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Inspection
Division

United States Standards for Grades of Pecans in the Shell

Effective July 26, 2024

This issue of the United States Standards for Grades of Pecans in the Shell (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 Pecans in the Shell

Section	Page No.
Grades	2
§51.1400 U.S. Extra Fancy.	2
§51.1401 U.S. Fancy.....	2
§51.1402 U.S. Choice.	3
§51.1403 U.S. Standard.....	3
Size Classification	4
§51.1404 Size classification.	4
Kernel Color Classification	4
§51.1405 Kernel color classification.....	4
Tolerances	5
§51.1406 Tolerances.	5
Application of Tolerances	6
§51.1407 Application of tolerances.	6
Sample for Grade or Size Determination	6
§51.1408 Sample for grade or size determination.....	6
Definitions	6
§51.1409 Loose extraneous or foreign material.	6
§51.1410 Well cured.	6
§51.1411 Well developed.....	6
§51.1412 Fairly well developed.....	7
§51.1413 Poorly developed.....	7
§51.1414 Uniform in color.	7
§51.1415 Fairly uniform in color.	7
§51.1416 Damage.....	7
§51.1417 Serious damage.	8
§51.1418 Inedible kernels.	9

Grades

§51.1400 U.S. Extra Fancy.

“U.S. Extra Fancy” consists of pecans in the shell which meet the following requirements:

- (a) Free from loose extraneous or foreign material.
- (b) Shells are:
 - (1) Uniform in color; and
 - (2) Free from damage by any cause.
- (c) Kernels are:
 - (1) Well developed;
 - (2) Well cured;
 - (3) Moisture content shall be not more than 6 percent, unless otherwise specified;
 - (4) Uniform in color and not darker than “light;” and
 - (5) Free from damage by any cause.
- (d) For tolerances see §51.1406.

§51.1401 U.S. Fancy.

“U.S. Fancy” consists of pecans in the shell which meet the following requirements:

- (a) Free from loose extraneous or foreign material.
- (b) Shells are:
 - (1) Uniform in color; and
 - (2) Free from damage by any cause.
- (c) Kernels are:
 - (1) Fairly well developed;
 - (2) Well cured;
 - (3) Moisture content shall be not more than 6 percent, unless otherwise specified;

- (4) Uniform in color;
 - (5) Not darker than “light amber,” unless specified to a lighter color classification; and
 - (6) Free from damage by any cause.
- (d) For tolerances see §51.1406.

§51.1402 U.S. Choice.

“U.S. Choice” consists of pecans in the shell which meet the following requirements:

- (a) Free from loose extraneous or foreign material.
- (b) Shells are:
 - (1) Fairly uniform in color; and
 - (2) Free from damage by any cause.
- (c) Kernels are:
 - (1) Not poorly developed;
 - (2) Well cured;
 - (3) Moisture content shall be not more than 6 percent, unless otherwise specified;
 - (4) Fairly uniform in color;
 - (5) Not darker than “amber,” unless specified to a lighter color classification; and
 - (6) Free from damage by any cause.
- (d) For tolerances see §51.1406.

§51.1403 U.S. Standard.

“U.S. Standard” consists of pecans in the shell which meet the following requirements:

- (a) Free from loose extraneous or foreign material;
- (b) Kernels well cured;
- (c) Moisture content shall be not more than 6 percent, unless otherwise specified;

- (d) No requirement for fullness of kernel;
- (e) No requirement for uniformity of color of shells or kernels;
- (f) May contain kernels that are “dark amber” or darker, unless specified to a lighter color classification; and
- (g) Shells and kernels are free from damage by any cause.
- (h) For tolerances see §51.1406.

Size Classification

§51.1404 Size classification.

Size of pecans may be specified in connection with the grade in accordance with one of the following classifications. To meet the requirements for any one of the classifications in Table 1 to this section, the lot must conform to both the specified number of nuts per pound and the weight of the 10 smallest nuts per 100-nut sample.

Table 1 to §51.1404

Size classification	Number of nuts per pound	Minimum weight of the 10 smallest nuts per 100-nut sample
Jumbo	55 or less	In each classification, the 10 smallest nuts per 100 must weigh at least 7% of the total weight of the 100-nut sample.
Extra Large	56 to 63	
Large	64 to 77	
Medium	78 to 100	
Small	101 or more	

Kernel Color Classification

§51.1405 Kernel color classification.

- (a) The skin color of the pecan kernels are 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 more than 25 percent of the kernel is light brown, with not more than 25 percent of the surface darker than light brown, none of which is darker than medium brown.

- (3) **Amber** means that more than 25 percent of the kernel is medium brown, with not more than 25 percent of the surface darker than medium brown, none of which is darker than dark brown (very dark brown or blackish-brown discoloration).
- (4) **Dark amber** means that more than 25 percent of the kernel is dark brown, with not more than 25 percent of the 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>.

Tolerances

§51.1406 Tolerances.

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

(a) U.S. Extra Fancy, U.S. Fancy, and U.S. Choice grades.

(1) For shell defects, by count:

5 percent for pecans with damaged shells, including therein not more than 2 percent for shells which are seriously damaged.

(2) For kernel defects, by count:

12 percent for pecans with kernels which fail to meet the requirements for the grade or any specified color classification, including therein not more than 7 percent for kernels which are seriously damaged: *Provided*, That not more than 6 percent shall be allowed for kernels which are rancid, moldy, decayed, or injured by insects: *Provided further*, That included in this 6 percent tolerance not more than 0.5 percent (one-half of 1 percent) shall be allowed for pecans with live insects inside the shell.

(3) For loose extraneous or foreign material, by weight:

0.5 percent (one-half of 1 percent).

(b) U.S. Standard grade.

(1) For shell defects, by count:

10 percent for pecans with damaged shells, including therein not more than 3 percent for shells which are seriously damaged.

- (2) For kernel defects, by count:

30 percent for pecans with kernels which fail to meet the requirements for the grade or any specified color classification, including therein not more than 10 percent for kernels which are seriously damaged: *Provided*, That not more than 7 percent shall be allowed for kernels which are rancid, moldy, decayed, or injured by insects: *Provided further*, That included in this 7 percent tolerance not more than 0.5 percent (one-half of 1 percent) shall be allowed for pecans with live insects inside the shell.

- (3) For loose extraneous or foreign material, by weight:

0.5 percent (one-half of 1 percent).

Application of Tolerances

§51.1407 Application of tolerances.

Individual 100-count samples shall have not more than one and one-half times a specified tolerance of 5 percent or more and not more than double a tolerance of less than 5 percent, except that at least one pecan which is seriously damaged by live insects inside the shell is permitted: *Provided*, That the averages for the entire lot are within the tolerances specified for the grade.

Sample for Grade or Size Determination

§51.1408 Sample for grade or size determination.

Each sample shall consist of 100 pecans. The individual sample shall be drawn at random from a sufficient number of packages to form a 100-count composite sample. The number of such individual 100-count samples drawn for grade or size determination will vary with the size of the lot. When practicable, at point of packaging the sample may be obtained from the grading belt after sorting has been completed.

Definitions

§51.1409 Loose extraneous or foreign material.

Loose extraneous or foreign material means loose hulls, empty broken shells, rocks, wood, glass, plastic, or any substance other than pecans in the shell or pecan kernels.

§51.1410 Well cured.

Well cured means the kernel separates freely from the shell, breaks cleanly when bent without splintering, shattering, or loosening the skin; and the kernel appears to be in good shipping or storage condition as to moisture content.

§51.1411 Well developed.

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

§51.1412 Fairly well developed.

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

§51.1413 Poorly developed.

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

§51.1414 Uniform in color.

Uniform in color means that the shells do not show sufficient variation in color to detract from the general appearance of the lot and that 95 percent or more of the kernels in the lot have skin color within the range of one or two color classifications.

§51.1415 Fairly uniform in color.

Fairly uniform in color means that the shells do not show sufficient variation in color to materially detract from the general appearance of the lot and that 85 percent or more of the kernels in the lot have skin color within the range of one or two color classifications.

§51.1416 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 pecan or the general appearance of the pecans in the lot. The following defects shall be considered as damage:

- (a) **Adhering hull material or dark stains** affecting an aggregate of more than 5 percent of the surface of the individual shell;
- (b) **Adhering material from inside the shell** when firmly attached to more than one-third of the outer surface of the kernel and contrasting in color with the skin of the kernel;
- (c) **Broken shells** when any portion of the shell is missing;
- (d) **Internal flesh discoloration** of a medium shade of gray or brown extending more than one-fourth inch lengthwise beneath the center ridge, or any equally objectionable amount in other portions of the kernel; or lesser areas of dark discoloration affecting the appearance to an equal or greater extent;
- (e) Kernels which are dark amber in color;
- (f) Kernels which are not well cured;

- (g) **Kernel spots** when more than one dark spot is present on either half of the kernel, or when any such spot is more than one-eighth inch in greatest dimension;
- (h) **Poorly developed** kernels;
- (i) **Shriveling** when the surface of the kernel is very conspicuously wrinkled; and
- (j) **Split or cracked shells** when the shell is spread apart or will spread upon application of slight pressure.

§51.1417 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 pecan. The following defects shall be considered as serious damage:

- (a) **Adhering hull material or dark stains** affecting an aggregate of more than 20 percent of the individual shell;
- (b) **Broken shells** when the missing portion of shell is greater in area than a circle one-fourth inch in diameter;
- (c) **Dark discoloration of the skin** which is darker than dark amber over more than 25 percent of the surface of the kernel;
- (d) **Decay** affecting any portion of the kernel;
- (e) **Insects, web, frass**, or the kernel shows distinct evidence of insect feeding on the kernel;
- (f) **Internal flesh discoloration** of a dark shade extending more than one-third the length of the kernel beneath the ridge, or an equally objectionable amount of dark discoloration in other portions of the kernel;
- (g) **Kernel spots** when more than three dark spots on either half of the kernel, or when any spot or the aggregate of two or more spots on one of the halves of the kernel affects more than 10 percent of the surface;
- (h) **Mold**, on the surface or inside the kernel, which is plainly visible without magnification;
- (i) **Rancidity** when the kernel is distinctly rancid to the taste. Staleness of flavor shall not be classed as rancidity;

Note 1 to §51.1417(i)

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.

(j) **Undeveloped kernels** which are blank (complete shell containing no kernel);
and

(k) **Worm holes** when penetrating the shell.

§51.1418 Inedible kernels.

Inedible kernels means that the kernel or pieces of kernels are rancid, moldy, decayed, injured by insects or otherwise unsuitable for human consumption.