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Programs**

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United States Standards for Grades of Lemons

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United States Standards for Grades of Lemons ¹

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¹ Compliance 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.

Grades

§51.2795 U.S. No. 1.

"U.S. No. 1" consists of lemons which are mature, firm, fairly well formed, fairly smooth, which are free from decay, contact spot, internal evidence of Alternaria development, unhealed broken skins, hard or dry skins, exanthema, growth cracks, internal decline (endoxerosis), red blotch, membranous stain or other internal discoloration, and free from damage caused by bruises, dry or mushy condition, scars, oil spots, scale, sunburn, hollow core, peteca, scab, skin breakdown, melanose, dirt, or other foreign material, other disease, insects or other means. (See §51.2800)

(a) Color: Lemons are fairly well colored.

§51.2796 U.S. Export No. 1.

"U.S. Export No. 1" consists of lemons which are mature, firm, fairly well formed, fairly smooth and which are free from decay, contact spot, internal evidence of Alternaria development, unhealed broken skins, exanthema, growth cracks, internal discoloration and free from damage caused by bruises and dryness or mushy condition.

(a) At least 50 percent of the lemons are free from damage caused by scars, oil spots, scale, sunburn, peteca, scab, skin breakdown, melanose, dirt or other foreign material, other disease, insects or other means, and the remainder of the lemons are free from serious damage by any cause. (See §51.2800)

(b) Color: Lemons are moderately well colored.

§51.2797 U.S. Combination.

"U.S. Combination" consists of a combination of U.S. No. 1 and U.S. No. 2 lemons: **Provided**, That at least 40 percent, by count, of the lemons in each lot meet the requirements of U.S. No. 1 grade. (See §51.2800)

(a) Color: Lemons are fairly well colored.

§51.2798 U.S. No. 2.

"U.S. No. 2" consists of lemons which are mature, fairly firm, which are reasonably well formed and reasonably smooth, which are free from decay, contact spot, internal evidence of Alternaria development, unhealed broken skins, hard or dry skins, exanthema, internal decline (endoxerosis), and red blotch, and free from serious damage caused by bruises, membranous stain or other internal discoloration, dryness or mushy condition, scars, oil spots, scale, sunburn, hollow core, peteca, growth cracks, scab, skin breakdown, melanose, dirt or other foreign material, other diseases, insects or other means. (See §51.2800)

(a) Color: Lemons are fairly well colored.

§51.2799 [Reserved].

Tolerances

§51.2800 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, based on a minimum 25 count sample, are provided as specified:

(a) **U.S. No. 1 grade --**

(1) **For defects at shipping point.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the grade, included

in this amount not more than 5 percent shall be allowed for defects causing serious damage, included in this latter amount not more than 1 percent for decay.

(2) **For defects en route or at destination.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the grade:

Provided, that included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 7 percent for defects causing serious damage, including therein not more than 5 percent for serious damage by permanent defects and not more than 3 percent for decay.

(b) **U.S. No. 2 grade --**

(1) **For defects at shipping point.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the grade, included in this amount not more than 5 percent shall be allowed for decay, contact spot, internal evidence of Alternaria development, and internal decline (endoxerosis), included in this latter amount not more than 1 percent for decay.

(2) **For defects en route or at destination.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the grade:

Provided, that included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or not more than 7 percent shall be allowed for decay, contact spot, internal evidence of Alternaria development, and internal decline (endoxerosis), included in this latter amount, not more than 3 percent for decay.

(c) **U.S. Combination grade --**

(1) **For defects at shipping point.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 10 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade, included in this amount not more than 5 percent shall be allowed for decay, contact spot, internal evidence of Alternaria development, and internal decline (endoxerosis), included in this latter amount not more than 1 percent for decay.

(2) **For defects en route or at destination.** Not more than 10 percent, by count, of the lemons in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 12 percent, by count, of the lemons in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade: **Provided,** that included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or not more than 7 percent shall be allowed for decay, contact spot, internal evidence of Alternaria development, and internal decline (endoxerosis), included in this latter amount, not more than 3 percent for decay.

(3) **For defects at shipping point and en route or at destination.** No part of any tolerance shall be allowed to reduce for the lot as a whole, the 40 percent of U.S. No. 1 lemons required in the U.S. Combination grade, but individual samples may have not less than 30 percent of U.S. No. 1 required: **Provided,** That the entire lot averages within the percentage required.

(d) **U.S. Export No. 1 --**

(1) **For defects.** 10 percent for lemons which fail to meet the requirements of the grade: **Provided,** That not more than the following percentages of the defects enumerated shall be allowed:

- 1 percent for decay;
- 3 percent for contact spot;
- 3 percent for broken skins which are not healed;
- 3 percent for growth cracks;
- 3 percent for internal evidence of Alternaria development;
- 3 percent for internal discoloration;
- 5 percent for soft; and,
- 5 percent for damage by dryness or mushy condition.

(2) **For color.** 10 percent for lemons which fail to meet the requirements relating to color.

(3) The contents of samples may have not more than 10 percentage points less than the percentage specified to meet the requirements in the "U.S. Export No. 1 grade:" **Provided,** That no sample shall have more than double the percentage specified for any one of the defects enumerated in U.S. Export No. 1 tolerances for defects section above.

§51.2801 [Reserved].

Application of Tolerances

§51.2802 Application of tolerances.

Individual samples, based on a minimum 25 count sample, are subject to the following limitations, unless otherwise specified. Individual samples 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: **Provided,** that at least one decayed fruit may be permitted in any sample: **And provided further,** that the averages for the entire lot are within the tolerances specified for the grade

Standard Pack

§51.2803 Standard pack.

(a) Lemons shall be fairly uniform in size and shall be packed in boxes or cartons and arranged according to the approved and recognized methods.

(b) All such containers shall be tightly packed and well filled but the contents shall not show excessive or unnecessary bruising because of overfilled containers. When packed in cartons each container shall be at least level full at time of packing.

(c) "Fairly uniform in size" means that when lemons are packed for 165 carton count or smaller size, or equivalent sizes when packed in other containers, not less than 90 percent, by count, of the lemons in any container shall be within a diameter range of four-sixteenths inch; when packed for sizes larger than 165 carton count, or equivalent sizes packed in other containers, not less than 90 percent, by count, of the lemons in any container shall be within a diameter range of six-sixteenths inch.

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

(d) In order to allow for variations incident to proper packing the following tolerances are provided:

(1) 5 percent for samples in any lot which fail to meet the requirements for standard pack.

Standard Sizing and Fill

§51.2804 Standard sizing and fill.

(a) Boxes or cartons in which lemons 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 and fill: **Provided**, That the lemons in the containers are fairly uniform in size as defined in §51.2803: **And provided further**, That the contents have been properly shaken down and the container is at least level full at time of packing.

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

Condition Standards for Export

§51.2805 Condition standards for export.

(a) Not more than a total of 10 percent, by count, of the lemons in any sample may be soft, affected by decay or contact spot, or have broken skins which are not healed, growth cracks, internal evidence of Alternaria development, internal decline (endoxerosis), or serious damage by membranous stain or other internal discoloration, or dryness or mushy condition, except that not more than the following percentages of the defects enumerated shall be allowed:

(1) One-half of 1 percent for decay;

(2) 3 percent for contact spot;

(3) 3 percent for broken skins which are not healed;

(4) 3 percent for growth cracks;

(5) 3 percent for internal evidence of Alternaria development;

(6) 3 percent for internal decline (endoxerosis);

(7) 5 percent for soft;

(8) 5 percent for serious damage by membranous stain or other internal discoloration; and,

(9) 5 percent for serious damage by dryness or mushy condition.

(b) Any lot of lemons shall be considered as meeting the condition standards for export if not more than a total of 10 percent, by count, of the lemons in any sample have defects enumerated in the condition standards for export: **Provided**, That no sample shall have more than double the percentage specified for any one of the defects enumerated.

Definitions

§51.2806 Firm.

"Firm" means that the fruit does not yield more than slightly to moderate pressure.

§51.2807 Fairly well formed.

"Fairly well formed" means that the fruit shows normal characteristic lemon shape and is not materially flattened on one side. Lemons having moderately thickened necks at the stem end shall be considered as fairly well formed unless the appearance is materially affected.

§51.2808 Well formed.

"Well formed" means that the fruit is typically normal in shape with well centered stem and stylar ends.

§51.2809 Fairly smooth.

"Fairly smooth" means that the appearance of the lemon is not materially affected by protrusions or lumpiness of the skin or by grooves or furrows. Coarse pebbling is an indication of good

keeping quality and is not objectionable.

§51.2810 Smooth.

"Smooth" means that the skin is of fairly fine grain and that there are no more than slight furrows radiating from the stem end.

§51.2811 Contact spot.

"Contact spot" means an area on the lemon which bears evidence of having been in contact with decay or mold.

§51.2812 Internal evidence of Alternaria development.

"Internal evidence of Alternaria development" includes red or brown staining of the tissue under the button in the core, or in the fibro-vascular bundles.

§51.2813 Membranous stain.

"Membranous stain" is a brown or dark discoloration of the walls of the fruit segment.

§51.2814 Damage.

"Damage" means any specific defect described 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 appearance, or edible or shipping quality of the fruit. The following specific defects shall be considered as damage:

- (a) Dryness or mushy condition when affecting all segments of the fruit more than one-fourth inch at the stem end, or more than the equivalent of this amount, by volume, when occurring in other portions of the fruit;
- (b) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:
 - (1) Scars which are very dark and which have an aggregate area exceeding that of a circle one-fourth inch in diameter;
 - (2) Scars which are dark, rough or deep and which have an aggregate area exceeding that of a circle one-half inch in diameter;
 - (3) Scars which are fairly light in color, slightly rough, or with slight depth and which have an aggregate area exceeding that of a circle 1 inch in diameter; and,
 - (4) Scars which are light in color, fairly smooth, with no depth and which have an aggregate area of more than 20 percent of the fruit surface;
- (c) Oil spots (Oleocellosis or similar injuries) which are more than slightly depressed, soft, or which have an aggregate area exceeding that of a circle one-half inch in diameter;
- (d) Scale when more than ten medium to large California red or purple scale adjacent to button at stem end or scattered over fruit or any scale which affects the appearance of the fruit to a greater extent;
- (e) Sunburn which causes appreciable flattening of the fruit, drying of the skin, material change in the color of the skin, appreciable drying of the flesh underneath the affected area or affects more than 25 percent of the fruit surface;
- (f) Hollow core which causes the fruit to feel distinctly spongy; and,
- (g) Peteca when more than two spots or when having an aggregate area exceeding that of a circle one-fourth inch in diameter.
- (h) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.

(i) Skin breakdown when exceeding that of a circle 1/4 inch in diameter.

§51.2815 Fairly well colored.

"Fairly well colored" means that the area of yellow color exceeds the area of green color on the fruit.

§51.2816 Well colored.

"Well colored" means that the fruit is yellow in color with not more than a trace of green color. Fruit of a decided bronze color shall not be considered well colored.

§51.2817 Fairly firm.

"Fairly firm" means that the fruit may yield to moderate pressure but is not soft.

§51.2818 Reasonably well formed.

"Reasonably well formed" means that the fruit is not decidedly flattened, does not have a very long or large neck and is not otherwise decidedly misshapen.

§51.2819 Reasonably smooth.

"Reasonably smooth" means that the skin is not badly folded, badly ridged, or very decidedly lumpy.

§51.2820 Serious damage.

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

- (a) Membranous stain, or other internal discoloration which seriously affects the appearance of the cut fruit;
- (b) Dryness or mushy condition when affecting all segments of the fruit more than one-half inch at the stem end or more than the equivalent of this amount, by volume, when occurring in other portions of the fruit;
- (c) Scars (including sprayburn and fumigation injury) which exceed the following aggregate area of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:
 - (1) Scars which are very dark and which have an aggregate area of more than 5 percent of the fruit surface;
 - (2) Scars which are dark, rough or deep, and which have an aggregate area of more than 10 percent of the fruit surface;
 - (3) Scars which are fairly light in color, slightly rough or of slight depth, and which have an aggregate area of more than 25 percent of the fruit surface; and,
 - (4) Scars which are light in color, fairly smooth, with no depth, and which have an aggregate area of more than 50 percent of the fruit surface;
- (d) Oil spots (Oleocellosis or similar injuries) which are soft, or which have an aggregate area exceeding that of a circle 1 inch in diameter;
- (e) Scale when California red or purple scale is concentrated as a ring or blotch, or more than thinly scattered over the fruit surface, or any scale which affects the appearance of the fruit to a greater extent;
- (f) Sunburn which causes decided flattening of the fruit, marked drying or dark discoloration of the skin, material drying of the flesh underneath the affected area, or which affects more than

one-third of the fruit surface;

(g) Hollow core which causes the fruit to feel excessively spongy;

(h) Peteca when more than five small spots, or when having an aggregate area exceeding that of a circle three-fourths inch in diameter; and,

(i) Growth cracks that are leaking, gummy or not well healed.

(j) Bruising when fruit has been split open, peel is badly watersoaked following bruising or albedo is ruptured causing a mushy condition affecting all segments more than 1/2 inch at the bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.

(k) Skin breakdown when exceeding that of a circle 1/2 inch in diameter.

§51.2821 Moderately well colored.

"Moderately well colored" means that the area of greenish-yellow or yellow color exceeds the area of green color on the fruit.

Note: All references in this standard to area, aggregating area, or length are based on a lemon 2 inches in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.