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Inspection
Division

United States Standards for Grades of Canned Okra

Effective January 20, 2017

This issue of the United States Standards for Grades of Canned Okra (81 FR 93572) supersedes the previous issue which has been in effect since July 8, 1957.

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 Canned Okra

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Product Description, Types, Styles, and Grades

§52.3331 Product description.

Canned okra is the product prepared from clean, sound, succulent, immature pods of either the green or white varieties of the okra plant, which are properly trimmed and sorted; which may or may not have undergone partial fermentation; and is washed, packed, and processed in accordance with good commercial practice which includes such product as defined in the Standard of Identity for Canned Okra (21 CFR 155.200) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§52.3332 Types of canned okra.

- (a) **Type I canned okra.** Canned okra of this type has been partially fermented in salt brine before processing.
- (b) **Type II canned okra.** Canned okra of this type has not been fermented before processing.

§52.3333 Styles of canned okra.

- (a) **Whole** means canned okra consisting of whole pods with stems removed and with or without the caps removed.
- (b) **Whole salad** means canned okra consisting of whole pods with stems attached which are at least one-half inch but not exceeding one inch in length.
- (c) **Cut** means canned okra consisting of pods with the caps and stems removed, which have been cut transversely into pieces.

§52.3334 Grades of canned okra.

- (a) **U.S. Grade A** is the quality of canned okra that possesses similar varietal characteristics; that possesses a normal flavor; that possesses a good color; that is practically uniform in size; that is practically free from defects; that possesses a good character; and that for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 85 points.
- (b) **U.S. Grade C** is the quality of canned okra that possesses similar varietal characteristics; that possesses a normal flavor; that possesses a fairly good color; that is fairly uniform in size; that is fairly free from defects; that possesses a fairly good character; and that for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 70 points: *Provided*, That the canned okra may be variable in size if the total score is not less than 70 points.

- (c) **Substandard** is the quality of canned okra that fails to meet the requirements of U.S. Grade C.

Fill of Container and Drained Weights

§52.3335 Recommended fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purposes of these grades. It is recommended that each container of canned okra be filled with okra as full as practicable without impairment of quality and that the product and packing medium occupy not less than 90 percent of the volume of the container.

§52.3336 Drained weights.

- (a) **General.** The minimum drained weight recommendations for canned okra in Table No. I of this section are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purposes of these grades.
- (b) **Method for ascertaining drained weight.** The drained weight is determined by emptying the contents of the container upon a United States Standard No. 8 sieve of proper diameter so as to distribute the product evenly, inclining the sieve to facilitate drainage, and allow the product to drain for two minutes. The drained weight is the weight of the sieve and the drained product less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No. 3 size can (404 x 414) and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the equivalent of the No. 3 size can.
- (c) **Compliance with recommended drained weights.** Compliance with the recommended drained weights is determined by averaging the drained weight from all the containers which are representative of a specific lot and such lot is considered as meeting the recommendations if the following criteria are met:
- (1) The average of the drained weights from all of the containers meets the recommended drained weight;
 - (2) One-half or more of the containers meets the recommended drained weight; and
 - (3) The drained weights from the containers which do not meet the recommended drained weight are within the range of variability for good commercial practice.

Table No. I – Recommended Minimum Drained Weight of Okra, in Ounces

Container size or designation	Container dimensions		Styles of canned okra	
	Width Inches	Height Inches	Whole or salad	Cut
8 oz. Tall	2-11/16	3-4/16	4.5	5.0
No. 1 Picnic	2-11/16	4	6.2	6.5
No. 1 Tall	3-1/16	4-11/16	9.8	10.2
No. 303	3-3/16	4-6/16	10.0	10.5
No. 2	3-7/16	4-9/16	12.0	12.8
No. 2-1/2	4-1/16	4-11/16	17.8	18.8
No. 10	6-3/16	7	60.0	60.0

Factors of Quality

§52.3337 Ascertaining the grade.

(a) **General.** In addition to considering other requirements outlined in the standards, the following quality factors are evaluated in ascertaining the grade of the product:

(1) Factors not rated by score points.

(i) Varietal characteristics.

(ii) Flavor.

(2) Factors rated by score points. 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 is:

Factors:	Points
Color	20
Size	10
Defects	35
Character	35
Total Score	100

- (b) **Normal flavor** means that the product has a normal characteristic flavor and odor for the type and is free from objectionable flavors and objectionable odors of any kind.

§52.3338 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 which is scored is inclusive (for example, 17 to 20 points means 17, 18, 19, or 20 points).

§52.3339 Color.

- (a) **“A” classification.** Canned okra that possesses a good color may be given a score of 17 to 20 points.

Good color means that the outer surfaces of the okra pods possess a practically uniform color typical for the type and variety of young, tender, properly prepared, and properly processed canned okra.

- (b) **“C” classification.** Canned okra that possesses a fairly good color may be given a score of 14 to 16 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good color means that the outer surfaces of the okra pods possess a fairly uniform color typical for the type and variety of fairly tender, properly prepared, and properly processed canned okra.

- (c) **“SStd” classification.** Canned okra that fails to meet the requirements of paragraph (b) 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).

§52.3340 Size.

- (a) **“A” classification.** Canned okra that is practically uniform in size may be given a score of 8 to 10 points.

Practically uniform in size has the following meanings with respect to the following styles of canned okra:

(1) **Whole and whole salad.**

- (i) In 90 percent, by count, of the most uniform pods of okra, the length of the longest unit is not more than twice the length of the

shortest unit, and that

(ii) The overall length of the unit does not exceed 3-1/2 inches.

(2) **Cut.** The appearance of the product is not materially affected by the variation in the size of the units.

(b) **“C” classification.** Canned okra that is fairly uniform in size may be given a score of 7 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly uniform in size has the following meanings for the following styles:

(1) **Whole and whole salad.** In 90 percent, by count, of the most uniform pods of okra, the length of the longest unit is not more than three times the length of the shortest unit.

(2) **Cut.** The appearance of the product is not seriously affected by the variation in the size of the units.

(c) **“SStd” classification.** Canned okra that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 6 points and shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a partial limiting rule).

§52.3341 Defects.

(a) **General.** The factor of defects refers to the degree of freedom from extraneous vegetable matter, small pieces, poorly trimmed units, misshapen pods, and from damaged or seriously damaged units.

(1) **Extraneous vegetable matter** means any vegetable substance (including but not limited to a leaf, unattached stem, or portions thereof) that is harmless.

(2) **Small pieces** means pieces of canned okra less than 3/8 inch in length.

(3) **Poorly trimmed:**

(i) With respect to whole style means a unit that has an attached stem more than 1/4 inch in length measured from the blossom scar.

(ii) With respect to whole salad style means a unit that has an attached stem less than 1/2 inch or more than 1 inch in length measured from the blossom scar.

- (iii) With respect to cut style means a unit that is partially cut or possesses ragged edges or attached caps or portions thereof.
 - (4) **Misshapen unit** means any unit in whole or whole salad styles that is malformed or crooked to the extent that the appearance or eating quality of the unit is seriously affected.
 - (5) **Damaged unit** means any pod or piece of pod affected by insect injury, pathological injury, mechanical injury, discoloration, or damaged by other means to the extent that the appearance or eating quality is materially affected.
 - (6) **Seriously damaged unit** means damaged to such an extent that the appearance or eating quality is seriously affected.
- (b) **“A” classification.** Canned okra that is practically free from defects may be given a score of 30 to 35 points.

Practically free from defects means that extraneous vegetable matter, small pieces of canned okra, poorly trimmed units, misshapen units, and damaged and seriously damaged units may be present for the applicable styles that do not materially affect the appearance and eating quality of the product.

- (c) **“C” classification.** Canned okra that is fairly free from defects may be given a score of 25 to 29 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly free from defects means that extraneous vegetable matter, small pieces of canned okra, poorly trimmed units, misshapen units, and damaged or seriously damaged units may be present for the applicable styles that do not seriously affect the appearance and eating quality of the product.

- (d) **“SStd” classification.** Canned okra that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 24 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.3342 Character.

- (a) **General.** The factor of character refers to the degree of development of the pod, the freedom from fibrous material, and the tenderness and texture of the pod and the seed.
- (b) **“A” classification.** Canned okra that possesses a good character may be given a score of 30 to 35 points.

Good character means that the units are tender and practically free from fibrous material, which is objectionable upon eating, that the seeds are in the early stages of development, and that with respect to Type I canned okra the appearance of the product is not more than slightly affected by the presence of broken, crushed, or mashed units and with respect to Type II canned okra the appearance is not materially affected by the presence of crushed, broken, and mashed units.

- (c) **“C” classification.** Canned okra that possesses a fairly good character may be given a score of 24 to 29 points. Canned okra that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good character means that the units may be fairly tender, that the seeds may have passed the early stages of development, and that the product contains not more than 0.20 percent, by weight, of dried cellulose material.

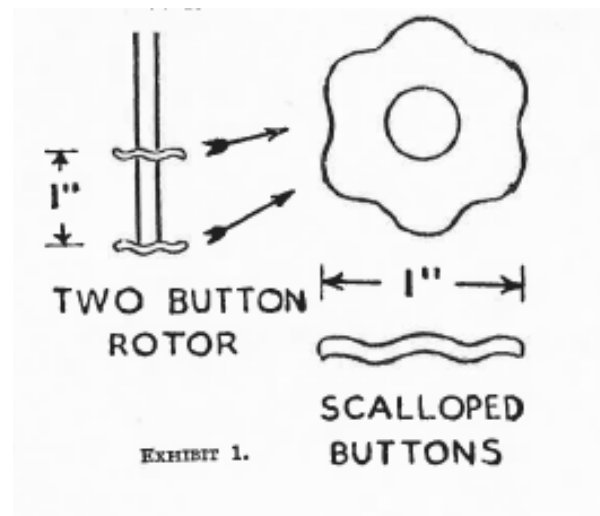
- (d) **“SStd” classification.** Canned okra that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

Methods of Analysis

§52.3343 Percent, by weight, of fibrous material.

- (a) Canned okra shall be tested by the following method to determine the percent, by weight, of fibrous material:
- (1) Distribute the contents of the container over the meshes of a circular sieve which has been previously weighed. The diameter of the sieve is 8 inches if the quantity of the contents of the container is less than 3 pounds, and 12 inches if such quantity is 3 pounds or more. Without shifting the material on the sieve, so incline the sieve as to facilitate drainage. Two minutes from the time drainage begins, weigh the sieve and the drained material. Record the weight so found less the weight of the sieve as the drained weight in ounces.
 - (2) Remove from the sieve one or more representative samples of 3-1/2 to 4 ounces, covering each sample as taken to prevent evaporation. Transfer to the metal cup of a malted milk stirrer or equivalent and mash with a pestle. Wash material adhering to the pestle back into cup with 200 cc of boiling water. Bring mixture nearly to a boil, add 25 cc of 50 percent, by weight, sodium hydroxide solution and bring to a boil. If foaming is excessive, 1 cc of caprylic alcohol (1-octanol) may be added. Boil for 5 minutes, and then stir for 5 minutes with a malted milk stirrer or equivalent

capable of a no-load speed of at least 7200 r.p.m. Use a rotor with two scalloped buttons shaped as shown in the diagram in Exhibit 1.



- (3) Transfer the material from the cup to a previously weighed 30-mesh monel metal screen having a diameter of about 3-1/2 to 4 inches and side walls about 1 inch high, and wash fiber on the screen with a stream of water using a pressure not exceeding a head (vertical distance between upper level of water and outlet of glass tube) of 60 inches, delivered through a glass tube 3 inches long and 1/8 inch inside diameter inserted into a rubber tube of 1/4 inch inside diameter. Wash the pulpy portion of the material through the screen and continue washing until the remaining fibrous material, moistened with phenolphthalein solution, does not show any red color after standing 5 minutes. Again wash to remove phenolphthalein. Dry the screen containing the fibrous material for 2 hours at 100°C, cool, weigh, and deduct weight of screen. Divide the weight of fibrous material by the drained weight and multiply by 100 to obtain the percentage of fibrous material.

Ascertaining the Grade of a Lot

§52.3344 Ascertaining the grade of a lot.

The grade of a lot of canned okra 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).

Score Sheet
§52.3345 Score sheet for canned okra.

Number, size, and kind of container			
Container marks or identification			
Label			
Net weight (ounces)			
Vacuum (inches)			
Drained weight (ounces)			
Type			
Style (cut, whole, or salad cuts)			
Count (whole)			
Whole pods over 3 1/2 inches (count)			
Fibrous material (ounces)			
Dried cellulose material (ounces)			
Similar varietal characteristics (yes, no)			
Factors		Grade	Score Points
Color	20	"A"	17-20
		"C"	14-16 ¹
		"SStd"	0-13 ¹
Size	10	"A"	8-10
		"C"	7 ¹
		"SStd"	0-6 ²
Defects	35	"A"	30-35
		"C"	25-29 ¹
		"SStd"	0-24 ¹
Character	35	"A"	30-35
		"C"	24-29 ¹
		"SStd"	0-23 ¹
Total Score		100	
Flavor and Odor			
U.S. Grade			

¹Indicates limiting rule.

²Indicates partial limiting rule