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# United States Standards for Grades of Onions (Other Than Bermuda-Granex-Grano and Creole Type)

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## **United States Standards for Grades of Onions (Other Than Bermuda-Granex-Grano and Creole Types)**

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### **Grades**

#### **§51.2830 U.S. No. 1.**

"U.S. No. 1" consists of onions which meet the following requirements:

(a) Basic requirements:

(1) Similar varietal characteristics;

(2) Mature;

- (3) Fairly firm; and,
- (4) Fairly well shaped.
- (b) Free from:
  - (1) Decay;
  - (2) Wet sunscald;
  - (3) Doubles;
  - (4) Bottlenecks; and,
  - (5) Scallions.
- (c) Free from damage caused by:
  - (1) Seedstems;
  - (2) Splits;
  - (3) Tops;
  - (4) Roots;
  - (5) Dry sunken areas;
  - (6) Sunburn;
  - (7) Sprouts;
  - (8) Freezing;
  - (9) Peeling;
  - (10) Cracked fleshy scales;
  - (11) Watery scales;
  - (12) Dirt or staining;
  - (13) Foreign matter;
  - (14) Mechanical;
  - (15) Translucent scales;
  - (16) Disease;
  - (17) Insects; and,
  - (18) Other means.
- (d) For tolerances see §51.2837.
- (e) Size. Unless otherwise specified the diameter shall be not less than 1 1/2 inches, and yellow, brown, or red onions shall have 40 percent or more, and white onions shall have 30 percent or more, by weight, of the onions in any lot 2 inches or larger in diameter.
- (f) When a percentage of the onions is specified to be of any certain size or larger, no part of any tolerance shall be allowed to reduce the specified percentage, but individual packages in a lot may have as much as 25 percentage points less than the percentage specified, except that individual packages containing 10 pounds or less shall have no requirements as to percentage of a certain size or larger: **Provided**, that any lot, regardless of package size, shall average within the percentage specified. (See §§51.2836 and 51.2837)<sup>1</sup>

**§51.2831 U.S. Export No. 1.**

"U.S. Export No. 1" consists of onions which meet the following requirements:

- (a) Basic requirements:
  - (1) Similar varietal characteristics;

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<sup>1</sup> Any lot of onions quoted as being of size smaller than 1-1/2 inches minimum, such as "U.S. No. 1, 1-1/4 inches min." is not required to meet the percentages which shall be 2 inches or larger as specified in the U.S. No. 1 grade.

- (2) Mature;
- (3) Dormant;
- (4) Fairly firm; and,
- (5) Fairly well shaped.
- (b) Free from:
  - (1) Decay;
  - (2) Wet sunscald;
  - (3) Doubles;
  - (4) Bottlenecks; and,
  - (5) Scallions.
- (c) Free from damage caused by:
  - (1) Seedstems;
  - (2) Splits;
  - (3) Tops;
  - (4) Roots;
  - (5) Dry sunken areas;
  - (6) Sunburn;
  - (7) Sprouts;
  - (8) Freezing;
  - (9) Peeling;
  - (10) Cracked fleshy scales;
  - (11) Watery scales;
  - (12) Dirt or staining;
  - (13) Foreign matter;
  - (14) Mechanical;
  - (15) Translucent scales;
  - (16) Disease;
  - (17) Insects; and,
  - (18) Other means.
- (d) Unless otherwise specified onions are packed in accordance with Export Packing Requirements set forth in §51.2840. (See §51.2837.)

**§51.2832 U.S. Commercial.**

"U.S. Commercial" consists of onions which meet the following requirements:

- (a) Basic requirements:
  - (1) Similar varietal characteristics;
  - (2) Mature;
  - (3) Not soft or spongy; and,
  - (4) Not badly misshapen.
- (b) Free from:
  - (1) Decay;
  - (2) Wet sunscald;
  - (3) Doubles;
  - (4) Bottlenecks; and,
  - (5) Scallions.

(c) Free from damage caused by:

- (1) Seedstems;
- (2) Tops;
- (3) Roots;
- (4) Dry sunken areas;
- (5) Sunburn;
- (6) Sprouts;
- (7) Freezing;
- (8) Cracked fleshy scales;
- (9) Watery scales;
- (10) Mechanical;
- (11) Translucent scales;
- (12) Disease;
- (13) Insects; and,
- (14) Other means.

(d) Free from serious damage caused by:

- (1) Staining;
- (2) Dirt; and,
- (3) Other foreign matter.

(e) For tolerances see §51.2837.

(f) Size. Unless otherwise specified, the diameter shall be not less than 1 1/2 inches. (See §§51.2836 and 51.2837.)

**§51.2833 U.S. No. 1 Boilers.**

"U.S. No. 1 Boilers" consists of onions which meet all the requirements for the U.S. No. 1 grade except for size. (See §51.2830.)

Size: The diameter of onions of this grade shall be not less than 1 inch nor more than 1 7/8 inches. (See §51.2837.)

**§ 51.2834 U.S. No. 1 Picklers.**

"U.S. No. 1 Picklers" consists of onions which meet all the requirements for the U.S. No. 1 grade except for size. (See §51.2830.)

Size: The maximum diameter of onions of this grade shall be not more than 1 inch. (See §51.2837.)

**§51.2835 U.S. No. 2.**

"U.S. No. 2" consists of onions which meet the following requirements:

(a) Basic requirements:

- (1) One type;
- (2) Mature; and,
- (3) Not soft or spongy.

(b) Free from:

- (1) Decay;
- (2) Wet sunscald; and,
- (3) Scallions.

(c) Free from serious damage caused by:

- (1) Watery scales;

- (2) Dirt or Staining;
  - (3) Foreign Matter;
  - (4) Seedstems;
  - (5) Sprouts;
  - (6) Mechanical;
  - (7) Dry sunken areas;
  - (8) Disease;
  - (9) Freezing;
  - (10) Insects; and,
  - (11) Other means.
- (d) For tolerances see §51.2837.
- (e) Size. Unless otherwise specified, the diameter shall not be less than 1 1/2 inches. (See §§51.2836 and 51.2837.)

**Size Classifications**

**§51.2836 Size classifications.**

The size of onions may be specified in accordance with one of the following classifications.

Size Designation	Minimum Diameter		Maximum Diameter	
	Inches	Millimeters	Inches	Millimeters
Small.....	1	25.4	2 1/4	57.2
Repacker/ Prepacker <sup>1</sup> .	1 3/4	44.5	3	76.2
Medium.....	2	50.8	3 1/4	82.6
Large or Jumbo.....	3	76.2	( <sup>2</sup> )	.....
Colossal...	3 3/4	95.3	( <sup>2</sup> )	.....

<sup>1</sup> In addition to the sizes specified, a lot of onions designated as Repacker or Prepacker shall contain at least 60 percent or more 2 inches or larger in diameter.

<sup>2</sup> No requirement.

**Tolerances**

**§51.2837 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades the following tolerances, by weight, are provided as specified:

(a) For defects:

(1) **U.S. No. 1, U.S. Export No. 1, U.S. No. 1 Boilers and U.S. No. 1 Picklers grades.**

- (i) Not more than 10 percent of the onions in a lot may be damaged by peeling; and,
- (ii) Not more than 5 percent of the onions in a lot may be below the remaining requirements of these grades, but not more than two-fifths of this tolerance, or 2 percent, may be allowed for onions which are affected by decay or wet sunscald. (See §51.2839.)

(2) **U.S. Commercial and U.S. No. 2 grades.**

- (i) Not more than 5 percent of the onions in a lot may be below the requirements of these grades, but not more than two-fifths of this tolerance, or 2 percent, may be allowed for onions which are

affected by decay or wet sunscald. (See §51.2839.)

(b) For off-size:

(1) **U.S. No. 1, U.S. No. 1 Boilers, U.S. Commercial, and U.S. No. 2 grades.** Not more than 5 percent of the onions in a lot may be below the specified minimum size, and not more than 10 percent may be above any specified maximum size. (See §51.2839.)

(2) **U.S. No. 1 Pickler grade.** Not more than 10 percent of the onions in a lot may be above the maximum size specified for this grade. (See §51.2839.)

#### **Samples for Grade and Size Determination**

##### **§51.2838 Samples for grade and size determination.**

Individual samples shall consist of at least 20 pounds for onions packed to meet larger than 2 1/4 inches maximum diameter. When individual packages contain 20 pounds or more and the onions are packed for Large or Jumbo size or larger the package shall be the sample. When individual packages contain less than 20 pounds, a sufficient number of adjoining packages are opened to provide at least a 20 pound sample, except that for onions packed to meet 2 1/4 inches maximum diameter or smaller, the sample may consist of either 20 pounds or the individual package.

#### **Application of Tolerances**

##### **§51.2839 Application of tolerances.**

Individual samples are subject to the following limitations:

(a) Samples which contain more than 20 pounds shall have not more than one and one half times a specified tolerance of 10 percent or more, and not more than double a specified tolerance of less than 10 percent, except that at least one defective and one off-size onion may be permitted in any sample: **Provided**, that en-route or at destination when onions in containers of 50 pounds or more are packed to a minimum size of 3 inches or larger not more than three onions or more than 4 percent (whichever is the larger amount) may be affected by decay or wet sunscald: **And provided further**, that the averages for the entire lot are within the tolerances specified for the grade; and,

(b) Samples which contain 20 pounds or less shall have not more than double the tolerance specified, except that at least one defective and one off-size onion may be permitted in any sample: **Provided**, that the averages for the entire lot are within the tolerances specified for the grade.

#### **Export Packing Requirements**

##### **§51.2840 Export packing requirements.**

Onions specified as meeting Export Packing Requirements shall be packed in containers having a net capacity of 25 kilograms (approximately 56 pounds).

#### **Definitions**

##### **§51.2841 Mature.**

"Mature" means well cured. Midseason onions which are not customarily held in storage shall be considered mature when harvested in accordance with good commercial practice at a stage which will not result in the onions becoming soft or spongy.

##### **§51.2842 Dormant.**

"Dormant" means that at least 90 percent of the onions in any lot show no evidence of growth as indicated by distinct elongation of the growing point or distinct yellow or green color in the tip of the growing point.

**§51.2843 Fairly firm.**

"Fairly firm" means that the onion may yield slightly to moderate pressure but is not appreciably soft or spongy.

**§51.2844 Fairly well shaped.**

"Fairly well shaped" means having the shape characteristic of the variety, but onions may be slightly off-type or slightly misshapen.

**§51.2845 Wet sunscald.**

"Wet sunscald" means sunscald which is soft, mushy, sticky or wet.

**§51.2846 Doubles.**

"Doubles" means onions which have developed more than one distinct bulb joined only at the base.

**§51.2847 Bottlenecks.**

"Bottlenecks" are onions which have abnormally thick necks with only fairly well developed bulbs.

**§51.2848 Scallions.**

"Scallions" are onions which have thick necks and relatively small and poorly developed bulbs.

**§51.2849 Damage.**

"Damage" means any specific defect described in this section; or any equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the onions. The following specific defects shall be considered as damage:

- (a) Seedstems which are tough or woody, or which are more than 1/4 inch in diameter;
- (b) Splits when onions with two or more hearts are not practically covered by one or more outer scales;
- (c) Tops when more than 30 percent of the onions in a lot have tops 3 inches or more in length;
- (d) New roots when most roots on an individual onion have grown to a length of 1 inch or more in length;
- (e) Dry roots when more than 20 percent of the onions in a lot have practically all roots 2 inches or more in length;
- (f) Dry sunken areas when the affected areas exceed the equivalent to that of a circle 1/2 inch in diameter on an onion 2 3/4 inches in diameter which does not have the outer papery scale covering the affected areas or when the affected areas exceed the equivalent to that of a circle 3/4 inch in diameter on an onion 2 3/4 inches in diameter which has the outer papery scale covering the affected areas. Correspondingly lesser or greater areas are allowed on smaller or larger onions;
- (g) Sunburn when more than 33 percent of the onions in a lot have a medium green color on one-third of the surface;
- (h) Sprouts when visible, or when concealed within the dry top and more than 3/4 inch in length on an onion 2 inches or larger in diameter, or proportionately shorter on smaller onions;
- (i) Peeling when more than one-half of the thin papery skin is missing, leaving the underlying fleshy scale unprotected;
- (j) Cracked fleshy scales when one or more of the fleshy scales are cracked;
- (k) Watery scales when more than the equivalent of the entire outer fleshy scale is affected by an off-color, watersoaked condition. The off-color must be of some shade of brown or yellow;



- (l) Dirt, staining or other foreign matter when more than 20 percent of the onions in a yellow, brown or red lot, or more than 15 percent of the onions in a white lot are appreciably stained. Onions with adhering dirt or other foreign matter shall be judged on the same basis as stained onions;
- (m) Mechanical when any cut extends deeper than one fleshy scale, or when any bruise breaks a fleshy scale; and,
- (n) Translucent scales when more than the equivalent of two entire outer fleshy scales have a watersoaked condition.

**§51.2850 Diameter.**

"Diameter" means the greatest dimension measured at right angles to a straight line running from the stem to the root.

**§51.2851 Badly misshapen.**

"Badly misshapen" means that the onion is so misshapen that its appearance is seriously affected.

**§51.2852 Serious damage.**

"Serious damage" means any specific defect described in this section; or any equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the onions. The following specific defects shall be considered as serious damage:

- (a) Watery scales when more than the equivalent of two entire outer fleshy scales are affected by an off-colored, watersoaked condition. The off-color must be of some shade of brown or yellow;
- (b) Dirt, staining or other foreign matter when more than 25 percent of the onions in a lot are badly stained. Onions with adhering dirt or other foreign matter shall be judged on the same basis as stained onions;
- (c) Seedstems when more than 1/2 inch in diameter;
- (d) Sprouts when the visible length is more than 1/2 inch;
- (e) Mechanical when any cut extends deeper than two fleshy scales, or when cuts seriously damage the appearance of the onion; and,
- (f) Dry sunken areas when extending deeper than one fleshy scale, or when affecting an area equivalent to that of a circle 1 inch in diameter on an onion 2 3/4 inches in diameter, or correspondingly lesser or greater areas on smaller or larger onions.

**§51.2853 One type.**

One type means that the onions are within the same general color category.

**Metric Conversion Table**  
**§51.2854 Metric conversion table.**

Inches	Millimeters (mm)
1/8.....	3.2
1/4.....	6.4
3/8.....	9.5
1/2.....	12.7
5/8.....	15.9
3/4.....	19.1
7/8.....	22.2
1.....	25.4
1 1/4.....	31.8
1 1/2.....	38.1
1 3/4.....	44.5
2.....	50.8
2 1/2.....	63.5
2 3/4.....	69.9
3.....	76.2
3 1/2.....	88.9
4.....	101.6