) Freezing when any amount affects the root.

(4) Soft rot when affecting more than 15 percent of the total weight of the root.