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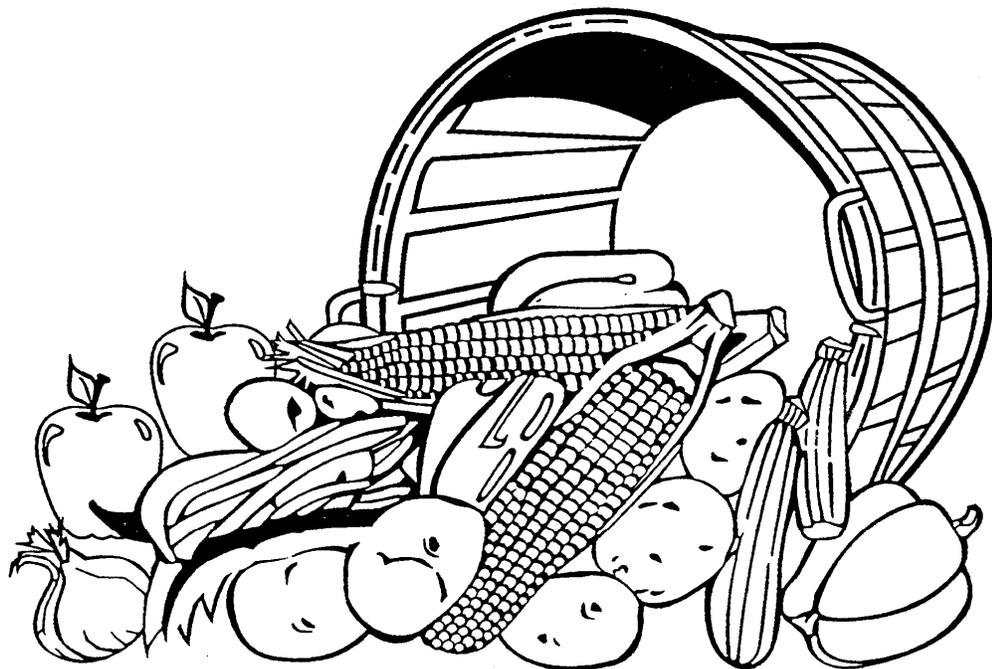
Fruit and  
Vegetable  
Programs

Fresh Products  
Branch

# Cantaloups, Honeydew, Honey Ball and Other Similar Melons

## Shipping Point and Market Inspection Instructions

April 2006



# Shipping Point and Market Inspection Instructions for Cantaloups, Honeydew, Honey Ball and Other Similar Melons

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 Cantaloups, Section 51.475, and U.S. Standards for Grades of Honeydew and Honey Ball Type Melons, Section 51.3740.

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 Cantaloups and U.S. Standards for Grades of Honeydew and Honey Ball Type Melons are printed in the appendix of this handbook. All U.S. standards are available on the Internet under the USDA homepage.

**April 2006**

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*This replaces Shipping Point Inspection Instructions for Cantaloups, Honeydew, Honey Ball and Other Similar Melons dated April 1967 and Market Inspection Instructions for Cantaloups, Honeydew, Honey Ball and other similar Melons dated September 1955.*

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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## **GENERAL**

U.S. standards are provided for cantaloups and for honeydew and honey ball type melons. The standards do not apply to Casaba, Santa Claus, Persian, Crenshaw, Muskmelons, and other type melons. However, these melons may be described under Quality and Condition headings on the certificate but cannot be certified as meeting a U.S. grade.

When inspecting melons not covered by a U.S. standard, do not use the terms "Grade Defects," "Injury," "Damage," or "Serious Damage." Describe the objectionable factors in terms of color, area affected, and depth, etc.

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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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### **Number of Samples**

As a general rule a minimum of 1-1/2% to 2% of the lot 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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## **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 shall be used to describe this commodity in the product heading. Type 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.

A brief description is provided for other types of melons that **cannot** be certified under the U.S. Standards for Cantaloups or the U.S. Standards for Honeydew and Honey Ball Type Melons.

**Other Melons:** There are no U.S. standards for the following types of melons. However, since they are related to cantaloups or honeydew melons they may be inspected and reported according to methods similar to those used for cantaloups and honeydew type melons using the standards as a guide. When inspecting melons not covered by a U.S. standard, do not use the terms "Grade Defects," "Injury," "Damage," or "Serious Damage." Describe the objectionable factors in terms of color, area affected, and depth, etc.

**Casaba Melons:** This melon is usually large, being 7 to 10 inches in diameter and weighing 6 to 10 pounds. It is almost globular in shape, has a greenish white rind that is furrowed lengthwise and shows no netting. The flesh is solid, white and the juice is without aroma.

**Santa Claus Melons:** This is one of the best keepers of the winter melons. The fruits are oblong, usually 6 to 8 inches in diameter, 10 to 14 inches in length, and weighing 8 to 12 pounds. The rind is green with broad bands of sparse netting and the flesh is thick, white or yellowish green and has a distinct aroma.

**Persian Melons:** Look somewhat like a cantaloup and usually range from 6 to 10 inches in diameter. The flesh is orange colored, thick, and firm. When harvested for eastern shipment, the rind is usually green and shows a low net.

**Crenshaw Melons:** Harvested about the same time as Persian melons, this fruit is usually 6 to 8 inches in diameter, somewhat pointed at one end, and slightly resembling the acorn squash in the shape but is not ribbed. The rind ranges from green to a rich yellow and has a waxy or velvety feel. The flesh is orange colored and firm and has pleasant aroma.

**Muskmelons:** Muskmelons are commonly distinguished by deeply furrowed "sutures" which run lengthwise from stem end to blossom end creating raised ridges or longitudinal humps that are generally lightly netted or smooth. These melons also seem to encompass various shapes from round to oblong. The orange flesh, seed cavity and seeds are virtually the same as cantaloups. Muskmelons are commonly sold at roadside stands, local farmer's markets, and occasionally found on larger markets.

(Cantaloups are generally round, have pronounced netting, generally do not show deep “sutures,” and are mostly shipped from California, Texas, and Mexico.) Hybrid muskmelons have been developed that exhibit the basic requirements required in the cantaloup standards, having less pronounced sutures and a more uniform netting. These lots shall be written as cantaloups on notesheets and certificates. Melons which retain the traditional muskmelon appearance cannot be certified as to grade, but quality and condition factors may still be reported without reference to damage and serious damage.

**Refer to official visual aid MSK-CP-1 illustrating muskmelons.**

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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.

Melons are usually packed and shipped in fiberboard cartons, crates, and flats.

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### **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.

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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 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 melons were grown.

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## CONDITION OF PACK

Use the following terms when describing the pack:

**Very tight** when the pack is so tight that there is an abnormal bulge. In the market pack should not be described as “very tight” unless excessive bruising has occurred.

**Tight** a good tight pack allowing no movement of, or injury to the melons. This is the most desirable pack.

**Fairly tight** not quite as firmly packed as “Tight” but not allowing movement of melons in the container.

**Slack** allows slight movement of melons in the container. When slack is reported, the amount of slackness should be stated in inches or half 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.

# CANTALOUPS

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## PRODUCT

The name “Cantaloups” shall be used to describe this commodity in the product heading. Type may be reported in the “Lot ID” section on the market notesheet and certificate.

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## Size of Sample

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

The entire contents of the container shall be the sample. If the cantaloups are packed in bulk bins, sleeves, or bags the sample shall consist of 25 cantaloups. If the application of tolerances for the sample is exceeded double the sample size to 50 cantaloups in at least one sample which has exceeded the tolerance.

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## TOLERANCES AND APPLICATION OF TOLERANCES

The U.S. No. 1 and U.S. Commercial grades will be outlined in this section. For information regarding the tolerances and application of tolerances for the U.S. Fancy and the U.S. No. 2 grades refer to the U.S. standards in Appendix III.

**§51.476 U.S. No. 1...(a) Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted, except that these tolerances shall not apply to the requirements relating to internal quality and uniformity of appearance:

**(1) *At shipping point.*** 8 percent for cantaloups in any lot which fail to meet the requirements of this grade: *Provided*, That included in this amount not more than 4 percent shall be allowed for defects causing serious damage, including in this latter amount not more than one-half of 1 percent for cantaloups which are affected by decay or mold.

**(2) *En route or at destination.*** 12 percent for cantaloups in any lot which fail to meet the requirements of this grade: *Provided*, That

included in this amount not more than the following percentages shall be allowed for defects listed:

(i) 8 percent for cantaloups which fail to meet the requirements of this grade because of permanent defects; or,

(ii) 6 percent for cantaloups which are seriously damaged, including therein not more than 4 percent for cantaloups which are seriously damaged by permanent defects and not more than 2 percent for cantaloups which are affected by decay. (See §51.480.)

**§51.477 U.S. Commercial... (a) Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted:

**(1) *At shipping point.*** 16 percent for cantaloups in any lot which fail to meet the requirements of this grade: *Provided*, That included in this amount not more than the following percentages shall be allowed for defects listed:

(i) 12 percent for cantaloups which fail to meet the requirements of this grade because of condition defects;

(ii) 4 percent for cantaloups which are seriously damaged, including therein not more than one-half of 1 percent for cantaloups affected by decay or mold.

**(2) *En route or at destination.*** 24 percent for cantaloups in any lot which fail to meet the requirements of this grade: *Provided*, That included in this amount not more than the following percentages shall be allowed for defects listed:

(i) 16 percent for cantaloups which fail to meet the requirements of this grade because of permanent defects;

(ii) 12 percent for cantaloups which fail to meet the requirements of this grade because of condition defects; or,

(iii) 8 percent for cantaloups which are seriously damaged, including therein not more than 4 percent for cantaloups which are seriously damaged by permanent defects and not more than 2 percent for cantaloups which are affected by decay. (See §51.480.)

**Summary of Tolerances**

<u>Shipping Point</u>	<u>U.S. No. 1</u>	<u>U.S. Commercial</u>
Total Defects	8%	16%
<i>Including condition defects</i>	---	12%
<i>Including serious damage</i>	4%	4%
<i>Including decay or mold</i>	1/2%	1%

**En Route or at Destination**

Total Defects	12%	24%
<i>Including permanent defects</i>	8%	16%
<i>Including condition defects</i>	---	12%
<i>Including serious damage</i>	6%	8%
<i>Including serious damage by permanent defects</i>	4%	4%
<i>Including decay</i>	2%	2%

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**Application of Tolerances**

**§51.480 *Application of tolerances.*** The contents of individual packages are subject to the following limitation: *Provided*, That the averages for the entire lot are within the tolerances specified for the grade:

- (a) A package may contain not more than double any specified tolerance except that at least two defective specimens may be permitted in any package.

<u>Shipping Point</u>	<u>U.S. No. 1</u>	<u>U.S. Commercial</u>
Total Defects	2 x 8% = 16%	2 x 16% = 32%
<i>Including condition defects</i>	---	2 x 12% = 24%
<i>Including serious damage</i>	2 x 4% = 8%	2 x 4% = 8%
<i>Including decay or mold</i>	2 x 1/2% = 1%	2 x 1% = 2%
<b><u>En Route or at Destination</u></b>		
Total Defects	2 x 12% = 24%	2 x 24% = 48%
<i>Including permanent defects</i>	2 x 8% = 16%	2 x 16% = 32%
<i>Including condition defects</i>	---	2 x 12% = 24%
<i>Including serious damage</i>	2 x 6% = 12%	2 x 8% = 16%
<i>Including serious damage by permanent defects</i>	2 x 4% = 8%	2 x 4% = 8%
<i>Including decay</i>	2 x 2% = 4%	2 x 2% = 4%

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## SIZE

There are no size requirements; however, uniformity of size is an important factor affecting the appearance and marketing of cantaloups. Any excessive irregularity within containers shall be described and irregularly sized melons shall be scored as a defect against the grade. The placement of somewhat smaller melons in the corners and ends of the containers is customary and should not be scored as irregular if not excessive. The numerical count, when considered in connection with the size of the container, indicates the size.

The following terms shall be used to describe the uniformity of size of the cantaloups in the container:

**Uniform** when there is no readily apparent variation of the size of the cantaloups in the container.

**Fairly uniform** permits packing cantaloups one size above or one size below the size of most of the cantaloups in the container.

**Irregular** are cantaloups that vary more in size than what is described as fairly uniform. When irregular sizing occurs, bruising or creasing may result.

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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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### Bruises (C)

Bruising is characterized by a soft and/or depressed area with discolored underlying flesh. Bruising may occur due to rough handling, movement of cantaloups in a slack pack, or excessively tight packs. Areas of the cantaloup that have a firm flattened area with no discoloration shall not be scored as bruising.

### Scoring Guide

**§51.493 *Damage...*(i) Bruises when the surface of the cantaloup is definitely flattened or indented, or when the underlying flesh is noticeably discolored;**

**§51.494 *Serious damage...*(f) Bruises when the surface of the cantaloup is seriously flattened or indented or when a material portion of the underlying flesh is broken down;**

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### Cleanness (Q)

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

**U.S. Fancy, U.S. No. 1, and U.S. Commercial:** Free from damage by dirt.

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

Cleanness refers to dirt, staining, or other foreign material affecting the cantaloup. The following terms shall be used to describe the degree of cleanness:

**Clean** means that the individual cantaloup is practically free from dirt or other foreign material.

**Fairly clean** means that the individual cantaloup is reasonably free from dirt or other foreign material.

**Slightly dirty** may be used to describe the individual cantaloup that are not “fairly clean,” but are not so dirty that they are damaged by dirt or foreign material.

### **Scoring Guide**

**Damaged by dirt** means that the appearance or marketing quality of the individual cantaloup is materially affected by dirt or foreign material. Cantaloups damaged by dirt shall be reported as “dirty” and scored as damage.

**Serious damage by dirt** means that the appearance or marketing quality of the individual cantaloup is seriously affected by dirt or foreign material. Cantaloups seriously affected by dirt shall be reported as “seriously damaged by dirt” and scored as serious damage.

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

Small, healed cracks around the blossom end are an indication of good maturity and should not be scored unless they are so excessive as to affect the appearance, keeping quality, or are unhealed. Other small, healed cracks should not be scored unless materially affecting the appearance of the cantaloup.

### **Scoring Guide**

**§51.493 *Damage...(g)* Cracks when deep or not dry. Slight, dry cracks at the ends or in the sutures of the cantaloup shall not be considered damage;**

**§51.494 *Serious damage...(e)* Cracks when fresh and deep;**

Score cracks as damage when deep or not dry or when materially affecting the appearance of the cantaloup. Score as serious damage when cracks seriously affect the appearance of the cantaloup.

**Note:** Cracks that are **fresh** and deep shall be scored as serious damage and reported as a condition defect.

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## **Firmness (C)**

All U.S. grades for cantaloups require cantaloups to be not overripe or soft or wilted.

**§51.486 “Soft” means that the cantaloup yields readily to slight pressure.**

**§51.487 “Wilted” means that the cantaloup lacks turgidity and is somewhat flabby, spongy, and pliable under moderate pressure.**

Wilted melons are typically the result of drought and/or dead or dying vines.

The following terms shall be used to describe the firmness of cantaloups:

**Hard** means the cantaloup has practically no “give” when squeezed between the thumb and fingers at the equatorial diameter. Cantaloups at this stage of ripeness usually have just reached full maturity. Most varieties of cantaloups at this stage are full slip, which means the entire stem can easily be separated from the melon by slight pressure leaving a smooth scar.

**Firm** means the cantaloup yields only slightly when squeezed at the equatorial diameter. If the cantaloup shows slight softness only at the blossom end, it shall be considered as “firm.”

**Ripe and firm** means the cantaloup yields moderately when squeezed at the equatorial diameter and the blossom end has a distinct “give” but is not soft or the flesh broken down. It is in prime eating condition for immediate table use. Cantaloups meeting the requirements of ripe and firm shall not be scored as a defect.

## **Scoring Guide**

**Soft or Overripe** means that the flesh of the cantaloup is breaking down. Care should be exercised not to confuse bruises with soft or overripe cantaloups. Bruises typically only affect an isolated area, while soft or overripe generally affects most of the flesh of the cantaloup. Soft or overripe cantaloups are not permitted in any grade and shall be scored as serious damage.

**Wilted** means that the cantaloup is somewhat flabby, spongy, pliable, and the flesh is not breaking down as with soft. Wilted cantaloups are not permitted in any grade and shall be 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 cantaloups will be dull, glassy, and translucent in comparison to unaffected cantaloups.

“Freezing injury” is the term that should be used when it is evident that the cantaloup has been frozen, but is not in a frozen condition at the time of inspection. Cantaloups affected by freezing injury typically are 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 the trailer.”

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## Ground Color

Cantaloups change from green to lighter or yellow color as the maturity and the firmness advances. The following terms shall be used to describe the ground color of cantaloups: Dark green, light green, turning, and yellow.

In describing ground color, consider the predominating color of the cantaloup even though varying degrees of color may be present.

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## Ground Spot (Q)

The ground spot is the part of the cantaloup that is in contact with the ground during the growing process. An area of the cantaloup that has a slightly different color will characterize the ground spot. The cantaloup may also show slight flatness, and the rind will typically be thinner at this location.

## Scoring Guide

**§51.493 *Damage... (h)* Ground spot when the rind of the affected area is thin or weak, or when the size or color of the affected area or the character of netting on the area in relation to the remainder of the**

**surface of the cantaloup materially detracts from the appearance of the cantaloup;**

A cantaloup would be considered as damage when the color materially contrasts with the remainder of the surface or the netting is sparse, and the area affected is in excess of 20% of the surface. If the area has no netting, or if the surface is very pale or whitish or badly discolored the cantaloup would be considered damaged if more than 10% of the surface is affected. If the rind is weak or thin at any point in the ground spot area the cantaloup shall be scored as damage. Score as serious damage if the appearance or marketing quality of the cantaloup is seriously affected.

**Refer to official visual aid CANT-CP-2 illustrating the maximum ground spot allowable for a U.S. No. 1 cantaloup.**

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### **Hail Injury (Q)**

Irregular sunken areas that may have jagged edges and may be slightly corked over characterize hail injury.

### **Scoring Guide**

**§51.493 *Damage...*(c) Hail when the injury is unhealed or deep;**

**§51.494 *Serious damage...*(c) Hail when the injury is unhealed;**

Shallow healed hail marks shall be scored on the same basis as scarring. Score as damage when affecting more than 5% of the surface area in aggregate or when deep or materially affecting the appearance of the cantaloup. Score as serious damage when unhealed or when seriously affecting the appearance of the cantaloup.

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### **Insect Injury (Q or C)**

Insect injury may occur to cantaloups in varying forms. Some injury occurs from insects chewing or burrowing on or into the rind of the cantaloup. The aphid will leave a sticky, black substance (aphid honeydew) on the surface of the cantaloup.

### **Scoring Guide**

**§51.493 *Damage...*(e) Aphid when aphid honeydew is more than slightly sticky, or when resulting discoloration more than slightly detracts from the appearance of the cantaloup;**

As a guide score insect injury as damage when injury penetrates into the rind but not into the yellow flesh and is more than 1/8 inch in depth or when the injury aggregates more than 1 inch in diameter on a cantaloup five inches in diameter. Score as serious damage when seriously affecting the appearance or marketing quality of the cantaloup.

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

**Refer to official visual aid CANT-CP-3 illustrating insect injury.**

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### **Internal Quality (Soluble Solids) (Q)**

The percentage of soluble solids increases as the cantaloup mature on the vine. Soluble solid content is a good index of eating quality. The higher the soluble solids content the better the flavor of the cantaloup.

The U.S. standards have the following requirements for internal quality:

**U.S. Fancy:** Very good internal quality.

**U.S. No. 1:** Good internal quality.

**U.S. Commercial and U.S. No. 2:** No requirements for internal quality.

**§51.481 “Very good internal quality” means that the combined juice from the edible portion of a sample of cantaloups selected at random contains not less than 11 percent soluble solids as determined by an approved hand refractometer.**

**§51.485 “Good internal quality” means that the combined juice from the edible portion of a sample of cantaloups selected at random contains not less than 9 percent soluble solids as determined by an approved hand refractometer.**

**Note:** The procedure for determining soluble solids under the U.S. Standards for Cantaloups is outlined in **Appendix I** of this handbook.

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### **Liquid in Seed Cavity (C)**

A melon with liquid in the seed cavity may be detected by moderately shaking the melon. However, melons should be cut to assure that liquid is present in sufficient quantities and that it is not merely loose seeds present. The presence of loose seeds alone is not considered a defect. It is permissible to report a slight amount of liquid

and/or loose seeds in the cavity in general terms as not affecting grade when requested by the applicant.

To determine the amount of liquid in the seed cavity, the melon shall be cut through the center with the stem end pointing up, at right angles between the stem scar and the blossom end.

### **Scoring Guide**

**§51.493 *Damage...*(a) Liquid in the seed cavity under the following circumstances:**

**(1) At shipping point when more than a slight amount of liquid is present in the seed cavity; or,**

**(2) En route or at destination when an objectionably large amount of liquid is present in the seed cavity, or when the flesh of the cavity wall is mushy or noticeably discolored;**

**§51.494 *Serious damage...*(a) Liquid in the seed cavity under the following circumstances:**

**(1) At shipping point when a large amount of liquid is present in the seed cavity or the flesh of the cavity wall is noticeably soft or discolored or when any fermentation is present; or,**

**(2) En route or at destination when there is any fermentation of the liquid in the seed cavity, or when the flesh of the cavity wall shows fermentation or is badly discolored;**

### **Shipping Point**

Score liquid in seed cavity as damage when more than 2/3 of the lower half cavity is full of liquid after cutting through the center of the melon. Score as serious damage when the liquid flows freely from the melon while cutting, the liquid is fermented, or when the flesh of the cavity wall is noticeably soft, discolored, or fermented.

## **En route or at Destination**

Score liquid in seed cavity as damage when the liquid flows freely from the melon while cutting. Score as serious damage when the liquid is fermented, or when the flesh of the cavity wall is noticeably soft, discolored, or fermented.

**Note:** Cantaloups with fermented flesh are scored against the decay tolerance.

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## **Maturity (Q)**

All U.S. grades for cantaloups require cantaloups to be mature.

**§51.484 “Mature” means that the cantaloup has reached the stage of maturity which will insure the proper completion of the normal ripening process.**

The requirement of mature shall not be confused with minimum soluble solids required by some states or with the internal quality requirements of the cantaloup standards. It is entirely possible that melons may fail to meet the legal minimum soluble solids or internal quality requirements and still be considered mature. Minimum soluble solids or internal quality requirements are simply additional maturity requirements and do not replace the other factors indicating maturity.

When cantaloups are considered to be mature, the netting should be fully developed. The netting of immature melons is flat and the crease on the top is open and conspicuous, and is often of a green or bluish color. As the melon matures the netting rounds out and the netting crease fills in. The ground color, or color of the skin of the melon as seen between the netting on an immature melon, has a gray, light, or dull green color. When mature, the ground color has changed at least to a deep, uniform green and on some varieties to a light green or yellow color. As the cantaloup becomes ripe, the blossom end begins to soften and sometimes shows slight radial cracks. The flavor of an immature cantaloup will have a distinctive “cucumber flavor” versus a mature melon with characteristic flavor.

A field test for checking maturity of cantaloups is the ease with which the stem separates from the melon. If the entire stem can be easily separated from the melon by slight pressure leaving a smooth scar, the melon is called “full slip” which usually indicates full maturity. The term “half slip” means that the stem can be loosened by pressure leaving a scar, part of which is rough or has part of the stem adhering.

## **Scoring Guide**

Cantaloups failing to meet the requirements of mature shall be reported as “immature” and scored as serious damage.

Refer to Appendix II for procedures for determining minimum maturity of a lot of cantaloups.

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

Mechanical injury refers to injury to the cantaloup caused from rough handling during harvesting, packing, or shipping resulting in cuts and/or gouges to the cantaloup.

#### **Scoring Guide**

**§51.493 *Damage...(j)* Mechanical means when cuts or gouges are deep or when any skin break is unhealed.**

**§51.494 *Serious damage...(g)* Mechanical means when fresh cuts or gouges extend into the edible portion of the cantaloup.**

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

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### **Netting (Q)**

The U.S. standards have the following requirements for netting:

**U.S. Fancy and U.S. No. 1:** Well netted.

**U.S. Commercial and U.S. No. 2:** Fairly well netted.

**§51.489 “Well netted” means that to an extent characteristic of the variety the cantaloup is well covered with fully developed, well raised netting, some portion of which is well rounded with practically no crease.**

**§51.494b “Fairly well netted” means that to an extent characteristic of the variety the cantaloup is fairly well covered with fairly good netting.**

#### **Scoring Guide**

Cantaloups that fail to meet the requirements for netting shall be scored against the total tolerance for the grade and reported as either “not well netted” or “poorly netted” according to the facts.

**Refer to official visual aids CANT-CP-1, CANT-CP-1-A, and CANT-CP-2-A illustrating netting.**

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## One Type (Q)

**U.S. No. 1, U.S. Commercial, and U.S. No. 2** are required to be “one type.”

**§51.483 “One type” means that the cantaloups in any container are similar in color of flesh and are not decidedly different in shape, character of netting and prominence of ribbing.**

## Scoring Guide

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

---

## Scars (Q)

Scars may be caused by a number of external factors such as leaf or vine rubs or insects feeding on the young cantaloups. They affect the appearance of the cantaloups in varying degrees depending on the severity. Scars are to be judged on their color, depth, and smoothness.

## Scoring Guide

**§51.493 *Damage...*(f) Scars when healed, shallow, smooth and light colored and the aggregate area affected exceeds 5 percent of the surface of the cantaloup; or when deep, rough or dark colored and detracting from the appearance to a greater extent than the area of healed, shallow, smooth and light colored scars permitted. Smooth scarring at the blossom end and coalesced netting should not be considered in determining damage caused by scarring unless materially detracting from the appearance of the cantaloup;**

Score scarring as serious damage when seriously detracting from the appearance of the cantaloup.

**Refer to official visual aids CANT-1-IDENT and CANT-2-IDENT illustrating scarring.**

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## Shape (Q)

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

**U.S. Fancy, U.S. No. 1, and U.S. Commercial:** Well formed.

**U.S. No. 2:** Fairly well formed.

**§51.488 “Well formed” means that the cantaloup has the normal shape characteristic of the variety.**

**Fairly well formed** means the cantaloup may be somewhat abnormal in shape but not badly misshapen.

### **Scoring Guide**

Cantaloups failing to meet the requirements of “well formed” shall be reported as “not well formed” and scored as damage. Cantaloups failing to meet the requirements of “fairly well formed” shall be reported as “badly misshapen” and scored as serious damage.

---

### **Sunburn (Q)**

Sunburn shows as a dark yellow or brownish discoloration, usually on one side of the cantaloup.

### **Scoring Guide**

**§51.493 *Damage...*(b) Sunburn when the color of the flesh is materially changed; when the rind is hard, tough, thin, or definitely flattened; when distinct flattening of the netting or dark yellow surface discoloration affects an aggregate area exceeding 20 percent of the surface of the cantaloup; or when brown, gray, purple or dark green surface discoloration detracts from the appearance of the cantaloup to a greater extent than the area of dark yellow discoloration permitted;**

**§51.494 *Serious damage...*(b) Sunburn when the flesh is seriously discolored, when causing cracking of the rind, or when causing flattening of the rind which seriously detracts from the appearance of the cantaloup;**

**Refer to official visual aids CANT-2-IDENT illustrating sunburn.**

---

### **Sunken Areas (C)**

Cantaloups may show slightly depressed areas of the surface that have developed since packing, and presumably are the result of rubbing or other injury in the harvesting or handling operations that were not evident at time of packing. These areas are often dark, discolored, sharply sunken, and sometimes covered with mold.

The spots are usually firm with no softness or discoloration of underlying flesh, that is usually associated with bruising.

### **Scoring Guide**

The number of sunken areas, their color and depth in relation to the size of the melon must all be considered when determining if the appearance of the melon is affected. There is seldom any effect on the edible quality. One or two small spots would not damage the appearance.

Score sunken areas and sunken discolored areas as damage when materially affecting the appearance of the cantaloup. Score as serious damage when seriously affecting the appearance of the cantaloup.

**Note:** There will be occasions when the flesh underlying the sunken areas will be affected. This condition is not connected with bruising, but may be the result of sudden exposure of tender melons to the sun. Since there is the possibility that the discoloration was not apparent at time of shipment, it is to be treated as a condition factor. Describe completely as possible, including the depth and color of flesh discoloration. Scoring of sunken areas should be considerably tighter when flesh discoloration is present. However, do not confuse this condition with sunburn or sunscald, which are quality factors.

**Refer to official visual aid CANT-CP-3 illustrating sunken areas.**

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### **Sunscald (Q)**

Sunscald may occur on the side of the cantaloups that have been in contact with the soil after being suddenly exposed to the sun or to hot, damp soil after being disturbed prior to harvest.

**§51.492 “Sunscald” means discolored or bleached, sunken areas of the surface having tough epidermis with underlying flesh leathery and usually off-color.**

### **Scoring Guide**

Score any amount of sunscald as serious damage.

**Refer to official visual aids CANT-CP-2-IDENT illustrating sunscald.**

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### **Surface Mold (C)**

The color of surface molds vary from white to black, and in density from thinly scattered spots to thickly covered areas.

## Scoring Guide

**§51.493 *Damage...*(d) Surface mold under the following circumstances:**

**(1) At shipping point when any surface mold is visible; or,**

**(2) En route or at destination when the color, character, or location of the mold materially detracts from the appearance or marketing quality of the cantaloup;**

**§51.494 *Serious damage...*(d) Surface mold under the following circumstances:**

**(1) At shipping point when any surface mold is visible; or,**

**(2) En route or at destination when the color, character, or location of the mold seriously detracts from the appearance or marketing quality of the cantaloup;**

### **Shipping Point**

Score any visible surface mold against the 1/2 of 1% tolerance for decay or mold.

### **En Route or at Destination**

Score surface mold as damage when materially affecting the appearance of the cantaloup. Score as serious damage when seriously affecting the cantaloup.

The light type of surface mold, which disappears after exposure to the outside air, would rarely affect the marketing quality of the cantaloups. Black surface mold affecting sunken areas frequently develops into decay that seriously affects the marketability of the cantaloups. It is difficult to judge how seriously the mold may affect the marketing quality. However, it should be scored more strictly on weak melons past their prime than on fresh, bright stock.

Frequently, mold growth is seen only in stem scars; these scars being moist. Care should be taken not to score such melons as decay unless actual breakdown of tissue is present and sloughs out under finger pressure. The presence of such mold in stem scars without resulting decay should not be reported as a defect.

**Refer to official slides 253 and 254 illustrating surface mold.**

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## Uniformity of Appearance (Q)

Uniformity of appearance means that round cantaloups and elongated cantaloups may not be mixed; there can be little variation in size, and those cantaloups with prominent sutures (green stripes) are not mixed with melons, which are uniformly netted over the majority of the surface.

**U.S. Fancy** cantaloups are required to be uniform in appearance.

**§51.482 “Uniform in appearance” means that not more than one-tenth of the packages in any lot contain cantaloups which show sufficient variation in shape, size, ground color or netting to materially detract from the appearance of the contents of the individual packages, or which are not packed according to the approved and recognized methods for the package.**

### Scoring Guide

In applying the requirement of “uniform in appearance,” the emphasis is based on a good appearance of the packed container. The requirement is applied to the individual container and not to the lot. The allowance of 10% for containers that do not show a uniform appearance of the contents is not a tolerance; therefore, the application of tolerances will not apply. The requirements shall be based on the sample containers and a general observation of other containers in the lot. Lots that fail to meet the requirements of “uniform in appearance” shall be reported as “not uniform in appearance” and fail to grade U.S. Fancy.

**Note:** Uniformity of appearance only applies to the U.S. Fancy grade. Refer to the “One Type” section for information regarding other U.S. grades.

**Refer to official visual aid CANT-CP-2-A illustrating uniformity.**

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## Wet Slip (Q)

**§51.491 “Wet slip” means a condition present at time of packing in which the stem scar is abnormally large, excessively wet and slippery, yields to slight pressure, and is frequently accompanied by fresh radial growth cracks at the edge of the stem scar.**

### Scoring Guide

Score wet slip as serious damage when present at shipping point. At destination, wet slip will either have developed into decay or dried out. It will not be scored as a destination defect.

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## Decay (C)

**§51.490 “Decay” means breakdown, disintegration or fermentation of the flesh or rind of the cantaloup caused by bacteria or fungi.**

The restricted tolerance of 1/2 of 1% for U.S. No. 1 and 1% for U.S. Commercial at shipping point and 2% en route or at destination for each grade is for decay and soft rot. All types of decay are to be scored against these tolerances. Do not report the type of decay on the certificate. However, when decay is in excess of the tolerance, report the degree and the advancement in general terms as: early, moderate, or advanced stages.

### **Dry Type Decay**

“Corky” areas resembling scars, which are light to medium brown color and slightly raised, are an indication of Fusarium Rot. When the flesh (meaning the orange flesh) immediately beneath the corky lesion is affected, score the cantaloup as decay. However, when the underlying flesh is not affected, the corky lesion should be considered on the same basis as other scars.

Descriptions of the various types of decay are contained in “Market Disease Handbook No. 184.” Some of the more commonly encountered decays are: Fusarium Rot, Cladosporium Rot, Rhizopus Soft Rot, and Anthracnose.

**Decayed stems on cantaloups are not scorable.** When requested by the applicant, report this factor using general terms.

**Refer to official visual aids CANT-1-IDENT illustrating Fusarium Rot.**

# HONEYDEW, HONEY BALL, AND OTHER SIMILAR TYPE MELONS

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## PRODUCT

The name “Honeydew or Honey Ball” shall be used to describe this commodity in the product heading. Type 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.

Many new varieties are being developed and it is becoming increasingly difficult even for experts to identify variety with any degree of accuracy. Therefore no attempt should be made to certify variety even if requested to do so.

A brief description of honeydew and honey ball type melons is provided in the following paragraphs. Melons similar to these types (“White Melons”) may also be certified under the U.S. Standards for Honeydew and Honey Ball Type Melons.

**Honeydews:** The skin of this type melon is generally smooth but may show scattered lines or patches of netting, greenish white, turning to a creamy color when ripe. Yellow spots of varying sizes often appear on the surface as the melons near maturity but are not considered objectionable, as they are characteristic. The flesh is greenish in color, becoming whitish or cream colored around the seed cavity when ripe. The honeydew has a more tender and finer textured flesh than that of the honey ball and when fully matured, has a characteristic and pleasing aroma.

**Honey Ball:** The honey ball is normally much smaller than the honeydew. It is round while the honeydew tends to be elliptical. The skin usually shows some netting, normally more than the honeydew, although at times it is practically smooth. The characteristic color of the skin is cream or yellowish. The flesh is also more cream colored than that of the honeydews although poorly matured melons often have a greenish flesh. The flesh is thick and a little coarser and tougher than that of the honeydew and does not have quite as distinct an aroma. Small size honeydews are sometimes shipped as honey balls, either mixed in the same containers or in separate containers. It is difficult to classify such melons at times but the tendency to elliptical shape, smoother whiter skin, finer texture and more green color in the flesh are the best indications of honeydew melons.

**Hybrid Honeydews:** Only the above descriptions for honeydew or honey ball type melons may be certified under the U.S. Standards for Grades of Honeydew and Honey Ball Type Melons. Hybrids, such as “Golden Honeydew” (cross between a honeydew and a canary), “Orange Flesh Honeydew” (cross between a honeydew and a cantaloup), “Yellow Flesh Honeydew” (Mayan melons), and Galia melons shall not be

certified under the U.S. Standards for Grades of Honeydew and Honey Ball Type Melons.

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### **Size of Sample**

The tolerances in the U.S. Standards for Grades of Honeydew and Honey Ball Type Melons are determined on the basis of count.

The entire contents of the container shall be the sample. If the melons are packed in bulk bins, sleeves, or bags the sample shall consist of 25 melons. If the application of tolerances for the sample is exceeded double the sample size to 50 melons in at least one sample which has exceeded the tolerance.

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## **TOLERANCES AND APPLICATION OF TOLERANCES**

**§51.3744 Tolerances.** In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

**(a) U.S. No. 1.** 10 percent for melons in any lot which fail to meet the requirements of the grade: *Provided*, That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including in this latter amount not more than 1 percent for melons affected by decay.

**(b) U.S. Commercial.** 20 percent for melons in any lot which fail to meet the requirements of this grade: *Provided*, That not more than one-fourth of this amount, or 5 percent, shall be allowed for defects causing serious damage, including in this latter amount not more than 1 percent for melons affected by decay.

**(c) U.S. No. 2.** 10 percent for melons in any lot which fail to meet the requirements of this grade including not more than 1 percent for melons affected by decay.

**Summary of Tolerances**

	<u>U.S. No. 1</u>	<u>U.S. Comm.</u>	<u>U.S. No. 2</u>
Total Defects	10%	20%	10%
Including serious damage	5%	5%	---
Including decay	1%	1%	1%

**Application of Tolerances**

**§51.3745 *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 shall have not more than 1-1/2 times the tolerance specified: *Provided*, That when the package contains 15 specimens or less, any individual package shall have not more than double the tolerance specified, except that at least one defective specimen may be permitted in any package: *And provided further*, That the averages for the entire lot are within the tolerances 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 specimen may be permitted in any package: *Provided*, That the averages for the entire lot are within the tolerances specified for the grade.

**For packages which contain more than 15 specimens**

	<u>U.S. No. 1</u>	<u>U.S. Comm.</u>	<u>U.S. No. 2</u>
Total Defects	1-1/2 x 10% = 15%	1-1/2 x 20% = 30%	1-1/2 x 10% = 15%
Including serious damage	2 x 5% = 10%	2 x 5% = 10%	---
Including decay	2 x 1% = 2%	2 x 1% = 2%	2 x 1% = 2%

**For packages which contain 15 specimens or less**

	<u><b>U.S. No. 1</b></u>	<u><b>U.S. Comm.</b></u>	<u><b>U.S. No. 2</b></u>
Total Defects	2 x 10% = 20%	2 x 20% = 40%	2 x 10% = 20%
Including serious damage	2 x 5% = 10%	2 x 5% = 10%	---
Including decay	2 x 1% = 2%	2 x 1% = 2%	2 x 1% = 2%

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## **SIZE**

There are no size requirements; however, uniformity of size is an important factor affecting the appearance and sale of melons. Any excessive irregularity within containers shall be described and irregularly sized melons shall be scored as a defect against the grade. The placement of somewhat smaller melons in the corners and ends of the containers is customary and should not be scored as irregular if not excessive. The numerical count, when considered in connection with the size of the container in which the melons are packed, indicates the size.

The following terms shall be used to describe the uniformity of size of the melons in the container:

**Uniform** when there is no readily apparent variation of the size of the melons in the container.

**Fairly uniform** permits packing melons one size above or one size below the size of most of the melons in the container.

**Irregular** are those containing melons, which vary more in size, in the individual container than is described in fairly uniform. When irregular sizing occurs, bruising or creasing may occur.

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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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### **Broken Skin (Cuts) (Q or C)**

Rough handling during harvesting, packing, or shipping may cause broken skin, cuts, or gouges.

#### **Scoring Guide**

Score as damage when cuts or gouges are deep, or when any skin break is unhealed. Score as serious damage when the skin breaks extend in to the flesh of the melon.

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

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### **Bruises (C)**

Bruising is characterized by a soft and/or depressed area with discolored underlying flesh. Bruising may occur due to rough handling, movement of melons in a slack pack, or excessively tight packs causing pressure on the melons.

#### **Scoring Guide**

**§51.3748 Damage...(2) Bruising when the size or color of the affected area materially detracts from the appearance.**

Score as serious damage when the bruising is seriously flattened or indented, when the underlying flesh has broken down, or when seriously detracting from the appearance or marketing quality of the melon.

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### **Cleanness (Q)**

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

**U.S. No. 1 and U.S. Commercial:** Free from damage by dirt.

**U.S. No. 2:** Free from serious damage by any cause.

Cleanness refers to dirt, stain, or other foreign material affecting the melon. The following terms shall be used to describe the degree of cleanness:

**Clean** means that the individual melon is practically free from dirt or other foreign material.

**Fairly clean** means that the individual melon is reasonably free from dirt or other foreign material.

**Slightly dirty** may be used to describe the individual melon that are not “fairly clean,” but are not so dirty that they are damaged by dirt or foreign material.

### **Scoring Guide**

**Damaged by dirt** means that the appearance or marketing quality of the individual melon is materially affected by dirt or foreign material. Melons damaged by dirt shall be reported as “dirty” and scored as damage.

**Serious damage by dirt** means that the appearance or marketing quality of the individual melon is seriously affected by dirt or foreign material. Melons seriously affected by dirt shall be reported as “seriously damaged by dirt” and scored as serious damage.

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### **Color**

The color of honeydew and honey ball type melons shall be described as green, greenish white, white, or cream colored.

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

Small healed cracks around the blossom end can be an indication of good maturity and should not be scored unless they are so excessive as to affect the appearance or keeping quality of the melon or are unhealed. Other small, healed cracks should not be scored unless materially affecting appearance of the melon.

### **Scoring Guide**

Score as damage when deep, not dry, or when materially affecting the appearance of the melon. Score as serious damage when seriously affecting the appearance of the melon.

**Note:** En route or at destination cracks which are fresh and deep shall be scored as serious damage and reported as a condition defect.

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## Discoloration (C)

The dark discoloration sometimes seen on honeydew melons shall be scored on the basis of appearance. The degree of darkness of the discoloration influences the portion of the melons' surface that should be affected before it is scored as being damaged. Care should be taken not to confuse the yellowish areas, which are characteristic for honeydew melons, with discoloration.

### Scoring Guide

Score as damage when 20% of the melons' surface has a light brown discoloration or 10% of the surface has a dark brown discoloration. Score as serious damage when seriously affecting the appearance of the melon.

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## Firmness (C)

All U.S. grades for honeydew or honey ball type melons require melons to be firm.

The following terms shall be used to describe firmness:

**Hard** means the melon has practically no "give" when squeezed between the thumb and fingers at the equatorial diameter.

**Firm** means that the melon yields slightly when squeezed at the equatorial diameter. If the melon shows slight softness only at the blossom end, it shall be considered as "firm."

### Scoring Guide

**Soft** means that the flesh of the melon is breaking down. Care should be exercised not to confuse bruises with soft melons. Bruises typically only affect an isolated area, while soft generally affects most of the flesh of the melon. Soft melons are not permitted in any grade and shall be 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 melons will be dull, glassy, and translucent in comparison to unaffected melons.

"Freezing injury" is the term that should be used when it is evident that the melon has been frozen, but is not in a frozen condition at the time of inspection. Melons affected by freezing injury typically are 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 the trailer."

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## **Green or Yellow Spots on Honeydews (C)**

### **Green Spots**

Green spots generally occur on honeydew and honey ball type melons following bruising.

### **Scoring Guide**

Score green spots as damage when materially affecting the appearance of the melon. Score as serious damage when seriously affecting the appearance of the melon.

### **Yellow Spots**

Yellow spots affecting honeydew and honey ball type melons are characteristic for these melons and should **not** be scored as defects.

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## **Hail Injury (Q)**

Irregular sunken areas that may have jagged edges and may be slightly corked over characterize hail injury.

### **Scoring Guide**

Shallow healed hail marks shall be scored on the same basis as scarring. Score as damage when affecting more than 5% of the surface area in aggregate or when deep or materially affecting the appearance of the melon. Score as serious damage when unhealed or when seriously affecting the appearance of the melon.

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**Insects (Q or C)**

Insect injury may occur on melons in varying forms. Some injury occurs from insects chewing or burrowing on or into the rind of the melon. Aphis will leave a sticky, black substance (aphis honeydew) on the surface of the melon.

**Scoring Guide**

Score insect injury as damage when materially affecting the appearance or the marketing quality of the melon. Score as serious damage when seriously affecting the appearance or marketing quality of the melon.

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**Liquid in Seed Cavity (C)**

A melon with liquid in the seed cavity may be detected by moderately shaking the melon. However, melons should be cut to assure that liquid is present in sufficient quantities and that it is not merely loose seeds present. The presence of loose seeds alone is not considered a defect. It is permissible to report a slight amount of liquid and/or loose seeds in the cavity in general terms as not affecting grade when requested by the applicant.

To determine the amount of liquid in the seed cavity, the melon shall be cut through the center with the stem end pointing up, at right angles between the stem scar and the blossom end.

**Scoring Guide****Shipping Point**

Score liquid in seed cavity as damage when more than 2/3 of the lower half cavity is full of liquid after cutting through the center of the melon. Score as serious damage when the liquid flows freely from the melon while cutting, the liquid is fermented, or when the flesh of the cavity wall is noticeably soft, discolored, or fermented.

**En route or at Destination**

Score liquid in seed cavity as damage when the liquid flows freely from the melon while cutting. Score as serious damage when the liquid is fermented, or when the flesh of the cavity wall is noticeably soft, discolored, or fermented.

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**Maturity (Q)**

All U.S. grades for honeydew or honey ball type melons require melons to be mature.

**§51.3746 “Mature” means that the melon has reached the stage of maturity which will insure the proper completion of the normal ripening process.**

With honeydew and honey ball type melons, the external indications of maturity vary according to weather conditions and locality. They are greenish white or white when immature. The proper stage of maturity is indicated by a softening at the blossom end, a rich color, and the ridges next to the stem end become well rounded out and smooth. The mature melons have changed from a dark green or a light green to a whitish or cream color and change from a slightly rough and fuzzy feel of an immature melon to the characteristic smoothness of the skin of a mature melon. They must also have absorbed the jelly-like substance in which the seeds are embedded. Unlike cantaloups, honeydew melons are often clipped from the vines, leaving part of the stem attached to the melon.

### **Scoring Guide**

Melons failing to meet the requirements of mature shall be reported as “immature” and scored as serious damage.

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### **Netting (Q)**

Netting on honeydew or honey ball type melons, either raised or occurring as shallow checks in the skin, shall not be scored as damage. Deep checks materially affecting the appearance of the melon are considered damage.

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### **Shape (Q)**

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

**U.S. No. 1 and U.S. Commercial:** Well formed.

**U.S. No. 2:** Fairly well formed.

**§51.3747 “Well formed” means that the melon has the normal shape characteristic of the variety.**

### **Scoring Guide**

Melons failing to meet the requirements of “well formed” shall be reported as “not well formed” and scored as damage. Melons failing to meet the requirements of “fairly well formed” shall be reported as “badly misshapen” and scored as serious damage.

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**Sunburn (Q)**

Sunburn on honeydew and honey ball type melons occurs as brownish discoloration, that is accompanied by a hardening, toughening, and/or thinning of the skin of the melon.

**Scoring Guide**

**§51.3748 *Damage...* (1) Sunburn which causes the rind to become brownish in color, hard, tough, or thin; and,**

Score as serious damage when the flesh is seriously discolored, when causing a cracking of the rind, or when seriously affecting the appearance or marketing quality of the melon.

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**Sunscald (Q)**

Sunscald on honeydew and honey ball type melons occurs as a discolored or bleached, sunken area of the surface having a tough epidermis with the underlying flesh leathery and usually off color.

**Scoring Guide**

Sunscald shall be scored as serious damage.

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**Decay (C)**

All grades require honeydew and honey ball type melons to be free from decay. Any amount of decay is scorable against the 1% restrictive tolerance. Do not report the type of decay on the certificate; however, when decay is in excess of the tolerance, report the degree and advancement in general terms as: early, moderate, or advanced stages.

**Decayed stems on honeydew and honey ball type melons are not scorable.** When requested by the applicant, report this factor using general terms.

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# APPENDIX I

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## Procedures For Determining Internal Quality (Average Soluble Solids)

### General

The soluble solids test for internal quality is used to determine the average sugar content of the cantaloups in a lot. It is not a maturity test.

The definitions relating to internal quality in the U.S. Standards for Grades of Cantaloups specify that the sample for testing shall be selected at random. This means that the inspector shall take a “blind” sample from the lot without any attempt to select either the poorest or the best cantaloups.

Different growers’ lots, or sizes within brands, in a shipment certified on the basis of single grade shall be considered together as a single lot for the purpose of the soluble solids test. However, each sub lot (size, grower) shall be proportionately represented in the sample selected for the soluble solid test.

### Sample Size

The inspection of small quantities may involve lots consisting of less than 50 containers or the equivalent in other types of containers. In such cases the number of cantaloups drawn for the soluble solid test may be reduced. This sample size reduction is made to avoid destroying an excessive number of cantaloups.

The minimum numbers of cantaloups to be selected for the soluble solids test from lots of different sizes are as follows:

1. For lots of 4 containers or less no soluble solids test is required if they are to be certified as U.S. No. 1, provided the external indications of maturity are satisfactory, unless the inspector has reason to believe that the soluble solids content is below the required minimum. However, if the applicant requests that the percentage of soluble solids be reported a minimum of 3 cantaloups shall be drawn for the test. It is necessary to make the soluble solids test on a lot of any number of containers, which is specified as U.S. Fancy, since there is no sure external indication that cantaloups contain a minimum of 11 percent soluble solids.
2. For lots of 5 to 24 containers draw a minimum of 3 cantaloups.
3. For lots of 25 to 49 containers draw a minimum of 5 cantaloups.
4. For lots of 50 containers or more draw a minimum of 7 cantaloups.

The applicant should be notified that melons will have to be removed from various cartons.

It is desirable to draw 1 cantaloup from a container. However, if fewer containers are opened for the other grade determinations than the number of cantaloups specified for the soluble solids test, it is permissible to draw more than 1 cantaloup from a container for testing.

It may be possible for the inspector to make a soluble solids test on a carload or other large lot from which a supplier will deliver small lots to various purchasers. Or the inspector may have knowledge that the shipment was previously certified as meeting U.S. No. 1 or better grade or a percentage of U.S. No. 1. If the large lot meets the minimum soluble solids requirement it will be unnecessary to make tests on the individual small lots unless specifically requested by the applicant, or the quality of the individual lots appears to warrant further testing. If the large lot fails to meet the soluble solids requirement separate tests must be made on any small lots offered for delivery from it which are specified as U.S. No. 1 or U.S. Fancy, or as a percentage of U.S. No. 1 quality.

### **Selecting the Sample**

It will usually be most convenient to take the samples for the soluble solids test from containers that are opened for grade determination. Care should be taken to draw samples as nearly as possible from all portions of the lot. Decide in advance, before selecting the sample container, the location of the cantaloup that will be taken for the test.

By doing this there is little likelihood of being influenced by external factors. It may be more convenient to take the sample of cantaloups for the test to the inspection office and make the test there.

### **Equipment**

1. Hand refractometer.
2. Coring knife (a cylindrical device used to remove cores from apples).
3. Knife (pocket knife or fruit knife).
4. Small press such as garlic press, lemon press (for squeezing lemon slices) or similar instrument.
5. Cup or small bowl to receive juice (a one cup size plastic measuring cup will do).
6. Spoon.
7. Distilled water for standardizing refractometer.
8. Water and cheesecloth for cleaning and drying refractometer and utensils.

It is important that the refractometer be properly adjusted before starting the test. Otherwise it will be impossible to make an accurate determination of the sugar content. It will be found most convenient to adjust the instrument to read zero with distilled water at the temperature at which the test will be made. As the temperature changes during the day it will be necessary to readjust the instrument. A small supply of distilled water should be kept on hand for this purpose, and precautions taken to keep it clean. Tap water should not be used because it frequently contains enough minerals in solution to

materially affect the reading. Distilled water may be obtained from drug stores, grocery outlets, chemical supply houses, or laboratories.

The refractometer must be clean or the accuracy of the reading will be affected. It must be thoroughly cleaned (tap water should be used) after each use, as juice allowed to remain and dry on the instruments will materially affect the accuracy of the next test made. Care should be taken not to scratch the surface of the prism or the hinged plate.

The coring knife and the cup should also be rinsed after each use so that the remaining juice does not affect the accuracy of the next test.

### **Performing the Test**

The test is made with the combined juice from plugs of all cantaloups in the sample drawn for the soluble solid test.

Using a coring knife, take two plugs from each cantaloup, at opposite sides at a point halfway between the stem and blossom end, avoiding the ground spot, if any. Discard the seeds and cut off the outer 3/8 inch of the plug, including the rind. Using a garlic or lemon press, squeeze the juice from both plugs into a cup or bowl. Two plugs can be squeezed at the same time with the lemon press. Repeat the process with the remaining cantaloups in the sample. Thoroughly mix the combined juice from all plugs and with a spoon, dip a small quantity onto the refractometer prism and make the reading. As a precaution, wipe the instrument dry and take a second reading to guard against the possibility of error in reading.

The reading obtained and the number of cantaloups sampled should be entered in the notes. Do not report the percentage of soluble solids on the certificate unless the applicant specifically requests it. It is sufficient to report "good internal quality" if the soluble solids is 9% to 10.99% or "very good internal quality" if the soluble solids test is 11% or more.

### **Additional Tests**

The inspector may consider the test incorrect for some reason, or the applicant may be dissatisfied with the percentage of soluble solids found and request another test. In either case it will be satisfactory to draw an additional random sample of the same number of melons as originally sampled and make another refractometer test in the manner outlined. The results of the first and second tests shall be averaged to obtain the percentage used in determining compliance with the internal quality requirement. Additional complete tests may be made if requested. However, in all cases the readings for the various tests shall be averaged. Do not make additional tests on individual melons.

### **Appeal Inspections (Soluble Solids)**

When making an appeal inspection in the market on a lot previously certified, if the test on one random sample of cantaloups agrees with the soluble solids content previously certified no further testing is necessary. If the test on one sample disagrees with the previous certification at least one additional complete test shall be run and the original test shall not be reversed except on the basis of 2 complete samples each of which is at variance with the original test.

### **Internal Quality Test on Percentage Cars**

There is no internal quality (soluble solids) requirement in the U.S. Commercial or U.S. No. 2 grades. When making soluble solids tests on cars or lots certified as containing a percentage of U.S. No. 1 quality only cantaloups meeting the other requirements of the U.S. No. 1 grade shall be included in the sample for testing. During the selection of the random sample if any melon is drawn which does not meet U.S. No. 1 requirements other than for soluble solids, it should be replaced by another cantaloup drawn in the same manner, which does meet U.S. No. 1 requirements.

In reporting a percentage car a statement such as “mostly good internal quality” or “cantaloups free from defects of U.S. No. 1 have very good internal quality” shall be made in accordance with the facts. If the sample of U.S. No. 1 cantaloups fails to meet the internal quality requirement, then a percentage of U.S. No. 1 quality cannot be certified for the lot.

### **Using the Refractometer**

Inspectors who are unfamiliar with the refractometer should practice adjusting and reading the instrument. If possible two or more inspectors should work together on this so that they can compare their ability to read the scale accurately.

The eyepiece is adjustable and must be rotated until the scale is most distinct for each individual viewer. Some instruments read more clearly when the refractometer is turned so that the scale is inverted to the “0” appearing at the top.

The accuracy of the instrument may be checked by first zeroing it in with distilled water. This should be done at the approximate temperature at which the readings will be made. Remember that the liquid tested, whether distilled water or cantaloup juice, will quickly take on the temperature of the refractometer. Consequently if a warm refractometer is taken into a cold car or storage the instrument must be zeroed in frequently until it reaches the approximate temperature of the surrounding air. Under desert conditions the inspector must zero in as he observes material changes in temperatures. Under other conditions the inspector shall make adjustments as required. The instrument should be zeroed in at least once a day or after being transported by automobile or after being jarred.

Equipment, including refractometer, knife, press and any containers must be washed clean and wiped dry after each use. Wipe with a soft cloth or cleansing tissue.

Avoid use of rough cloths or paper. Do not wash the refractometer in distilled water. It is for testing only.

To adjust the scale to zero place a small amount of distilled water on the polished glass prism, turn the hinged cover plate down, and if it does not stay tightly in place hold it with the fingers. If you hold the plate during adjustment you must also hold it during actual testing because the heat of the fingers may affect the temperature of the juice and instrument slightly. Point the refractometer toward a light source (the brighter the light the better) and using the small, jeweler's screwdriver furnished with the instrument, turn the adjusting screw until the "0" line of the scale is centered on the dividing line between the light portion and the shadow viewed through the eye-piece. If the dividing line is indistinct center the "0" line as nearly mid-way of this boundary line as possible.

A 10% sugar solution for testing can be made using 10 grams of sugar and 90 grams of distilled water. Because of the possibility of error in weighing do not use such a solution for adjusting the refractometer scale. It is satisfactory for approximate comparisons.

The melon plugs should be squeezed enough to get all of the free juice out of the flesh. The amount of pressure necessary will vary with the firmness of the flesh.

The juice should be stirred thoroughly. Place enough juice on the prism so that it can be read satisfactorily. Excess juice creates no problem because it is forced out of the way when the hinged plate is closed. If insufficient juice is used the "line" may be indistinct and difficult to read. Small bits of pulp do not interfere with the reading but large pieces should be avoided because they will interfere with the passage of light through the prism.

It is desirable, at least until you become familiar with the procedure, to make a second reading. If it varies from the first, additional readings should be made until you have made 2 identical readings (not over two tenths of one percent apart). If this variation is on the line, for example 9.0 and 8.8 percent, it will be necessary to continue making readings from this juice sample until you can determine whether the juice meets the requirement or not. It may be necessary to draw an additional full random sample and make another test. However, in the great majority of cases the second reading from a juice sample (made with a clean refractometer) merely confirms the first reading and the first reading is recorded on the notes.

Make the reading promptly after squeezing and mixing the juice. Be particularly careful to read the instrument immediately after placing the juice on the prism. In any climate there may be sufficient evaporation in a few minutes to change the reading. Never attempt to recheck with juice that has been squeezed for more than a few minutes. Do not carry juice back to the office to test later but you may take the sample melons to the office for testing.

The refractometer is a delicate instrument. Keep it in the carrying case when not in use and do not drop it or handle it roughly. If it is damaged notify your supervisor at once.

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## APPENDIX II

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### Optional Procedures For Determining Minimum Maturity

Local regulatory agencies may require lots of cantaloups and other melons to meet minimum soluble solids requirements. The following paragraphs provide the procedures in determining minimum soluble solids, and may be applied to all types of melons.

Select 3 containers, which as nearly as possible represent the minimum maturity of the lot. These containers should be sorted for immature melons, permitting a tolerance of 5 percent (which would be included in the total defect tolerance permitted by the grade, but which must not be included in the test).

The practical application of this tolerance (on basis of U.S. No. 1) means that for packages containing 12 to 15 melons, one immature melon (if present) is set aside as a tolerance. For packages containing 36, 45, or 54 melons, two immature melons (if present) are set aside as a tolerance. After this tolerance has been set aside, select from each of the 3 packages three of the greenest melons remaining. These 9 melons will form the composite sample for testing. Follow the procedure outlined in Appendix I under "Making the Test" heading.

If the composite test of these melons meets the minimum soluble solids requirement, the lot is passed and the percentage shown by the test is reported on the certificate to the nearest half percent. For example "Minimum soluble solids 10.5%."

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## APPENDIX III -- U.S. GRADE STANDARDS

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

Effective March 10, 2008

#### Grades

51.475 U.S. Fancy.

51.476 U.S. No. 1.

51.477 U.S. Commercial.

51.478 U.S. No. 2.

**51.479 [Reserved].**

#### Application of Tolerances

51.480 Application of tolerances.

#### Definitions

51.481 Very good internal quality.

51.482 Uniform appearance.

51.483 One type.

51.484 Mature.

51.485 Good internal quality.

51.486 Soft.

51.487 Wilted.

51.488 Well formed.

51.489 Well netted.

51.490 Decay.

51.491 Wet slip.

51.492 Sunscald.

51.493 Damage.

51.494 Serious damage.

51.494a Permanent defects.

51.494b Fairly well netted.

51.494c Condition defects.

#### Grades

##### §51.475 U.S. Fancy.

"U.S. Fancy" consists of cantaloups which meet the requirements of U.S. No. 1 grade except that the cantaloups have very good internal quality and have uniform appearance.

(a) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted, except that these tolerances shall not apply to the requirements relating to internal quality and uniformity of appearance:

(1) **At shipping point.**<sup>2</sup> 8 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than 4 percent shall be allowed for defects causing serious damage, including in this latter amount not more than one-half of 1 percent for cantaloups which are affected by decay or mold.

(2) **En route or at destination.** 12 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than the following percentages shall be

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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.

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

allowed for defects listed:

- (i) 8 percent for cantaloups which fail to meet the requirements of this grade because of permanent defects; or,
- (ii) 6 percent for cantaloups which are seriously damaged, including therein not more than 4 percent for cantaloups which are seriously damaged by permanent defects and not more than 2 percent for cantaloups which are affected by decay. (See §51.480.)

**§51.476 U.S. No. 1.**

"U.S. No. 1" consists of cantaloups of one type which are mature and have good internal quality but are not overripe or soft or wilted, which are well formed, well netted, and free from decay, wet slip and sunscald, and free from damage caused by liquid in the seed cavity, sunburn, hail, dirt, surface mold or other disease, aphid or other insects, scars, cracks, sunken areas, ground spot, bruises, or mechanical or other means.

(a) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted, except that these tolerances shall not apply to the requirement relating to internal quality.

(1) **At shipping point.**<sup>2</sup> 8 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than 4 percent shall be allowed for defects causing serious damage, including in this latter amount not more than one-half of 1 percent for cantaloups which are affected by decay or mold.

(2) **En route or at destination.** 12 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed:

- (i) 8 percent for cantaloups which fail to meet the requirements of this grade because of permanent defects; or,
- (ii) 6 percent for cantaloups which are seriously damaged, including therein not more than 4 percent for cantaloups which are seriously damaged by permanent defects and not more than 2 percent for cantaloups which are affected by decay. (See §51.480.)

**§51.477 U.S. Commercial.**

"U.S. Commercial" consists of cantaloups of one type which are mature but not overripe or soft or wilted, which are well formed and fairly well netted, and free from decay, wet slip and sunscald, and free from damage caused by liquid in the seed cavity, sunburn, hail, dirt, surface mold or other disease, aphid or other insects, scars, cracks, sunken areas, ground spot, bruises, or mechanical or other means.

(a) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted:

(1) **At shipping point.**<sup>2</sup> 16 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed:

- (i) 12 percent for cantaloups which fail to meet the requirements of this grade because of condition defects;
- (ii) 4 percent for cantaloups which are seriously damaged, including therein not more than one-half of 1 percent for cantaloups affected by decay or mold.

(2) **En route or at destination.** 24 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed:

- (i) 16 percent for cantaloups which fail to meet the requirements of this grade because of permanent defects;
- (ii) 12 percent for cantaloups which fail to meet the requirements of this grade because of condition defects; or,
- (iii) 8 percent for cantaloups which are seriously damaged, including therein not more than 4 percent for cantaloups which are seriously damaged by permanent defects and not more than 2 percent for cantaloups which are affected by decay. (See §51.480.)

**§51.478 U.S. No. 2.**

"U.S. No. 2" consists of cantaloups of one type which are mature but not overripe or soft or wilted, which are fairly well formed and fairly well netted, which are free from decay, wet slip and sunscald, and free from serious damage caused by liquid in the seed cavity, sunburn, hail, dirt, surface mold or other disease, aphid or other insects, scars, cracks, sunken areas, bruises, or mechanical or other means.

(a) **Tolerances.** In order to allow for variations incident to proper grading and handling the following tolerances, by count, shall be permitted:

(1) **At shipping point.**<sup>2</sup> 8 percent for cantaloups in any lot which fail to meet the requirements of this grade including therein not more than one-half of 1 percent for cantaloups which are affected by decay or mold.

(2) **En route or at destination.** 12 percent for cantaloups in any lot which fail to meet the requirements of this grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for the defects listed:

(i) 8 percent for cantaloups which fail to meet the requirements of this grade because of defects of a permanent nature; or,

(ii) 2 percent for cantaloups which are affected by decay. (See §51.480.)

#### **§51.479 [Reserved]**

#### **Application of Tolerances**

#### **§51.480 Application of tolerances.**

Samples are subject to the following limitation: **Provided**, That the averages for the entire lot are within the tolerances specified for the grade:

(a) Samples may contain not more than double any specified tolerance except that at least two defective specimens may be permitted in any package.

#### **Definitions**

#### **§51.481 Very good internal quality.**

"Very good internal quality" means that the combined juice from the edible portion of a sample of cantaloups selected at random contains not less than 11 percent soluble solids as determined by an approved hand refractometer.

#### **§51.482 Uniform in appearance.**

"Uniform in appearance" means that not more than one-tenth of the packages in any lot contain cantaloups which show sufficient variation in shape, size, ground color or netting to materially detract from the appearance of the contents of the individual packages, or which are not packed according to the approved and recognized methods for the package.

#### **§51.483 One type.**

"One type" means that the cantaloups in any container are similar in color of flesh and are not decidedly different in shape, character of netting and prominence of ribbing.

#### **§51.484 Mature.**

"Mature" means that the cantaloup has reached the stage of maturity which will insure the proper completion of the normal ripening process.

#### **§51.485 Good internal quality.**

"Good internal quality" means that the combined juice from the edible portion of a sample of cantaloups selected at random contains not less than 9 percent soluble solids as determined by an approved hand refractometer.

#### **§51.486 Soft.**

"Soft" means that the cantaloup yields readily to slight pressure.

#### **§51.487 Wilted.**

"Wilted" means that the cantaloup lacks turgidity and is somewhat flabby, spongy and pliable under moderate pressure.

#### **§51.488 Well formed.**

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

#### **§51.489 Well netted.**

"Well netted" means that to an extent characteristic of the variety the cantaloup is well covered with fully developed, well raised netting, some portion of which is well rounded with practically no crease.

#### **§51.490 Decay.**

"Decay" means breakdown, disintegration or fermentation of the flesh or rind of the cantaloup caused by bacteria or fungi.

#### **§51.491 Wet slip.**

"Wet slip" means a condition present at time of packing in which the stem scar is abnormally large, excessively wet and slippery, yields to slight pressure, and is frequently accompanied by fresh radial growth cracks at the edge of the stem scar.

**§51.492 Sunscald.**

"Sunscald" means discolored or bleached, sunken areas of the surface having tough epidermis with underlying flesh leathery and usually off-color.

**§51.493 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 shipping quality of the cantaloup. The following specific defects shall be considered as damage:

(a) Liquid in the seed cavity under the following circumstances:

- (1) At shipping point when more than a slight amount of liquid is present in the seed cavity; or,
- (2) En route or at destination when an objectionably large amount of liquid is present in the seed cavity, or when the flesh of the cavity wall is mushy or noticeably discolored;

(b) Sunburn when the color of the flesh is materially changed; when the rind is hard, tough, thin, or definitely flattened; when distinct flattening of the netting or dark yellow surface discoloration affects an aggregate area exceeding 20 percent of the surface of the cantaloup; or when brown, gray, purple or dark green surface discoloration detracts from the appearance of the cantaloup to a greater extent than the area of dark yellow discoloration permitted;

(c) Hail when the injury is unhealed or deep;

(d) Surface mold under the following circumstances:

- (1) At shipping point when any surface mold is visible; or,
- (2) En route or at destination when the color, character, or location of the mold materially detracts from the appearance or marketing quality of the cantaloup;

(e) Aphis when aphis honeydew is more than slightly sticky, or when resulting discoloration more than slightly detracts from the appearance of the cantaloup;

(f) Scars when healed, shallow, smooth and light colored and the aggregate area affected exceeds 5 percent of the surface of the cantaloup; or when deep, rough or dark colored and detracting from the appearance to a greater extent than the area of healed, shallow, smooth and light colored scars permitted. Smooth scarring at the blossom end and coalesced netting should not be considered in determining damage caused by scarring unless materially detracting from the appearance of the cantaloup;

(g) Cracks when deep or not dry. Slight, dry cracks at the ends or in the sutures of the cantaloup shall not be considered damage;

(h) Ground spot when the rind of the affected area is thin or weak, or when the size or color of the affected area or the character of netting on the area in relation to the remainder of the surface of the cantaloup materially detracts from the appearance of the cantaloup;

(i) Bruises when the surface of the cantaloup is definitely flattened or indented, or when the underlying flesh is noticeably discolored; and,

(j) Mechanical means when cuts or gouges are deep or when any skin break is unhealed.

**§51.494 Serious damage.**

"Serious 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 seriously detracts from the appearance, or the edible or shipping quality of the cantaloup. The following specific defects shall be considered as serious damage:

(a) Liquid in the seed cavity under the following circumstances:

- (1) At shipping point when a large amount of liquid is present in the seed cavity or the flesh of the cavity wall is noticeably soft or discolored or when any fermentation is present; or,
- (2) En route or at destination when there is any fermentation of the liquid in the seed cavity, or when the flesh of the cavity wall shows fermentation or is badly discolored;

(b) Sunburn when the flesh is seriously discolored, when causing cracking of the rind, or when causing flattening of the rind which seriously detracts from the appearance of the cantaloup;

(c) Hail when the injury is unhealed;

(d) Surface mold under the following circumstances:

- (1) At shipping point when any surface mold is visible; or,
- (2) En route or at destination when the color, character, or location of the mold seriously detracts from the appearance or marketing quality of the cantaloup;

(e) Cracks when fresh and deep;

(f) Bruises when the surface of the cantaloup is seriously flattened or indented or when a material portion of the underlying flesh is broken down; and,

(g) Mechanical means when fresh cuts or gouges extend into the edible portion of the cantaloup.

**§51.494a Permanent defects.**

"Permanent defects" means defects which are not subject to change during shipping or storage; including, but not limited to factors of shape, netting, scarring, sunscald, sunburn and injury caused by hail or insects, and mechanical injury which is so located as to indicate that it occurred prior to shipment.

**§51.494b Fairly well netted.**

"Fairly well netted" means that to an extent characteristic of the variety the cantaloup is fairly well covered with fairly good netting.

**§51.494c Condition defects.**

Condition defects means defects which may develop or change during shipment or storage; including, but not limited to decayed or soft cantaloups and such factors as liquid in the seed cavity, surface mold, sunken areas, fresh cracks, and bruising which is so located as to indicate that it occurred after packing.

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## United States Standards for Grades of Honeydew and Honey Ball Type Melons<sup>1</sup>

Effective April 1, 1967

### Grades

51.3740 U.S. No. 1.

51.3741 U.S. Commercial.

51.3742 U.S. No. 2.

### Unclassified

51.3743 Unclassified.

### Tolerances

51.3744 Tolerances.

### Application of Tolerances

51.3745 Application of tolerances.

### Definitions

51.3746 Mature.

51.3747 Well formed.

51.3748 Damage.

51.3749 Serious damage.

### Grades

#### §51.3740 U.S. No. 1.

"U.S. No. 1" consists of honeydew or honey ball type melons which are mature, firm, well formed, which are free from decay, and free from damage caused by dirt, aphid stain, rust spots, bruises, cracks, broken skin, sunscald, sunburn, hail, moisture, insects, disease, or other means. (See §51.3744.)

#### §51.3741 U.S. Commercial.

"U.S. Commercial" consists of honeydew or honey ball type melons which meet the requirements of U.S. No. 1 grade except for the increased tolerances for defects. (See §51.3744.)

#### §51.3742 U.S. No. 2.

"U.S. No. 2" consists of honeydew or honey ball type melons which are mature, firm, fairly well formed, free from decay and free from serious damage by any cause. (See §51.3744.)

### Unclassified

#### §51.3743 Unclassified.

"Unclassified" consists of melons 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.

### Tolerances

#### §51.3744 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

(a) **U.S. No. 1.** 10 percent for melons in any lot which fail to meet the requirements of the grade:

**Provided,** That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including in this latter amount not more than 1 percent for melons affected by decay.

(b) **U.S. Commercial.** 20 percent for melons in any lot which fail to meet the requirements of this grade:

**Provided,** That not more than one-fourth of this amount, or 5 percent, shall be allowed for defects causing serious damage, including in this latter amount not more than 1 percent for melons affected by decay.

(c) **U.S. No. 2.** 10 percent for melons in any lot which fail to meet the requirements of this grade including not more than 1 percent for melons affected by 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.

## **Application of Tolerances**

### **§51.3745 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 shall have not more than 1-1/2 times the tolerance specified: **Provided**, That when the package contains 15 specimens or less, any individual package shall have not more than double the tolerance specified, except that at least one defective specimen may be permitted in any package: **And provided further**, That the averages for the entire lot are within the tolerances 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 specimen may be permitted in any package: **Provided**, That the averages for the entire lot are within the tolerances specified for the grade.

### **Definitions**

#### **§51.3746 Mature.**

"Mature" means that the melon has reached the stage of maturity which will insure the proper completion of the normal ripening process.

#### **§51.3747 Well formed.**

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

#### **§51.3748 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 melon.

(a) The following specific defects shall be considered as damage:

- (1) Sunburn which causes the rind to become brownish in color, hard, tough, or thin; and,
- (2) Bruising when the size or color of the affected area materially detracts from the appearance.

(b) The following blemishes shall not be considered as damage:

- (1) Slight bruising caused by light pressure of the weight of other melons or from lidding of the crate;
- (2) Yellow spots;
- (3) Superficial hail spots;
- (4) Slight surface scratches caused by picking or packing; or,
- (5) Netting, either raised or occurring as very shallow cracks in the skin.

#### **§51.3749 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 melon.