



United States Department of Agriculture

Marketing and
Regulatory
Programs

Agricultural
Marketing
Service

Fruit and
Vegetable
Program

Specialty
Crops
Inspection
Division

United States Standards for Grades of Frozen Mixed Vegetables

Effective August 29, 2013

This is the third issue, as amended, of the United States Standards for Grades of Frozen Mixed Vegetables published in the FEDERAL REGISTER of July 30, 2013 (78 FR 45907) to become effective August 29, 2013. This issue supersedes the second issue, which has been in effect since May 24, 1954.

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 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 U.S. grade standards, grading manuals, handbooks or instructions for inspection of several fresh and processed fruits and vegetables are available on the internet and upon request at the address below. 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:

Director, Specialty Crops Inspection Division
Fruit and Vegetable Program, AMS, U.S. Department of Agriculture
1400 Independence Avenue, SW, STOP 0240
Washington, D.C. 20250
Phone: (202) 720-5870 Fax: (202) 720-0393

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.

Non-Discrimination Policy: The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases will apply to all programs and/or employment activities.) **To File an Employment Complaint:** If you wish to file an employment complaint, you must contact your agency's [EEO Counselor](#) (PDF) within 45 days of the date of the alleged discriminatory act, event, or in the case of a personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_cust.html. **To File a Program Complaint:** If you wish to file a Civil Rights program complaint of discrimination, complete the [USDA Program Discrimination Complaint Form](#) (PDF), found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at program.intake@usda.gov. **Persons with Disabilities:** Individuals who are deaf, hard of hearing or have speech disabilities and you wish to file either an EEO or program complaint please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish). Persons with disabilities who wish to file a program complaint, please see information above on how to contact us by mail directly or by email. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.) please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

United States Standards for Grades of Frozen Mixed Vegetables

Section	Page No.
§52.2131 Product Description.	2
§52.2132 Kinds and Styles of Basic Vegetables.	2
§52.2133 Recommended Proportions of Ingredients.	2
§52.2134 Grades of Frozen Mixed Vegetables.	3
§52.2135 Ascertaining the Grade.	3
§52.2136 Ascertaining the Rating for the Factors which are Scored.	4
§52.2137 Color.	4
§52.2138 Absence of Defects.	6
§52.2140 Explanation of Terms and Analyses.	12
§52.2141 Ascertaining the Grade of a Lot.	12

§52.2131 Product description.

Frozen mixed vegetables consist of three or more succulent vegetables, properly prepared and properly blanched; may contain vegetables (such as, small pieces of sweet red peppers or sweet green peppers) added as garnish; and are frozen and maintained at temperatures necessary for the preservation of the product.

§52.2132 Kinds and styles of basic vegetables.

It is recommended that frozen mixed vegetables, other than small pieces of vegetables added as garnish, consist of the following kinds and styles of vegetables as basic vegetables:

- (a) **Beans, green or wax:** Cut styles, predominantly of 1/2 inch to 1-1/2 inch cuts;
- (b) **Beans, lima:** Any single varietal type;
- (c) **Carrots:** Diced style, predominantly of 3/8 inch to 1/2 inch cubes;
- (d) **Corn sweet:** Golden (or Yellow) in whole kernel style;
- (e) **Peas:** Early type or sweet type.

§52.2133 Recommended proportions of ingredients.

It is recommended that frozen mixed vegetables consist of three, four, or five basic vegetables in the following proportions:

- (a) **Three vegetables.** A mixture of three basic vegetables in which any one vegetable is not more than 40 percent by weight of all the frozen mixed vegetables.
- (b) **Four vegetables.** A mixture of four basic vegetables in which none of the vegetables is less than 8 percent by weight nor more than 35 percent by weight of all the frozen mixed vegetables.
- (c) **Five vegetables.** A mixture of five basic vegetables in which none of the vegetables is less than 8 percent by weight nor more than 30 percent by weight of all the frozen mixed vegetables.

§52.2134 Grades of frozen mixed vegetables.

- (a) **U.S. Grade A** is the quality of frozen mixed vegetables in which each basic vegetable possesses similar varietal characteristics; in which all vegetables possess a good color, are practically free from defects, possess a good character, possess a good flavor and odor; and that score not less than 90 points when scored in accordance with the scoring system outlined in this subpart.
- (b) **U.S. Grade B** is the quality of frozen mixed vegetables in which each basic vegetable possesses similar varietal characteristics; in which all vegetables possess a reasonably good color, are reasonably free from defects, possess a reasonably good character, possess a good flavor and odor; 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** is the quality of frozen mixed vegetables in which each basic vegetable possesses similar varietal characteristics; in which all vegetables possess a fairly good color, are fairly free from defects, possess a fairly good character, possess a fairly good flavor and odor; 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 mixed vegetables that fail to meet the requirements of U.S. Grade C.

§52.2135 Ascertaining the grade.

- (a) The grade of frozen mixed vegetables is ascertained by considering the factors of similar varietal characteristics and flavor and odor, which are not scored, and the respective ratings for the factors of color, absence of defects, and character, which are scored.
- (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 factors are:

<u>Factors</u>	<u>Points</u>
Color	20
Absence of defects	40
Character	<u>40</u>
Total Score	100

- (c) The scores for the factors of color, absence of defects, and character (with respect to each individual vegetable prior to cooking) are determined immediately after thawing so that the product is sufficiently free from ice crystals to permit proper handling as individual units, and representative samples of the product are cooked to ascertain tenderness of the frozen mixed vegetables, collectively, before final evaluation of the score for character. Flavor and odor are also ascertained on the cooked product.
- (d) **Good flavor and odor** means that the product and each basic vegetable after cooking has a good, characteristic normal flavor and odor, and are 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.

§52.2136 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 each factor 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).

§52.2137 Color.

- (a) **General.** The factor of color refers to the general brightness of all the combined vegetables and to the colors of lima beans, if a component in the mixture, as follows:
 - (1) **Green with respect to thin-seeded types (with skins removed), such as Henderson Bush and Thorogreen varieties, and with respect to thick-seeded types (with skins on), such as Fordhook variety,** means that the color of not less than 50 percent of the surface area of the individual lima bean possesses as much or more green color as Lima Bean Green in U.S. Color Standards for Frozen Lima Beans.
 - (2) **Green with respect to thick-seeded Baby Potato type (with skins on), such as Baby Potato, Baby Fordhook, and Evergreen varieties,** means that the color of not less than 50 percent of the surface area of the individual lima bean possesses as much or more green color as Lima Bean Green in U.S. Color Standards for Frozen Lima Beans.

- (3) **White for the respective varietal types (with skins removed or with skins on, as the case may be)** means that more than 50 percent of the surface area of the individual lima bean possesses less green color than Lima Bean White in U.S. Color Standards for Frozen Lima Beans.
- (b) **"A" classification.** Frozen mixed vegetables which possess a **good color** may be given a score of 18 to 20 points. **Good color** means that the combined basic vegetables as a mass and the individual basic vegetables are bright and characteristic of young or tender vegetables that have been properly prepared and properly processed; that any pieces of vegetable material used for garnish are reasonably bright; and that lima beans, if present, possess a bright typical color for the varietal type and meet the following additional color requirements for the respective types:
- (1) **Thin-seeded type (with skins removed); Thick-seeded Baby Potato type (with skins on).** 90 percent or more, by count, of all the lima beans are green; and the balance may be lighter in color or may be white or combinations thereof.
- (2) **Thick-seeded type (with skins on).** 85 percent or more, by count, of all the lima beans are green; and the balance may be lighter in color but not more than 5 percent, by count, of all the lima beans may be white.
- (c) **"B" classification.** If the frozen mixed vegetables possess a **reasonably good color**, a score of 16 or 17 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (**this is a limiting rule**). **Reasonably good color** means that the combined basic vegetables as a mass and the individual basic vegetables are reasonably bright and characteristic of reasonably young or reasonably tender mixed vegetables that have been properly prepared and properly processed; that any pieces of vegetable material used for garnish may be only fairly bright but are not off color for any reason; and that lima beans, if present, possess a reasonably bright typical color for the varietal type and meet the following additional color requirements for the respective types:
- (1) **Thin-seeded type (with skins removed); Thick-seeded Baby Potato type (with skins on).** 65 percent or more, by count, of all the lima beans are green; and the balance may be lighter in color or may be white or combinations thereof.
- (2) **Thick-seeded type (with skins on).** 60 percent or more, by count, of all the lima beans are green; and the balance may be lighter in color but not more than 5 percent, by count, of all the lima beans may be white.

- (d) **"C" classification.** If the frozen mixed vegetables possess a **fairly good color**, a score of 14 or 15 points may be given. Frozen mixed vegetables that fall 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 combined basic vegetables as a mass and the individual basic vegetables are fairly bright and characteristic of mixed vegetables that have been properly prepared and properly processed; that any pieces of vegetable material used for garnish may be only fairly bright but are not off color for any reason; and that lima beans, if present, possess a fairly bright typical color for the varietal type and meet the following additional color requirements for the respective types:
- (1) **Thin-seeded type (with skins removed); Thick-seeded Baby Potato type (with skins on).** More than 35 percent, by count, of all the lima beans are lighter than green including lima beans that may be white.
- (2) **Thick-seeded type (with skins on).** More than 40 percent, by count, of all the beans are lighter than green but no more than 20 percent, by count, of all the lima beans may be white.
- (e) **"SStd" classification.** If the frozen mixed vegetables fail to meet the requirements of paragraph (d) of this section, a score of 0 to 13 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above Substandard, regardless of the total score for the product (**this is a limiting rule**).

§52.2138 Absence of defects.

- (a) **General.** The factor of absence of defects refers to the degree of freedom from harmless extraneous vegetable materials, slightly damaged units, moderately damaged units, seriously damaged units, and any other defects which detract from the appearance or edibility of the product.
- (1) **Harmless extraneous vegetable material** means any vegetable substance other than from any of the basic vegetables or garnish and any portions of the basic vegetables which are normally removed in preparation for processing. Such materials include, but are not limited to, small pieces and large pieces as follows:
- (i) **A small piece of harmless extraneous vegetable material** is any piece or unit of such material similar in shape and the equivalent in size or smaller than 3/16 square inch of leafy material or loose pieces of pods from peas or lima beans, tough or woody stems of any size other than unstemmed units of green or wax beans, 1/4 inch cube of corn cob material, 1/2 square inch of corn husk, and 3/8 inch diameter thistle buds;

- (ii) **A large piece of harmless extraneous vegetable material** is any piece or unit of such material similar in shape and larger in size than the equivalent of an applicable kind of small piece of harmless extraneous vegetable material.
- (2) **Slightly damaged unit** means any unit of the basic vegetable or garnish that is affected by slight blemishes, slight discoloration, or similar injury that are noticeable but do not materially affect the appearance or edibility of the unit, and includes, but is not limited to, light discoloration of the hilum of lima beans or other light discoloration of the skin which does not penetrate into the cotyledon of lima beans.
- (3) **Moderately damaged unit** means any unit of a basic vegetable or garnish that is affected by blemishes, discoloration, or any other similar injury that materially affects the appearance or edibility of the unit and has the following specific meanings for the respective vegetables:
 - (i) **Beans, green or wax.** Any unit blemished by discoloration, or by other means, which in the aggregate exceeds the area of a circle 1/8 inch in diameter.
 - (ii) **Beans, lima.** A bean or portion thereof that is spotted or otherwise definitely discolored or that is blemished by means other than light discoloration.
 - (iii) **Carrots.** Any unit possessing an unpeeled area greater than the area of a circle 1/8 inch in diameter; and any unit blemished by internal or external discoloration, by sunburn or green color, or by other means.
 - (iv) **Corn.** Any kernel or portion thereof that possesses serious brown or black discoloration.
 - (v) **Peas.** Any spotted pea or any off-colored pea (such as brown, gray, cream, or yellow-white) that is abnormally defective and that definitely lacks any tinge of green color.
 - (vi) **Garnish.** Any piece blemished by discoloration or by other means which in the aggregate exceeds the area of a circle 1/8 inch in diameter.
- (4) **Seriously damaged unit** means any unit of the basic vegetable or garnish, other than damaged corn kernels, that is damaged to the extent that the appearance and edibility of the unit is seriously affected and includes, but is not limited to, shriveled lima beans that are materially wrinkled and not of normal plumpness; sprouted lima beans that show an external shoot protruding beyond the cotyledon and skin; and any unit with brown or very black or very dark spots and similar injury regardless of the area affected.

- (5) **Other defects** means any defects not specifically mentioned that affect the appearance or edibility of the product, and include, but are not limited to the following:
- (i) **Beans, green or wax.** Loose seeds and portions thereof, and pod sections with very ragged edges, that are partially broken or split, or that are markedly shorter or longer than the predominating lengths of the cut units;
 - (ii) **Beans, lima.** Mashed beans, broken beans, loose cotyledons, loose skins, and any portions thereof;
 - (iii) **Carrots.** Crushed, broken, cracked, or irregularly shaped units; units with excessively frayed edges and surfaces; and units markedly smaller than one-half the volume of, or markedly larger than, the predominating size of cubes;
 - (iv) **Corn.** Crushed kernels, ragged kernels, loose skins, and dark and objectionable pieces of silk more than 1/2 inch in length; and
 - (v) **Peas.** Mashed peas, broken peas, loose cotyledons, loose skins, and any portions thereof.
- (b) **"A" classification.** Frozen mixed vegetables that are **practically free from defects** may be given a score of 36 to 40 points. **Practically free from defects** means that there may be present no more than the following defects within the limits stated:
- (1) No large pieces of harmless extraneous vegetable material, but 1 small piece of harmless extraneous vegetable material for each 16 ounces net weight, or for each package if the package is less than 16 ounces, of frozen mixed vegetables: Provided, that the combined weight of all the harmless extraneous material is not more than 1/2 of 1 percent, by weight, of the frozen mixed vegetables;
 - (2) A total of 3 moderately damaged units and seriously damaged units for each 3 ounces of frozen mixed vegetables of which 1 unit for each 4 ounces of frozen mixed vegetables may be seriously damaged: Provided, that slightly damaged, moderately damaged, and seriously damaged units, either singly or in combination, do not affect materially the appearance or edibility of the frozen mixed vegetables; and
 - (3) Other defects, individually or collectively, do not affect more than slightly the appearance of the frozen mixed vegetables.

- (c) **"B" classification.** If the frozen mixed vegetables are **reasonably free from defects**, a score of 32 to 35 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product **(this is a limiting rule)**. **Reasonably free from defects** means that there may be present no more than the following defects within the limits stated:
- (1) 1 large piece of harmless extraneous vegetable material and 2 small pieces of harmless extraneous vegetable material for each 16 ounces net weight, or for each package if the package is less than 16 ounces, of frozen mixed vegetables: Provided, that the combined weight of all the harmless extraneous material is not more than 1/2 of 1 percent, by weight, of the frozen mixed vegetables;
 - (2) A total of 4 moderately damaged units and seriously damaged units for each 3 ounces of frozen mixed vegetables of which 1 unit for each 3 ounces of frozen mixed vegetables may be seriously damaged: Provided that slightly damaged, moderately damaged, and seriously damaged units, either singly or in combination, do not affect materially the appearance or edibility of the frozen mixed vegetables; and
 - (3) Other defects, individually or collectively, do not affect materially the appearance of the frozen mixed vegetables.
- (d) **"C" classification.** If the frozen mixed vegetables are **fairly free from defects**, a score of 28 to 31 points may be given. Frozen mixed vegetables that fall 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 there may be present no more than the following defects within the limits stated:
- (1) 1 large piece of harmless extraneous vegetable material and 2 small pieces of harmless extraneous vegetable material for each 16 ounces net weight, or for each package if the package is less than 16 ounces, of frozen mixed vegetables: Provided, that the combined weight of all the harmless extraneous material is not more than 1/2 of 1 percent, by weight, of the frozen mixed vegetables;
 - (2) A total of 5 moderately damaged units and seriously damaged units for each 3 ounces of frozen mixed vegetables of which 1 unit for each 2 ounces of frozen mixed vegetables may be seriously damaged: Provided, that slightly damaged, moderately damaged, and seriously damaged units; either singly or in combination, do not seriously affect the appearance or edibility of the frozen mixed vegetables; and
 - (3) Other defects, individually or collectively, do not seriously affect the appearance of the frozen mixed vegetables.

- (e) **"SStd" classification.** If the frozen mixed vegetables fail to meet the requirements of paragraph (d) of this section, a score of 0 to 27 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above Substandard, regardless of the total score for the product **(this is a limiting rule)**.

§52.2139 Character.

- (a) **General.** The factor of character refers to the texture, the maturity, and the degree of development of the pods and seeds in green beans or wax beans; the tenderness of lima beans; the tenderness and the degree of freedom from stringy or coarse fibers in carrots; the tenderness and maturity or starchiness of the corn; the tenderness or maturity of the peas; and to the tenderness of the combined frozen mixed vegetables after cooking.
- (b) **Interpretation of terms.** Unless indicated otherwise, the interpretation of the terms with respect to tenderness, texture, maturity, and development of the individual vegetables prior to cooking are the same as those in the applicable United States Standards for Grades of the frozen product.
- (c) **"A" classification.** Frozen mixed vegetables which collectively and individually possess a **good character** may be given a score of 36 to 40 points. **Good character** means that the combined vegetables after cooking are tender and that the individual vegetables prior to cooking meet the following requirements:
- (1) **Beans, green or wax.** The bean pods and seeds possess a **good** character.
- (2) **Beans, lima.** The lima beans, exclusive of white beans, are **tender**; and any white beans that may be present are **tender** or **reasonably tender**.
- (3) **Carrots.** The units possess a **tender** texture.
- (4) **Corn.** The kernels are no more advanced than the cream stage of maturity, have a **reasonably tender texture**, and are the equivalent of frozen whole-grain corn that would score **not less than 43 points** for the factor of Tenderness and Maturity as outlined in the United States Standards for Grades of Frozen Whole Kernel or Whole Grain Corn.
- (5) **Peas.** The peas are **reasonably tender** and are the equivalent of frozen peas that would score **not less than 34 points** for the factor of Tenderness and Maturity as outlined in the United States Standards for Grades of Frozen Peas.

- (d) **"B" classification.** If the frozen mixed vegetables, collectively and individually, possess a **reasonably good character**, a score of 32 to 35 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product **(this is a limiting rule)**. **Reasonably good character** means that the combined vegetables after cooking are reasonably tender and practically free from tough fibers and that the individual vegetables prior to cooking meet the following requirements:
- (1) **Beans, green or wax.** The bean pods and seeds possess a **reasonably good character**.
 - (2) **Beans, lima.** The lima beans, including white beans that may be present, are **reasonably tender**.
 - (3) **Carrots.** The units possess a **tender** texture.
 - (4) **Corn.** The kernels are **reasonably tender texture** and are the equivalent of frozen whole-grain corn that would score **not less than 40 points** for the factor of Tenderness and Maturity as outlined in the United States Standards for Grades of Frozen Whole Kernel or Whole Grain Corn.
 - (5) **Peas.** The peas are **reasonably tender** and are the equivalent of frozen peas that would score **not less than 32 points** for the factor of Tenderness and Maturity as outlined in the United States Standards for Grades of Frozen Peas.
- (e) **"C" classification.** If the frozen mixed vegetables, collectively and individually, possess a **fairly good character**, a score of 28 to 31 points may be given. Frozen mixed vegetables that fall 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 combined vegetables after cooking are fairly tender and reasonably free from tough fibers and that the individual vegetables prior to cooking meet the following requirements:
- (1) **Beans, green or wax.** The bean pods and seeds possess a **fairly good character**.
 - (2) **Beans, lima.** The lima beans, including white beans that may be present, are **fairly tender**.
 - (3) **Carrots.** The units possess a **reasonably tender** texture.
 - (4) **Corn.** The kernels are **fairly tender**.
 - (5) **Peas.** The peas are **fairly tender**.

- (f) **"SStd" classification.** If the frozen mixed vegetables, collectively or individually, fail to meet the requirements of paragraph (e) of this section, a score of 0 to 27 points may be given. Frozen mixed vegetables that fall into this classification shall not be graded above Substandard, regardless of the total score for the product **(this is a limiting rule).**

§52.2140 Explanation of terms and analyses.

- (a) The proportion of ingredients are determined on the thawed vegetables by the following procedure:
- (1) Separate and assemble from all the containers in the sample each of the basic vegetables;
 - (2) Weigh each basic vegetable thus composited to obtain the aggregate weight of each basic vegetable from all the containers in the sample;
 - (3) Add the aggregate weights of all the basic vegetables to obtain the grand total weight of all the basic vegetables from all containers in the sample; and then
 - (4) Calculate the percentage of each basic vegetable in the sample by dividing the aggregate weight of each basic vegetable by the grand total weight of all the basic vegetables.

§52.2141 Ascertaining the grade of a lot.

The grade of a lot of the processed product 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).**