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Inspection
Division

United States Standards for Grades of Shelled Pecans

Effective July 26, 2024

This issue of the United States Standards for Grades of Shelled Pecans (89 FR 53339) supersedes the previous issue which has been in effect since December 10, 2018.

Voluntary U.S. grade standards are issued under the authority of the Agricultural Marketing Act of 1946, which provides for the development of official U.S. grades to designate different levels of quality. These grade standards are available for use by producers, suppliers, buyers, and consumers. As in the case of other standards for grades of fresh and processed fruits, vegetables, and specialty crops these standards are designed to facilitate orderly marketing by providing a convenient basis for buying and selling, for establishing quality control programs, and for determining loan values.

The U.S. grade standards and inspection instructions for all fresh and processed fruits, vegetables, and specialty crops are available on the internet and upon request at the address below. These documents provide detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the U.S. Department of Agriculture (USDA) after careful consideration of all data and views submitted during rulemaking. The Department welcomes suggestions for improving the standards in future revisions. Comments may be submitted to, and copies of standards and inspection instructions obtained from:

Director, Specialty Crops Inspection Division
Specialty Crops Program,
USDA, Agricultural Marketing Service
1400 Independence Avenue, SW, STOP 0240
Washington, D.C. 20250

Authority: 7 U.S.C. 1621-1627.

Note: 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.

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United States Standards for Grades of Shelled Pecans

| Section | Page No. |
|--|-----------|
| Grades | 3 |
| §51.1430 U.S. Extra Fancy..... | 3 |
| §51.1431 U.S. Fancy..... | 3 |
| §51.1432 U.S. Choice..... | 4 |
| §51.1433 U.S. Standard..... | 4 |
| Color Classifications | 5 |
| §51.1434 Color classifications..... | 5 |
| Size Classifications | 5 |
| §51.1435 Size classifications for halves..... | 5 |
| §51.1436 Size classifications for pieces..... | 7 |
| Tolerances for Defects | 8 |
| §51.1437 Tolerances for defects..... | 8 |
| Application of Standards | 10 |
| §51.1438 Application of standards..... | 10 |
| Definitions | 10 |
| §51.1439 Premier half-kernel (Premier halves)..... | 10 |
| §51.1440 Half-kernel (Halves)..... | 10 |
| §51.1441 Piece..... | 10 |
| §51.1442 Meal and flour..... | 10 |
| §51.1443 Well dried..... | 10 |
| §51.1444 Well developed..... | 10 |
| §51.1445 Fairly well developed..... | 10 |
| §51.1446 Poorly developed..... | 11 |
| §51.1447 Uniform in color..... | 11 |
| §51.1448 Fairly uniform in color..... | 11 |
| §51.1449 Uniform in size..... | 11 |

| | | |
|----------|------------------------------|----|
| §51.1450 | Fairly uniform in size. | 11 |
| §51.1451 | Foreign material. | 11 |
| §51.1452 | Damage..... | 11 |
| §51.1453 | Serious damage. | 12 |

Grades

§51.1430 U.S. Extra Fancy.

“U.S. Extra Fancy” consists of pecan kernels which meet the following requirements:

(a) For quality:

- (1)** Well dried;
- (2)** Moisture content shall not be more than 4.5 percent, unless otherwise specified;
- (3)** Well developed;
- (4)** Uniform in color;
- (5)** Not darker than “light;”
- (6)** Free from damage by any cause; and
- (7)** Comply with tolerances for defects (see §51.1437).

(b) For size:

- (1)** Uniform in size; and
- (2)** Conform to size classification or count specified.

§51.1431 U.S. Fancy.

“U.S. Fancy” consists of pecan kernels which meet the following requirements:

(a) For quality:

- (1)** Well dried;
- (2)** Moisture content shall not be more than 4.5 percent, unless otherwise specified;
- (3)** Fairly well developed;
- (4)** Uniform in color;
- (5)** Not darker than “light amber,” unless specified to a lighter color classification;
- (6)** Free from damage by any cause; and
- (7)** Comply with tolerances for defects (see §51.1437).

(b) For size:

- (1)** Uniform in size; and
- (2)** Conform to size classification or count specified.

§51.1432 U.S. Choice.

“U.S. Choice” consists of pecan kernels which meet the following requirements:

(a) For quality:

- (1)** Well dried;
- (2)** Moisture content shall not be more than 4.5 percent, unless otherwise specified;
- (3)** Not poorly developed;
- (4)** Fairly uniform in color;
- (5)** Not darker than “amber,” unless specified to a lighter color classification;
- (6)** Free from damage by any cause; and
- (7)** Comply with tolerances for defects (see §51.1437).

(b) For size:

- (1)** Fairly uniform in size; and
- (2)** Conform to size classification or count specified.

§51.1433 U.S. Standard.

“U.S. Standard” consists of pecan kernels which meet the following requirements:

(a) For quality:

- (1)** Well dried;
- (2)** Moisture content shall not be more than 4.5 percent, unless otherwise specified;
- (3)** No requirement for fullness of kernel;
- (4)** No requirement for uniformity of color;

- (5) May contain kernels “dark amber” or darker, unless specified to a lighter color classification;
 - (6) Free from damage by any cause; and
 - (7) Comply with tolerances for defects (see §51.1437).
- (b) For size:
- (1) No uniformity in size; and
 - (2) Conform to size classification or count specified.

Color Classifications

§51.1434 Color classifications.

- (a) The skin color of pecan kernels is described in terms of the color classifications provided in this section. When specified to a lighter color classification, that color may be used to describe the lot in connection with the grade.
- (1) **Light** means that the kernel is mostly golden color or lighter, with not more than 25 percent of the surface darker than golden, and none of the surface darker than light brown.
 - (2) **Light amber** means that the kernel has more than 25 percent of the surface light brown, but not more than 25 percent of surface darker than light brown, and none of the surface darker than medium brown.
 - (3) **Amber** means that the kernel has more than 25 percent of the surface medium brown, but not more than 25 percent of surface darker than medium brown, and none of the surface darker than dark brown (very dark brown or blackish-brown discoloration).
 - (4) **Dark amber** means that the kernel has more than 25 percent of the surface dark brown, but not more than 25 percent of surface darker than dark brown (very dark brown or blackish-brown discoloration).
- (b) U.S. Department of Agriculture kernel color standards, PEC-MC-1, illustrate the color intensities implied by the terms “golden,” “light brown,” “medium brown,” and “dark brown” referred to in paragraph (a) of this section. The color standards are available at: <https://www.ams.usda.gov/grades-standards>.

Size Classifications

§51.1435 Size classifications for halves.

The size of pecan halves in a lot may be specified in accordance with one of the size classifications shown in Table 1 to this section.

Table 1 to §51.1435

| Size classification for halves | Number of halves per pound |
|---------------------------------------|-----------------------------------|
| Mammoth | 250 or less |
| Junior Mammoth | 251 – 350 |
| Jumbo | 351 – 450 |
| Large | 451 – 550 |
| Medium | 551 – 650 |
| Topper | 651 – 750 |
| King Topper | 751 or more |

In lieu of the size classifications in this table, the size of pecan halves in a lot may be specified in terms of the number of halves or a range of number of halves per pound. For example, “400” or “600-700.”

(a) Halves per pound.

The number of halves per pound shall be based upon the weight of half-kernels after all pieces, meal and flour, shell, center wall, and foreign material have been removed.

(b) Tolerance for count per pound.

In order to allow for variations incident to proper sizing, a tolerance shall be permitted as follows:

- (1)** When an exact number of halves per pound is specified, the actual count per pound may vary not more than 5 percent from the specified number, and
- (2)** When any size classification shown in Table 1 to this section or a range in count per pound is specified, no tolerance shall be allowed for counts outside of the specified range.

(c) Tolerances for pieces, meal, and flour.

In order to allow for variations incident to proper sizing and handling, tolerances are provided for pieces, meal, and flour in any lot of halves. The tolerances, by weight, are as shown in Table 2 to this section.

Table 2 to §51.1435

| | U.S. Extra Fancy Premier Halves | U.S. Extra Fancy Halves | U.S. Fancy Halves | U.S. Choice Halves | U.S. Standard Halves |
|---|--|--------------------------------|--------------------------|---------------------------|-----------------------------|
| Tolerances for Pieces, Meal, and Flour | | | | | |
| A. Less than 7/8 half-kernel | 10% | --- | --- | --- | --- |
| B. Less than 3/4 half-kernel | --- | 10% | 15% | 20% | 20% |
| C. Less than 1/2 half-kernel (included in A. – U.S. Extra Fancy Premier Halves) (included in B. – U.S. Extra Fancy Halves, U.S. Fancy Halves, U.S. Choice Halves, and U.S. Standard Halves) | 3% | 3% | 5% | 5% | 5% |
| D. Less than 4/64" (included in C.) | 1% | 1% | 1% | 1% | 1% |

§51.1436 Size classifications for pieces.

The size of pecan pieces in a lot may be specified in accordance with one of the size classifications shown in Table 1 to this section. Sizes are measured using a round-hole screen.

Table 1 to §51.1436

| Size classification | Maximum diameter (will pass through round opening of the following diameter) | Minimum diameter (will not pass through round opening of the following diameter) |
|----------------------------|---|---|
| Extra-Large Pieces | No limitation | 32/64 inch |
| Large Pieces | 32/64 inch | 24/64 inch |
| Halves and Pieces | No limitation | 20/64 inch |
| Medium Pieces | 24/64 inch | 16/64 inch |
| Small Pieces | 16/64 inch | 12/64 inch |
| Topping Pieces | 12/64 inch | 8/64 inch |
| Granules | 8/64 inch | 4/64 inch |

In lieu of the size classifications in this table, the size of pieces in a lot may be specified in terms of minimum diameter, or as a range described in terms of minimum and maximum diameters expressed in sixty-fourths of an inch.

(a) Tolerances for size of pieces.

In order to allow for variations incident to proper sizing, tolerances are provided for pieces in a lot which fail to meet the requirements of any size specified. The tolerances, by weight, are as follows:

(1) U.S. Extra Fancy pieces and U.S. Fancy pieces.

Not more than 15 percent of the lot may fall outside of the size range in Table 1 to this section. Further, not more than 1 percent of the pieces, excluding Topping Pieces and Granules, may pass through an eight sixty-fourths of an inch round hole screen.

(2) U.S. Choice pieces.

Not more than 20 percent of the lot may fall outside of the size range in Table 1 to this section. Further, not more than 2 percent of the pieces, excluding Topping Pieces and Granules, may pass through an eight sixty-fourths of an inch round hole screen.

(3) U.S. Standard pieces.

Not more than 25 percent of the lot may fall outside of the size range in Table 1 to this section. Further, not more than 2 percent of the pieces, excluding Topping Pieces and Granules, may pass through an eight sixty-fourths of an inch round hole screen.

(b) [Reserved]

Tolerances for Defects

§51.1437 Tolerances for defects.

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

(a) U.S. Extra Fancy grade:

- (1)** No foreign material;
- (2)** 0.01 percent for shell, and center wall;
- (3)** Zero tolerance is provided for pecan weevil larvae;
- (4)** 3 percent for portions of kernels which are “light amber” or darker color, or darker than any specified lighter color classification, but which are not otherwise defective; and
- (5)** 3 percent for portions of kernels which fail to meet the remaining requirements of the grade, including therein not more than 0.50 percent (one-half of 1 percent) for defects causing serious damage: *Provided*, That any unused portion of this tolerance may be applied to increase the tolerance for kernels which are “light amber” or darker color, or darker than any specified lighter color classification.

(b) U.S. Fancy grade:

- (1) No foreign material;
- (2) 0.01 percent for shell and center wall;
- (3) No more than 2 pecan weevil larvae;
- (4) 5 percent for portions of kernels which are “amber” or darker color, or darker than any specified lighter color classification, but which are not otherwise defective; and
- (5) 5 percent for portions of kernels which fail to meet the remaining requirements of the grade, including therein not more than 0.50 percent (one-half of 1 percent) for defects causing serious damage, including pecan weevil larvae: *Provided*, That any unused portion of this tolerance may be applied to increase the tolerance for kernels which are “amber” or darker color, or darker than any specified lighter color classification.

(c) U.S. Choice grade:

- (1) No foreign material;
- (2) 0.01 percent for shell and center wall;
- (3) No more than 5 pecan weevil larvae;
- (4) 15 percent for portions of kernels which are “dark amber” or darker color, or darker than any specified lighter color classification, but which are not otherwise defective; and
- (5) 8 percent for portions of kernels which fail to meet the remaining requirements of the grade, including therein not more than 1 percent for defects causing serious damage, including pecan weevil larvae.

(d) U.S. Standard grade:

- (1) No foreign material;
- (2) 0.01 percent for shell and center wall;
- (3) 25 percent for portions of kernels which are darker than a specified color classification, but which are not otherwise defective; and
- (4) 15 percent for portions of kernels which fail to meet the remaining requirements of the grade, including therein not more than 1 percent for defects causing serious damage, including pecan weevil larvae.

Application of Standards

§51.1438 Application of standards.

The grade of a lot of shelled pecans shall be determined on the basis of a composite sample drawn at random from containers in various locations in the lot. However, any identifiable container or number of containers in which the pecans are obviously of a quality or size materially different from that in the majority of containers, shall be considered as a separate lot, and shall be sampled and graded separately.

Definitions

§51.1439 Premier half-kernel (Premier halves).

Premier half-kernel (Premier halves) means one of the separated halves of an entire pecan kernel with not more than one-eighth of its original volume missing, exclusive of the portion which formerly connected the two halves of the kernel.

§51.1440 Half-kernel (Halves).

Half-kernel (Halves) means one of the separated halves of an entire pecan kernel with not more than one-fourth of its original volume missing, exclusive of the portion which formerly connected the two halves of the kernel.

§51.1441 Piece.

Piece means a portion of a kernel which is less than three-fourths of a half-kernel, but which will not pass through a round opening four sixty-fourths ($4/64$) of an inch in diameter.

§51.1442 Meal and flour.

Meal and flour means fragments of kernels which will pass through a round opening four sixty-fourths ($4/64$) of an inch in diameter.

§51.1443 Well dried.

Well dried means that the portion of kernel is firm and crisp, not pliable, or leathery.

§51.1444 Well developed.

Well developed means that the kernel is full-meated through its width and length.

§51.1445 Fairly well developed.

Fairly well developed means that the kernel is full-meated in over 50 percent of its width and length.

§51.1446 Poorly developed.

Poorly developed means that the kernel is full-meated in less than 25 percent of its width and length.

§51.1447 Uniform in color.

Uniform in color means that 95 percent or more of the kernels in the lot have skin color within the range of one or two color classifications.

§51.1448 Fairly uniform in color.

Fairly uniform in color means that 85 percent or more of the kernels in the lot have skin color within the range of one or two color classifications.

§51.1449 Uniform in size.

Uniform in size means that, in a representative sample of 100 halves, the 10 smallest halves weigh not less than 25 percent as much as the 10 largest halves.

§51.1450 Fairly uniform in size.

Fairly uniform in size means that, in a representative sample of 100 halves, the 10 smallest halves weigh not less than 50 percent as much as the 10 largest halves.

§51.1451 Foreign material.

Foreign material includes rocks, wood, glass, plastic, or any similar material. It does not include hard shell, center wall, or pecan weevil larvae.

§51.1452 Damage.

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

- (a) **Adhering material from inside the shell** when attached to more than one-fourth of the surface on one side of the half-kernel or piece;
- (b) **Dust or dirt** adhering to the kernel when conspicuous;
- (c) **Internal flesh discoloration** of a medium shade of gray or brown extending more than one-fourth the length of the half-kernel or piece, or lesser areas of dark discoloration affecting the appearance to an equal or greater extent;
- (d) Kernel which is not well dried;

- (e) Kernel which is “dark amber” or darker color;
- (f) **Kernel having more than one dark kernel spot**, or one dark kernel spot more than one-eighth inch in greatest dimension;
- (g) **Poorly developed kernel**; and
- (h) **Shriveling** when the surface of the kernel is very conspicuously wrinkled.

§51.1453 Serious damage.

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

- (a) **Adhering material from inside the shell** when attached to more than one-half of the surface on one side of the half-kernel or piece;
- (b) **Any plainly visible mold**;
- (c) **Dark kernel spots** when more than three are on the kernel, or when any dark kernel spot or the aggregate of two or more spots affect an area of more than 10 percent of the surface of the half-kernel or piece;
- (d) **Dark skin discoloration**, darker than “dark brown,” when covering more than one-fourth of the surface of the half-kernel or piece;
- (e) **Decay** affecting any portion of the kernel;
- (f) **Insects, web, or frass** or any distinct evidence of insect feeding on the kernel;
- (g) **Internal discoloration**, which is dark gray, dark brown, or black and extends more than one-third the length of the half-kernel or piece; and
- (h) **Rancidity** when the kernel is distinctly rancid to taste. Staleness of flavor shall not be classed as rancidity.

Note 1 to §51.1453(h)

Rancidity refers to the tendency of the oil in a pecan kernel to become tainted as a result of oxidation or hydrolysis. Industry measures to determine the tendency of a kernel to become rancid include testing the kernel’s peroxide and free fatty acid values. Peroxide values should be less than 5 mEq/kg and free fatty acids acid value should be less than 1 percent. These analyses are not performed in determination of grade.