



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Fruit and
Vegetable
Division**

**Processed
Products
Branch**

United States Standards for Grades of Frozen Rhubarb

Effective date August 15, 1945

This is the first issue of the United States Standards for Grades of Frozen Rhubarb. published in the **FEDERAL REGISTER** of August 15, 1945.

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 Rhubarb

Section	Page No.
Definition.	2
Types of frozen rhubarb.	2
Styles of frozen rhubarb.	2
Grades of frozen rhubarb.	2
Sugar or sirup pack.	3
Ascertaining the grade.	3
Ascertaining the rating for each factor.	4
Color.	4
Absence of defects.	4
Tenderness and texture.	6
Ascertaining the grade of a lot.	7
Score sheet for frozen rhubarb.	7

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.

Definition.

Frozen rhubarb is prepared from the properly developed, fresh stem of the rhubarb plant (*Rheum raphanistrum*); is trimmed, washed, and cut; and is frozen and stored at temperatures necessary for the preservation of the product.

Types of frozen rhubarb.

- (a) **Crimson** type includes rhubarb that is predominantly pink-red in color and includes units that may be partially pale pink or darker in color.
- (b) **Green** type includes rhubarb that is predominantly green in color.

Styles of frozen rhubarb.

- (a) **Cut** rhubarb consists of stems that are cut transversely into units of approximately equal lengths. Rhubarb of this style may contain not more than 25 percent by weight of split units.
- (b) **Split** rhubarb consists of cut units or whole stalks that are divided longitudinally. Rhubarb of this style contains more than 25 percent by weight of split units.

Grades of frozen rhubarb.

- (a) **U.S. Grade A or U.S. Fancy** frozen rhubarb is rhubarb of similar varietal characteristics which is practically free from defects; possesses a normal flavor and odor; and is of such quality with respect to color and tenderness and texture as to score not less than 85 points when scored in accordance with the scoring system outlined herein.
- (b) **U.S. Grade B or U.S. Choice** frozen rhubarb is rhubarb of similar varietal characteristics which possesses a reasonably uniform typical color; is reasonably free from defects; has a reasonably tender texture; possesses a normal flavor and odor; and scores not less than 70 points when scored in accordance with the scoring system outlined herein.
- (c) **U.S. Grade D or Substandard** frozen rhubarb is rhubarb that fails to meet the requirements of U.S. Grade B or U.S. Choice.

Sugar or sirup pack.

Frozen rhubarb is sometimes packed with added sugar in a definite ratio and such packs are designated by the amount of fruit to sugar; for example, **6 + 1** means that at the time of packing, one pound of sugar is added to six pounds of rhubarb.

Ascertaining the grade.

- (a) The grade of frozen rhubarb is determined immediately after complete thawing in unopened small packages or when the entire package is used as a sample; and samples drawn from large containers shall be graded immediately after thawing to the extent that the units may be separated easily.
- (b) The factors of color, tenderness and texture, and flavor and odor of frozen rhubarb are determined after cooking the rhubarb in gently boiling water in a covered container for six minutes (from the time the water boils after the rhubarb is added). If the frozen rhubarb is packed with sugar, 12 ounces of rhubarb to 5 ounces of water may be used in cooking; and, if the frozen rhubarb is packed without sugar, 12 ounces of rhubarb, 5 ounces of sugar, and 5 ounces of water may be used in cooking.
- (c) **Normal flavor and odor** means that the frozen rhubarb is free from objectionable or off flavors or objectionable odors of any kind.
- (d) The grade of frozen rhubarb may be ascertained by considering, in addition to the foregoing requirements, the following factors: Color, absence of defects, and tenderness and texture.
- (e) The relative importance of each factor has been expressed numerically on a scale of 100. The maximum number of points that may be given for each factor is:

Factors	Points
Color	10
Absence of defects	30
Tenderness and Texture	<u>60</u>
Total Score	100

Ascertaining the rating for each factor.

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical ranges within each factor are inclusive. For example, the range 8 to 10 means 8, 9, and 10.

Color.

- (a) **"A" classification.** To receive a score of 8 to 10 points the frozen rhubarb must possess a practically uniform typical color. **Practically uniform typical color** means that the rhubarb possesses a glossy appearance and that the color is characteristic of the variety and free from dull or grey color that is not off color.
- (b) **"B" classification.** If the frozen rhubarb possesses a reasonably uniform typical color a score of 6 or 7 points may be given. **Reasonably uniform typical color** means that the rhubarb possess a glossy appearance and that the color is characteristic of the variety and may possess a slightly dull or grey color that is not off color.
- (c) **(D) classification.** Frozen rhubarb that is definitely dull or grey, or otherwise off color for any reason may be given a score of 0 to 5 points and shall not be graded above **U.S. Grade D or Substandard**, regardless of the total score for the product.

Absence of defects.

The factor of absence of defects refers to the degree of freedom from harmless extraneous material (such as leaves and stems from plant material other than from the rhubarb plant); from defective units such as root ends, leaf ends, ragged or irregular units, blemished or scarred units; from units that possess growth cracks or other abnormalities; and from units that are damaged by pathological, insect, or other similar injury.

- (a) **Root ends** are flattened, shelly, shallow units cut from the root end.
- (b) **Leaf ends** are the portions that fan out from the stalk and that include part of the lateral ribs or joints.
- (c) **Ragged or irregular units** are cut or split units that possess an outer layer or peel extending more than 1/4 inch beyond the inner portion of the unit; are cut or split units that possess ends of less than an approximate 45 degree angle; or are units of excessive lengths differing from the general length of cuts.

- (d) A unit damaged by **minor defects** is one that possesses root ends from which rough tissues have been removed; or that possess shallow, short, or light color growth cracks or other abnormalities that do not materially affect the appearance of the product.
- (e) A unit damaged by **major defects** is one that possesses root ends from which rough tissues have not been removed; that possesses leaf ends; that possesses deep, calloused, or dark growth cracks or other abnormalities, or rust that materially affect the appearance of the product; or that is damaged by pathological, insect, or other similar injury.
- (f) **"A" classification.** To receive a score of 26 to 30 points the frozen rhubarb must be practically free from defects. **Practically free from defects** means that not more than a total of 15 percent by weight may be defective units (including **minor** and **major** defects), provided that not more than 5 percent by weight are damaged by **major** defects.
- (g) **"B" classification.** If the frozen rhubarb is reasonably free from defects, a score of 22 to 25 points may be given. Frozen rhubarb that falls into this classification shall not be graded above **U.S. Grade B or U.S. Choice**, regardless of the total score for the product. **Reasonably free from defects** means that not more than a total of 20 percent by weight may be defective units (including **minor** and **major** defects), provided that not more than 10 percent by weight are damaged by **major** defects.
- (h) **"D" classification.** Frozen rhubarb that fails to meet the requirements of paragraph "B" above may be given a score of 0 to 21 points and shall not be graded above **U.S. Grade D or Substandard**, regardless of the total score for the product.

The evaluation of the score for the factor of absence of defects may be determined from the following table which denotes the maximum allowances for the score indicated:

Classification	Score Points	Defective Units	
		Total (including minor and major)	Major defects
		Maximum by weight	
A	30	3%	1%
	29	6%	2%
	28	9%	3%
	27	12%	4%
	26	15%	5%
B	25	17%	7%
	24	18%	8%
	23	19%	9%
	22	20%	10%
D	21 or less	More than allowances permitted in B classification	

Tenderness and texture.

- (a) **"A" classification.** To receive a score of 51 to 60 points the frozen rhubarb must possess a tender texture. **Tender texture** means that the rhubarb may contain not more than 5 percent by weight of units that are tough, spongy, or stringy and that differ noticeably in tenderness from the general texture of the product.
- (b) **"B" classification.** If the frozen rhubarb possesses a reasonably tender texture, a score of 42 to 50 points may be given. **Reasonably tender texture** means that the rhubarb may contain not more than 10 percent by weight of units that are tough, spongy, or stringy and that differ markedly in tenderness from the general texture of the product.
- (c) **"D" classification.** Frozen rhubarb that fails to meet the quality requirements of paragraph "B" above may be given a score of 0 to 41 points and shall not be graded above **U.S. Grade D or Substandard**, regardless of the total score for the product.

Ascertaining the grade of a lot.

The grade of a lot of frozen rhubarb 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; 22 F.R. 3535).

Issued: July 20, 1945

Score sheet for frozen rhubarb.

Size and kind of container			Average oz. --- --- --- --- 0
Identification			
Label			
Net weight (ounces)			
Type			
Style			
Ratio of fruit-sugar			
Style of pack (sugar or sirup)			
Sirup density (Degrees Brix)			0
Factors	Score points		Average Score
Color	10	"A" 8-10 "B" 6-07 "SStd" 0-05 <u>1/</u>	
Absence of defects	30	"A" 26-30 "B" 22-25 <u>1/</u> "SStd" 0-21 <u>1/</u>	
Tenderness and Texture .	<u>60</u>	"A" 51-60 "B" 42-50 "SStd" 0-41 <u>1/</u>	
Total Score	100		
Normal flavor and odor			
Grade			

1/ Indicates limiting rule within classification.