



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

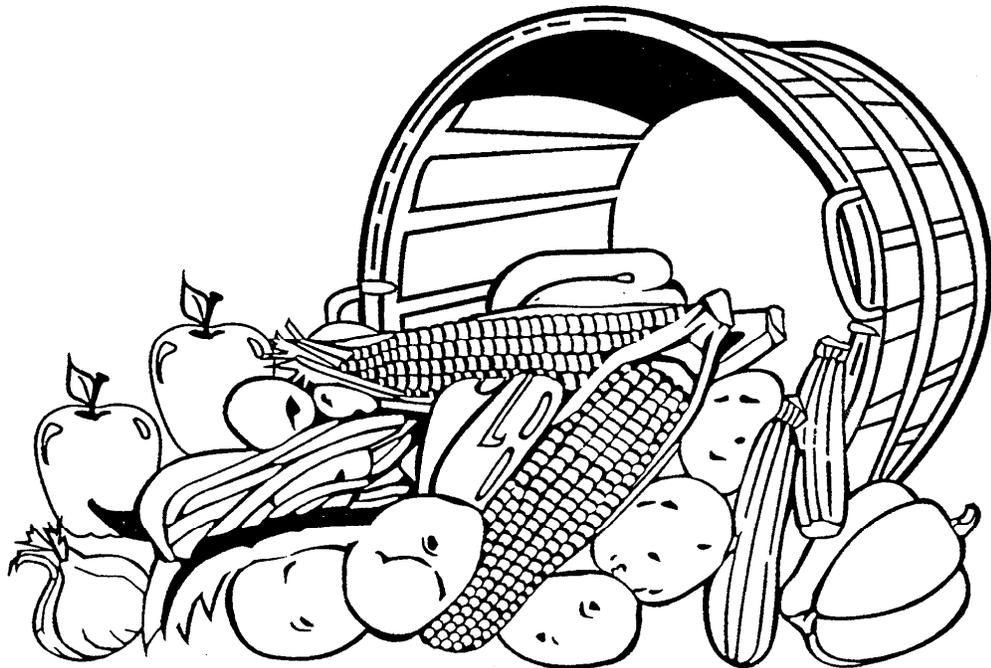
Fruit and  
Vegetable  
Programs

Fresh Products  
Branch

# Sweet Anise, Parsnips, and Radishes

## Shipping Point and Market Inspection Instructions

January 2006



# Shipping Point and Market Inspection Instructions for Sweet Anise, Parsnips, and Radishes

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 Sweet Anise, Section 51.3325; U.S. Standards for Grades of Parsnips, Section 51.4010; and U.S. Standards for Grades of Radishes, Section 51.2395.

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 U.S. standards. The U.S. Standards for Grades of Sweet Anise, Parsnips, and Radishes are printed in the appendix of this handbook. All U.S. standards are available on the Internet under the USDA homepage.

**January 2006**

**This publication may be duplicated without authorization from USDA.**

This replaces Market Inspection Instructions for Sweet Anise, Parsnips, Radishes and Squash dated October 1972.

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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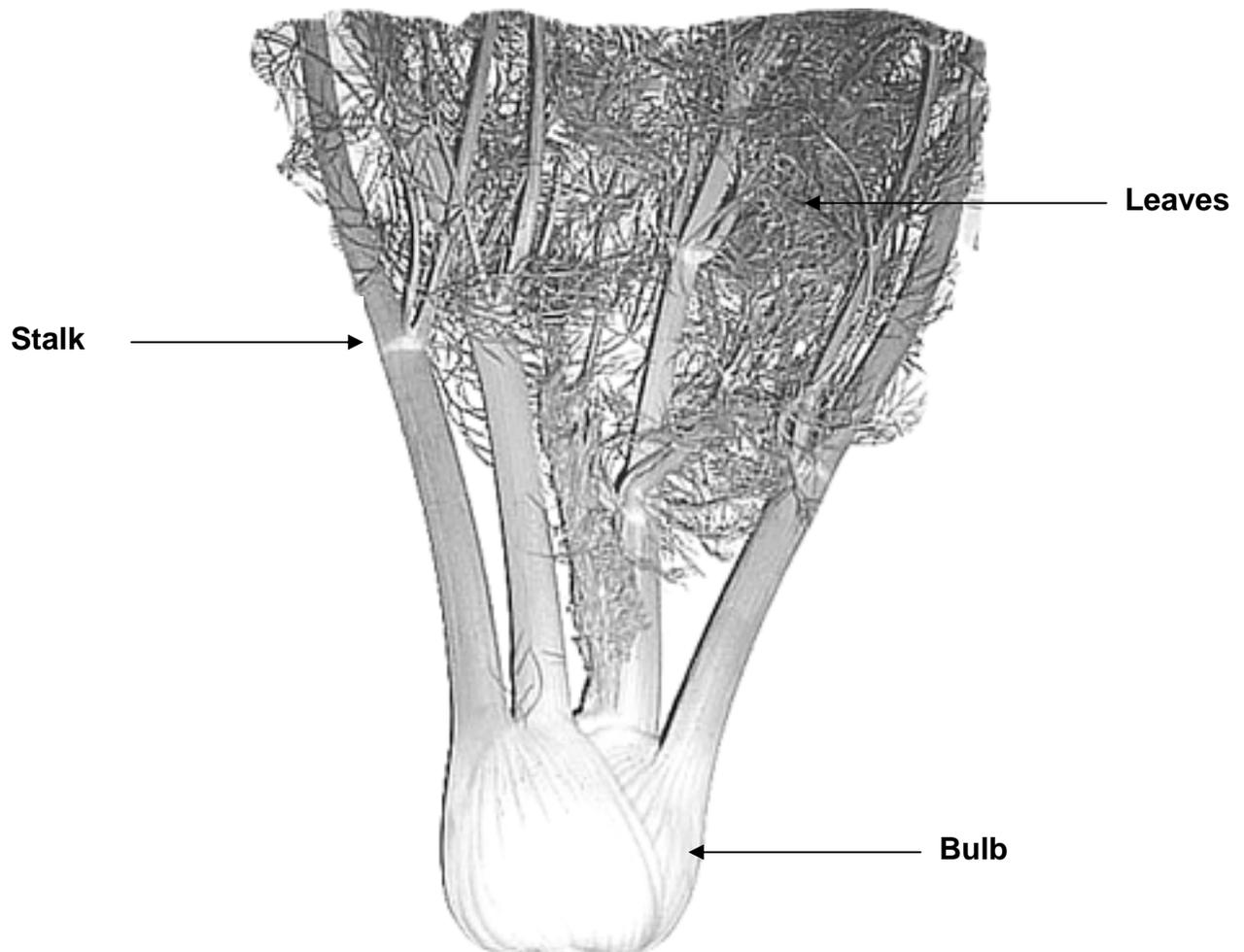
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# SWEET ANISE

## Identification Chart



# SWEET ANISE

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## GENERAL

Sweet anise is sometimes referred to as fennel or finocchio. Sweet anise is grown and marketed for the edible bulb found at the base of the plant. The bulb is formed by the compact and overlapping arrangement of the thickened leaf stalk bases. The stalks grow to about two feet tall and the leaves are green and fern or feather like with a sweet licorice aroma. There is only one grade for sweet anise in the standards, U.S. No. 1; therefore all defects shall only be scored as damage.

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## 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.

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### Size of Sample

The tolerances in the U.S. Standards for Grades of Sweet Anise are determined on the basis of count.

The entire contents of the container shall be the sample.

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### 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.

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## TOLERANCES AND APPLICATION OF TOLERANCES

§51.2900 *U.S. No. 1... (1) For defects.* Ten percent for stalks in any lot which fail to meet the requirements of this grade, including therein not more than 1 percent for stalks affected by decay.

(2) *For size.* Ten percent for stalks in any lot which fail to meet the specified minimum diameter requirement.

### Summary of Tolerances

### U.S. No. 1

Total defects	10%
<i>Including Decay</i>	1%
For undersize	10%

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### **Application of Tolerances**

The standards do not provide a container tolerance; therefore, the individual packages are not restricted as to percentages of defects or undersize: **Provided**, That the averages for the entire lot are within the tolerances specified.

---

## NOTESHEET 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.

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**Product**

The common name "Sweet Anise" shall be used to describe this commodity in the product heading.

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**Number/Type of Containers**

The number of containers shall always be reported. In the market and at shipping point locations for stationary lot certifications, 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.

Sweet anise is usually packed and shipped in waxed cartons.

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**Brands/Markings**

At shipping point, the brand, size, PLI, and other important information appearing on the container shall be reported on the notesheet and certificate in the appropriate section.

At market, the brand, variety, size, count, grade, weight, point of origin, and other important information appearing on the container shall be reported on the notesheet in the "BRANDS/MARKINGS" section. Only the brand name and other pertinent information shall appear in this section on the certificate.

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**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 inspector's 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 sweet anise was grown.

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## CONDITION OF PACK

Sweet anise is generally packed in cartons. The following terms shall be used to describe the tightness of the pack:

**Very tight** means a condition that is too tight for best results and in which the anise may be damaged as a result of being packed too tightly.

**Tight** means that the containers are completely filled and so tightly packed that additional anise cannot be included without damage to the contents.

**Fairly tight** means that the containers are full, but additional anise can be inserted without damage to the contents.

**Slack** means the container is not sufficiently filled to prevent the movement of the anise. Whenever the term slack is used, it should be described in fractions of an inch or inches.

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## 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. The location in the lot and/or load must be specified in greater detail when additional temperatures are taken.

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## SIZE

The diameter of the bulb shall be reported under the "Size" section. Diameter is specified in the grade standards and must be determined when performing a quality and condition inspection, therefore; if a lot fails on size it will fail to grade U.S. No. 1 account undersize. A lot that is specified to a particular size shall be reported in connection with the grade for example: U.S. No. 1, 1-1/2 inch minimum.

**§51.2900 U.S. No. 1...Unless otherwise specified, the minimum diameter of each bulb shall be not less than 2 inches.**

**§51.2908 “Diameter” means the smallest diameter measured through the center of the bulb at right angles to the longitudinal axis of the stalk.**

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## **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.

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### **Blanching (Q)**

The grade requires that the bulbs be fairly well blanched.

**§51.2906 “Fairly well blanched” means that the bulbs are of a light greenish to white color.**

### **Scoring Guide**

Sweet anise that does not meet the requirements of “fairly well blanched” shall be reported as “not fairly well blanched” and scored against the total tolerance for the grade.

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### **Cleanness (Q)**

The grade requires sweet anise be free from damage by dirt.

Cleanness refers to dirt or other foreign material on the bulbs and/or tops.

The following terms shall be used to describe cleanness:

**Clean** free of mud, dirt, or foreign material.

**Fairly Clean** practically free of mud, dirt, or other foreign material.

**Slightly Dirty** appearance is not materially injured by the presence of mud, dirt, or other foreign material.

### **Scoring Guide**

**§51.2907 *Damage... (f) Dirt, when caked on the bulbous portion of the stalk, or when present to such an extent on the tops and branches as to cause material damage to the appearance of the stalk.***

Sweet anise that is materially affected by dirt shall be scored as damage and reported as “dirty.”

---

### **Cuts or Mechanical Injury (Q or C)**

Cuts or mechanical injury refers to injury to the sweet anise caused from excessive trimming or rough handling during harvest, packing, or shipping causing injury to the stalks.

### **Scoring Guide**

Stalks shall be scored as damage when more than 2 branches are affected and reported as “mechanical damage” or “cuts” according to the facts.

**Note:** Fresh cuts shall be scored as a condition factor en route or at destination.

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### **Discoloration (C)**

Discoloration of sweet anise may be caused by many factors including rough handling, aging, and/or excessive temperatures. Discoloration occurs as brown to dark brown areas affecting the bulbs, or yellow to brown discoloration affecting the tops.

### **Scoring Guide**

**§51.2907 *Damage... (g) Discoloration, when the bulbous portion shows extensive brown to dark brown areas characteristic of***

**injury caused by rough handling, or when the tops are yellow or brown to such an extent as to cause material damage to the appearance of the stalk.**

---

### **Firmness (C)**

The grade requires that sweet anise be firm.

**§51.2903 “Firm” means that the bulbs are not soft or wilted.**

### **Scoring Guide**

Sweet anise that does not meet the requirements of “firm” shall be reported as “not firm” and scored as damage.

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### **Freezing and Freezing Injury (C)**

The term “frozen” should only be used when ice crystals are present. Frozen sweet anise will be “dull, glassy, and translucent” in comparison to unaffected sweet anise.

“Freezing injury” is the term that should be used when it is evident that the sweet anise has been frozen, but are not in a frozen condition at the time of inspection. The affected sweet anise may be flabby, blistered, watery, and/or translucent.

Use the following procedures when reporting freezing or freezing injury:

- Record pulp temperatures taken at various locations.
- Determine and record extent of the injury in the load.
- Determine and record extent of the injury in the containers.
- Determine and record the degree to which individual specimens are affected.
- Describe the pattern of freezing or freezing injury in clear, concise terms.

When the location of injury indicates where or when the freezing occurred, this is to be stated. For example: “Freezing injury so located as to indicate freezing occurred after packing but not in present location” or “Freezing so located as to indicate freezing occurred on trailer.”

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## **Freshness (C)**

The stalks of sweet anise should be fresh. Sweet anise that has not been properly cooled, or that has been held for a long period of time after packing may begin to show signs of wilting, limpness, or flabbiness.

### **Scoring Guide**

#### **§51.2907 *Damage... (c) Wilting, when the stalk is limp and flabby.***

Sweet anise that has limp and flabby stalks shall be scored as damage and reported as “wilted” on the certificate.

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## **Growth Cracks (Q)**

Growth cracks are vertical cracks generally occurring at the point of attachment of the branches to the bulb. Growth cracks may be caused by very rapid growth, as when a rainy period follows a long dry period.

### **Scoring Guide**

#### **§51.2907 *Damage... (a) Growth cracks, when more than three branches show one or more growth cracks.***

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## **Insects or Worms (Q or C)**

The most common type of insect that affects sweet anise is aphids. Aphids can affect the appearance of the sweet anise as well as deposit “aphis honeydew,” which is a black sticky substance, on the plants. Sweet anise can also be affected by the armyworm that will feed on the tender portions of the plants causing areas that appear to have been chewed or burrowed.

### **Scoring Guide**

Sweet anise that is materially affected by insects and/or insect injury shall be scored as damage. Injury occurring on the bulb affects the appearance to a greater degree than injury occurring on the remainder of the stalk and should be treated accordingly. Worms shall be scored as damage when worms are present and associated with injury.

Live insects shall be reported as condition; if dead, report as quality. If both live and dead insects are present, report as condition.

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## **Pithy Branches (Q)**

A pithy branch has an open internal texture with distinct air spaces in the central portion of the branch, which goes to make up the base or bulbous portion of the stalk.

### **Scoring Guide**

**§51.2907 *Damage...*(b) Pithy branches, when more than three branches show distinctly open texture with air spaces in the central portion of that part which goes to make up the base or bulbous portion of the stalk.**

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## **Seedstems (Q)**

In normal stalks of sweet anise in which seedstems have not developed, the branches all originate at one point on the base of the plant. When seedstems develop, the branches have a tendency to grow out of the center at points above the base; this condition is apparent only when the seedstems are well advanced.

### **Scoring Guide**

**§51.2907 *Damage...*(e) Seedstems, which have reached the stage where the flower buds are plainly visible. Stalks from which the seedstems have been removed shall be considered as damaged.**

---

## **Tenderness (C)**

The grade requires that sweet anise be tender.

**§51.2904 “Tender” means that the bulbs are crisp and succulent.**

### **Scoring Guide**

Sweet anise that does not meet the requirements of “tender” shall be reported as “not tender” and scored as damage.

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## **Trimming (Q)**

The grade requires that sweet anise be well trimmed.

**§51.2905 “Well trimmed” means that not more than one coarse outer branch is left on each side of the bulb to protect the tender inside portion, and the portion of the root remaining is not more than one-half inch in length. Tops may be either full length or cut back to not less than 10 inches except that not more than five of the outer branches may be cut back to less than 10 inches if necessary to facilitate proper packing, but not more than three of these may be on the same side of the bulb.**

## **Scoring Guide**

Sweet anise that does not meet the requirements of “well trimmed” shall be reported as “not well trimmed” and scored as damage.

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## **Decay (C)**

The grade requires that sweet anise be “free from decay.” Care should be taken so as not to confuse dead or watersoaked tissue with decay, since they are often very similar in appearance. Decayed tissue will disintegrate when rubbed between the fingers, while bruised or watersoaked tissue will remain intact.

Decay may affect the tops as well as the bulbs; any amount of decay is scorable against the 1% tolerance for decay. The type of decay is not to be reported on the certificate. When the decay is in excess of the tolerance, report the degree of advancement in general terms as: early, moderate, or advanced stages.

# PARSNIPS

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## GENERAL

Parsnips are similar to carrots, but usually have a wider diameter and are a tan to white color. They are adapted climatically to much of the United States, but commercial production is practically limited to the northern portion of the country extending from the New England States to the Pacific Coast. Parsnips are available the year round with peak months being October-January.

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## 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.

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### Size of Sample

The tolerances in the U.S. Standards for Grades of Parsnips are determined on the basis of weight.

The entire contents of the container shall be the sample. For consumer size packages the consumer unit shall be the sample. For bulk bins the sample will consist of 25 pounds taken from one location within the bin.

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### 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.

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# TOLERANCES AND APPLICATION OF TOLERANCES

**§51.4010 U.S. No. 1...(b) Tolerances.** In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, are provided as specified.

**(1) For defects.** Ten percent for parsnips in any lot which fail to meet the requirements of this grade, including therein not more than 5 percent for defects causing serious damage, including in this latter amount not more than 1 percent for parsnips affected by soft rot or wet breakdown.

**(2) For size.** Three percent for parsnips in any lot which fail to meet the specified minimum diameter and 10 percent for parsnips which fail to meet any specified maximum diameter.

**§51.4011 U.S. No. 2...(b) Tolerances.** In order to allow for variations incident to proper grading and handling, the following tolerances, by weight, are provided as specified:

**(1) For defects.** Ten percent for parsnips in any lot which fail to meet the requirements of this grade, including therein not more than 1 percent for parsnips affected by soft rot or wet breakdown.

**(2) For size.** Five percent for parsnips in any lot which fail to meet the specified minimum diameter and 10 percent for parsnips which fail to meet any specified maximum diameter.

## Summary of Tolerances

	<u>U.S. No. 1</u>	<u>U.S. No. 2</u>
Total defects	10%	10%
<i>Including serious damage</i>	5%	-----
<i>Including soft rot or wet breakdown</i>	1%	1%

For off-size

Specified minimum diameter	3%	5%
Specified maximum diameter	10%	10%

## APPLICATION OF TOLERANCES

**§51.4013 *Application of tolerances.*** The contents of individual packages in the lot, 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 at least one defective and one off-size specimen may be permitted in any package: *And provided further*, That the average for the entire lot is within the tolerance specified.

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

	<u>U.S. No. 1</u>	<u>U.S. No. 2</u>
Total defects	$1\text{-}1/2 \times 10\% = 15\%$	$1\text{-}1/2 \times 10\% = 15\%$
<i>Including</i> serious damage	$2 \times 5\% = 10\%$	-----
<i>Including</i> soft rot or wet breakdown	$2 \times 1\% = 2\%$	$2 \times 1\% = 2\%$

For off-size

Specified minimum diameter	$2 \times 3\% = 6\%$	$2 \times 5\% = 10\%$
Specified maximum diameter	$1\text{-}1/2 \times 10\% = 15\%$	$1\text{-}1/2 \times 10\% = 15\%$

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## NOTESHEET 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.

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### Product

The common name "Parsnips" shall be used to describe this commodity in the product heading.

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### 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.

Parsnips are usually packed and shipped in film bags, cartons, or film bags in master containers.

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## **Brands/Markings**

At shipping point, the brand, size, PLI, and other important information appearing on the container shall be reported on the notesheet and certificate in the appropriate section.

At market, the brand, variety, size, count, grade, weight, point of origin, and other important information appearing on the container shall be reported on the notesheet in the "BRANDS/MARKINGS" section. Only the brand name and other pertinent information shall appear in this section on the certificate.

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## **Origin**

The inspectors 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 inspector's 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 in what state or country the parsnips were grown.

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## **CONDITION OF PACK**

Parsnips are generally packed in film bags. The condition of pack will only be reported as being in film bags. If the parsnips are in a film bag in a master carton the condition of pack will only be reported as in film bags in master containers.

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## **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. The location in the lot and/or load must be specified in greater detail when additional temperatures are taken.

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## SIZE

Size is determined on the basis of weight. The diameter of the parsnip shall be reported under the "Size" section. Size is specified in the standards in connection with the grade, therefore; if a lot fails on size the lot will fail to grade U.S. No. 1 account undersize. A lot that is specified to a particular size shall be reported in connection with the grade for example: U.S. No. 1, 1-1/4 inch minimum.

**§51.4010 U.S. No. 1...(a) Unless otherwise specified, the diameter of each parsnip shall be not less than 1-1/2 inches. The maximum diameter of the parsnips in any lot may be specified in terms of inches and quarter inches, in accordance with the facts.**

**§51.4011 U.S. No. 2...(a) Unless otherwise specified, the diameter of each parsnip shall be not less than 1-1/2 inches. The maximum diameter of the parsnips in any lot may be specified in terms of inches and quarter inches, in accordance with the facts.**

**§51.4022 "Diameter" means the greatest dimension of the parsnip measured at right angles to the longitudinal axis.**

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## 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.

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## **Bruising (C)**

Bruising on parsnips is characterized by a brown to dark brown discolored area that extends into the flesh. Parsnips are typically very firm and are not susceptible to bruising; however, very rough handling may cause bruising to occur.

### **Scoring Guide**

Score as damage when materially detracting from the appearance, or when the bruise causes more than a 5% loss by weight. Score as serious damage when seriously detracting from the appearance, or when the bruise causes more than a 10% loss by weight.

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## **Cleanness (Q)**

The U.S. Standards have the following requirements for cleanness:

U.S. No. 1: Fairly clean.

U.S. No. 2: Free from serious damage by dirt.

Cleanness refers to dirt, stain, or other foreign material on the parsnips.

The following terms will be used to describe cleanness:

**Clean** means that the individual parsnips are practically free from dirt, stain, or other foreign matter.

**Fairly clean** means that individual parsnips are reasonably free from dirt, stain, or other foreign matter, and that the general appearance of the parsnips in the lot is not more than slightly affected by these causes.

### **Scoring Guide**

Score as damage when dirt or foreign matter materially affects the appearance or marketing quality of the individual parsnips. Score as serious damage when the appearance or marketing quality of the individual parsnips is seriously affected by dirt or foreign material.

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## Cuts or Mechanical Injury (Q or C)

Cuts or mechanical injury refers to injury to the parsnips caused from rough handling during harvest, packing, or shipping and/or excessive trimming causing injury to the parsnips.

### Scoring Guide

Score as damage when materially detracting from the appearance, or when the injury causes more than a 5% loss by weight. Score as serious damage when seriously detracting from the appearance, or when the injury causes more than a 10% loss by weight.

**Note:** Fresh cuts shall be scored as a condition factor en route or at destination.

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## Discoloration (C)

Discoloration of parsnips may be caused by many factors including rough handling, aging, and/or excessive temperatures. Discoloration appears as light brown to black discoloration on the surface of the parsnips.

### Scoring Guide

Score as damage when materially detracting from the appearance of the parsnips. Score as serious damage when seriously detracting from the appearance of the parsnips.

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## Firmness (C)

The U.S. Standards have the following requirements for firmness:

U.S. No. 1: Fairly firm.

U.S. No. 2: Not seriously damaged by wilting.

Firmness shall be described in the following terms:

**Firm** means that the parsnips do not yield slightly to moderate pressure.

**Fairly firm** means that the parsnips is not soft, materially flabby, or shriveled.

**Flabby and wilted** means that the parsnips are badly wilted, flabby, soft, limp, or rubbery.

## Scoring Guide

Parsnips that do not meet the requirements of “fairly firm” shall be reported as “not fairly firm” and scored as damage. Parsnips that are seriously damaged by wilting shall be reported as “flabby and/or wilted” according to the facts and scored as serious damage.

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### Freezing and Freezing Injury (C)

The term “frozen” should only be used when ice crystals are present. Frozen parsnips will be “dull, glassy, and translucent” in comparison to unaffected parsnips.

“Freezing injury” is the term that should be used when it is evident that the parsnips have been frozen, but are not in a frozen condition at the time of inspection. The affected parsnips may be flabby, blistered, watery, and/or translucent.

Use the following procedures when reporting freezing or freezing injury:

- Record pulp temperatures taken at various locations.
- Determine and record extent of the injury in the load.
- Determine and record extent of the injury in the containers.
- Determine and record the degree to which individual specimens are affected.
- Describe the pattern of freezing or freezing injury in clear, concise terms.

When the location of injury indicates where or when the freezing occurred, this is to be stated. For example: “Freezing injury so located as to indicate freezing occurred after packing but not in present location,” or “Freezing injury so located as to indicate freezing occurred in trailer.”

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### Growth Cracks (Q)

Growth cracks may be caused by very rapid growth, as when a rainy period follows a dry period. Growth cracks usually follows the long axis of the parsnips.

## Scoring Guide

Score as damage when growth cracks are deep or rough, or when numerous smooth and shallow growth cracks materially affect the appearance of

the parsnips. Score as serious damage when very deep or rough growth cracks seriously affect the appearance of the parsnips.

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### **Insects (Q or C)**

Insects burrowing into the parsnips are the most common type of insect injury to parsnips.

#### **Scoring Guide**

Parsnips that are materially affected by insect injury shall be scored as damage. Parsnips that are seriously affected by insect injury shall be scored as serious damage.

Live insects shall be reported as condition; if dead, report as quality. If both live and dead insects are present, report as condition.

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### **Pithiness (Q)**

Pithiness can be the result of unfavorable growing conditions or frost injury resulting in the texture of the roots being fibrous and spongy. In order to determine pithiness, the roots that show indications of sponginess should be cut or broken so that a cross section may be viewed, as well as observing the crispness of the parsnips while cutting or breaking.

#### **Scoring Guide**

Parsnips that are definitely spongy and porous shall be scored as damage. Parsnips that are seriously affected by pithiness shall be scored as serious damage.

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### **Rodent Injury (Q)**

An area on the parsnips that appears to have been chewed and/or gnawed on by a rodent characterizes rodent injury.

#### **Scoring Guide**

Score as damage when materially detracting from the appearance of the parsnips. Score as serious damage when seriously detracting from the appearance of the parsnips.

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## Shape (Q)

The U.S. Standards have the following requirements for shape:

U.S. No. 1: Fairly well formed.

U.S. No. 2: Not badly misshapen.

The following terms shall be used to describe shape:

**Well formed** means that the parsnips are not forked or misshapen to the extent that the appearance is more than slightly affected.

**Fairly well formed** means that the parsnip is not turnip shaped or so forked or misshapen as to materially affect its appearance or cause a loss of more than 5 percent, by weight, in the ordinary preparation for use.

### Scoring Guide

Score as damage when the parsnips is forked, twisted, curved, or otherwise ill-formed to the extent that the appearance is materially affected, and report as “misshapen.” Score as serious damage when the parsnips is so badly crooked, twisted, forked, or otherwise so misshapen as to seriously affect its appearance or causes a loss of more than 10%, by weight, of the parsnips in the ordinary preparation for use, and report as “badly misshapen.”

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## Texture (Q)

The U.S. Standards have the following requirements for smoothness:

U.S. No. 1: Fairly smooth.

U.S. No. 2: Free from serious damage by secondary roots.

Texture refers to the smoothness and/or presence of secondary root growth.

### Scoring Guide

**§51.4016 “Fairly smooth” means that the parsnip is not rough, ridged, or covered with secondary roots to an extent which materially affects its appearance or causes a loss of more than 5 percent, by weight, in the ordinary preparation for use.**

Parsnips that do not meet the requirements of “fairly smooth” shall be scored as damage and reported as “not fairly smooth.” Score as serious damage

when the appearance is seriously affected by secondary root growth, or when the injury causes more than a 10% loss by weight.

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### **Trimming (Q or C)**

Each grade requires parsnips to be well trimmed.

**§51.4014 “Well trimmed” means that the tops shall be cut back to within 3/4 inch from the crown of the parsnip; except that occasional uncut leaves or leafstems or new top growth exceeding this length which does not materially damage the appearance of the lot shall be permitted.**

### **Scoring Guide**

Parsnips that do not meet the requirements of “well trimmed” shall be scored as “not well trimmed” against the total tolerance for the grade.

### **New Top Growth (C)**

The leafy top of the parsnips may experience new growth after being trimmed.

### **Scoring Guide**

New top growth that exceeds 3/4 inch in length or that materially affects the appearance of the parsnips shall be scored against the total tolerance for the grade and reported as “excessive new top growth” as a condition defect.

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### **Woodiness (Q)**

Each grade requires that parsnips be free from woodiness.

Parsnips that have been growing for a long time will on occasion develop woody cores. To determine whether the core is woody or not, cut the parsnips at right angles to its longitudinal axis with a sharp knife.

### **Scoring Guide**

If the core is woody to the extent that more force is required to cut it than the surrounding layer of flesh, it is woody enough to score. Parsnips that are woody shall be reported as “woody” and scored against the total tolerance for the grade.

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## **Soft Rot or Wet Breakdown (C)**

All grades of parsnips are required to be free from soft rot or wet breakdown. All soft rot or wet breakdown is scored against the 1% tolerance for soft rot or wet breakdown.

There are several types of soft rots that affect parsnips. The most common types are Bacterial Soft Rot and Gray Mold Rot. Do not report the type of soft rot on the certificate; however, when soft rot is in excess of the tolerance, report the degree and advancement in general terms as: early, moderate, or advanced stages.

# RADISHES

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## GENERAL

Radishes are available year round from numerous geographic locations and may have roots of varying colors that can be certified under the U.S. grade standards. Radishes are marketed in two different forms consisting of “Topped radishes,” which have their tops clipped back to the root, or “Bunched radishes,” which are tied together with their tops attached to the root. The standards do not apply to daikon or Chinese radish.

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## 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.

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### Size of Sample

The tolerances in the U.S. Standards for Grades of Radishes are determined on the basis of count.

### Topped Radishes

**§51.2399 *Sample for grade determination.* (a) Topped radishes: Each sample shall consist of 50 roots.**

**(c) When individual packages contain less than 50 topped radishes or less than 25 bunches, a sufficient number of adjoining packages are opened to obtain the prescribed size sample.**

**(d) When practical, at point of packing, the sample may be obtained in the packing house from the belt or bin after sorting has been completed.**

## **Bunched Radishes**

**§51.2399 *Sample for grade determination...*(b) Bunched radishes:**

**(1) When applying the requirements for tops, each sample shall consist of 25 bunches.**

**(2) When applying the requirements for roots, each sample shall consist of 50 roots taken from whole or part bunches selected at random from the original 25-bunch sample.**

**(c) When individual packages contain less than 50 topped radishes or less than 25 bunches, a sufficient number of adjoining packages are opened to obtain the prescribed size sample.**

**(d) When practical, at point of packing, the sample may be obtained in the packing house from the belt or bin after sorting has been completed.**

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## **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.

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## **TOLERANCES AND APPLICATION OF TOLERANCES**

**§51.2397 *U.S. No. 1...*(b) In order to allow for variations incident to proper grading and handling, the following tolerances are provided:**

**(1) *For defects of roots.* 10 percent, by count, for roots in any lot which fail to meet the requirements for the grade, including therein not more than 1 percent for decay;**

**(2) For defects of tops of bunched radishes. 10 percent, by count, for bunches in any lot which fail to meet the requirements for the grade, including therein not more than 5 percent for decay;**

**(3) For off-size roots. 10 percent, by count, for roots in any lot which fail to meet the specified minimum diameter: *Provided*, That when both minimum and maximum diameters are specified, an additional tolerance of 10 percent shall be allowed for roots which are larger than the maximum diameter specified; and,**

**(4) For excess length of tops of topped radishes. 5 percent, by count, for roots in any lot with tops which are more than three eighths inch long.**

**§51.2398 U.S. Commercial...(a) In order to allow for variations incident to proper grading and handling, the following tolerances are provided:**

**(1) For defects of roots. 20 percent, by count, for roots in any lot which fail to meet the requirements for the grade, but not more than one-half of this amount, or 10 percent, shall be allowed for serious damage, including therein not more than 1 percent for decay;**

**(2) For defects of tops of bunched radishes. 10 percent, by count, for bunches in any lot which fail to meet the requirements for the grade, including therein not more than 5 percent for decay;**

**(3) For off-size roots. 10 percent, by count, for roots in any lot which fail to meet the specified minimum diameter: *Provided*, That when both minimum and maximum diameters are specified, an additional tolerance of 10 percent shall be allowed for roots which are larger than the maximum diameter specified; and,**

**(4) For excess length of tops of topped radishes. 10 percent, by count, for roots in any lot with tops which are more than three eighths inch long.**

## Summary of Tolerances

<u>Topped Radishes:</u>	<u>U.S. No. 1</u>	<u>U.S. Commercial</u>
Total defects	10%	20%
<i>Including serious damage</i>	----	10%
<i>Including decay</i>	1%	1%
For excessive length of tops	5%	10%
<u>Bunched Radishes:</u>	<u>U.S. No. 1</u>	<u>U.S. Commercial</u>
Total defects of tops	10%	10%
<i>Including decay</i>	5%	5%
Total defects of roots	10%	20%
<i>Including serious damage</i>	----	10%
<i>Including decay</i>	1%	1%
<u>For Off-Size Roots:</u>		
Minimum diameter	10%	10%
Maximum diameter (when both minimum and maximum diameters are specified)	10%	10%

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## Application of Tolerances

**§51.2400 *Application of tolerances.*** Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent, and not more than double a specified tolerance of less than 10 percent: *Provided*, That two roots affected by decay may be permitted in any sample: *And provided further*, That the averages for the entire lot are within the tolerances specified for the grade.

<b><u>Topped Radishes:</u></b>	<b><u>U.S. No. 1</u></b>	<b><u>U.S. Commercial</u></b>
Total defects	1-1/2 x 10% = 15%	1-1/2 x 20% = 30%
<i>Including serious damage</i>	----	1-1/2 x 10% = 15%
<i>Including decay</i>	2 x 1% = 2%	2 x 1% = 2%
For excessive length of tops	2 x 5% = 10%	1-1/2 x 10% = 15%
 <b><u>Bunched Radishes:</u></b>		
Total defects of tops	1-1/2 x 10% = 15%	1-1/2 x 10% = 15%
<i>Including decay</i>	2 x 5% = 10%	2 x 5% = 10%
Total defects of roots	1-1/2 x 10% = 15%	1-1/2 x 20% = 30%
<i>Including serious damage</i>	----	1-1/2 x 10% = 15%
<i>Including decay</i>	2 x 1% = 2%	2 x 1% = 2%
 <b><u>For Off-Size Roots:</u></b>		
Minimum diameter	1-1/2 x 10% = 15%	1-1/2 x 10% = 15%
Maximum diameter (when both minimum and maximum diameters are specified)	1-1/2 x 10% = 15%	1-1/2 x 10% = 15%

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## **NOTESHEET 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.

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## **Product**

The name “Topped Radishes” or “Bunched Radishes” shall be used to describe this commodity in the product heading.

**§51.2395 “Topped radishes” means radishes with the tops clipped back to not more than three-eighths inch in length.**

**§51.2396 “Bunched radishes” means radishes with full length tops which are tied in bunches.**

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## **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.

Radishes are usually packed and shipped in cartons or film bags in master containers.

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## Brands/Markings

At shipping point, the brand, size, PLI, and other important information appearing on the container shall be reported on the notesheet and certificate in the appropriate section.

At market, the brand, variety, size, count, grade, weight, point of origin, and other important information appearing on the container shall be reported on the notesheet in the "BRANDS/MARKINGS" section. Only the brand name and other pertinent information shall appear in this section on the certificate.

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## Origin

The inspectors 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 inspector's 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 in what state or country the radishes were grown.

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## CONDITION OF PACK

Bunched radishes are generally packed in cartons, and topped radishes are generally shipped in film bags in master containers. The following terms shall be used to describe the tightness of bunched radishes in the cartons:

**Very tight** means a condition that is too tight for best results and in which damaged or severely bruised radishes are noted as a result of being packed too tightly.

**Tight** means that the containers are completely filled and so tightly packed that additional radishes cannot be included without damage to the contents.

**Fairly tight** means that the containers are apparently full, but additional radishes can be inserted without damage to the contents.

**Slack** means the container is not sufficiently filled to prevent the movement of the radishes. Whenever the term slack is used, it should be described in fractions of an inch or inches.

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## 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. The location in the lot and/or load must be specified in greater detail when additional temperatures are taken.

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## SIZE

Size is determined on the basis of count. The diameter shall be determined by using round hole measuring gauges or sizing rings. Size is specified in the standards in connection with the grade, therefore; if a lot fails on size the lot will fail to grade U.S. No. 1 account undersize. A lot that is specified to a particular size shall be reported in connection with the grade for example: U.S. No. 1, 1 inch minimum.

**§51.2397 U.S. No. 1...(a) Unless otherwise specified, the diameter of each root shall be not less than five-eighths inch.**

**§51.2398 U.S. Commercial. "U.S. Commercial" consists of radishes which meet the requirements for the U.S. No. 1 grade...**

**§51.2411 "Diameter" means the greatest dimension of the root measured at right angles to a line running from the crown to the base of the root.**

**§51.2401 Standard bunching. (a) Standard bunches of radishes shall be fairly uniform in size, and radishes in the individual bunches shall not vary more than one-half inch in diameter.**

**(b) Not more than 10 percent of the bunches in any lot may fail to meet the requirements for "Standard Bunching."**

**§51.2402 Size terms. (a) The following terms are provided for describing the diameters of radish roots:**

- (1) “Small” means less than three-fourths inch in diameter;**
- (2) “Medium” means three-fourths to 1 inch in diameter;**
- (3) “Large” means over 1 to 1-1/4 inches in diameter; and,**
- (4) “Very large” means over 1-1/4 inches in diameter.**

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## **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.

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### **Cleanness (Q)**

Each grade of radishes requires the roots to be clean.

**§51.2404 “Clean” means that the radishes are practically free from dirt or other foreign material.**

### **Scoring Guide**

Radishes that do not meet the requirements of “clean” shall be reported as “not clean” and scored against the total tolerance for the grade.

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### **Cracks (Q or C)**

There are two distinctive types of cracking that may occur on radishes.

### **Air Cracks (C)**

Air cracks are characterized by sharp edged distinct cracks that expose the flesh of the radish. They are fresh and shall be considered a condition defect. They usually occur during the harvesting and packing process, although some may occur after packing.

### **Growth Cracks (Q)**

Growth cracks are old, healed, wide cracks in the radish, that may be caused by very rapid growth, as when a rainy period follows a dry period. They occur prior to harvesting and shall be considered a quality defect.

### **Scoring Guide**

**§51.2409 Damage...(a) Growth cracks or air cracks:**

- (1) When more than one are present;**
- (2) When the flesh is discolored;**
- (3) When more than one-fourth inch deep; or,**
- (4) When the length of any crack exceeds the limitations set forth in Table I.**

**TABLE I**

<b>Diameter of root</b>	<b>Maximum length of growth crack or air crack permitted</b>	<b>Maximum area of cut permitted - equivalent to:</b>
<b>5/8 inch</b>	<b>3/8 inch</b>	<b>3/8 inch circle</b>
<b>3/4 inch</b>	<b>1/2 inch</b>	<b>1/2 inch circle</b>
<b>7/8 inch</b>	<b>1/2 inch</b>	<b>1/2 inch circle</b>
<b>1 inch</b>	<b>5/8 inch</b>	<b>5/8 inch circle</b>
<b>1-1/8 inch</b>	<b>5/8 inch</b>	<b>3/4 inch circle</b>

Score as serious damage when seriously affecting the appearance of the radish.

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## Cuts or Mechanical Injury (Q or C)

Cuts or mechanical injury refers to injury to the radishes caused from excessive trimming or rough handling during harvest, packing, or shipping causing injury to the radish.

### Scoring Guide

**§51.2409 Damage...(b) Cuts, including harvester cuts and abrasions:**

**(1) When the flesh is discolored;**

**(2) When rough or deep;**

**(3) When the area of exposed flesh of any cut exceeds the limitations set forth in Table I; or,**

**(4) When the aggregate of all cuts or abrasions detracts from the appearance more than the maximum size single cut permitted.**

**TABLE I**

<b>Diameter of root</b>	<b>Maximum length of growth crack or air crack permitted</b>	<b>Maximum area of cut permitted - equivalent to:</b>
<b>5/8 inch</b>	<b>3/8 inch</b>	<b>3/8 inch circle</b>
<b>3/4 inch</b>	<b>1/2 inch</b>	<b>1/2 inch circle</b>
<b>7/8 inch</b>	<b>1/2 inch</b>	<b>1/2 inch circle</b>
<b>1 inch</b>	<b>5/8 inch</b>	<b>5/8 inch circle</b>
<b>1-1/8 inch</b>	<b>5/8 inch</b>	<b>3/4 inch circle</b>

Score as serious damage when seriously affecting the appearance of the radish.

**Note:** Fresh cuts shall be scored as a condition factor en route or at destination.

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## Discoloration (C)

### Tops

Yellow or other types of discoloration affecting the tops of bunched radishes may be caused by many different factors such as rough handling, aging, and/or excessive temperatures.

### Scoring Guide

**§51.2409 *Damage... (e)* Yellowing or other discoloration of the tops when the appearance of the bunch is materially affected. The appearance of bunches with tops having slight discoloration such as yellowing, browning, or other abnormal color affecting a few leaves shall not be considered materially affected if the tops as a whole show a predominantly normal green color.**

Allow approximately 5% of the tops to be affected by yellow color before considering the bunch as damage. Slightly more area would be allowed for discoloration of lesser contrast.

### Roots

Discoloration affecting the roots may be caused by rubbing, pressure, or other external factors and will range from tan to black in color.

### Scoring Guide

Score as damage when affecting more than 5% of the surface, or when materially affecting the appearance of the radish. Score as serious damage when seriously affecting the appearance of the radish.

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## Firmness (C)

Each grade of radishes is required to be firm.

**§51.2407 “Firm” means that the root is crisp and not soft, flabby, or wilted.**

### Scoring Guide

Radishes that fail to meet the requirements of “firm” shall be reported as “soft,” “flabby,” or “wilted,” according to the facts, and scored as serious damage.

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## **Freshness (C)**

Each grade of topped radishes is required to be fresh.

**§51.2410 “Fresh” means that the tops have normal green color and are not more than slightly wilted.**

## **Scoring Guide**

Topped radishes that fail to meet the requirements of fresh shall be reported as “not fresh” and scored against the total tolerance for the grade.

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## **Freezing and Freezing Injury (C)**

The term “frozen” should only be used when ice crystals are present. Frozen radishes will be “dull, glassy, and translucent” in comparison to unaffected radishes.

“Freezing injury” is the term that should be used when it is evident that the radishes has been frozen, but are not in a frozen condition at the time of inspection. The affected radishes may be flabby, watery, and/or translucent.

Use the following procedures when reporting freezing or freezing injury:

- Record pulp temperatures taken at various locations.
- Determine and record extent of the injury in the load.
- Determine and record extent of the injury in the containers.
- Determine and record the degree to which individual specimens are affected.
- Describe the pattern of freezing or freezing injury in clear, concise terms.

When the location of injury indicates where or when the freezing occurred, this is to be stated. For example: “Freezing injury so located as to indicate freezing occurred after packing but not in present location,” or “Freezing injury so located as to indicate freezing occurred in trailer.”

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## **Insects (Q or C)**

Various types of insets can affect radishes in a variety of ways. Different types of worms may feed on the roots by chewing or burrowing, causing the

radishes to have an undesirable appearance. Aphids may also affect the tops of the radishes causing the appearance to be affected.

### Scoring Guide

**§51.2409 *Damage... (d)* Insects or insect injury when the appearance of the root is materially affected, or when the injury penetrates into the flesh of the root or when the tops are affected to the extent that the appearance of the bunch is materially affected;**

Live insects shall be reported as condition; if dead, report as quality. If both live and dead insects are present report as condition.

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### New Top Growth (C)

Topped radishes may experience new top growth after being trimmed.

### Scoring Guide

Topped radishes with more than 3/8 inch new top growth shall be reported as “new top growth” and scored as a condition factor against the total tolerance for the grade.

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### Pithiness (Q)

Pithiness refers to open spaces in the roots that are dry and cottony. Pithiness can be caused by over maturity, or can be an inherited trait of the seed stock used to grow the plants.

### Scoring Guide

**§51.2409 *Damage... (c)* Pithiness when there is any distinctly open space, or when more than one-fourth of the surface at a center cut is dry and cottony;**

Score as serious damage when seriously affecting the appearance, the edible quality, or the marketing quality of the root.

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### Seedstems (Q)

Each grade of bunched radishes is required to be free from damage caused by seedstems.

Seedstems are characterized by a tough, fibrous, and/or hollow shaft extending to or beyond the top of the bunch.

### **Scoring Guide**

Score as damage when tough and fibrous and when materially affecting the appearance of the bunch. Score as serious damage when seriously affecting the appearance of the bunch.

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### **Shape (Q)**

Each grade of radishes is required to be well formed.

**§51.2405 “Well formed” means that the root has the shape characteristic of the variety.**

### **Scoring Guide**

Radishes failing to meet the requirements of “well formed” shall be reported as “not well formed,” and scored against the total tolerance for the grade.

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### **Similar Varietal Characteristics (Q)**

Each grade of radishes is required to be of similar varietal characteristics.

**§51.2403 “Similar varietal characteristics” means that the radishes in any sample are similar in color and shape; for example, red varieties shall not be mixed with white varieties and globe-shaped varieties shall not be mixed with long-shaped varieties.**

### **Scoring Guide**

Radishes that fail to meet the requirements of U.S. No. 1 shall be reported as “dissimilar varietal characteristics” and scored against the total tolerance for the grade.

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### **Smoothness (Q)**

Each grade of radishes is required to be smooth.

**§51.2406 “Smooth” means that the root is not rough, or ridged to the extent that the appearance is materially affected.**

## Scoring Guide

Radishes that fail to meet the requirements of “smooth” shall be reported as “not smooth” and scored against the total tolerance for the grade.

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## Tenderness (Q)

Each grade of radishes is required to be tender.

**§51.2408 “Tender” means that the root is not stringy or woody.**

## Scoring Guide

Radishes that fail to meet the requirements of “tender” shall be reported as “not tender” and scored against the total tolerance for the grade.

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## Trimming (Q)

“Topped radishes” are radishes that have the tops or the plants removed from the root.

**§51.2395 “Topped radishes” means radishes with the tops clipped back to not more than three-eighths inch in length.**

## Scoring Guide

Topped radishes with more than 3/8 inch tops remaining shall be reported as “excessive tops” and scored as a quality factor against the total tolerance for the grade.

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## Decay

All grades of radishes are required to be free from decay. Care should be taken not to confuse dead or watersoaked tissue on the tops with decay, since they are often very similar in appearance. Decayed tissue will disintegrate when rubbed between the fingers, while bruised or watersoaked tissue will remain intact.

Decay may affect the tops as well as the roots; any amount of decay is scorable against either the 1% tolerance for decay affecting the roots or the 5% tolerance for decay affecting the tops of bunched radishes. The type of decay is not to be reported on the certificate. When the decay is in excess of the tolerance, report the degree of advancement in general terms as: early, moderate, or advanced stages.

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# APPENDIX I U.S. GRADE STANDARDS

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## United States Standards for Grades of Sweet Anise<sup>1</sup>

Effective March 15, 1973

### Grade

51.2900 U.S. No. 1.

### Unclassified

51.2901 Unclassified.

### Definitions

51.2902 Stalks.

51.2903 Firm.

51.2904 Tender.

51.2905 Well trimmed.

51.2906 Fairly well blanched.

51.2907 Damage.

51.2908 Diameter.

### Grade

#### §51.2900 U.S. No. 1.

"U.S. No. 1" consists of stalks of sweet anise which are firm, tender, well trimmed, and fairly well blanched; which are free from decay and from damage caused by growth cracks, pithy branches, wilting, freezing, seedstems, dirt, discoloration, disease, insects, or mechanical or other means. Unless otherwise specified, the minimum diameter of each bulb shall be not less than 2 inches.

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

**(1) For defects.** Ten percent for stalks in any lot which fail to meet the requirements of this grade, including therein not more than 1 percent for stalks affected by decay.

**(2) For size.** Ten percent for stalks in any lot which fail to meet the specified minimum diameter requirement.

### Unclassified

#### §51.2901 Unclassified.

"Unclassified" consists of stalks of sweet anise which have not been classified in accordance with the foregoing grade. 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.

### Definitions

#### §51.2902 Stalk.

"Stalk" means an individual plant.

#### §51.2903 Firm.

"Firm" means that the bulbs are not soft or wilted.

#### §51.2904 Tender.

"Tender" means that the bulbs are crisp and succulent.

#### §51.2905 Well trimmed.

"Well trimmed" means that not more than one coarse outer branch is left on each side of the bulb to protect the tender inside portion, and the portion of the root remaining is not more than one-half inch in length. Tops may be either full length or cut back to not less than 10 inches except that not more than five of the outer branches may be cut back to less than 10 inches if necessary to facilitate proper packing, but not more than three of these may be on the same side of the bulb.

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<sup>1</sup> 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.

**§51.2906 Fairly well blanched.**

"Fairly well blanched" means that the bulbs are of a light greenish to white color.

**§51.2907 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 stalk.

The following specific defects shall be considered as damage:

- (a) Growth cracks, when more than three branches show one or more growth cracks.
- (b) Pithy branches, when more than three branches show distinctly open texture with air spaces in the central portion of that part which goes to make up the base or bulbous portion of the stalk.
- (c) Wilting, when the stalk is limp and flabby.
- (d) Freezing, when the epidermis of the branches is badly blistered, or when the tops are brown or yellow to such an extent as to materially damage the appearance of the stalk, or when a combination of these causes material damage to the appearance and shipping quality of the stalk.
- (e) Seedstems, which have reached the stage where the flower buds are plainly visible. Stalks from which the seedstems have been removed shall be considered as damaged.
- (f) Dirt, when caked on the bulbous portion of the stalk, or when present to such an extent on the tops and branches as to cause material damage to the appearance of the stalk.
- (g) Discoloration, when the bulbous portion shows extensive brown to dark brown areas characteristic of injury caused by rough handling, or when the tops are yellow or brown to such an extent as to cause material damage to the appearance of the stalk.

**§51.2908 Diameter.**

"Diameter" means the smallest diameter measured through the center of the bulb at right angles to the longitudinal axis of the stalk.

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## United States Standards for Grades of Parsnips<sup>1</sup>

Effective December 10, 1945

### Grades

51.4010 U.S. No. 1.

51.4011 U.S. No. 2.

### Unclassified

51.4012 Unclassified.

### Application of Tolerances

51.4013 Application of tolerances.

### Definitions

51.4014 Well trimmed.

51.4015 Fairly well formed.

51.4016 Fairly smooth.

51.4017 Fairly clean.

51.4018 Fairly firm.

51.4019 Damage.

51.4020 Badly misshapen.

51.4021 Serious damage.

51.4022 Diameter.

### Grades

#### §51.4010 U.S. No. 1.

"U.S. No. 1" consists of parsnips of similar varietal characteristics which are well trimmed, fairly well formed, fairly smooth, fairly clean, fairly firm, free from woodiness, soft rot or wet breakdown, and from damage caused by discoloration, bruises, cuts, rodents, growth cracks, pithiness, disease, insects, mechanical or other means.

(a) **Unless otherwise specified**, the diameter of each parsnip shall be not less than 1-1/2 inches. The maximum diameter of the parsnips in any lot may be specified in terms of inches and quarter inches, in accordance with the facts.

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

(1) **For defects.** Ten percent for parsnips in any lot which fail to meet the requirements of this grade, including therein not more than 5 percent for defects causing serious damage, including in this latter amount not more than 1 percent for parsnips affected by soft rot or wet breakdown.

(2) **For size.** Three percent for parsnips in any lot which fail to meet the specified minimum diameter and 10 percent for parsnips which fail to meet any specified maximum diameter.

#### §51.4011 U.S. No. 2.

"U.S. No. 2" consists of parsnips which are well trimmed, not badly misshapen, free from woodiness, soft rot and wet breakdown, and from serious damage caused by secondary roots, dirt, discoloration, bruises, cuts, rodents, growth cracks, pithiness, wilting, disease, insects, mechanical or other means.

(a) Unless otherwise specified, the diameter of each parsnip shall be not less than 1-1/2 inches. The maximum diameter of the parsnips in any lot may be specified in terms of inches and quarter inches, in accordance with the facts.

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

(1) **For defects.** Ten percent for parsnips in any lot which fail to meet the requirements of this grade, including therein not more than 1 percent for parsnips affected by soft rot or wet breakdown.

(2) **For size.** Five percent for parsnips in any lot which fail to meet the specified minimum diameter and 10 percent for parsnips which fail to meet any specified maximum diameter.

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<sup>1</sup> Packing of the product in conformity with the requirements 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.

## **Unclassified**

### **§51.4012 Unclassified.**

"Unclassified" consists of parsnips which have not been classified in accordance with any 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**

#### **§51.4013 Application of tolerances.**

The contents of individual packages in the lot, 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 at least one defective and one off-size specimen may be permitted in any package: **And provided further**, That the average for the entire lot is within the tolerance specified.

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

### **Definitions**

#### **§51.4014 Well trimmed.**

"Well trimmed" means that the tops shall be cut back to within 3/4 inch from the crown of the parsnip; except that occasional uncut leaves or leafstems or new top growth exceeding this length which does not materially damage the appearance of the lot shall be permitted.

#### **§51.4015 Fairly well formed.**

"Fairly well formed" means that the parsnip is not turnip shaped or so forked or misshapen as to materially affect its appearance or cause a loss of more than 5 percent, by weight, in the ordinary preparation for use.

#### **§51.4016 Fairly smooth.**

"Fairly smooth" means that the parsnip is not rough, ridged, or covered with secondary roots to an extent which materially affects its appearance or causes a loss of more than 5 percent, by weight, in the ordinary preparation for use.

#### **§51.4017 Fairly clean.**

"Fairly clean" means that individual parsnips are reasonably free from dirt, stain, or other foreign matter, and that the general appearance of the parsnips in the lot is not more than slightly affected by these causes.

#### **§51.4018 Fairly firm.**

"Fairly firm" means that the parsnip is not soft, materially flabby, or shriveled.

#### **§51.4019 Damage.**

"Damage" means any defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the individual parsnip, or the parsnips in the lot; or which causes a loss of more than 5 percent, by weight, of the parsnip in the ordinary preparation for use.

#### **§51.4020 Badly misshapen.**

"Badly misshapen" means that the parsnip is so badly crooked, twisted, forked, or otherwise so misshapen as to seriously affect its appearance or cause a loss of more than 10 percent, by weight, of the parsnip in the ordinary preparation for use.

#### **§51.4021 Serious damage.**

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the individual parsnip or the parsnips in the lot; or which causes a loss of more than 10 percent, by weight, of the parsnip in the ordinary preparation for use.

#### **§51.4022 Diameter.**

"Diameter" means the greatest dimension of the parsnip measured at right angles to the longitudinal axis.

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## United States Standards for Grades of Radishes<sup>1</sup>

Effective October 1, 1968

### Styles

51.2395 Topped radishes.

51.2396 Bunched radishes.

### Grades

51.2397 U.S. No. 1.

51.2398 U.S. Commercial.

### Sample For Grade Determination

51.2399 Sample for grade determination.

### Application of Tolerances

51.2400 Application of tolerances.

### Standard Bunching

51.2401 Standard bunching.

### Size Terms

51.2402 Size terms.

### Definitions

51.2403 Similar varietal characteristics.

51.2404 Clean.

51.2405 Well formed.

51.2406 Smooth.

51.2407 Firm.

51.2408 Tender.

51.2409 Damage.

51.2410 Fresh.

51.2411 Diameter.

51.2412 Serious damage.

### Metric Conversion Table

51.2413 Metric conversion table.

### Styles

#### §51.2395 Topped radishes.

"Topped radishes" means radishes with the tops clipped back to not more than three-eighths inch in length.

#### §51.2396 Bunched radishes.

"Bunched radishes" means radishes with full length tops which are tied in bunches.

### Grades

#### §51.2397 U.S. No. 1.

"U.S. No. 1" consists of radishes of similar varietal characteristics the roots of which are clean, well formed, smooth, firm, tender, and free from decay and free from damage caused by freezing, growth cracks or air cracks, cuts, pithiness, disease, insects, or other means. Bunched radishes have tops which are fresh and free from decay and free from damage caused by freezing, seedstems, yellowing or other discoloration, disease, insects, or other means.

(a) Unless otherwise specified, the diameter of each root shall be not less than five-eighths inch.

(b) In order to allow for variations incident to proper grading and handling, the following tolerances are provided:

(1) **For defects of roots.** 10 percent, by count, for roots in any lot which fail to meet the requirements for the grade, including therein not more than 1 percent for decay;

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<sup>1</sup>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) **For defects of tops of bunched radishes.** 10 percent, by count, for bunches in any lot which fail to meet the requirements for the grade, including therein not more than 5 percent for decay;

(3) **For off-size roots.** 10 percent, by count, for roots in any lot which fail to meet the specified minimum diameter: **Provided**, That when both minimum and maximum diameters are specified, an additional tolerance of 10 percent shall be allowed for roots which are larger than the maximum diameter specified; and,

(4) **For excess length of tops of topped radishes.** 5 percent, by count, for roots in any lot with tops which are more than three eighths inch long.

#### **§51.2398 U.S. Commercial.**

"U.S. Commercial" consists of radishes which meet the requirements for the U.S. No. 1 grade except for the increased tolerances specified in this section.

(a) In order to allow for variations incident to proper grading and handling, the following tolerances are provided:

(1) **For defects of roots.** 20 percent, by count, for roots in any lot which fail to meet the requirements for the grade, but not more than one-half of this amount, or 10 percent, shall be allowed for serious damage, including therein not more than 1 percent for decay;

(2) **For defects of tops of bunched radishes.** 10 percent, by count, for bunches in any lot which fail to meet the requirements for the grade, including therein not more than 5 percent for decay;

(3) **For off-size roots.** 10 percent, by count, for roots in any lot which fail to meet the specified minimum diameter: **Provided**, That when both minimum and maximum diameters are specified, an additional tolerance of 10 percent shall be allowed for roots which are larger than the maximum diameter specified; and,

(4) **For excess length of tops of topped radishes.** 10 percent, by count, for roots in any lot with tops which are more than three eighths inch long.

#### **Sample for Grade Determination**

##### **§51.2399 Sample for grade determination.**

(a) Topped radishes: Each sample shall consist of 50 roots.

(b) Bunched radishes:

(1) When applying the requirements for tops, each sample shall consist of 25 bunches.

(2) When applying the requirements for roots, each sample shall consist of 50 roots taken from whole or part bunches selected at random from the original 25-bunch sample.

(c) When individual packages contain less than 50 topped radishes or less than 25 bunches, a sufficient number of adjoining packages are opened to obtain the prescribed size sample.

(d) When practical, at point of packing, the sample may be obtained in the packing house from the belt or bin after sorting has been completed.

#### **Application of Tolerances**

##### **§51.2400 Application of tolerances.**

Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent, and not more than double a specified tolerance of less than 10 percent: **Provided**, That two roots affected by decay may be permitted in any sample: **And provided further**, That the averages for the entire lot are within the tolerances specified for the grade.

#### **Standard Bunching**

##### **§51.2401 Standard bunching.**

(a) Standard bunches of radishes shall be fairly uniform in size, and radishes in the individual bunches shall not vary more than one-half inch in diameter.

(b) Not more than 10 percent of the bunches in any lot may fail to meet the requirements for "Standard Bunching."

#### **Size Terms**

##### **§51.2402 Size terms.**

(a) The following terms are provided for describing the diameters of radish roots:

(1) "Small" means less than three-fourths inch in diameter;

(2) "Medium" means three-fourths to 1 inch in diameter;

(3) "Large" means over 1 to 1-1/4 inches in diameter; and,

(4) "Very large" means over 1-1/4 inches in diameter.

**Definitions**

**§51.2403 Similar varietal characteristics.**

"Similar varietal characteristics" means that the radishes in any sample are similar in color and shape; for example, red varieties shall not be mixed with white varieties and globe-shaped varieties shall not be mixed with long-shaped varieties.

**§51.2404 Clean.**

"Clean" means that the radishes are practically free from dirt or other foreign material.

**§51.2405 Well formed.**

"Well formed" means that the root has the shape characteristic of the variety.

**§51.2406 Smooth.**

"Smooth" means that the root is not rough, or ridged to the extent that the appearance is materially affected.

**§51.2407 Firm.**

"Firm" means that the root is crisp and not soft, flabby, or wilted.

**§51.2408 Tender.**

"Tender" means that the root is not stringy or woody.

**§51.2409 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 radish, the individual bunch of radishes, or the appearance of the sample as a whole. The following specific defects shall be considered as damage:

(a) Growth cracks or air cracks:

- (1) When more than one are present;
- (2) When the flesh is discolored;
- (3) When more than one-fourth inch deep; or,
- (4) When the length of any crack exceeds the limitations set forth in Table I.

(b) Cuts, including harvester cuts and abrasions:

- (1) When the flesh is discolored;
- (2) When rough or deep;
- (3) When the area of exposed flesh of any cut exceeds the limitations set forth in Table I; or,
- (4) When the aggregate of all cuts or abrasions detracts from the appearance more than the maximum size single cut permitted.

**TABLE I**

Diameter of root	Maximum length of growth crack or air crack permitted	Maximum area of cut permitted - equivalent to:
5/8 inch	3/8 inch	3/8 inch circle
3/4 inch	1/2 inch	1/2 inch circle
7/8 inch	1/2 inch	1/2 inch circle
1 inch	5/8 inch	5/8 inch circle
1-1/8 inch	5/8 inch	3/4 inch circle

(c) Pithiness when there is any distinctly open space, or when more than one-fourth of the surface at a center cut is dry and cottony;

(d) Insects or insect injury when the appearance of the root is materially affected, or when the injury penetrates into the flesh of the root or when the tops are affected to the extent that the appearance of the bunch is materially affected; and,

(e) Yellowing or other discoloration of the tops when the appearance of the bunch is materially affected. The appearance of bunches with tops having slight discoloration such as yellowing, browning, or other

abnormal color affecting a few leaves shall not be considered materially affected if the tops as a whole show a predominantly normal green color.

**§51.2410 Fresh.**

"Fresh" means that the tops have normal green color and are not more than slightly wilted.

**§51.2411 Diameter.**

"Diameter" means the greatest dimension of the root measured at right angles to a line running from the crown to the base of the root.

**§51.2412 Serious damage.**

"Serious damage" means any defect or any combination of defects which seriously detracts from the appearance, or the edible or marketing quality of the individual root or the appearance of the bunch.

**Metric Conversion Table**

**§51.2413 Metric conversion table.**

Inches	Millimeters (mm)
1/8 .....	3.2
1/4 .....	6.4
3/8 .....	9.5
1/2 .....	12.7
5/8 .....	15.9
3/4 .....	19.1
7/8 .....	22.2
1 .....	25.4
1-1/4 .....	31.8
1-1/2 .....	38.