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**Agricultural
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**Fruit and
Vegetable
Programs**

**Fresh
Products
Branch**

United States Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona)

Effective September 5, 2003

United States Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona) ¹

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51.680 General.

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¹Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act, or with applicable State Laws and regulations.

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General

§51.680 General.

The standards in this subpart apply only to the common or sweet orange group and varieties belonging to the Mandarin group except tangerines for which separate U.S. Standards are issued.

Grades

§51.681 U.S. Fancy.

"U.S. Fancy" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Discoloration:

(i) Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration.

(See §51.700.)

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Well colored;

(6) Well formed; and,

(7) Smooth texture.

(b) Free from:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Caked melanose;

(5) Creasing;

(6) Cuts not healed;

(7) Decay;

(8) Growth cracks;

(9) Scab;

(10) Skin breakdown;

(11) Sprayburn;

(12) Undeveloped segments; and,

(13) Wormy fruit.

(c) Not injured by:

(1) Green spots;

(2) Oil spots;

(3) Split navels;

(4) Rough, wide or protruding navels;

(5) Scale;

- (6) Scars; and,
- (7) Thorn scratches.
- (d) Not damaged by any other cause.
- (e) For tolerances see §51.689.

§51.682 U.S. No. 1.

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

- (a) Basic requirements:
 - (1) Discoloration:
 - (i) Not more than one-third of the surface, in the aggregate, may be affected by discoloration.
(See §51.700.)
 - (2) Firm;
 - (3) Mature;
 - (4) Similar varietal characteristics;
 - (5) Well formed;
 - (6) Fairly smooth texture; and,
 - (7) Color:
 - (i) Early and midseason varieties shall be fairly well colored.
 - (ii) For Valencia and other late varieties, not less than 50 percent, by count, shall be fairly well colored and the remainder reasonably well colored.
- (b) Free from:
 - (1) Bruises;
 - (2) Cuts not healed;
 - (3) Caked melanose;
 - (4) Decay;
 - (5) Growth cracks;
 - (6) Sprayburn;
 - (7) Undeveloped segments; and,
 - (8) Wormy fruit.
- (c) Not damaged by any other cause.
- (d) For tolerances see §51.689.

§51.683 U.S. No. 1 Bright.

The requirements for this grade are the same as for U.S. No. 1 except that no fruit may have more than one-tenth of its surface, in the aggregate, affected by discoloration.

- (a) For tolerances see §51.689.

§51.684 U.S. No. 1 Bronze.

The requirements for this grade are the same as for U.S. No. 1 except that all fruit must show some discoloration. Not less than the number of fruits required in §51.689, Tables I and II, shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on these fruits shall be of rust mite type.

§51.685 U.S. Combination.

"U.S. Combination" consists of a combination of U.S. No. 1 and U.S. No. 2 oranges:

Provided, That the number of U.S. No. 2 fruits specified in §51.689, Tables I and II, are not exceeded.

§51.686 U.S. No. 2.

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

(a) Basic requirements:

(1) Discoloration:

(i) Not more than one-half of the surface, in the aggregate, may be affected by discoloration.

(See §51.700.)

(2) Fairly firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Reasonably well colored;

(6) Not more than slightly misshapen, and,

(7) Not more than slightly rough.

(b) Free from:

(1) Bruises;

(2) Cuts not healed;

(3) Decay;

(4) Growth cracks; and,

(5) Wormy fruit.

(c) Not seriously damaged by any other cause.

(d) For tolerances see §51.689.

§51.687 U.S. No. 2 Russet.

The requirements for this grade are the same as for U.S. No. 2 except that not less than the number of fruits required in §51.689, Tables I and II, shall have more than one-half of their surface, in the aggregate, affected by discoloration.

§51.688 U.S. No. 3.

"U.S. No. 3" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Mature;

(2) Similar varietal characteristics;

(3) May be misshapen;

(4) May be slightly spongy;

(5) May have rough texture;

(6) Not seriously lumpy or cracked; and,

(7) May be poorly colored.

(i) Not more than 25 percent of the surface may be of a solid dark green color.

(b) Free from:

(1) Cuts not healed;

(2) Decay; and,

(3) Wormy fruit.

(c) Not very seriously damaged by any other cause.

(d) For tolerances see §51.689.

Tolerances

§51.689 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing

grades, based on sample inspection, the number of defective or off-size specimens in the lot, shall be within the limitations specified in Tables I and II. No tolerance shall apply to wormy fruit.

Table I -- Shipping Point ¹
(A) For 1 Through 20 Samples
[See footnotes at end of Table I]

Factor	Grades	AL ²	Number of 50 - count samples ³																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Acceptance number (maximum permitted) ⁴																						
Decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	1	0	1	⁵ 1	1	2	⁵ 2	2	3	3	3	⁵ 3	3	4	4	⁵ 4	4	5	5	5	5
	U.S. No. 3.	2	0	1	2	⁵ 2	2	⁵ 3	3	4	4	⁵ 4	5	5	⁵ 5	6	6	⁵ 6	6	7	7	7
Very serious damage including decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	6	4	6	9	11	14	16	18	20	22	24	26	28	30	33	35	37	39	41	43	45
Total defects including decay and very serious damage.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	8	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
	U.S. Combination (U.S. No. 2's permitted).	29	26	48	70	91	112	134	155	176	197	218	239	260	281	301	322	343	364	384	405	425
Off-size.		10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Acceptance number (minimum required) ⁴																						
	U.S. No. 1 Bronze. U.S. No. 2 Russet	1	3	8	12	18	23	29	34	40	45	51	56	62	68	74	79	85	91	97	102	108

Shipping Point ¹
(B) For 21 Through 40 Samples
[See footnotes at end of Table I]

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¹Shipping point, as used in these standards, means the point of origin of the shipment in the production area or at port of loading for ship stores or overseas shipments, or in the case of shipments from outside the continental United States, the port of entry into the United States.

²AL -- Absolute limit permitted in individual 50 - count sample.

³Sample size -- 50 count.

⁴Acceptance number -- maximum or minimum of defective or off-size fruit permitted.

⁵Preferred number of samples for this acceptance number.

Table II -- En Route or At Destination

Factor	Grades	AL ¹	Number of 50 - count samples ²																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Acceptance numbers (maximum permitted)																						
Decay.	All.	4	3	4	6	7	9	10	11	13	14	15	16	18	19	20	21	23	24	25	26	27
Very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	6	4	6	9	11	14	16	18	20	22	24	26	28	30	33	35	37	39	41	43	45
Total defects including very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	8	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
	U.S. Combination (U.S. No. 2's permitted).	29	26	48	70	91	112	134	155	176	197	218	239	260	281	301	322	343	364	384	405	425
Off-size.		10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Acceptance number (minimum required) ³																						
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	1	3	8	12	18	23	29	34	40	45	51	56	62	68	74	79	85	91	97	102	108

¹AL -- Absolute limit permitted in individual 50 - count sample.²Sample size - 50 - count.³Acceptance number - maximum or minimum number of defective or off-size fruit permitted.

Sample for Grade or Size Determination**§51.690 Sample for grade or size determination.**

Each sample shall consist of 50 oranges. When individual packages contain at least 50 oranges, the sample is drawn from one package; when individual packages contain less than 50 oranges, a sufficient number of adjoining packages are opened to form a 50-count sample. When practicable, at point of packaging, the sample may be obtained from the grading belt or bins after sorting has been completed.

Standard Pack**§51.691 Standard pack for oranges except Temple variety.**

(a) Fruit shall be fairly uniform in size. When packed in approved containers, fruit shall be arranged according to approved and recognized methods.

(b) "Fairly uniform in size" means that not more than the number of fruit permitted in §51.689, Tables I and II, are outside the ranges of diameters given in Table III:

Table III - 7/10 Bushel Carton

Pack Size/Number of Oranges	Diameter in inches	
	Minimum	Maximum
24	3-12/16	5-1/16
32	3-6/16	4-9/16
36	3-4/16	4-6/16
40	3-2/16	4-4/16
48	2-15/16	4
56	2-13/16	3-13/16
64	2-11/16	3-10/16
72	2-9/16	3-8/16
88	2-8/16	3-4/16
113	2-7/16	3
138	2-6/16	2-12/16

(c) In order to allow for variations, other than sizing, incident to proper packing, not more than 5 percent of the packages in any lot may fail to meet the requirements of standard pack.

Standard Sizing**§51.692 Standard sizing.**

(a) Boxes, cartons, bag packs, or bulk loads in which oranges are not packed according to a definite pattern do not meet the requirements of standard pack, but may be certified as meeting the requirements of standard sizing: **Provided**, That the ranges are fairly uniform in size as defined in §51.691.

(b) In order to allow for variations incident to proper packing, not more than 5 percent of the containers in any lot may fail to meet the requirements of standard sizing.

Definitions

§51.693 Mature.

"Mature" shall have the same meaning currently assigned that term in the laws and regulations of the State in which the orange is grown; or as the definition of such term may hereafter be amended.

§51.694 Similar varietal characteristics.

"Similar varietal characteristics" means that the fruits in any container are similar in color and shape.

§51.695 Well colored.

"Well colored" means that the fruit is yellow or orange in color with practically no trace of green color.

§51.696 Firm.

"Firm" as applied to common oranges, means that the fruit is not soft, or noticeably wilted or flabby; as applied to oranges of the Mandarin group (Satsuma, King, Mandarin), means that the fruit is not extremely puffy, although the skin may be slightly loose.

§51.697 Well formed.

"Well formed" means that the fruit has the shape characteristic of the variety.

§51.698 Smooth texture.

"Smooth texture" means that the skin is thin and smooth for the variety and size of the fruit.

§51.699 Injury.

"Injury" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which slightly detracts from the appearance, or the edible or marketing quality of the fruit.

§51.700 Discoloration.

"Discoloration" means russetting of light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth, superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by melanose or other means may affect the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed for the grade.

§51.701 Fairly smooth texture.

"Fairly smooth texture" means that the skin is not materially rough or coarse and that the skin is not thick for the variety.

§51.702 Damage.

"Damage" means any specific defect described in §51.713, Table IV; or an 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 fruit.

§51.703 Fairly well colored.

"Fairly well colored" means that except for a one inch circle in the aggregate of green color, the yellow or orange color predominates over the green color on that part of the fruit which is not discolored.

§51.704 Reasonably well colored.

"Reasonably well colored" means that the yellow or orange color predominates over the green

color on at least two-thirds of the fruit surface in the aggregate which is not discolored.

§51.705 Fairly firm.

"Fairly firm" as applied to common oranges, means that the fruit may be slightly soft, but not bruised; as applied to oranges of the Mandarin group (Satsuma, King, Mandarin) means that the fruit is not extremely puffy or the skin extremely loose.

§51.706 Slightly misshapen.

"Slightly misshapen" means that the fruit is not of the shape characteristic of the variety but is not appreciably elongated or pointed or otherwise deformed.

§51.707 Slightly rough texture.

"Slightly rough texture" means that the skin is not smooth or fairly smooth but is not excessively rough or excessively thick, or materially ridged, grooved or wrinkled.

§51.708 Serious damage.

"Serious damage" means any specific defect described in §51.713, Table IV; or an 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 fruit.

§51.709 Misshapen.

"Misshapen" means that the fruit is decidedly elongated, pointed or flatsided.

§51.710 Slightly spongy.

"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.

§51.711 Very serious damage.

"Very serious damage" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.

§51.712 Diameter.

"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end of the fruit.

§51.713 Classification of defects.

Table IV

Factor	Injury	Damage	Serious damage	Very serious damage
Ammoniation	----- -	Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 3/4 inch in diameter or light colored and aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Buckskin	----- -	Aggregating more than a circle 1 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose	----- -	-----	Aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Creasing	-----	Materially weakens the skin, or extends over more than one-third of the surface.	Seriously weakens the skin, or extends over more than one-half of the surface.	Very seriously weakens the skin, or is distributed over practically the entire surface.
Dryness or mushy condition	----- -	Affecting all segments more than 1/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.
Green spots or oil spots	More than slightly affecting appearance.	Aggregating more than a circle 7/8 inch in diameter on a 200 size orange.	Aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	-----

Hail	Not well healed, or aggregating more than a circle 1/4 inch in diameter on a 200 size orange.	Not well healed, or aggregating more than a circle 3/8 inch in diameter on a 200 size orange.	Not well healed, or aggregating more than a circle 1/2 inch in diameter on a 200 size orange.	Not well healed, or aggregating more than a circle 3/4 inch in diameter on a 200 size orange.
Scab	----- -	Materially detracts from the shape or texture, or aggregating more than a circle 5/8 inch in diameter on a 200 size orange.	Seriously detracts from the shape or texture, or aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Scale	More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit	Aggregating more than a circle 5/8 inch in diameter on a 200 size orange.	Aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Scars	Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.	Deep, rough or hard aggregating more than a circle 1/4 inch in diameter; slightly rough with slight depth aggregating more than a circle 7/8 inch in diameter; smooth or fairly smooth with slight depth aggregation more than a circle 1-1/4 inches in diameter. All areas based on a 200 size orange.	Deep, rough aggregating more than a circle 1/2 inch in diameter; slightly rough with slight depth aggregating more than a circle 1-1/4 inches in diameter. All areas based on a 200 size orange.	Deep, rough or unsightly that appearance is very seriously affected.
Skin breakdown	----- -	Aggregating more than a circle 1/4 inch in diameter on a 200 size orange.	Aggregating more than a circle 5/8 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Sunburn	----- -	Skin is flattened, dry, darkened or hard, aggregating more than 25 percent of the surface.	Affecting more than 1/3 of the surface, hard, decidedly one-sided, or light brown and aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	Aggregating more than 50 percent of the surface.

Sprayburn	----- -	-----	Hard, or aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Split, rough or protruding navels	Split is unhealed; navel protrudes beyond general contour; opening is so wide, growth so folded and ridged that it detracts noticeably from appearance.	Split is unhealed, or more than 1/4 inch in length, or more than 3 well healed splits, or navel protrudes beyond the general contour, and opening is so wide, folded or ridged that it detracts materially from appearance.	Split is unhealed, or more than 1/2 inch in length, or aggregate length of all splits exceed 1 inch, or navel protrudes beyond general contour, and opening is so wide, folded and ridged that it seriously detracts from appearance.	Split is unhealed or fruit is seriously weakened.
Thorn scratches	Not slight, not well healed, or more unsightly than discoloration permitted in the grade.	Not well healed, or hard concentrated thorn injury aggregating more than a circle 5/8 inch in diameter on a 200 size orange.	Not well healed, or hard concentrated thorn injury aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.

Metric Conversion Table
§51.714 Metric conversion table.

Inches	Millimeters (mm)
1/4 equals	6.4
5/16 equals	7.9
3/8 equals	9.5
1/2 equals	12.7
5/8 equals	15.9
3/4 equals	19.1
7/8 equals	22.2
1 equals	25.4
1-1/4 equals	31.8
2-3/16 equals	55.6
2-4/16 equals	57.2
2-7/16 equals	61.9
2-8/16 equals	63.5
2-9/16 equals	65.1
2-11/16 equals	68.3
2-12/16 equals	69.9
2-15/16 equals	74.6
3-1/16 equals	77.8
3-3/16 equals	81.0
3-5/16 equals	84.1
3-7/16 equals	87.3
3-9/16 equals	90.5
3-13/16 equals	96.8