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Department of
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Agricultural
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Fruit and
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Programs

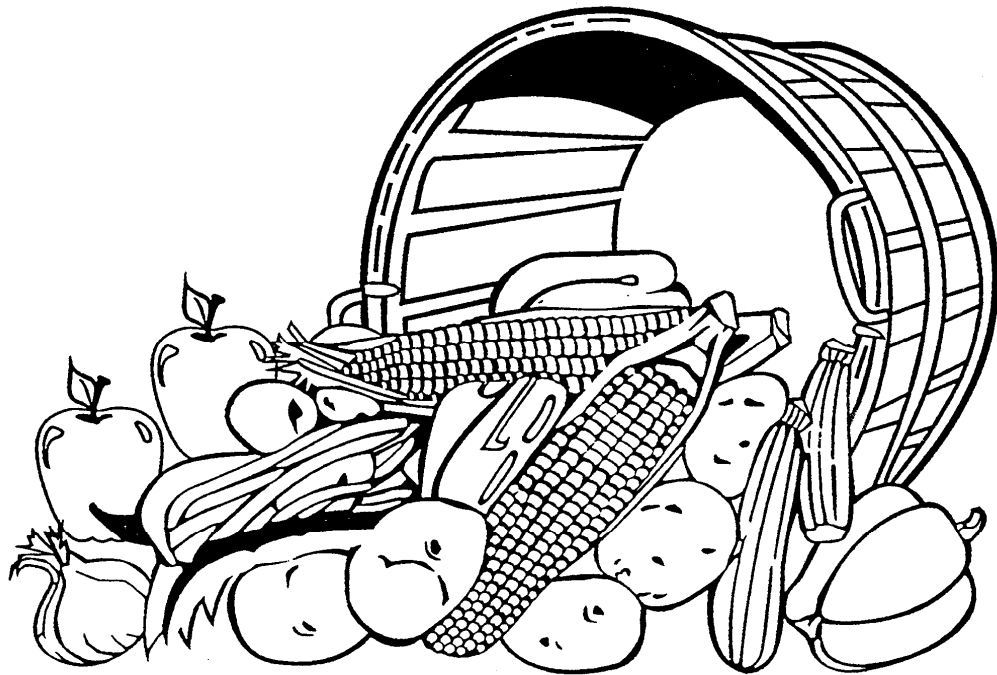
Fresh Products
Branch

March 2004

Previously
October 1966

Mushrooms

Shipping Point and Market Inspection Instructions



Shipping Point and Market Inspection Instructions for Mushrooms

These inspection instructions are specifically developed by the Fresh Products Branch to assist officially licensed inspectors in the interpretation and application of the U.S. Standards for Grades of Mushrooms, Section 51.3385.

These instructions do not establish any substantial rule not legally authorized by the official grade standards. This publication supersedes any previously issued inspection instructions.

Refer to the General Inspection Instructions for additional information pertaining to date, inspection point, carrier, condition of carrier, lading, etc. that is not covered in this handbook. Reference to "General Inspection Instructions" in all Fresh Products Branch publications refers to any one or all of the following - General Shipping Point Inspection Instructions, General Market Inspection Instructions, or Fresh Fruit and Vegetable Certificate Writing Handbooks.

Any portion of these instructions beginning with the section number §51.--- and followed by **bold** print are sections or portions of sections copied directly from the U.S. standards. The U.S. Standards for Grades of Mushrooms are printed in the appendix of this handbook. All U.S. Standards are available on the Internet under the USDA homepage.

March 2004

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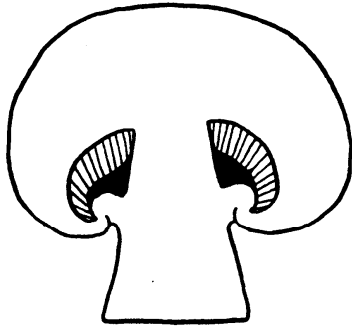
Reformatted January 2003, previously October 1966.

Factors noted with (Q) are considered quality only. Factors noted with (C) are considered condition at market. Factors noted with (Q or C) may be quality or condition depending on the circumstances. Factors not designated do not pertain to either category.

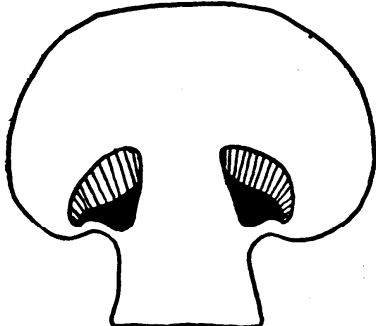
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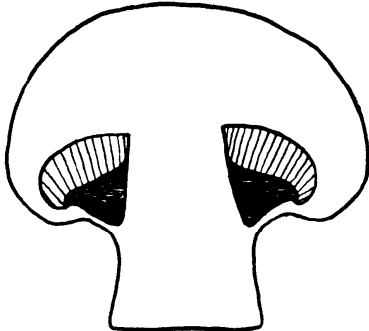
ILLUSTRATION SHOWING VARIOUS VEIL CONDITIONS AND
MUSHROOM NOMENCLATURE GUIDE



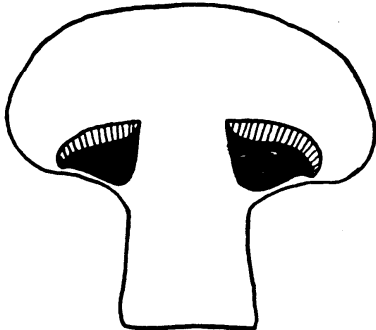
TIGHT



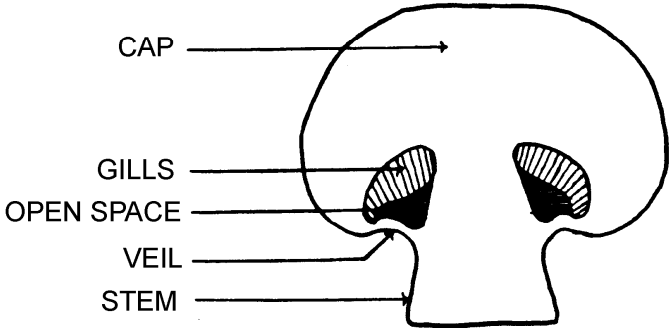
FAIRLY TIGHT



SLIGHTLY STRETCHED



EXCESSIVELY STRETCHED



GENERAL

The U.S. Standards for Grades of Mushrooms apply to types of mushrooms with closed veils. *Agaricus bisporus* more commonly known as “White” mushrooms which vary in color from white to light brown, as well as the “Crimini,” which is a brown variety of the common white mushroom have closed veils, and may be certified under the U.S. grade standards.

The U.S. Standards for Grades of Mushrooms cannot be applied to varieties with open veils and exposed gills. When inspecting open veiled varieties, do not use the terms “Grade Defects,” “Injury,” “Damage,” or “Serious Damage.” Furthermore do not use terms such as “materially” or “seriously affecting the appearance,” as these terms are generally used in the general definitions of damage and serious damage. Describe the objectionable factors in terms of color, area affected and depth, etc.

REPRESENTATIVE SAMPLING

The importance of obtaining representative samples cannot be over emphasized. Accurate certification is possible only if the samples examined are truly representative of the entire lot or accessible portion. All portions of a lot or load should receive the same attention in sampling regardless of the difficulty involved in reaching all layers or parts of a lot or load. Anytime the entire lot requested is not accessible for sampling, the inspection and certificate must be restricted to the accessible portion.

Size of Sample

The tolerances in the U.S. Standards for Grades of Mushrooms are determined on the basis of weight. When inspecting consumer packages, the individual package shall be the sample size. When inspecting packages in baskets over two pounds, or when loose in flats, or bulk, the sample shall consist of at least one pound.

To make certain that the sample selected is representative always obtain some of the mushrooms from the bottom of each basket sampled.

Number of Samples

As a general rule a minimum of 1% of the lot must be examined. For lots of less than 300 packages a minimum of 3 samples must be examined. It is the inspector’s responsibility to examine additional representative samples when the quality, condition, or size in samples is decidedly different to ensure an accurate description of the lot.

TOLERANCES AND APPLICATION OF TOLERANCES

U.S. No. 1:

§51.3385 (b) Tolerances. In order to allow for variations incident to proper grading and handling the following tolerances, by weight, are provided as specified:

(1) *At shipping point.* 5 percent for mushrooms in any lot which fail to meet the requirements of this grade, but not more than one-fifth of this amount or 1 percent shall be allowed for mushrooms affected by disease, spots or decay.

(2) *En route or at destination.* 10 percent for mushrooms in any lot which have open veils. 5 percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more than one-fifth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(3) *For off-size.* Ten percent for mushrooms in any lot which fail to meet the specified size requirements.

U.S. No. 2:

(The requirements for this grade are the same as for U.S. No. 1, except for a greater tolerance for open veils and a larger tolerance for defects.)

§51.3386 (b) Tolerances. In order to allow for variations incident to proper grading and handling the following tolerances, by weight, are provided as specified:

(1) *At shipping point.* Ten percent for mushrooms in any lot which have open veils. Ten percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more than one-tenth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(2) *En route or destination.* 25 percent for mushrooms in any lot which have open veils. 10 percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more

than one-tenth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(3) For off-size. 10 percent for mushrooms in any lot which fail to meet the specified size requirements.

The shipping point and destination tolerances for grade defects (U.S. No. 1 and U.S. No. 2) are as follows:

Shipping Point:

	<u>U.S. No. 1</u>	<u>U.S. No. 2</u>
Off-size	10%	10%
Open veils	-	10%
Total defects, including	5%*	10%
Disease, spots or decay	1%	1%

* The **U.S. No. 1** shipping point tolerances do **not** provide a separate tolerance for open veils. Open veils should be included in the 5% for Total Defects.

En route or Destination:

	<u>U.S. No. 1</u>	<u>U.S. No. 2</u>
Off-size	10%	10%
Open veils	10%	25%
Total defects, including	5%	10%
Disease, spots or decay	1%	1%

Remember that shipping point tolerances apply to certification at U.S ports of entry, port of loading for ship stores, shipments to Canada, and Department of Defense purchases.

Application of Tolerances

§51.3388 *Application of tolerances.* The contents of individual packages in the lot, based on sample inspection, are subject to the following limitations:

(a) For a tolerance of 10 percent or more, individual packages in any lot shall have not more than one and one-half times the tolerance specified: *Provided*, That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, individual packages in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package: *Provided*, That the average for the entire lot is within the tolerance specified for the grade.

The shipping point and destination tolerances and application of tolerances for grade defects (U.S. No. 1 and U.S. No. 2) are as follows:

Shipping Point:

	<u>U.S. No. 1</u>		<u>U.S. No. 2</u>	
	Lot Tolerances	Container Tolerances	Lot Tolerances	Container Tolerances
Off-size	10%	15%	10%	15%
Open veils	-	-	10%	15%
Total defects, including	5%*	10%*	10%	15%
Disease, spots or decay	1%	2%	1%	2%

The **U.S. No. 1** Shipping point tolerances do **not** provide a separate tolerance for open veils. Open veils should be included in the 5% Lot tolerance for Total Defects and the 10% Container tolerance for Total Defects.

En route or Destination:

	<u>U.S. No. 1</u>		<u>U.S. No. 2</u>	
	Lot Tolerances	Container Tolerances	Lot Tolerances	Container Tolerances
Off-size	10%	15%	10%	15%
Open veils	10%	15%	25%	37.5%
Total defects, including	5%	10%	10%	15%
Disease, spots or decay	1%	2%	1%	2%

NOTESHEETS AND CERTIFICATE

Entries on the notesheet and certificate must be kept in a legible and accurate manner. It is mandatory that all information which appears on the certificate be supported by information on the notesheet. It is the responsibility of the inspector to ensure that all information is properly recorded. Notations shall be recorded so that anyone familiar with inspection procedures can interpret them and write a certificate. Also remember that notesheets and certificates are Prima-facie evidence and must be able to withstand legal scrutiny.

Detailed instructions pertaining to date, inspection point, place of inspection, type of carrier, lading, etc., which are not covered by these instructions may be found in the General Inspection Instructions. Additional information and instructions may be given by your supervisor.

Product

The common name, Mushrooms shall be used to describe this commodity in the product heading. Type may be reported in conjunction with Mushrooms or may be reported in the "Product/Variety" section on the shipping point inspection certificates or in the "Lot ID" section on market notesheet and certificate.

Mushroom type can be "white," "cream" or "brown."

Number/Type of Containers

The number of containers shall always be reported. In the market and at shipping point locations for stationary lot certification, the inspector shall always verify the container count provided by the applicant for each lot and report it as the

“inspector’s count.” If the number of containers available for inspection does not match the application it is the inspector’s responsibility to confirm that the amount presented for inspection constitutes the lot. If an accurate count cannot be determined, the inspector may report the count at someone else’s authority. However, the reason for doing so must be reported on the notesheet (e.g., numerous pallets with mixed product).

At shipping point locations for "days-run" certification the applicant generally provides a manifest for count and it is acceptable to use this for the number of containers.

Mushrooms are usually packed and shipped loose in fiberboard cartons, packed in foam or plastic trays or baskets with film covering.

Brands/Markings

The brand, variety, size, count, grade, weight, point of origin and other important information appearing on the container should be reported on the notesheet in the "Brands/Markings" section. Only the brand name and other key markings necessary to properly identify the lot for certification should appear in this section on the certificate.

Origin

The inspector should not make a positive statement on their own authority, but when container markings list the state or country of origin, it should be quoted in the appropriate space on the notesheet and the certificate. If origin is not marked, it is the inspectors responsibility to make an effort to obtain this information from the applicant. This policy is necessary because some firms may use one mark on the same product packed in several states. The inspector can certify only to the marks and has no means of verifying what state or country the Mushrooms were grown.

CONDITION OF PACK

The pack is seldom a problem. However, mushrooms are packed in a variety of bulk and consumer packages. The following terms should be used to describe pack:

Pint type containers with film wrapping:

Well filled - When the mushrooms are 1/2 to 1 inch above the rim of the cup.

Fairly well filled - When the pack is not ideal, cups are at least level full.

Slightly slack - When mushrooms are slightly below the tops of the cups.

Slack - When mushrooms are decidedly below the top of cups. Report in fractions of an inch.

For other containers, including volume filled flats and bulk lidded baskets:

Very tight or Excessively filled - When mushrooms are too tight for best results, usually resulting in bruising.

Tight or Well filled - When the container is sufficiently filled to prevent movement. Mushrooms may be slightly below the top edge of the container.

Fairly tight or Fairly well filled - When pack is not ideal, but mushrooms are sufficiently packed to prevent injury under normal handling conditions.

Slack or Loose - When mushrooms are decidedly below the top edge of the container and or there is sufficient space which would allow considerable movement of the mushrooms. When using the term slack, report in fractions of an inch.

TEMPERATURE OF PRODUCT

Inspectors would not normally determine or report temperatures at shipping point. However, due to the importance of the pulp temperature of fresh fruits and vegetables when in transit or at destination, it is essential that the inspector accurately determine and report the temperature or range in temperatures on each lot. Pulp temperature should be reported regardless of the location of the product, whether in the carrier, warehouse, or stacked on the platform. Remember to pre-cool the thermometer in order to obtain true readings. Report all temperatures to the nearest whole degree.

A minimum of three temperatures for each lot must be taken and recorded on the notesheet. More temperatures must be taken if the lot is abnormally cold, heated, or there is a specific request for temperature, and these must be reported in greater detail specifying location in lot or load.

SIZE

Size is a requirement of the grade for both U.S. No. 1 and U.S. No. 2 grades. The only two sizes recognized are “**Small to medium**” and “**Large**.” Any other size classifications such as “Small,” “Medium,” or “Jumbo” would **not** be recognized by the standard, and must be specified by the applicant.

When a recognized size classification or a diameter is specified, it must be reported in connection with the grade. Lots not meeting this requirement would be reported as “Fail to grade U.S. No. 1 or U.S. No. 2 account of offsize.” When size is otherwise specified by the applicant, it must be reported in the “remarks” section (example: “Size based on 1 inch minimum diameter, and 1-5/8 inches maximum diameter, as specified by applicant”).

Report the range of size and a mostly statement in the “Description of Product” section on shipping point inspection certificates, and in the “Other” section on market

certificates. Size columns must be kept on the notesheet to substantiate the size reported.

§51.3385 (a) Size. Size is specified in terms of diameter and unless otherwise specified meets the requirements of one of the following size classifications:

(1) Small to medium - up to 1-5/8 inches in diameter;

(2) Large - over 1-5/8 inches in diameter.

§51.3397 Diameter. "Diameter" means the greatest dimension of the cap measured at right angles to the stem.

A tolerance of 10% is provided for mushrooms not meeting the specified size. See Tolerances and Application of Tolerances. There is no requirement for length of stem; however, it may be reported at applicants request.

§51.3396 Length of stem. "Length of stem" means the greatest distance as measured from the point of attachment of the "veils" on the stem to the butt.

DEFECTS (QUALITY AND CONDITION)

Statements pertaining to freshness, maturity, shape, color, the amount and type of defects, and the amount of decay are shown under the appropriate headings.

Factors noted with **(Q)** are considered as **QUALITY** only (**Quality**, sometimes referred to as "**permanent**" defects) means defects which do not change during storage or shipment (shape, scars, etc.).

Factors noted with **(C)** shall be reported as **CONDITION** on market certificates. (**Condition defects** are defects which are subject to change during shipment or storage, including but not limited to bruising, discoloration, shriveling and decay.)

Those factors noted with **(Q or C)** may be considered as **QUALITY or CONDITION**, depending on the circumstances.

Reporting Defects

The U.S. Grades for Mushrooms do not provide definitions for serious damage; therefore, all defects shall be considered damage only.

Discoloration (C)

The U.S. grades for mushrooms require mushrooms to be free from damage by discoloration. The inspector should keep in mind that the standard describes two types of discoloration, (discoloration and spots) each with separate scoring guidelines. Care should be taken when scoring discoloration.

§51.3395 (a) Discoloration when the color of the cap or stem materially affects the appearance or marketing quality of the mushrooms.

Scoring Guide:

When the color of the cap or stem materially affects the appearance or the marketing of the mushrooms or when white or cream type mushrooms are darker than tan or light brown in color.

Dirt (Q)

Although the Mushroom standard does not state that mushrooms are to be clean, the standard does provide guidelines for damage by dirt.

§51.3395 (b) Dirt when any amount is embedded in the cap or stem.

Scoring Guide:

Mushrooms shall be scored against all grades when any amount of dirt is embedded in the cap or stem.

Firmness (C)

Mushrooms that are shriveled, wilted or flabby shall be scored against the total tolerance of the grade(s) when readily noticeable.

Maturity (Q)

The firmness of mushrooms will vary with size, type and age. However, a requirement of maturity is that the veil may be stretched but not broken. Mushrooms that are less firm than others is not important provided the veil is not broken and mushrooms are not shriveled or wilted.

§51.3390 Mature. "Mature" means that the mushroom is firm and well developed; the veil area may be stretched but not broken.

Open Veils (C)

The U.S. Grades for mushrooms require mushrooms to be free from open veils.

§51.3393 Open Veils. “Open Veils” means that the cap has expanded to the extent that the protective covering or “veils” joining the margin of the cap to the stem have broken and exposed the gills or underside of the cap.

Note: No additional tolerance is provided for open veils in the U.S. No. 1 grade at shipping point. (See Tolerances and Application of Tolerances.)

Shape (Q)

All grades require that mushrooms be “fairly well shaped.”

§51.3391 Fairly well shaped. “Fairly well shaped” means that the mushroom cap is not flattened, scalloped, indented or otherwise deformed to an extent which materially detracts from the appearance or marketing quality.

Scoring Guide:

Mushrooms that are flattened, scalloped, indented or otherwise deformed shall be reported as “Not fairly well shaped” and scored against the total tolerance of the grade(s).

Similar Varietal Characteristics (Q)

There are white, cream and brown types of mushrooms. It is usually difficult to tell the difference between white and cream mushrooms, particularly if the white mushrooms have aged a little and the color has turned a little. However, white and brown shall not be mixed in the same container.

§51.3389 Similar varietal characteristics. "Similar varietal characteristics" means that the mushrooms are of the same general color. For example, white and brown mushrooms shall not be mixed in the same container.

Spots (C)

The U.S. Grades for mushrooms require mushrooms to be free from spots. Spots which occur as pitted or discolored areas which may or may not penetrate below the surface. Spots are usually caused by one of the following diseases: Brown spot or

Dry Bubble (*Verticillium*), Green Mold (*Trichodema*) and Bacterial Blotch (*Pseudomonas tolaasi*). No attempt to name the disease shall be made.

§51.3394 Spots. “Spots” means pitted or discolored areas.

Scoring Guide:

If any one spot or a combination of spots exceeds an area one-eighth inch in diameter the mushroom is scored against all grades.

Trimming (Q)

All grades require mushrooms to be well trimmed.

§51.3392 Well trimmed. “Well trimmed” means that the stems are smoothly cut, free from rough fleshy butts, the flared portion of the butt is removed and the remaining portion of the stem does not exceed the depth of the cap.

Decay (C)

All grades for mushrooms are required to be free from decay. Any amount of decay shall be scored against the 1% tolerance for mushrooms affected by disease, spots or decay.

Do not report the type of decay on the certificate. However, when in excess of the tolerance report the stages of decay as; early, moderate, or advanced, in the “Description of Products” section on the shipping point certificates, and in the “Other” section on the market certificates.

Appendix I – U.S. Grade Standards

United States Standards for Grades of Mushrooms¹

Effective July 15, 1966

Grades

51.3385 U.S. No. 1.

51.3386 U.S. No. 2.

Unclassified

51.3387 Unclassified.

Application of Tolerances

51.3388 Application of tolerances.

Definitions

51.3389 Similar varietal characteristics.

51.3390 Mature.

51.3391 Fairly well shaped.

51.3392 Well trimmed.

51.3393 Open veils.

51.3394 Spots.

51.3395 Damage.

51.3396 Length of stem.

51.3397 Diameter.

Metric Conversion Table

51.3398 Metric conversion table.

Grades

§51.3385 U.S. No. 1.

"U.S. No. 1" consists of fresh mushrooms of similar varietal characteristics which are mature, at least fairly well shaped, well trimmed, free from open veils, disease, spots, insect injury, and decay, and from damage by any cause.

(a) **Size.** Size is specified in terms of diameter and unless otherwise specified meets the requirements of one of the following size classifications:

(1) Small to medium -- up to 1-5/8 inches in diameter;

(2) Large -- over 1-5/8 inches in diameter.

(b) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by weight, are provided as specified:

(1) **At shipping point.**² 5 percent for mushrooms in any lot which fail to meet the requirements of this grade, but not more than one-fifth of this amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(2) **En route or at destination.** 10 percent for mushrooms in any lot which have open veils. 5 percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more than

¹ 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.

² Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment or, in the case of shipments from outside the continental United States, the port of entry into the United States.

one-fifth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(3) **For off-size.** Ten percent for mushrooms in any lot which fail to meet the specified size requirements.

§51.3386 U.S. No. 2.

"U.S. No. 2." The requirements for this grade are the same as for U.S. No. 1 except for a greater tolerance for open veils and a larger tolerance for defects.

(a) **Size.** Size is specified in terms of diameter and unless otherwise specified meets the requirements of one of the following size classifications:

(1) Small to medium -- up to 1-5/8 inches in diameter;

(2) Large -- over 1-5/8 inches in diameter.

(b) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by weight, are provided as specified:

(1) **At shipping point.**³ Ten percent for mushrooms in any lot which have open veils. Ten percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more than one-tenth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(2) **En route or at destination.** 25 percent for mushrooms in any lot which have open veils. 10 percent for mushrooms in any lot which fail to meet the remaining requirements of this grade, but not more than one-tenth of this latter amount or 1 percent shall be allowed for mushrooms affected by disease, spots, or decay.

(3) **For off-size.** 10 percent for mushrooms in any lot which fail to meet the specified size requirements.

Unclassified

§51.3387 Unclassified.

"Unclassified" consists of mushrooms which have not been classified in accordance with either of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

Application of Tolerances

§51.3388 Application of tolerances.

The contents of individual packages in the lot, based on sample inspection, are subject to the following limitations:

(a) For a tolerance of 10 percent or more, individual packages in any lot shall have not more than one and one-half times the tolerance specified: **Provided**, That the average for the entire lot is within the tolerance specified for the grade.

(b) For a tolerance of less than 10 percent, individual packages in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package: **Provided**, That the average for the entire lot is within the tolerance specified for the grade.

Definitions

§51.3389 Similar varietal characteristics.

"Similar varietal characteristics" means that the mushrooms are of the same general color. For example, white and brown mushrooms shall not be mixed in the same container.

§51.3390 Mature.

"Mature" means that the mushroom is firm and well developed; the veil area may be stretched but not broken.

§51.3391 Fairly well shaped.

"Fairly well shaped" means that the mushroom cap is not flattened, scalloped, indented or otherwise deformed to an extent which materially detracts from the appearance or marketing quality.

§51.3392 Well trimmed.

"Well trimmed" means that the stems are smoothly cut, free from rough fleshy butts, the flared portion of the butt is removed and the remaining portion of the stem does not exceed the depth of the cap.

³ Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment or, in the case of shipments from outside the continental United States, the port of entry into the United States.

§51.3393 Open veils.

"Open veils" means that the cap has expanded to the extent that the protective covering or "veils" joining the margin of the cap to the stem have broken and exposed the gills or underside of the cap.

§51.3394 Spots.

"Spots" means pitted or discolored areas.

§51.3395 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects which materially detracts from the appearance, or the edible or marketing quality of the individual mushroom or of the mushrooms in the lot. The following specific defects shall be considered as damage:

(a) Discoloration when the color of the cap or stem materially affects the appearance or marketing quality of the mushrooms.

(b) Dirt when any amount is embedded in the cap or stem.

§51.3396 Length of stem.

"Length of stem" means the greatest distance as measured from the point of attachment of the "veils" on the stem to the butt.

§51.3397 Diameter.

"Diameter" means the greatest dimension of the cap measured at right angles to the stem.

Metric Conversion Table

§51.3398 Metric conversion table

Inches	Millimeters (mm)
1/8 equals.....	3.2
1/4 equals.....	6.4
3/8 equals.....	9.5
1/2 equals.....	12.7
5/8 equals.....	15.9
3/4 equals.....	19.1
7/8 equals.....	22.2
1 equals.....	25.4
1-1/4 equals.....	31.8
1-1/2 equals.....	38.1
1-3/4 equals.....	44.5
2 equals.....	50.8
3 equals.....	76.2
4 equals.....	101.6