



**United  
States  
Department of  
Agriculture**

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Division

Processed  
Products  
Branch

# **United States Standards for Grades of Frozen Strawberries**

February 1, 1958

This is the fifth issue, as amended, of the United States Standards for Grades of Frozen Strawberries, published in the **FEDERAL REGISTER** of January 3, 1958 (23 FR 43) to become effective February 1, 1958. This issue supersedes the fifth issue, which has been in effect since April 16, 1955.

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 processed fruits and vegetables, 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 standards also serve as a basis for the inspection and grading of commodities by the Federal inspection service, the only activity authorized to approve the designation of U.S. grades as referenced in the standards, as provided under the Agricultural Marketing Act of 1946. This service, available as on-line (in-plant) or lot inspection and grading of all processed fruit and vegetable products, is offered to interested parties, upon application, on a fee-for-service basis. The verification of some specific recommendations, requirements, or tolerances contained in the standards can be accomplished only by the use of on-line inspection procedures. In all instances, a grade can be assigned based on final product factors or characteristics.

In addition to the U.S. grade standards, grading manuals or instructions for inspection of several processed fruits and vegetables are available upon request for a nominal fee. These manuals or instructions contain detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the Department after careful consideration of all data and views submitted, and the Department welcomes suggestions which might aid in improving the standards in future revisions. Comments may be submitted to, and copies of standards and grading manuals obtained from:

Chief, Processed Products Branch  
Fruit and Vegetable Division, AMS  
U.S. Department of Agriculture  
P.O. Box 96456, Rm. 0709, So. Bldg.  
Washington, D.C. 20090-6456

UNITED STATES STANDARDS FOR GRADES OF  
FROZEN STRAWBERRIES

EFFECTIVE FEBRUARY 1, 1958

Section	Page No.
52.1981 Product description.	2
52.1982 Styles of frozen strawberries.	2
52.1983 Sizes of whole frozen strawberries.	2
52.1984 Grades of frozen strawberries.	2
52.1985 Ascertaining the grade.	3
52.1986 Ascertaining the rating of each factor.	4
52.1987 Color.	4
52.1988 Defects.	6
52.1989 Character.	9
52.1990 Definition of terms.	10
52.1991 Explanation of analysis.	10
52.1992 Ascertaining the grade of a lot.	11
52.1993 Score sheet for frozen strawberries.	12

Authority: Agricultural Marketing Act of 1946, Secs. 203, 205, 60 Stat. 1087, as amended, 1090, as amended (7 U.S.C. 1622, 1624).

.....

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.

**§52.1981 Product description.**

**Frozen strawberries** means the frozen product prepared from sound, properly ripened fresh fruit of the strawberry plant by stemming, proper washing, sorting, and proper draining, may be packed with or without packing medium, and are then frozen in accordance with good commercial practice and maintained at temperatures necessary for the preservation of the product.

**§52.1982 Styles of frozen strawberries.**

- (a) **Whole or whole strawberries** means frozen strawberries that retain approximately their original conformation.
- (b) **Slices or sliced strawberries** means frozen strawberries produced by slicing whole strawberries into two or more slices.

**§52.1983 Sizes of whole frozen strawberries.**

Except with respect to U.S. Grade A or U.S. Fancy, the size of the whole frozen strawberry is not incorporated in the grades of the finished product since size, as such, is not a factor of quality for the purpose of these grades. When used in connection with the following sizes of whole frozen strawberries, the term **diameter** means the greatest dimension measured at right angles to a straight line running from the stem to the apex:

- (a) **Small size** means whole frozen strawberries that measure less than 5/8 inch in diameter.
- (b) **Medium size** means whole frozen strawberries that measure 5/8 inch to 1-1/4 inches, inclusive, in diameter.
- (c) **Large size** means whole frozen strawberries that measure more than 1-1/4 inches in diameter.

**§52.1984 Grades of frozen strawberries.**

- (a) **U.S. Grade A or U.S. Fancy** is the quality of frozen strawberries that possess similar varietal characteristics; that possess a good flavor; that possess a good color; that are practically free from defects; that possess a good character; that score not less than 90 points when scored in accordance with the scoring system outlined in this subpart and that with respect to whole style contain not more than 5 percent, by count, of whole strawberries that are **small size**, (less than 5/8 inch in diameter).

- (b) **U.S. Grade B or U.S. Choice** is the quality of frozen strawberries that possess similar varietal characteristics; that possess a good flavor; that possess a reasonably good color; that are reasonably free from defects; that possess a reasonably good character; and that score not less than 80 points when scored in accordance with the scoring system outlined in this subpart.
- (c) **U.S. Grade C or U.S. Standard** is the quality of frozen strawberries that possess similar varietal characteristics; that possess a fairly good flavor; that possess a fairly good color; that are fairly free from defects; that possess a fairly good character; and that score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.
- (d) **Substandard** is the quality of frozen strawberries that fail to meet the requirements of **U.S. Grade C or U.S. Standard**.

**§52.1985 Ascertaining the grade.**

(a) **General.** The grade of frozen strawberries is determined immediately after thawing to the extent that the units may be separated easily, and are free from ice crystals. In addition the grade of frozen strawberries is ascertained by considering the factors of quality which are not scored and those which are scored as follows:

- (1) Factors which are not scored.
  - (i) Varietal characteristics.
  - (ii) Flavor and odor.
  - (iii) Size relative to U.S. Grade A or U.S. Fancy.
- (2) Factors which are scored. The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given such factors are:

Factors	Points
Color .....	40
Defects .....	40
Character .....	<u>20</u>
Total Score .....	100

- (b) **Good flavor** means that the product has a good characteristic normal flavor and odor, and is free from objectionable flavors or objectionable odors of any kind.
- (c) **Fairly good flavor** means that the product may be lacking in good characteristic normal flavor and odor but is free from objectionable flavors or objectionable odors of any kind.

**§52.1986 Ascertaining the rating for the factors which are scored.**

The essential variations within each factor which is scored are so described that the value may be ascertained for such factors and expressed numerically. The numerical range within each factor is inclusive. For example, the range "36 to 40 points" means 36, 37, 38, 39, or 40 points.

**§52.1987 Color.**

- (a) **"A" classification.** Frozen strawberries that possess a good color may be given a score of 36 to 40 points. **Good color** means that the frozen strawberries as a mass possess a reasonably uniform good characteristic pink to red color which is not more than slightly affected by a dull, gray, or reddish-brown cast; and in addition:
  - (1) With respect to whole style 85 percent or more, by count, of the strawberries have at least a good characteristic pink to red color over practically the entire surface and of the remainder not more than 5 percent, by count, of all the strawberries may have less than four-fifths of the surface area of a good characteristic pink to red color, or are materially darkened; and that:
  - (2) With respect to sliced style 85 percent or more, by weight, of the slices have at least a good characteristic pink to red color over practically the entire outer surface (not including cut surfaces) and of the remainder not more than 5 percent, by weight, of all the slices may have less than one-half of the outer surface (not including cut surfaces) of a good characteristic pink to red color, or are materially darkened.
- (b) **"B" classification.** If the frozen strawberries possess a reasonably good color, a score of 32 to 35 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). **Reasonably good color** means that the frozen strawberries as a mass possess a fairly uniform good characteristic pink to red color which is not materially affected by dull, gray, or reddish-brown cast; and in addition:

- (1) With respect to whole style 75 percent or more, by count, of the strawberries have at least a good characteristic pink to red color over practically the entire surface, and of the remainder not more than 10 percent, by count, of all the strawberries may have less than four-fifths of the surface area of a good characteristic pink or red color, or are materially darkened; and that:
  - (2) With respect to sliced style 75 percent or more, by weight, of the slices have at least a good characteristic pink to red color over practically the entire outer surface (not including cut surfaces) and of the remainder not more than 10 percent, by weight, of all the slices may have less than one-half of the outer surface (not including cut surfaces) of a good characteristic pink to red color, or are materially darkened.
- (c) **"C" classification.** If the frozen strawberries possess a fairly good color, a score of 28 to 31 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly good color** means that the frozen strawberries as a mass possess a predominant characteristic pink to red color and may show a dull, gray, or slightly dark color, but not to the extent that the appearance or eating quality is seriously affected; and in addition:
- (1) With respect to whole style not more than 15 percent, by count, of all the strawberries may have less than four-fifths of the surface area of a characteristic pink to red color, or are materially darkened.
  - (2) With respect to sliced style not more than 15 percent, by weight, of all the slices may have less than one-half of the outer surface (not including cut surfaces) of a characteristic pink to red color, or are materially darkened.
- (d) **"SStd" classification.** Frozen strawberries that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

**§52.1988 Defects.**

- (a) **General.** The factor of defects refers to the degree of freedom from grit, sand, or silt, from harmless extraneous material, caps and portions thereof, sepal-like bracts and portions thereof, stems, short stems, and damaged strawberries.
- (1) **Harmless extraneous material** means vegetable substances such as weeds, weed seeds, grass, and leaves and any portions thereof that are harmless.
  - (2) **Grit, sand, or silt means** any particles of earthy material.
  - (3) **Short stem** means a stem that is 1/8 inch or less in length and which may include the center portion of a cap to which no sepal-like bract or portion thereof is attached.
  - (4) **Stem** means a stem, either loose or attached, that is longer than 1/8 inch.
  - (5) **Cap** means a loose or attached full cap or portion of a cap to which at least one sepal-like bract or a portion thereof is attached. A short stem that is attached to the cap is considered a part of the cap. A stem that is attached to the cap is considered a separate defect.
  - (6) **Damaged strawberry** means a strawberry or any physically separated portion thereof that is affected by hard seedy or deformed end, and deformed or damaged areas to the extent that the appearance or eating quality is materially affected. Minute, insignificant injuries are not considered as damaged.
- (b) **"A" classification.** Frozen strawberries that are practically free from defects may be given a score of 36 to 40 points. **Practically free from defects** has the following meanings with respect to the following styles of frozen strawberries:
- (1) **Whole.** No grit, sand, or silt may be present that affects the appearance or eating quality of the product and for each 16 ounces of net weight there may be present an area of not more than 1/4 square inch comprising harmless extraneous material such as leaves



and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than two stems, including not more than one stem which may exceed 1/2 inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and not more than 16 short stems; and there may be present not more than a total of 5 percent, by weight, that are damaged strawberries.

(2) **Sliced.** No grit, sand, or silt may be present that affects the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than 1/4 square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than one stem which may exceed 1/2 inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds and blades of grass; and not more than 16 short stems and there may be present not more than a total of 2-1/2 percent, by weight, that are damaged strawberries.

(c) **"B" classification.** If the frozen strawberries are reasonably free from defects, a score of 32 to 35 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). **Reasonably free from defects** has the following meanings with respect to the following styles of frozen strawberries:

(1) **Whole.** No grit, sand, or silt may be present that affects the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than 1/2 square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than four stems, including not more than one stem which may exceed 1/2 inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and not more than 32 short stems; and there may be present not more than a total of 10 percent, by weight, that are damaged strawberries.

(2) **Sliced.** No grit, sand, or silt may be present that affects the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than 1/2 square inch comprising harmless extraneous material such as leaves

and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than four stems, including not more than one stem which may exceed 1/2 inch in length, or one small piece of harmless extraneous material that is not measurable by area such as weeds, weed seeds and blades of grass; and not more than 32 short stems and there may be present not more than a total of 5 percent, by weight, that are damaged strawberries.

(d) **"C " Classification.** If the frozen strawberries are fairly free from defects, a score of 28 to 31 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly free from defects** has the following meanings with respect to the following styles of frozen strawberries:

(1) **Whole.** A trace of grit, sand or silt may be present that does not materially affect the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than 3/4 square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than six stems, including not more than one stem which may exceed 3/4 inch in length, or two small pieces of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and there may be present not more than a total of 12 percent, by weight, that are damaged strawberries.

(2) **Sliced.** A trace of grit, sand, or silt may be present that does not materially affect the appearance or eating quality of the product, and for each 16 ounces of net weight there may be present an area of not more than 3/4 square inch comprising harmless extraneous material such as leaves and portions thereof, caps and portions thereof, and loose sepal-like bracts and portions thereof; not more than six stems, including not more than one stem which may exceed 3/4 inch in length, or two small pieces of harmless extraneous material that is not measurable by area such as weeds, weed seeds, and blades of grass; and there may be present not more than a total of 6 percent, by weight, that are damaged strawberries.

(e) **"Sstd" classification.** Frozen strawberries that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score of the product (this is a limiting rule).

**§52.1989 Character.**

- (a) **General.** The factor of character refers to firmness, the degree of wholeness, degree of seediness, degree of disintegration as evidenced by partial strawberries and mushy strawberries.
- (1) **Partial strawberry in whole style** means that less than three-quarters of the apparent whole strawberry remains intact.
- (2) **Mushy strawberries in whole and sliced styles** means strawberries that are so soft they are a pulpy mass or are badly disintegrated.
- (b) **"A" classification.** Frozen strawberries that possess a good character may be given a score of 18 to 20 points. **Good character** means that the strawberries are reasonably firm, that the appearance and eating quality of the product are not materially affected by disintegration or seediness and that:
- (1) With respect to whole style not more than 10 percent, by weight, of strawberries may consist, in the aggregate, of partial strawberries or mushy strawberries or a combination thereof, and that:
- (2) With respect to sliced style not more than 20 percent, by weight, of strawberries may consist, in the aggregate, of mushy strawberries.
- (c) **"B" classification.** If the frozen strawberries have a reasonably good character, a score of 16 or 17 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). **Reasonably good character** means that the strawberries are fairly firm, that the appearance and eating quality of the product are not seriously affected by seediness or disintegration, and that:
- (1) With respect to whole style not more than 20 percent, by weight, of strawberries may consist, in the aggregate, of partial strawberries or mushy strawberries or a combination thereof, and that:
- (2) With respect to sliced style not more than 30 percent, by weight, of

strawberries may consist, in the aggregate, of mushy strawberries.

- (d) **"C" classification.** If the frozen strawberries have a fairly good character, a score of 14 or 15 points may be given. Frozen strawberries that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly good character** means that the strawberries are fairly firm, and that:
- (1) With respect to whole style not more than 30 percent, by weight, of strawberries may consist, in the aggregate, of partial strawberries or mushy strawberries or a combination thereof, and that:
  - (2) With respect to sliced style not more than 50 percent, by weight, of strawberries may consist, in the aggregate, of mushy strawberries.
- (e) **"Sstd" classification.** Frozen strawberries that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

**§52.1990 Definition of terms.**

- (a) **By weight of strawberries.** By weight of strawberries means the strawberry ingredient exclusive of the surrounding medium.
- (b) **Area.** Area means the aggregate surface covered by the material stated when such material or portions thereof are placed in a contiguous position with no intervening spaces.

**§52.1991 Explanation of analysis.**

- (a) **By weight of strawberries** in frozen strawberries is determined by the following method:
- (1) **Equipment** -- flat grading tray, table fork, two glass beakers, and a torsion or triple beam balance.
  - (2) **Procedure.**
    - (i) If the sample is of 16 ounces or less use the entire sample, but if the sample is of a size exceeding 16 ounces use a representative 16-ounce aliquot for sliced style and a 32-ounce representative aliquot for whole style.

- (ii) Thaw the sample to the extent that the strawberries may be separated easily and are free of ice crystals.
  
- (iii) Place the thawed sample on a flat grading tray, raise one end of the tray approximately one inch so the packing medium drains to the other end of the tray. For a given factor (viz., color, defects or character) (a) separate those units (or that material) which fall into the categories specified in the standards, [A table fork or similar utensil may be used to facilitate the separation]; (b) Using the table fork remove that portion of the strawberry material which has been separated in (a) of this subdivision and weigh; (c) Using the table fork remove the remaining strawberry material exclusive of packing medium from the tray and weigh; (d) The sum of the weights obtained in (b) and (c) of this subdivision is the weight of strawberry ingredient; and (e) Calculate the percent, by weight, of the separated material and divide the weight of such material found in (b) of this subdivision by the total weight of strawberry material.

**§52.1992     Ascertaining the grade of a lot.**

The grade of a lot of frozen strawberries covered by these standards is determined by the procedures set forth in the "Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products" (7 CFR 52.1 through 52.83).

**§52.1993 Score sheet for frozen strawberries.**

Number, size and kind of container .....		
Label: Style or pack: Fruit-sugar ratio (if shown) .....		
Container mark or identification	Containers or sample	Average
	Cases	
Net weight (ounces) .....		
Style .....		
Size or sizes (whole) .....		
Under 5/8" (percent by count) .....		
Factors	Score Points	
Color .....	40	"A" 36-40 "B" 32-35 <u>1/</u> "C" 28-31 <u>1/</u> "SStd" 0-27 <u>1/</u>
Defects .....	40	"A" 36-40 "B" 32-35 <u>1/</u> "C" 28-31 <u>1/</u> "SStd" 0-27 <u>1/</u>
Character .....	20	"A" 18-20 "B" 16-17 <u>1/</u> "C" 14-15 <u>1/</u> "SStd" 0-13 <u>1/</u>
Total Score .....	<u>100</u>	
Flavor and odor .....		
U.S. Grade .....		

1/ Indicates limiting rule.

Dated this 27th day of December 1957, to become effective on February 1, 1958.  
(Sec. 205, 60 Stat. 1090, as amended; 7 U.S.C. 1624)

[SEAL]      Frank E. Blood  
                 **Acting Deputy Administrator,**  
                 **Marketing Services.**

[F. R. Doc. 58-39; Filed, Jan. 2, 1958; 8:52 a.m.]

Published in the **Federal Register**, March 16, 1955 (20 F.R. 1580)  
Amendments published in the **Federal Register** January 3, 1958 (23 F.R. 43).