



**United States  
Department of  
Agriculture**

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Division

Processed  
Products  
Branch

# **United States Standards for Grades of Frozen Whole Kernel (or Whole Grain) Corn**

Effective August 1, 1952

This is the fourth issue of the United States Standards for Grades of Frozen Whole Kernel (or Whole Grain) Corn, published in the **FEDERAL REGISTER** of August 1, 1952 (17 FR 7038) to become effective August 1, 1952. This issue supersedes the third issue, which has been in effect since April 16, 1944.

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 issues 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:

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UNITED STATES STANDARDS FOR GRADES OF  
FROZEN WHOLE KERNEL (OR WHOLE GRAIN) CORN

EFFECTIVE AUGUST 1, 1952

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

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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.

**§52.911 Product description.**

Frozen whole kernel (or whole grain) corn means the frozen product prepared from fresh, clean, sound, succulent kernels of sweet corn of either the white or golden (or yellow) varieties by removing husk and silk; by sorting, trimming, and washing; and by blanching before or after removal from the cob. The frozen whole kernel (or whole grain) corn is frozen in accordance with good commercial practice and maintained at temperatures necessary for the preservation of the product.

**§52.912 Color of frozen whole kernel (or whole grain) corn.**

- (a) **Golden (or Yellow).**
- (b) **White.**

**§52.913 Grades of frozen whole kernel (or whole grain) corn.**

- (a) **U.S. Grade A or U.S. Fancy** is the quality of frozen whole kernel (or whole grain) corn that possesses similar varietal characteristics; that possesses a good flavor and odor; that is tender; that possesses a good color; that is practically free from defects; and that for those factors which are scored in accordance with the scoring system outlined in this subpart, the total score is not less than 90 points: **Provided** that the frozen whole kernel (or whole grain) corn may possess a reasonably good color if the total score is not less than 90 points.
- (b) **U.S. Grade B or U.S. Extra Standard** is the quality of frozen whole kernel (or whole grain) corn that possesses similar varietal characteristics; that possesses a good flavor and odor; that is reasonably tender; that possesses a reasonably good color; that is reasonably free from defects; and that for those factors which are scored in accordance with the scoring system outlined in this subpart, the total score is not less than 80 points: **Provided**, that frozen whole kernel (or whole grain) corn may possess a fairly good color, scoring not less than 7 points if the total score is not less than 80 points.
- (c) **U.S. Grade C or U.S. Standard** is the quality of frozen whole kernel (or whole grain) corn that possesses similar varietal characteristics; that possesses a fairly good flavor and odor; that is fairly tender; that possesses a fairly good color; that is fairly free from defects; and that scores not less than 70 points when scored in accordance with the scoring system outlined in this subpart.
- (d) **Substandard** is the quality of frozen whole kernel (or whole grain) corn that fails to meet the requirements of U.S. Grade C or U.S. Standard.

**§52.914     Ascertaining the grade.**

- (a) The grade of frozen whole kernel (or whole grain) corn may be ascertained by considering, in conjunction with the requirements of the respective grade, the respective ratings for the factors of color, absence of defects, and tenderness and maturity.
- (b) 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 factor is:

<b>Factors</b>	<b>Points</b>
Color .....	10
Absence of Defects .....	40
Tenderness and maturity .....	50
Total Score .....	100

- (c) The grade of frozen whole kernel (or whole grain) corn is determined immediately after thawing to the extent that the product is substantially free from ice crystals. The product is cooked to determine flavor and odor.
- (d) **Good flavor and odor** means that the product, after cooking, has a good characteristic normal flavor and odor and is free from objectionable flavors and objectionable odors of any kind.
- (e) **Fairly good flavor and odor** means that the product, after cooking, may be lacking in good flavor and odor but is free from objectionable flavors and objectionable odors of any kind.

**§52.915     Ascertaining the rating of 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, **36 to 40 points** means 36, 37, 38, 39, or 40 points).

**§52.916 Color.**

- (a) **"A" classification.** Frozen whole kernel (or whole grain) corn that possesses a good color may be given a score of 9 or 10 points. **Good color** means that the kernels possess a practically uniform color typical of tender sweet corn and that the product is bright and is practically free from **off-variety** kernels.
- (b) **"B" classification.** If the frozen whole kernel corn (or whole grain) corn possesses a reasonably good color, a score of 8 points may be given. **Reasonably good color** means that the kernels possess a reasonably uniform color typical of reasonably tender sweet corn and that the product is reasonably bright and reasonably free from **off-variety** kernels.
- (c) **"C" classification.** Frozen whole kernel (or whole grain) corn that possesses a fairly good color may be given a score of 6 or 7 points. Frozen whole kernel (or whole grain) corn that scores 6 points in 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 partial limiting rule). **Fairly good color** means that the kernels possess a fairly uniform color typical of fairly tender sweet corn and that the product may be dull but not to the extent that the appearance is seriously affected, and is fairly free from **off-variety** kernels.
- (d) **"SStd" classification.** Frozen whole kernel (or whole grain) corn that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 5 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

**§52.917 Absence of defects.**

- (a) **General.** The factor of absence of defects refers to the degree of freedom from pieces of cob, husk, silk, or other harmless extraneous vegetable matter, from pulled kernels, ragged kernels, crushed kernels, loose skins, and from damaged or seriously damaged kernels.
  - (1) **Damaged kernel** means any kernel affected by insect injury or damaged by discoloration, pathological injury, or by other means to the extent that the appearance or eating quality is materially affected.
  - (2) **Seriously damaged kernel** means damaged to such an extent that the appearance or eating quality is seriously affected.

- (b) **"A" classification.** Frozen whole kernel (or whole grain) corn that is practically free from defects may be given a score of 36 to 40 points. **Practically free from defects** means that pieces of cob, husk, silk, or other harmless extraneous vegetable matter, pulled kernels, ragged kernels, crushed kernels, loose skins, and damaged or seriously damaged kernels may be present that do not more than slightly affect the appearance or eating quality of the product.
- (c) **"B" classification.** If the frozen whole kernel (or whole grain) corn is reasonably free from defects, a score of 32 to 35 points may be given. Frozen whole kernel (or whole grain) corn that falls into this classification shall not be graded above U.S. Grade B or U.S. Extra Standard, regardless of the total score for the product (this is a limiting rule). **Reasonably free from defects** means that pieces of cob, husk, silk, or other harmless extraneous vegetable matter, pulled kernels, ragged kernels, crushed kernels, loose skins, and damaged or seriously damaged kernels may be present that do not materially affect the appearance or eating quality of the product.
- (d) **"C" classification.** Frozen whole kernel (or whole grain) corn tht is fairly free from defects may be given a score of 28 to 31 points. Frozen whole kernel (or whole grain) corn that falls 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** means that pieces of cob, husk, silk, or other harmless extraneous vegetable matter, pulled kernels, ragged kernels, crushed kernels, loose skins, and damaged or seriously damaged kernels may be present that do not seriously affect the appearance or eating quality of the product.
- (e) **"SStd" classification.** Frozen whole kernel (or whole grain) corn that fails 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 for the product (this is a limiting rule).

**§52.918      Tenderness and maturity.**

- (a) **"A" classification.** Frozen whole kernel (or whole grain) corn that is tender may be given a score of 45 to 50 points. **Tender** means that the kernels are in the milk or early cream stage of maturity and have a tender texture.

- (b) **"B" classification.** If the frozen whole kernel (or whole grain) corn is reasonably tender, a score of 40 to 44 points may be given. Frozen whole kernel (or whole grain) corn that falls into this classification shall not be graded above U.S. Grade B or U.S. Extra Standard, regardless of the total score for the product (this is a limiting rule). **Reasonably tender** means that the kernels are in the cream stage of maturity and have a reasonably tender texture.
- (c) **"C" classification.** Frozen whole kernel (or whole grain) corn that is fairly tender may be given a score of 36 to 39 points. Frozen whole kernel (or whole grain) corn that falls 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 tender** means that the kernels are in the early dough or dough stage and have a fairly tender texture.
- (d) **"SStd" classification.** Frozen whole kernel (or whole grain) corn that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 35 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

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

The grade of a lot of frozen whole kernel (or whole grain) corn 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" (52.1 through 52.83).



**§52.920 Score sheet for frozen whole kernel (or whole grain) corn.**

Number, size and kind of container .....			
Container marks or identification .....			
Label .....			
Net weight (ounces) .....			
Factors		Score Points	
Color .....	10	"A" 9-10 "B" 8 "C" 6-07 <u>1/</u> "SStd" 0-05 <u>2/</u>	
Absence of defects .....	40	"A" 36-40 "B" 32-35 "C" 28-31 <u>2/</u> "SStd" 0-27 <u>2/</u>	
Tenderness and maturity .....	50	"A" 45-50 "B" 40-44 <u>2/</u> "C" 36-39 <u>2/</u> "SStd" 0-35 <u>2/</u>	
Total Score .....	<u>100</u>		
Grade .....			
Flavor and odor .....			

1/ Indicates partial limiting rule

2/ Indicates limiting rule.

**Recodified in the Federal Register of December 9, 1953 (18 F. R. 7927)  
Section 52.919 amended May 22, 1957 (22 F. R. 3535)**