



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Fruit and
Vegetable
Division**

**Fresh
Products
Branch**

United States Standards for Grades of Walnuts (*Juglans regia*) in the Shell

Effective November 15, 1976
(Reprinted - January 1997)

United States Standards for Grades of Walnuts (*Juglans Regia*) in the Shell ¹

General

51.2945 Application.

51.2946 Color chart.

51.2947 Method of inspection.

Grades

51.2948 U.S. No. 1.

51.2949 U.S. No. 2.

51.2950 U.S. No. 3.

Unclassified

51.2951 Unclassified.

Size Specifications

51.2952 Size specifications.

Variety or Type Specifications

51.2953 Variety or type specifications.

Tolerances for Grade Defects

51.2954 Tolerances for grade defects.

Application of Tolerances

51.2955 Application of tolerances.

Definitions

51.2956 Practically clean.

51.2957 Bright.

51.2958 Splits.

51.2959 Injury by discoloration.

51.2960 Damage.

51.2961 Well dried.

51.2962 Decay.

51.2963 Dark discoloration.

51.2964 Rancidity.

51.2965 Fairly clean.

51.2966 Serious damage.

General

§51.2945 Application.

The standards contained in this subpart apply only to walnuts commonly known as English or Persian walnuts (*Juglans regia*). They do not apply to the walnuts commonly known as black

¹Packing of the product in conformity with the requirements 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.

walnuts (*Juglans nigra*).

§51.2946 Color chart.

The color chart (USDA Walnut Color Chart) to which reference is made in §§51.2948, 51.2949, 51.2950, 51.2954, and 51.2963 illustrates four shades of color used to describe skin color of walnut kernels.

(a) **Availability of color chart.** The USDA Walnut Color Chart cited in this subpart has been filed with the original document and is available for inspection in the Office of the Federal Register. The color chart is also available for inspection in the Fruit and Vegetable Division, AMS, U.S. Department of Agriculture, South Building, Washington, D.C. 20250, in any field office of the Fresh Fruit and Vegetable Inspection Service of the Fruit and Vegetable Division, or upon request of any authorized inspector of such Service. Copies of the color chart may be purchased from Munsell Color Co., Inc., 2441 North Calvert Street, Baltimore, Md. 21218.

§51.2947 Method of inspection.

In determining the grade of a lot of walnuts, all of the nuts in the sample first should be graded for size and then examined for external defects. The same nuts then should be cracked and examined for internal defects. The nuts must meet the requirements for both external and internal quality in order to meet a designated grade.

Grades

§51.2948 U.S. No. 1.

"U.S. No. 1" consists of walnuts in shells which are dry, practically clean, bright and free from splits, injury by discoloration, and free from damage caused by broken shells, perforated shells, adhering hulls or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means. (See §51.2954.)

(a) At least 70 percent, by count, of the walnuts have kernels which are not darker than "light amber" (see color chart), and which are free from grade defects: **Provided**, That at least four-sevenths of the above amount, or 40 percent of the walnuts have kernels which are not darker than "light" (see color chart). Higher percentages of nuts with kernels not darker than "light amber" which are free from grade defects and/or higher percentages with kernels not darker than "light" which are free from grade defects, may be specified in accordance with the facts. (See §51.2954.)

(b) Size shall be specified in connection with the grade. (See §51.2952.)

§51.2949 U.S. No. 2.

"U.S. No. 2" consists of walnuts in shells which are dry, practically clean and free from splits, and free from damage caused by broken shells, perforated shells, adhering hulls, discoloration or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means. (See §51.2954.)

(a) At least 60 percent, by count, of the walnuts have kernels which are not darker than "light amber" (see color chart), and which are free from grade defects. Higher percentages of nuts with kernels not darker than "light amber" which are free from grade defects, and/or percentages with kernels not darker than "light" (see color chart) which are free from grade defects, may be specified in accordance with the facts. (See §51.2954.)

(b) Size shall be specified in connection with the grade. (See §51.2952.)

§51.2950 U.S. No. 3.

"U.S. No. 3" consists of walnuts in shells which are dry, fairly clean, free from splits, and free from damage caused by broken shells, and free from serious damage caused by discoloration, perforated shells, adhering hulls or other means. The kernels are well dried, free from decay, dark discoloration, rancidity, and free from damage caused by mold, shriveling, insects or other means. (See §51.2954.)

(a) There is no requirement in this grade for the percentage of walnuts having kernels which are "light amber" or "light". However, the percentage, by count, of nuts with kernels not darker than "light amber" (see color chart) which are free from grade defects and/or the percentage with kernels not darker than "light" (see color chart) which are free from grade defects, may be specified in accordance with the facts. (See §51.2954.)

(b) Size shall be specified in connection with the grade. (See §51.2952.)

Unclassified

§51.2951 Unclassified.

"Unclassified" consists of walnuts in the shell which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

Size Specifications

§51.2952 Size specifications.

Size shall be specified in accordance with the facts in terms of one of the following classifications:

(a) **Mammoth size.** Mammoth size means walnuts of which not over 12 percent, by count, pass through a round opening 96/64 inches in diameter;

(b) **Jumbo size.** Jumbo size means walnuts of which not over 12 percent, by count, pass through a round opening 80/64 inches in diameter;

(c) **Large size.** Large size means walnuts of which not over 12 percent, by count, pass through a round opening 77/64 inches in diameter; except that for walnuts of the Eureka variety and type, such limiting dimension as to diameter shall be 76/64 inches;

(d) **Medium size.** Medium size means walnuts of which at least 88 percent, by count, pass through a round opening 77/64 inches in diameter, and of which not over 12 percent, by count, pass through a round opening 73/64 inches in diameter;

(e) **Standard size.** Standard size means walnuts of which not over 12 percent, by count, pass through a round opening 73/64 inches in diameter;

(f) **Baby size.** Baby size means walnuts of which at least 88 percent, by count, pass through a round opening 74/64 inches in diameter, and of which not over 10 percent, by count, pass through a round opening 60/64 inch in diameter; and,

(g) **Minimum diameter, or minimum and maximum diameter.** In lieu of one of the foregoing classifications, size of walnuts may be specified in terms of minimum diameter, or minimum and maximum diameter: **Provided**, That not more than 12 percent, by count, pass through a round hole of the specified minimum diameter, and at least 88 percent, by count, pass through a round hole of any specified maximum diameter.

Variety or Type Specifications

§51.2953 Variety or type specifications.

The variety or type of any lot, of walnuts in the shell may be specified in accordance with the facts

as follows:

- (a) If the lot is of one named variety, that variety name may be specified, **Provided**, That not over 10 percent, by count, of the walnuts in the lot are of another variety or type than that specified; and,
- (b) If the lot is a mixture of two or more distinct varieties or types it may be specified as "Mixed Varieties".

Tolerances for Grade Defects

§51.2954 Tolerances for Grade Defects.

In order to allow for variations incident to proper grading and handling, the following tolerances shall be permitted for nuts which fail to meet the requirements of the respective grades as indicated. Terms in quotation marks refer to color classifications illustrated on the color chart.

Tolerances for Grade Defects

Grade	External (shell) Defects	Internal (kernel) defects	Color of Kernel
U.S. No. 1 ...	10 pct, by count for splits. 5 pct. by count, for other shell defects, including not more than 3 pct seriously damaged.	10 pct total by count, including not more than 6 pct which are damaged by mold or insects or seriously damaged by other means, of which not more than 5/6 or 5 pct may be damaged by insects, but no part of any tolerance shall be allowed for walnuts containing live insects.	No tolerance to reduce the required 70 pct of "light amber" kernels or the required 40 pct of "light" kernels or any larger percentage of "light amber" or "light" kernels specified.
U.S. No. 2 ...	10 pct, by count, for splits. 10 pct, by count, for other shell defects, including not more than 5 pct serious damage by adhering hulls.	15 pct total, by count, including not more than 8 pct which are damaged by mold or insects or seriously damaged by other means, of which not more than 5/8 or 5 pct may be damaged by insects, but no part of any tolerance shall be allowed for walnuts containing live insects.	No tolerance to reduce the required 60 pct or any specified larger percentage of "light amber" kernels, or any specified percentage of "light" kernels.
U.S. No. 3...	Same as above tolerance for U.S. No. 2.	Same as above tolerance for U.S. No. 2	No tolerance to reduce any percentage of "light amber" or "light" kernel specified.

Application of Tolerances

§51.2955 Application of tolerances.

The tolerances provided in these standards are on a lot basis, and they shall be applied to a composite sample representative of the lot. However, any identifiable container or group of containers in which the walnuts are obviously of a quality materially different from that in the majority of the containers shall be considered as a separate lot, and shall be sampled separately.

Definitions

§51.2956 Practically clean.

"Practically clean" means that, from the viewpoint of general appearance, the walnuts are

practically free from adhering dirt or other foreign matter, and that individual walnuts are not damaged by such means. A slightly chalky deposit on the shell is characteristic of many bleached nuts and shall not be considered as dirt or foreign matter.

§51.2957 Bright.

"Bright" means a fairly light, attractive appearance. A slight chalky deposit on the shell shall not be considered as affecting brightness.

§51.2958 Splits.

"Splits" means walnuts with the seam opened completely around the nut so that the two halves of the shell are held together only by the kernel.

§51.2959 Injury by discoloration.

"Injury by discoloration" means that the color of the affected portion of the shell objectionably contrasts with the color of the rest of the shell of the individual nut.

§51.2960 Damage.

"Damage" means any specific defect mentioned 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 shipping quality of the individual walnut or the lot as a whole. The following specific defects shall be considered as damage:

- (a) Broken shells when the area from which a portion of the shell is missing is greater than the area of a circle one-fourth inch in diameter; or when the two halves of the shell have become completely broken apart and separated from each other;
- (b) Perforated shells when the area affected aggregates more than that of a circle one-fourth inch in diameter. The term "perforated shells" means imperfectly developed areas on the shell resembling abrasions and usually including small holes penetrating the shell wall;
- (c) Adhering hulls when affecting more than 5 percent of the shell surface;
- (d) Discoloration (or stain) which covers, in the aggregate, one-fifth or more of the surface of the shell of an individual nut, and which is brown, reddish brown, gray, or other color in pronounced contrast with the color of the rest of the shell or the majority of shells in the lot, or darker discoloration covering a smaller area if the appearance is equally objectionable;
- (e) Mold when attached to the kernel and conspicuous; or when inconspicuous white or gray mold affects an aggregate area larger than one square centimeter or one-eighth of the entire surface of the kernel, whichever is the lesser area;
- (f) Shriveling when more than 5 percent of the surface of the kernel, including both halves, is severely shriveled, or a greater area is affected by lesser degrees of shriveling producing an equally objectionable appearance. Kernels which are thin in cross section but which are otherwise normally developed shall not be considered as damaged; and,
- (g) Insects when an insect or insect fragment, web or frass is present inside the shell, or the kernel shows distinct evidence of insect feeding.

§51.2961 Well dried.

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

§51.2962 Decay.

"Decay" means that any portion of the kernel is decomposed.

§51.2963 Dark discoloration.

"Dark discoloration" means that the color of the skin of the kernel is darker than ``amber". (See

color chart.)

§51.2964 Rancidity.

"Rancidity" means the stage of deterioration in which the kernel has developed a rancid flavor. Rancidity should not be confused with a slightly astringent flavor of the pellicle (skin) or with staleness, the stage at which the flavor is flat but not distasteful.

§51.2965 Fairly clean.

"Fairly clean" means that, from the viewpoint of general appearance, the lot is not seriously damaged by adhering dirt or other foreign matter, and that individual walnuts are not coated or caked with dirt or foreign matter. Both the amount of surface affected and the color of the dirt shall be taken into consideration.

§51.2966 Serious damage.

"Serious damage" means any specific defect mentioned in this section; 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 shipping quality of the walnut. The following specific defects shall be considered as serious damage:

- (a) Discoloration (or stain) which covers, in the aggregate, one-third or more of the surface of the shell of an individual nut and which is brown, reddish brown, gray, or other color in pronounced contrast with the color of the rest of the shell or the majority of shells in the lot, or darker discoloration covering a smaller area if the appearance is equally objectionable;
- (b) Perforated shells when the area affected aggregates more than that of a circle three-eighths of an inch in diameter. The term "perforated shells" means imperfectly developed areas on the shell resembling abrasions and usually including small holes penetrating the shell wall;
- (c) Adhering hulls when affecting more than one-eighth of the shell surface in the aggregate;
- (d) Shriveling when both halves of the kernel are affected by severe shriveling over an area totaling more than one-eighth of the surface; or when both halves are affected over a greater area by lesser degrees of shriveling producing an equally objectionable appearance. When one of the halves of the kernel shows no shriveling, the kernel shall not be considered seriously damaged unless the other half shows shriveling to the extent that over 50 percent of its surface is severely shriveled, or a greater area is affected by lesser degrees of shriveling producing an equally objectionable appearance. Kernels which are thin in cross section, but which are otherwise normally developed shall not be considered as damaged;
- (e) Rancidity or decay; and,
- (f) Uncured kernels which are wet, rubbery and "green".