



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

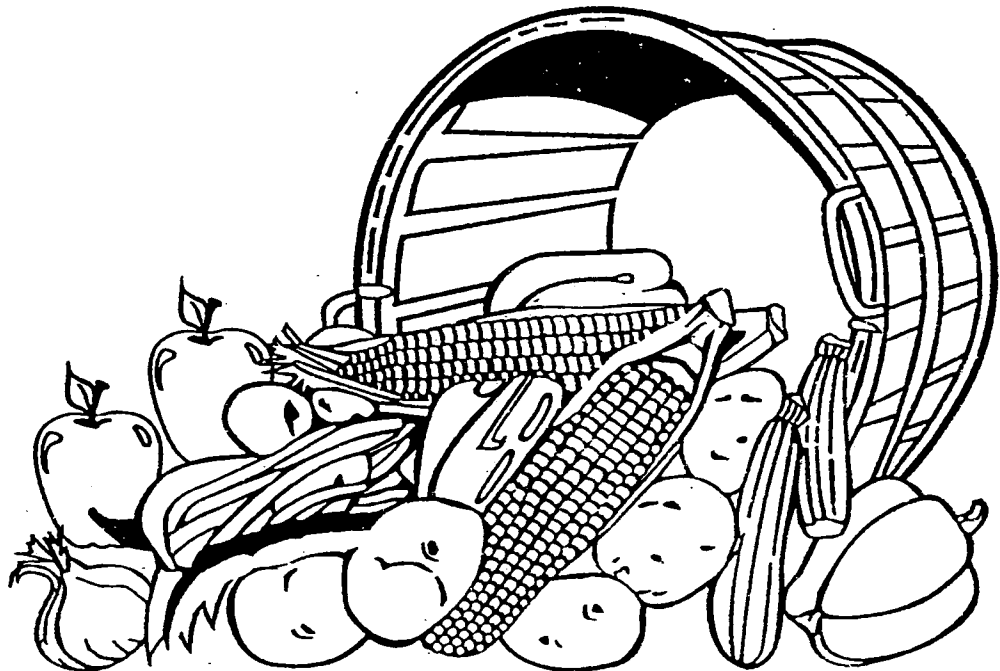
**Fruit and  
Vegetable  
Programs**

**Fresh Products  
Branch**

**September 2000**

# **Florida Citrus**

## **Shipping Point and Market Inspection Instructions**





# Shipping Point and Market Inspection Instructions for Florida Citrus

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 Florida Oranges and Tangelos, Florida Grapefruit, and Florida Tangerines, Sections 51.1140, 51.750, and 51.1810, respectively.

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 Florida Oranges and Tangelos, Florida Grapefruit, and Florida Tangerines are printed in the appendix of this handbook. All U.S. standards are available on the Internet under the USDA homepage.

**September 2000**

*This replaces Market Inspection Instructions dated April 1983*

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

REPRINTED DECEMBER 2007

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.

## Table of Contents

<b>SECTION ONE - ALL CITRUS .....</b>	<b>1-15</b>
<b>(1) GENERAL.....</b>	<b>1</b>
<b>(2) SAMPLING.....</b>	<b>1</b>
REPRESENTATIVE SAMPLING .....	1
SAMPLE SIZE .....	2
SAMPLING BULK LOADS .....	2
NUMBER OF SAMPLES.....	3
SAMPLING FOR INTERNAL DEFECTS .....	4
INTERNAL CUTTING PLANS A - B .....	5
CUTTING FOR DRYNESS-MUSHY CONDITION .....	6
<b>(3) TOLERANCES.....</b>	<b>7</b>
<b>(4) APPLICATION OF TOLERANCES.....</b>	<b>8</b>
<b>(5) NOTESHEET AND CERTIFICATE .....</b>	<b>8</b>
HEADINGS ON NOTESHEETS .....	8
HANDWRITTEN CERTIFICATES.....	9
PRODUCT.....	9
NUMBER - TYPE OF CONTAINERS.....	9
BRANDS - MARKINGS OR DESCRIPTION OF PRODUCT.....	9
ORIGIN .....	10
<b>(6) TEMPERATURE OF PRODUCT.....</b>	<b>10</b>
<b>(7) CONDITION OF PACK .....</b>	<b>10</b>
<b>(8) SIZE .....</b>	<b>11</b>
<b>(9) QUALITY AND CONDITION.....</b>	<b>12</b>
<b>(10) MATURITY.....</b>	<b>12</b>
<b>(11) DISCOLORATION (Q) .....</b>	<b>13</b>
<b>(12) SIMILAR VARIETAL CHARACTERISTICS (Q) ORANGES - GRAPEFRUIT ONLY     (NOT A REQUIREMENT OF TANGERINES).....</b>	<b>14</b>

<b>SECTION TWO - ORANGES AND TANGELOS.....</b>	<b>16-21</b>
<b>(15) SPECIFIC FACTORS AND DEFECTS .....</b>	<b>16</b>
COLOR (Q) .....	16
COLOR ADDED FRUIT .....	17
SHAPE (Q).....	17
TEXTURE (Q) .....	18
INTERNAL QUALITY OF COMMON SWEET ORANGES (Q) .....	19
**** FIRMNESS/PUFFY (C).....	19
<b>COMMODITY-SPECIFIC DEFECTS.....</b>	<b>20</b>
CREASING (Q OR C) .....	20
STEM END AGING (C) .....	21
SPLIT, ROUGH OR PROTRUDING NAVEL (Q).....	21
<b>SECTION THREE - GRAPEFRUIT .....</b>	<b>22-27</b>
<b>(16) SPECIFIC FACTORS AND DEFECTS .....</b>	<b>22</b>
COLOR (Q) .....	22
SHAPE (Q).....	22
TEXTURE (Q) .....	23
MEASURING RIND THICKNESS.....	24
FIRMNESS (C) .....	24
<b>COMMODITY-SPECIFIC DEFECTS.....</b>	<b>25</b>
BLOSSOM END CLEARING (C).....	25
CLUSTER RINGS (Q).....	25
SPROUTED SEEDS (C) .....	26
<b>SECTION FOUR - TANGERINES.....</b>	<b>28-30</b>
<b>(17) SPECIFIC FACTORS AND DEFECTS .....</b>	<b>28</b>
COLOR (Q) .....	28
SHAPE (Q).....	29
TEXTURE (Q) .....	29
FIRMNESS (C) .....	29
<b>COMMODITY-SPECIFIC DEFECTS.....</b>	<b>30</b>
GROOVING (Q).....	30
<b>SECTION FIVE – GENERAL DEFECTS.....</b>	<b>31-48</b>
<b>(18) CLASSIFICATION OF DEFECTS .....</b>	<b>31</b>
ALTERNARIA (Q OR C) .....	31
SKIN BREAKS (Q OR C).....	32
BRUISES (C) .....	32
BUCKSKIN (Q).....	33
DECAY (C).....	34
DIRT-OTHER FOREIGN MATTER (Q OR C).....	34
FLESH COLOR AND SEED COUNT .....	35
FREEZING INJURY (Q OR C).....	36
GRANULATION (TREE DRYNESS) (Q).....	36

\*\*\*\*

**GENERAL DEFECTS CONTINUED...**

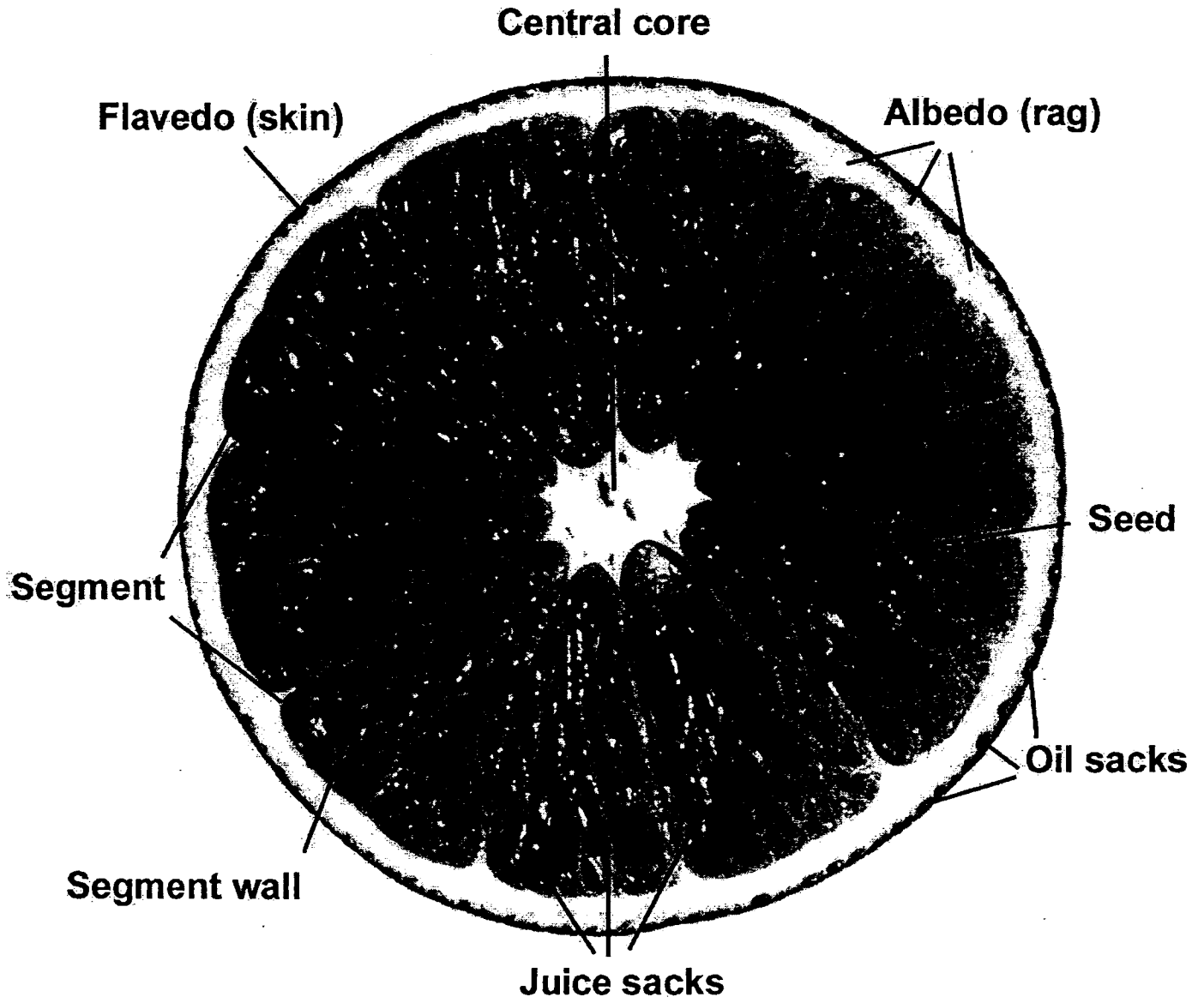
GREEN SPOTS (Q) .....	37
CAKED MELANOSE (Q) .....	38
OIL SPOTS (Q).....	39
PULLED STEMS (Q) .....	40
SCAB (Q).....	41
SCALE (Q).....	42
SCARS-HAIL-THORN SCRATCHES (Q) .....	43
SKIN BREAKDOWN (C).....	44
SOOTY MOLD (Q).....	45
SPRAYBURN (Q).....	46
STEM BUTTONS AND ATTACHED STEMS-LEAVES.....	47
SUNBURN (Q) .....	47
WORMY FRUIT (Q OR C).....	48

---

**Appendix I** United States Standards for Grades of Florida Oranges and Tangelos  
United States Standards for Grades of Florida Grapefruit  
United States Standards for Grades of Florida Tangerines

**Appendix II** FPB Directive 618 - Certifying Various Varieties Of Citrus  
Area Comparison Chart

**Appendix III** Notesheet And Certificate Examples



# SECTION ONE

THE INFORMATION IN THIS SECTION APPLIES  
TO ALL CITRUS EXCEPT AS NOTED IN SECTION 12

---

## (1) General

These inspection instructions apply to oranges, tangelos, grapefruit, and tangerines grown in the state of Florida.

The Florida Department of Citrus (DOC) publishes regulations for citrus grown and packed in the state. For specific information on these regulations, telephone the DOC at 863-499-2531.

The following grade standards shall be used for import certification at ports of entry:

**Oranges** - U.S. Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona) and the Texas maturity requirements apply, except for navel oranges in which case the U.S. Standards for Grades of Oranges (California and Arizona) shall apply with the Texas maturity requirements.

**Grapefruit** - U.S. Standards for Grades of Florida Grapefruit and the Florida maturity requirements shall apply.

**Tangerines** - There are no import requirements.

For inspections requested on imported fruit other than at port of entry, or when import requirements are not in effect, the grade standard the fruit most closely resembles (texture, thickness of skin, discoloration and scarring) shall be applied. If a quality and condition inspection is requested, maturity standards for the U.S. standards being used shall apply.

---

## (2) Sampling

---

### 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 shall



receive the same attention in sampling regardless of the difficulty involved in reaching the more inaccessible layers or parts of a load.

---

## **Sample Size**

The sample size for grade and size determination on all Florida citrus shall be a **minimum of 25 fruit for each sample**, regardless of the size of the container.

### **SHIPPING POINT:**

**In-line Certification** – Each sample shall consist of 25 fruit. If containers have less than 25 fruit, a composite sample of 25 fruit shall be examined. If sample tolerances are exceeded, examine 50 fruit when containers contain 50 or more fruit. The lot average must never exceed the lot tolerance.

The first sample examined must meet **all** lot tolerances. If three consecutive samples in a lot exceed a lot tolerance, a corrective action must be taken on the packed containers that are represented by the third sample.

**Stationary Lots** – Sampling for all lots shall consist of 25 fruit. If containers have less than 25 fruit, a composite sample of 25 fruit shall be examined. A minimum of 3 samples must be examined to certify a lot.

If a **lot** tolerance is exceeded, double the sample size for containers containing 50 fruit or more, except for composite samples. If a **sample** tolerance is exceeded, examine the entire contents of the container, except for bulk lots or bulk bins. These lots shall be limited to a 100 count sample.

### **MARKET:**

For packages containing 25 fruit or more, a minimum of 25 fruit shall be examined. When any sample tolerance is exceeded, the entire contents of at least one package which exceeded the sample tolerance must be examined. If impractical to run the entire contents, i.e., extremely large numbers of fruit such as 176 size Tangerines, and bulk lots, examine 100 fruit at a minimum.

For packages containing less than 25 fruit, a sufficient number of adjoining packages must be opened to obtain a minimum of 25 fruit. The entire contents shall be used for the sample when opening an adjoining package. For example: oranges packed in 5 lb. consumer bags (10 fruit per bag) - open 3 bags (30 fruit sample); 18 count cartons of grapefruit - open 2 cartons (36 fruit). If a sample tolerance is exceeded using this method, **do not** double the sample size. The lot is out of grade because of the sample tolerance being exceeded.

---

## Sampling Bulk Loads

Bulk loads (volume-filled trailers, pallet boxes, bulk bins, etc.) may contain up to 60,000 pounds of fruit. The method of reporting defective fruit in bulk shipments is identical to fruit packed in containers.

When determining the minimum number of samples drawn from a bulk shipment, divide the loads' approximate net weight by the appropriate "packed net weight" (grapefruit – 42 pounds, oranges and tangelos – 45 pounds, tangerines – 47 pounds). This calculation provides a 4/5 bushel equivalent. EXAMPLE: Net weight of an orange load is approximate 57,000 pounds;  $57,000 \div 45$  (packed net weight) = 1267 cartons. Use the calculated carton equivalent as a guide when determining the number of samples to be examined.

Examine a minimum of 25 contiguous fruit per sample. When a sample tolerance is exceeded, the sample size must be at least doubled. Report range and averages in the appropriate sections on the certificate.

When determining size, measure random fruit from each sample and record the range on the notesheet. On the certificate, report the range and, if needed, include a "mostly" statement.

---

## Number of Samples

Due to potential variations in size, quality and condition, a specific number of samples per load or lot cannot be provided. It is the inspector's responsibility to examine a sufficient number of samples to ensure that a complete and accurate depiction of the load or lot is obtained. The following information should be used for sampling guidelines:

### SHIPPING POINT:

**In-line Certification** - A minimum of one sample for every 200 containers packed, or 1/2 of 1% of the total containers packed is the recommended sampling rate.

**Stationary Lots** – A minimum of 1 percent of the packages within a load or lot is recommended with a minimum of three samples examined on any lot.

### MARKET:

A minimum of 1 percent of the packages within a load or lot is recommended. For lots containing less than 100 packages, a minimum of three samples shall be examined.

---

## Sampling for Internal Defects

The following plans are designed to provide efficient and accurate methods for determining internal defects in citrus. These defects include dryness-mushy condition (freezing injury), granulation (tree dryness), sprouted seeds, or any other defect that cannot be detected without cutting the fruit.

There are two specific cutting plans. **Plan A** is used when internal defects are almost certain to be present, e.g., immediately following a freeze or in late spring and summer months when granulation (tree dryness) may be a factor. **Plan B** is used when internal defects are suspected. Plan B detects internal defects while destroying a minimum amount of fruit. Both plans are based on the initial sample size of 25 fruit.

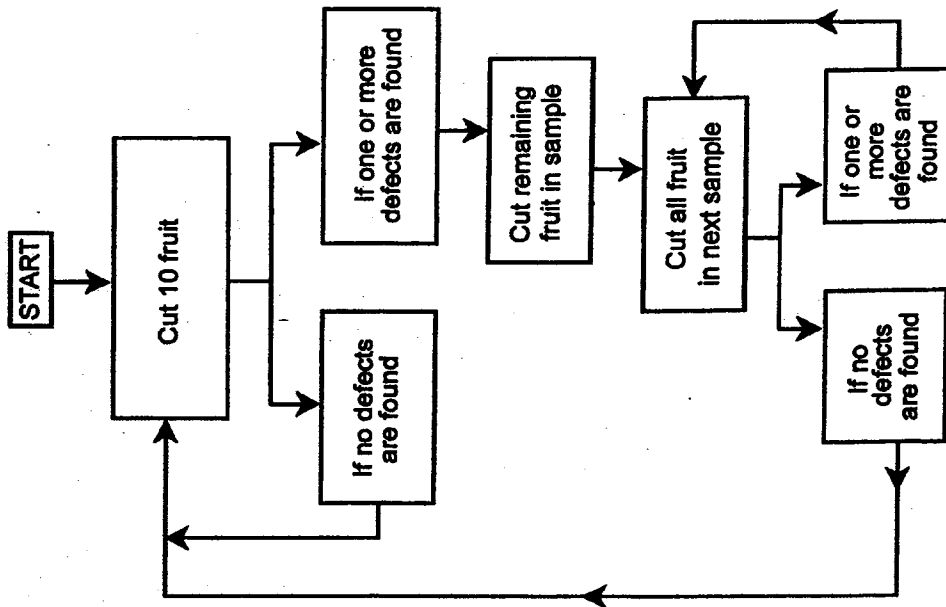
**Plan A.** After the sample has been examined for external defects, select the 10 most suspicious fruit without regard to external defects and cut these for internal defects. If no defects are found, do not cut any other specimens from that sample. Continue to cut 10 fruit per sample provided no internal defects are found. If one or more internal defects are found, cut the remaining fruit in the sample to determine the percentage of internal defects. At **Market**, if sample tolerances are exceeded, the sample size must be at least doubled (50 fruit or entire contents if less than 50 fruit in the container). Continue to cut all fruit in each sample until a sample is found free from internal defects. Revert to cutting 10 fruit per sample when no internal defects are found. This does not apply to bagged lots because the entire contents of the bag have already been cut. At **SPI**, do not deviate from the in-line certification sampling size.

\*\*\*\* **Plan B** is similar to Plan A; the only difference is if no internal defects are found, Plan B requires cutting 10 fruit from every *fourth* sample. Cutting should start with the first sample taken and continue with every *fourth* sample thereafter. \*\*\*\*

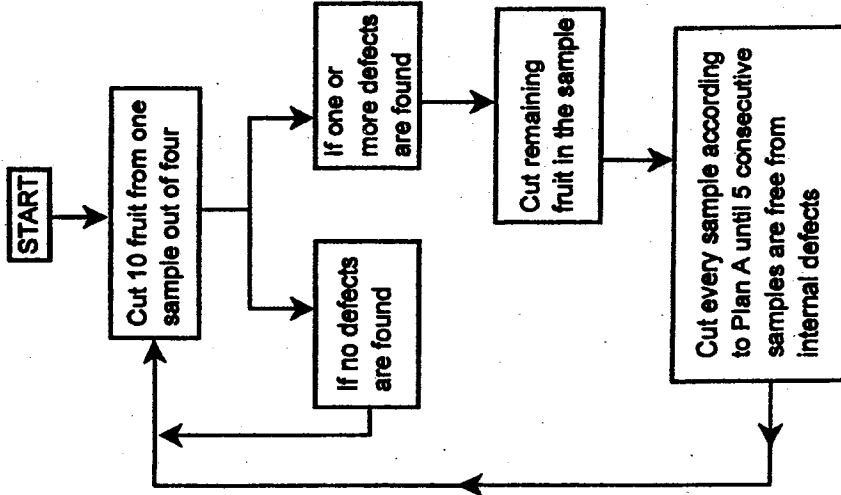
Select the 10 most suspicious fruit without regard to external defects from every fourth sample and cut them for internal defects. If no internal defects are found in the 10 fruit, continue to cut the 10 most suspicious fruit from every fourth sample. If one or more defects are found, cut the remaining fruit in the sample, unless the sample tolerances are exceeded. When exceeded, increase sample size to 50 fruit or entire contents if containing less than 50 fruit, and begin using Plan A (not applicable to bagged lots). Cut either 10 fruit or all fruit in the sample according to Plan A until 5 consecutive samples are free from internal defects. Revert to cutting 10 fruit from every fourth sample at this point. At **Market**, if sample tolerances are exceeded, the sample size must be at least doubled (50 fruit or entire contents). At **SPI**, do not deviate from the in-line certification sample size.

# Cutting Plans For Internal Defects

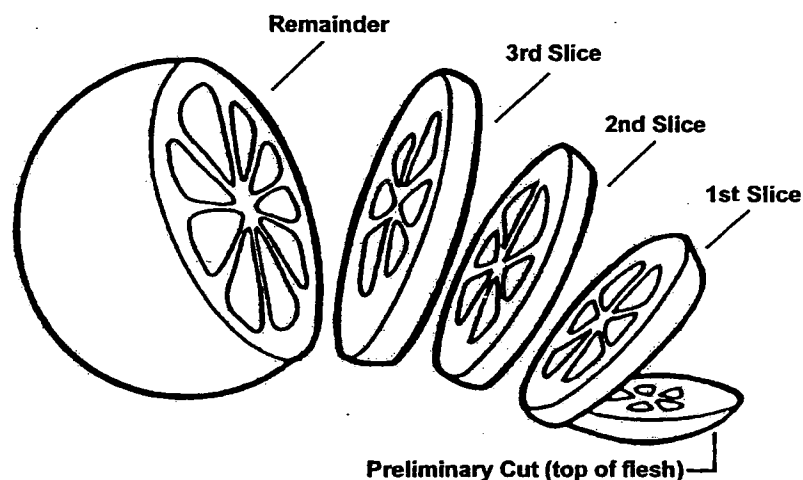
**PLAN A**



**PLAN B**



## Cutting Instructions and Scoring Guide for Dryness-Mushy Condition



**Preliminary Cut:** This cut is intended to remove only the rind down to the fleshy portion of the fruit under the stem button and will vary in depth depending on rind thickness.

**1<sup>st</sup> Slice:** Tangerines - 1/8 inch in width, oranges-grapefruit -1/4 inch. This slice may be totally dry or from mushy to dry in all segments. This is the maximum amount permitted in the U.S. Fancy and U.S. No. 1 grades. If the total volume of **this** slice is affected, any dryness-mushy condition in the remaining portion of the fruit will be considered as **damage**.

**2<sup>nd</sup> Slice:** Tangerines - 1/8 inch in width, oranges-grapefruit -1/4 inch. This slice, plus the first slice (totaling 1/4 inch or 1/2 inch) may be totally dry or from mushy to dry in all segments. This represents the maximum volume permitted in the U.S. No. 2 grade. If the total volume of **this** slice is affected, dryness-mushy condition in the remaining portion of the fruit will be considered **serious damage**.

**3<sup>rd</sup> Slice:** All citrus - 1/4 inch in width. This 1/4 inch slice, plus the previous two slices, may be totally dry or from mushy to dry in all segments. This represents the maximum volume permitted in the U.S. No. 3 grade. If the total volume of **this** slice is affected, any dryness-mushy condition in the remaining portion of the fruit will be considered **very serious damage**.

If any portion of the segments in the slice are **not** mushy or affected by dryness-mushy condition, additional mushiness or dryness may be allowed in other portions of the fruit, but the total amount must not exceed the equivalent volume permitted. If this is encountered, it will be necessary to cut several slices to determine the total amount of dryness-mushiness present in the fruit.

### **(3) Tolerances**

**§51.1151, 51.760, 51.1820 Tolerances (a) Defects (1) U.S. No 1...**

**(i) For defects at shipping point. Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the specified grade: Provided, that included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, including in this latter amount not more than 1 percent for decay or wormy fruit.**

**(ii) For defects en route or at destination. Not more than 12 percent of the fruit which fail to meet the requirements of the specified grade: Provided, that included in this amount not more than the following percentages shall be allowed for defects listed:**

**(A) 10 percent for fruit having permanent defects; or**

**(B) 7 percent for defects causing very serious damage, including therein not more than 5 percent for very serious damage by permanent defects and not more than 3 percent for decay or wormy fruit.**

**(b) Discoloration...(1) U.S. No. 1 Bright, U.S. No. 1, U.S. No. 2 Bright, U.S. No.2...Not more than 10 percent of the fruit in any lot may fail to meet the requirements relating to discoloration as specified in each grade. No sample may have more than 20 percent of the fruit with excessive discoloration: And provided further, that the entire lot averages within the percentage specified.**

For requirements-tolerances on U.S. Golden, Bronze and Russet grades, please refer to the discoloration chart on page 14.

#### **SUMMARY OF TOLERANCES FOR U.S. NO. 1**

	<b>SPI (percent)</b>	<b>MKT (percent)</b>
A. Discoloration	10	10
B. Defects other than discoloration, including	10	12
1. Permanent defects, (included in B)	10	10
2. Very serious damage, (included in B and 1)	5	7
a. Very serious damage by permanent defects, (included in 1 and 2)	5	5
b. Decay or wormy fruit (included in 2)	1	3

---

## (4) Application of Tolerances

**§51.1152, 51.761, 51.1821** Individual samples are subject to the following limitations, unless otherwise specified in §51.1151, 51.760, 51.1820 (*respectively*). Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent or more, and not more than double a specified tolerance of less than 10 percent: Provided, that at least one decayed or wormy fruit may be permitted in any sample: And provided further, that the averages for the entire lot are within the tolerances specified for the grade.

### SUMMARY OF APPLICATION OF TOLERANCES FOR U.S. NO. 1

	SPI (percent)	MKT (percent)
A. Discoloration	20	20
B. Defects other than discoloration, including	15	18
1. Permanent defects, (included in B)	15	15
2. Very serious damage, (included in B and 1)	10	14
a. Very serious damage by permanent defects, (included in 1 and 2)	10	10
b. Decay or wormy fruit (included in 2)	2	6

---

## (5) Notesheet and Certificate

Entries on notesheets and certificates must be legible and accurate. Notesheet entries shall be recorded so anyone familiar with inspection procedures can interpret and write a certificate. It is the responsibility of the inspector to ensure that all information is properly recorded before the inspection is completed.

---

### Headings on Notesheets

Detailed instructions not covered by this handbook (date, inspection point, place of inspection, carrier type, lading, etc.) may be found in the General Inspection Instructions.

---

## **Handwritten Certificates**

The handwritten certificate, (FV-184 at shipping point and FV-300 at market) must be written with great care since they are given to the applicant at completion of the inspection.

Please refer to the FV-184 or FV-300 certificate writing instructions and your immediate supervisor for complete instructions regarding certificate writing procedures.

---

## **Product**

**ORANGES, TANGELOS, GRAPEFRUIT, TANGERINES or CITRUS FRUIT** shall be used to describe the commodity in the "PRODUCT" heading. The type or variety may be used in connection with the products listed above on the FV-184, or may be reported in the appropriate heading on the FV-300.

If containers are marked with the variety name, that name shall be listed in quotes rather than positively stated. Inspectors are not authorized to identify specific varieties.

---

## **Number-Type of Containers**

The number of containers, or weight (bulk), shall always be reported. Count of large lots may be reported on the authority of someone other than the inspector. However, the inspector is responsible for assuring that the approximate number of containers reported in the lot are present.

At shipping point, applicant's count or reference to a manifest may be reported in this section on the FV-184 certificate. At market, small lots (100 containers or less) must be reported as "INSPECTOR'S COUNT."

Citrus may be packed in consumer bags (5 pound, 10 pound, etc.) within master containers, cartons, wirebound crates or in bulk containers. The container type shall always be reported under this heading.

---

## **Brands-Markings or Description of Product**

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

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



---

## Origin

The inspector, on their own authority, must not make a positive statement as to product origin. When container markings contain origin information, it should be quoted in the appropriate location on notesheets and certificates. This policy is necessary because firms may use one mark on the same product packed in several states. If packages are not marked, or citrus is in bulk, refer to the General Inspection Instructions for more information.

---

## (6) Temperature of Product

Generally, inspectors do not determine or report temperatures at shipping point. However, due to the importance of the pulp temperature of fresh fruits and vegetables in transit or at destination, it is essential that market inspectors accurately report the range in temperatures on each lot. A minimum of three pulp temperatures shall be recorded on all lots regardless of the location of the product.

---

## (7) Condition of Pack

Condition of pack pertains to fill of containers, the tightness of fruit in place-packed containers, and net weight certification.

Citrus may be packed in a variety of ways; volume-filled containers, place-pack containers, wirebound crates or in consumer bags. Please refer to the General Inspection Instructions for information on reporting condition of pack.

If the applicant requests count of consumer bags per master container, report the findings in the "OTHER" section on the FV-300 with a reference under "REMARKS" that this factor was "determined and reported at applicant's request."

**Weight.** If requested to certify a specified or marked net weight on a stationary lot sampling or in-line sampling, follow the procedures described in the General Inspection Instructions. If none of the containers are under marked weight (in-line sampling), marked weight is met. However, if any package is under marked weight, the markings must be corrected on that package.

Further information on condition of pack can be found in the General Inspection Instructions and the DOC rules.

---

## **(8) Size**

Size is not part of the basic requirements for grades of citrus. A lot of citrus can fail to meet size requirements and still meet grade requirements or vice versa.

There are minimum size requirements in the Florida marketing order for oranges, tangerines and grapefruit. Fruit must meet these requirements to be shipped out of the "regulated" area. For further information, SPI inspectors should contact their district supervisor and market inspectors should contact Headquarters in Washington, D.C. or the Marketing Order Administration Branch.

Use the term "fairly uniform" if a lot meets size requirements, "irregular" if size requirements are not met.

To meet the requirements of fairly uniform, the smallest and largest fruit in a sample must be sized using a rigid-jaw caliper. To determine diameter, the greatest dimension measured at right angles to a line from stem to blossom end shall be used. Rotate fruit in the caliper to obtain the greatest dimension. Do not use pliable fruit that is squeezed out of shape due to tight pack for this measurement.

SPI inspectors shall follow the in-line certification guidelines for sample size. A maximum of two fruit per 25 count sample are allowed to vary more than 1/2 inch in diameter and still be considered fairly uniform. If any 25 count sample has more than 2 fruit that vary more than this amount, the inspector must examine at least 50 fruit for containers containing 50 or more fruit. If the sample tolerance of 10% is still exceeded, that sample will be considered irregular. If more than 10 percent of the samples are irregular, the lot is irregular and this fact stated on the notesheet and/or certificate. When 10% or less of the samples are irregular, the lot shall be reported as fairly uniform.

When requested to determine a specific size at market, e.g., 100 size oranges, 32 size grapefruit, 120 size tangerines etc., report a range and average diameter. If requested by the applicant, the inspector may pack the fruit to determine compliance with the "designated" size. This procedure must be performed with a DOC-01-P carton or equivalent (a DOC label will be visible on the carton bottom). Inform the applicant that this may be a lengthy process and additional expenses will be incurred. Contact the DOC for specific information on pack arrangement for different sizes.

To meet size requirements, fruit must be fairly uniform in size and packed according to approved and recognized methods. "Approved and recognized methods" means that size will be determined at shipping point using specific pack patterns in a standard 4/5 bushel container, and that containers shall be well filled. "Well filled" means when at least one-half of the top layer fruit is not more than 1/2 inch below the top or more than 2 inches above the top of the container.

**§51.1153, 51.762, 51.1822 Size (a) Fruits shall be fairly uniform in size and shall be packed in containers according to approved and recognized methods.**

**(b) "Fairly uniform in size" means that not more than 10 percent of the oranges (grapefruit or tangerines) per sample may vary more than one-half inch in diameter.**

**(c) In order to allow for variations incident to proper sizing, not more than 10 percent of the samples in any lot may fail to meet the requirements of size.**

---

## **(9) Quality and Condition**

Statements pertaining to firmness, maturity, shape, color, amount and type of defects, and amount of decay, are shown in the appropriate sections. Those factors noted with the letter (C) shall be reported as **CONDITION** on market certificates. Those factors noted with (Q or C) may be considered **QUALITY** or **CONDITION**, depending on the circumstances. Factors with no notation are considered **QUALITY** only.

---

## **(10) Maturity**

Maturity can only be determined by an analysis of the juice. **Do not judge maturity based on color alone.** Some varieties may be green and meet maturity requirements while others may be considered well colored and subsequently fail to meet the requirements. Also, fruit may be artificially colored and appear *well colored* only to fail maturity requirements.

Specific information on maturity requirements at shipping point are contained in the DOC rules.

At market, do not mention maturity on the certificate unless a juice analysis is performed. This analysis may be performed at applicant's request. When requested, proper samples must be obtained and a ratio of soluble solids to acid must be determined. If the inspection office is not equipped to perform these procedures, the sample must be shipped to the nearest office equipped for this test. If unfamiliar with the **exact** procedures involved, please contact your supervisor or Headquarters in Washington, D.C. for specific instructions.

Samples may be officially drawn by an inspector and shipped to a designated inspection office for analysis and certification. Immediately after the sample is drawn, the inspector shall issue an FV-187. The original and at least one copy of this notice shall be shipped to the designated office performing the analysis. One copy shall also be mailed to the designated office, with a final copy being retained in the office where the sample was drawn.

If an FV-187 is not available, the following information should accompany the sample: date and location of sampling, name of applicant, car/truck or lot number, markings, type and number of containers, and name of the inspector that obtained the sample.

Inspectors analyzing officially drawn samples shall report the following statement under REMARKS:

"The sample covered by this certificate was officially drawn by \_\_\_\_\_ on mm/dd/yy, at \_\_\_\_\_ as shown on attached Notice of Sampling No. \_\_\_\_\_."

---

## **(11) Discoloration (Q)**

The standards provide additional grades based on discoloration caused by rust mite, smooth or fairly smooth superficial scars, speck type melanose or other means (refer to the discoloration chart).

The term "excessive discoloration" describes discoloration affecting the appearance more than the grade allows. This term is used because fruit may be scored against the U.S. No. 1 grade due to the intensity, or type of discoloration, and not be in excess of 1/3 of the surface. The same principle applies to the other grades. For example, light smooth scars which do not cover more than 1/4 of the surface of the fruit may affect the appearance more than 1/3 of the surface of a light shade of golden brown discoloration and, therefore, be scored as excessive discoloration against the U.S. No. 1 grade.

Excessive discoloration must be reported separately from other quality defects, except in the U.S. Fancy grade. The U.S. Fancy grade does not provide a separate or additional tolerance for fruit affected by excessive discoloration. Also, any unused portion of the general lot tolerance of any grade may not be used for fruit affected by excessive discoloration and vice versa.

The U.S. No. 3 grade does not have any requirements concerning excessive discoloration and it is not scored.

## DISCOLORATION CHART

Grade	Area Allowed (surface)	Area Required (surface)	Tolerance	Sample Tolerance
U.S. #1, Bright	1/5	—	10%	20%
U.S. #1	1/3	—	10%	20%
U. S. #1, Golden	1/3	—	30%	40%
U.S. #1, Bronze*	—	1/3	at least 30%	at least 20%
U.S. #1, Russet	—	1/3	at least 30%	at least 20%
U.S. #2, Bright	1/5	—	10%	20%
U.S. #2	1/2	—	10%	20%
U.S. #2, Russet	—	1/2	at least 10%	0

\*The predominating type of discoloration on each fruit shall be of rust mite type.

**§51.1161, 51.770, 51.1828 “Discoloration” means russetting of a light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area provided no discoloration caused by speck type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed for the grade.**

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

#### **Oranges-Grapefruit only (not a Tangerine requirement)**

The USDA Inspection Service **does not** certify variety. When variety is in question, the inspector shall inform interested parties that only the “type” may be certified. When type is a factor in a load of Oranges-Grapefruit, such as distinctly different *external* colors or shapes, this will be considered a defect. This defect shall be reported as dissimilar varietal characteristics and scored as a quality factor. At shipping point, score against the total tolerance for the grade. At market, score against the tolerance for permanent defects. Do not confuse this defect with fruit that does not

meet shape or color requirements. Please refer to corresponding sections for further descriptions.

Mixing different types in the same container is prohibited unless they are separated by dividers within the package or segregated into rows or layers within the package. If product is segregated, an inspection may be requested for one or more of the products in the package. Each individual product shall be inspected separately and the results reported as separate lots.

If the product is not segregated, inspectors must determine the "characteristic" color for the lot. Fruit that is not "characteristic" for the lot shall be scored as a defect and reported as "dissimilar varieties."

**§51.1154 and §51.763 "Similar varietal characteristics" means that the fruits in any container are similar in color and shape.**

## SECTION TWO - ORANGES AND TANGELOS

---

### (15) Specific Factors and Defects

---

#### Color (Q)

"Color" refers to the degree of yellow or orange color. It does not relate to discoloration caused by rust mite, speck type melanose, and smooth-fairly smooth superficial scars. When determining color, judge only that part of the fruit not discolored. If fruit is totally "bronzed," it would meet the requirements of "well colored" since there is "practically no trace of green color." Therefore, "well colored" on a U.S. No. 1 lot would have the same meaning as "well colored" on a U.S. No. 1 Bronze lot.

When determining if a lot meets color requirements, examine the fruit in normal daylight. Fruit appears greener in poor lighting conditions or under "artificial" light.

The U.S. Fancy grade requires well colored fruit. The U.S. No. 1 grade requires early and midseason fruit to be fairly well colored. For late varieties, the U.S. No. 1 grade requires not less than 50 percent, by count per sample, be fairly well colored with the remainder reasonably well colored. The U.S. No. 2 grade requires reasonably well colored fruit. Fruit not meeting these requirements shall be scored against the total grade tolerance. The U.S. No. 3 grade allows fruit to be poorly colored.

"**Early type**" are those which have a normal maturing season corresponding to that of Parson Brown and Hamlin varieties, (September to February).

"**Midseason type**" are those having a normal maturing period corresponding to that of Pineapple oranges and seedlings, (December to March).

"**Late type**" are those having a normal maturing season corresponding to that of Valencia and Pope varieties, (March to July).

"Emerald" or "Satsuma" citrus fruit varieties are normally marketed with green color. The U.S. Standards for Grades of Florida Oranges shall be used as the basis for inspection. Generally, this fruit will not meet the color requirements for the grade. Inform the applicant of this factor prior to performing the inspection. Report under "REMARKS" that "the inspector stated to the applicant that the fruit will not meet the color requirements of the grade." Cross reference the defects and report the following under the "GRADE" statement: "Fails to grade U.S. No.1 account quality defects (color)." For certifying various varieties of citrus see Appendix II (Directive FPB-618, dated December 10, 1998).

## **Color Added Fruit**

Fruit color may be enhanced by placing it in a closed room and releasing ethylene gas or exposing it to a warm coloring solution. Florida citrus laws permit the use of artificial coloring on oranges and devote a number of pages to the proper certification and assessment of coloring.

**§51.1155 “Well colored” as applied to common oranges and tangelos means that the fruit has characteristic color for the variety with practically no trace of green color.**

**§51.1164 “Fairly well colored” as applied to common oranges and tangelos means that except for an aggregate area of green color which does not exceed the area of a circle 1 inch (25.4 mm) in diameter, the characteristic color predominates over the green color.**

**§51.1165 “Reasonably well colored” as applied to common oranges means that the characteristic color predominates over the green color on at least two-thirds of the fruit surface, in the aggregate.**

**§51.1166 “Poorly colored” as applied to common oranges means that not more than 25 percent of the surface may be solid dark green color.**

---

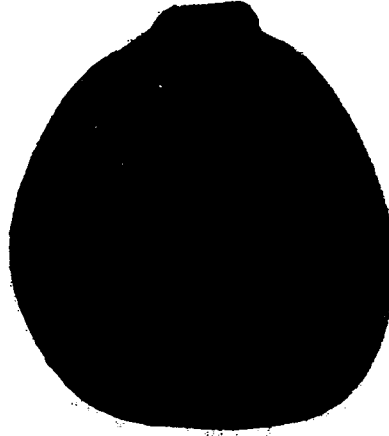
## **Shape (Q)**

Normal shape for the variety must be considered when determining the correct term(s) to use when describing shape. For example, the Hamlin variety is slightly oval while the Valencia variety tends to be oblong. Minneola tangelos have a pear-like neck and Orlando tangelos are characteristically orange shaped. Refer to the following page for a silhouette of the Ambersweet orange variety. The shape of this variety is atypical for oranges.

The U.S. Fancy and U.S. No. 1 grades require well formed fruit. The U.S. No. 2 grade requires not more than slightly misshapen fruit. Fruit not meeting these requirements shall be scored against the total grade tolerance. The U.S. No. 3 grade allows misshapen fruit.



## Characteristic Shape for the Ambersweet Orange Variety



**§51.1157 “Well formed” means that the fruit has the shape characteristic of the variety.**

**§51.1168 “Slightly misshapen” means that the fruit is not of the shape characteristic of the variety but is not appreciably elongated or pointed or otherwise deformed.**

**§51.1171 “Misshapen” means that the fruit is decidedly elongated, pointed or flatsided.**

---

### Texture (Q)

“Texture” refers to smoothness or roughness of the skin. This factor will vary considerably with the size and variety of fruit. Larger sizes are normally rougher than smaller sizes of the same variety. Therefore, when reporting “smooth” or “fairly smooth” texture, the size and variety must be considered when determining the proper descriptive term.

In most cases, the texture and thickness of skin are relative to each other, e.g., fairly thin skinned fruit is fairly smooth. However, if they do not coincide (thick skin with fairly smooth texture or thin skin with rough texture, for example) report each factor separately.

The U.S. Fancy grade requires fruit to have smooth texture. The U.S. No. 1 grade requires fruit to have fairly smooth texture. The U.S. No. 2 grade requires fruit to have not more than slightly rough texture. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade allows fruit to have rough texture.

**§51.1159 "Smooth texture" means that the skin is thin and smooth for the variety and size of the fruit.**

**§51.1162 "Fairly smooth texture" means that the skin is fairly thin and not coarse for the variety and size of the fruit.**

**§51.1169 "Slightly rough texture" means that the skin is not of smooth texture but is not materially ridged, grooved, or wrinkled.**

---

### **Internal Quality of Common Sweet Oranges (Q)**

The U.S. Standards for Grades of Florida Oranges and Tangelos contain requirements for internal quality (Appendix I). These requirements are based on volume of juice per standard box, percentage of soluble solids, acid content and ratio of acid to soluble solids. The procedure to determine internal quality is identical to that used for maturity. Compare the test results with the requirements in the standards to determine whether the juice is "A" or "Double AA" quality. Contact the DOC for current requirements and procedures.

\*\*\*\*

---

### **Firmness/Puffy (C)**

The U.S. Fancy and U.S. No. 1 grades require firm fruit. The U.S. No. 2 grade requires fairly firm fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade allows slightly spongy fruit.

If the fruit only shows signs of "puffy" skins, then score as damage (when the skin separates from more than half of the fruit) and report as "badly puffy." If all the skin has separated from the fruit, then score as serious damage and report as "extremely puffy." However, in the No. 3 grade, the fruit would have to be soft and extremely puffy, report very serious damage as "extremely puffy and soft." If only extremely puffy, then do not score against the No. 3 grade.

When testing for firmness, place the fruit in the palm of your hand and squeeze gently. If the fruit "bounces back," it is considered firm. Fruit with thin skin may feel soft or spongy and still be considered firm. Do not score fruit as soft if only a particular area is affected (refer to bruising). Score as soft, spongy or flabby when the entire fruit is affected.

**§51.1156 "Firm" as applied to common oranges and tangelos means that the fruit is not soft, or noticeably wilted or flabby; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), means that the fruit is not extremely puffy, although the skin may be slightly loose.**

**§51.1167 "Fairly firm" as applied to common oranges and tangelos, means that the fruit may be slightly soft, but not bruised; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), means that the skin of the fruit is not extremely puffy or extremely loose.**

**§51.1172 "Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.**

---

### **Commodity-Specific Defects**

**NOTE: All references to area or aggregating area, or length in this standard are based on an orange or tangelo 2-7/8 inches (73.0 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.**

---

### **Creasing (Q or C)**

Creasing is a condition of the rind where the inner, spongy portion (albedo) separates and the overlaying, oil-bearing layer sinks. This appears as a transparent irregular pattern of the rind caused by the thinning peel. Creasing, in most cases, causes the skin to be materially weakened. The skin becomes susceptible to cracking when placed in a tight pack or during transit.

The severity of creasing does not increase after harvest. Creases in fruit that are subjected to hot solutions, such as in a "color-added" treatment, tend to become more apparent. If fruit is packed too tightly or containers are stacked too high, the rind may become sunken, watersoaked or split, which can cause an entrance for decay.

At market, creasing is scored as a quality factor unless the fruit is color added. If the fruit or containers are marked "color added," score all creasing as a condition factor.

### **§51.1175 Classification of defects. (Chart)**

**Damage - Materially weakens the skin, or extends over more than one-third of the surface.**

**Serious damage - Seriously weakens the skin, or extends over more than one-half of the surface.**

**Very serious damage - Very seriously weakens the skin, or is distributed over practically the entire surface.**

**NOTE: Do not aggregate, consider only the total surface area that is affected.**

### **Stem End Aging (C)**

Stem end aging is a condition that is found primarily in late varieties. The fruit appears to dry out, generally at the stem end. Other characteristics may include discolored, bumpy or rough areas at the stem end only, or minute, concentric cracks around the stem scar that are gray to tan in color.

**Damage** - When darker than a light shade of golden brown and exceeding more than a circle 1 inch in diameter.

\*\*\*\*

**Serious damage** - When darker than a light shade of golden brown and exceeding more than a circle 1-1/2 inches in diameter.

**Very serious damage** - When darker than a light shade of golden brown and exceeding more than 50 percent of the surface.

**NOTE:** Do not aggregate, consider only the total surface area that is affected. If these areas are wilted, shriveled, pitted, or the oil glands are collapsed and sunken, they are to be scored as **skin breakdown**. Please refer to the section on skin breakdown for additional information.

---

### **Split, Rough or Protruding Navel (Q)**

Split, rough or protruding navels generally occur on navel oranges. Consider any unhealed split to be very serious damage.

#### **§51.1175 Classification of defects. (chart)**

**Injury** - Split is unhealed, or more than 1/8 inch (3.2 mm) in length, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from the appearance.

**Damage** - Split is unhealed, or more than 1/4 inch (6.4 mm) in length, or more than three well healed splits, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from appearance.

**Serious Damage** - Split is unhealed, or more than 1/2 inch (12.7 mm) in length, or two or more splits aggregating more than 1 inch (25.4 mm) in length, or navel protrudes beyond general contour, and opening is so wide, folded and ridged that it detracts from the appearance.

**Very Serious Damage** - Split is unhealed or fruit is seriously weakened.

## SECTION THREE - GRAPEFRUIT

---

### (16) Specific Factors and Defects

---

#### Color (Q)

"Color" refers to the degree of yellow or orange color. It does not relate to discoloration caused by rust mite, speck type melanose, and smooth-fairly smooth superficial scars. When determining color, judge only that part of the fruit not discolored. If fruit is totally "bronzed," it would meet the requirements of "well colored" since there is "practically no trace of green color." Therefore, "well colored" on a U.S. No. 1 lot would have the same meaning as "well colored" on a U.S. No. 1 Bronze lot.

Examine fruit in normal daylight when making color determinations. Fruit appears greener in poor lighting conditions or under "artificial" light.

The U.S. Fancy grade requires well colored fruit. The U.S. No. 1 grade requires fairly well colored fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 2 grade allows slightly colored fruit. The U.S. No. 3 grade allows poorly colored fruit.

**§51.764 "Well colored" means that the fruit has characteristic color for the variety with practically no trace of green color.**

**§51.771 "Fairly well colored" means that except for an aggregate area of green color which does not exceed the area of a circle 1 inch (25.4 mm) in diameter, the characteristic color predominates over the green color.**

**§51.778 "Slightly colored" means that except for an aggregate area of green color which does not exceed the area of a circle 2 inches (50.8 mm) in diameter, the fruit surface shows some characteristic color.**

**§51.779 "Poorly colored" means that not more than 25 percent of the surface may be of a solid dark green color.**

---

#### Shape (Q)

The normal shape for a variety must be considered when determining the correct term(s) to use when describing shape. Fruit of a specific shape may be well formed for one variety and less than well formed for another.

The U.S. Fancy and U.S. No. 1 grades require well formed fruit. The U.S. No. 2 grade requires not more than slightly misshapen fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade allows misshapen fruit.

**§51.766 “Well formed” means that the fruit has the shape characteristic of the variety.**

**§51.775 “Slightly misshapen” means that the fruit has fairly good shape characteristic of the variety and is not more than slightly elongated or pointed or otherwise deformed.**

**§51.780 “Misshapen” means that the fruit is decidedly elongated, pointed, or flatsided.**

---

### **Texture (Q)**

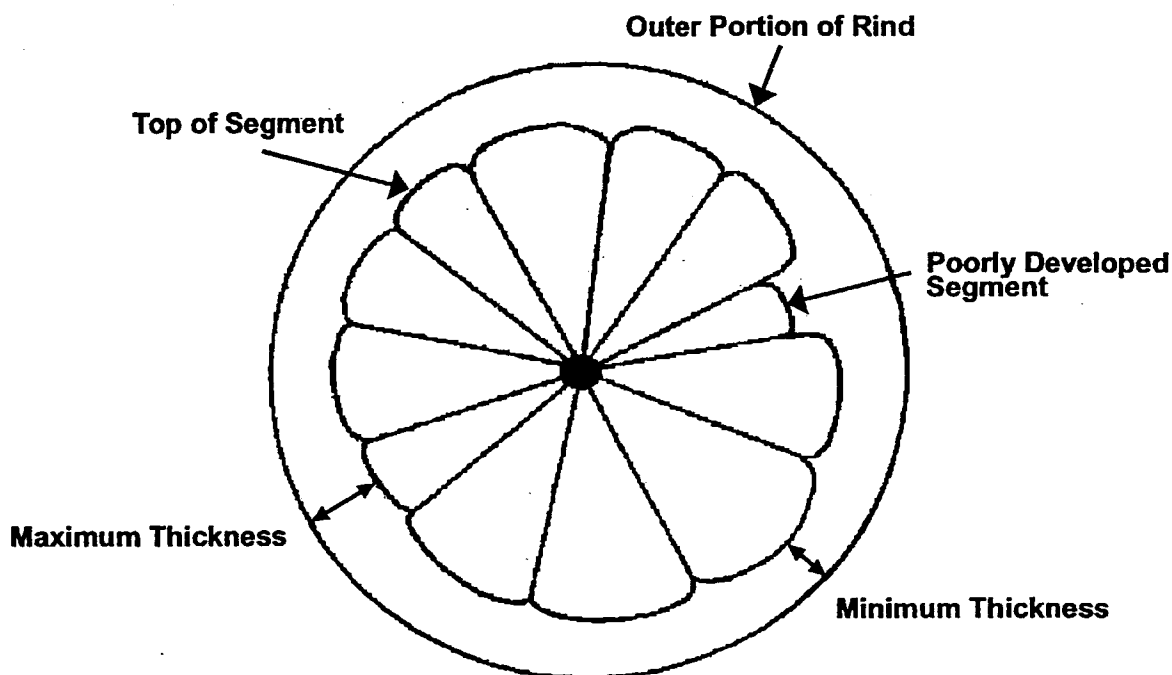
“Texture” refers to smoothness or roughness of the skin. This factor will vary considerably with the size and variety of fruit. Larger sizes are normally rougher than smaller sizes of the same variety. When reporting texture, the size and variety must be considered when determining the proper descriptive term.

In most cases, the texture and thickness of the skin are relative to each other, e.g., fairly thin skinned fruit is fairly smooth in texture and slightly thick skin is slightly rough in texture. If they do not coincide (thick skin with fairly smooth texture or thin skin with rough texture, for example) report each factor separately. If fruit is abnormally thick and coarse for the size and variety, it shall be scored based on the texture requirements of the grade.

If thick-skinned fruit are suspected, make a cut in the center of the fruit, perpendicular from stem to blossom end. Measure rind thickness from the point where the flesh meets the albedo to the edge of the rind. Measure the thickest and thinnest portions, add these measurements together, and divide by two to obtain an “average” measurement. If the average is more than 1/2 inch, it fails to meet fairly smooth texture. If the average is more than 5/8 inch, it fails to meet slightly rough texture. One undeveloped segment per fruit is allowed. Do not use an undeveloped segment when determining average measurement.

The U.S. Fancy grade requires fruit to have smooth texture. The U.S. No. 1 grade requires fruit to have fairly smooth texture. The U.S. No. 2 grade requires fruit to have not more than slightly rough texture. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade allows fruit with rough texture.

## Measuring Minimum-Maximum Rind Thickness



**§51.768 "Smooth texture"** means that the skin is thin and smooth for the variety and size of the fruit. "Thin" means that the skin thickness does not average more than  $\frac{3}{8}$  inch (9.5 mm), on a central cross section, on grapefruit  $4\frac{1}{8}$  inches (104.8 mm) in diameter.

**§51.772 "Fairly smooth texture"** means that the skin is fairly thin and not coarse for the variety and size of the fruit. "Fairly thin" means that the skin thickness does not average more than  $\frac{1}{2}$  inch (12.7 mm), on a grapefruit  $4\frac{1}{8}$  inches (104.8 mm) in diameter.

**§51.776 "Slightly rough texture"** means that the skin may be slightly thick but not excessively thick, materially ridged or grooved. "Slightly thick" means that the skin thickness does not average more than  $\frac{5}{8}$  inch (15.9 mm), on a central cross section, on a grapefruit  $4\frac{1}{8}$  inches (104.8 mm) in diameter.

---

### Firmness (C)

The U.S. Fancy and U.S. No. 1 grades require firm fruit. The U.S. No. 2 grade requires fairly firm fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade allows slightly spongy fruit.

When testing for firmness, place the fruit in the palm of your hand and squeeze gently. If the fruit "bounces back," it is considered firm. Fruit with thin skin may feel soft or spongy and still be considered firm. Do not score fruit as soft if only a particular area is affected (refer to bruising). Score as soft, spongy or flabby when the entire fruit is affected.

**§51.765 "Firm" means that the fruit is not soft, or noticeably wilted or flabby, and the skin is not spongy or puffy.**

**§51.774 "Fairly firm" means that the fruit may be slightly soft, but not bruised, and the skin is not spongy or puffy.**

**§51.781 "Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.**

---

## **Commodity-Specific Defects**

**NOTE: All references to area or aggregating area, or length in this standard are based on a grapefruit 4-1/8 inches (104.8 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.**

---

### **Blossom End Clearing (C)**

Blossom end clearing is a physiological disorder that appears as a watersoaked, translucent, blotchy area(s). These areas generally occur around the blossom end, but may appear elsewhere on the fruit. This condition develops late in the season, particularly following heavy rains, increasing water content of the fruit. Blossom end clearing is frequently followed by decay.

**Damage** - When aggregating more than a circle 3/4 inch in diameter.

**Serious damage** - When aggregating more than a circle 1 inch in diameter.

**Very serious damage** - When aggregating more than a circle 1-1/2 inches in diameter or if the underlying flesh is discolored and mushy. "Discolored" in this context means any shade of brown.

---

### **Cluster Rings (Q)**

Cluster rings occur as one or more smooth rings and/or roughened areas of various diameters on the stem end half of the fruit. This injury is the result of rust mite or orchid thrips that feed in the shaded area created where fruit are in direct contact or where a leaf and the fruit touch.

When cluster rings occur as superficial smooth or fairly smooth areas on the fruit, report as "discoloration" and score against the discoloration tolerance.



As a guide for the U.S. No. 1 grade, allow two fairly smooth dark brown to black halo circles, each 1-1/4 inches in diameter, which affect the appearance the same as one-third of the surface having a light shade of golden brown. Allow less diameter when the ring area is solid and more diameter when ring area is lighter in color.

As a guide for the U.S. No. 2 grade, allow three fairly smooth dark brown to black halo circles, each 1-1/4 inches in diameter, which affect the appearance the same as one-half of the surface having a light shade of golden brown. Allow less diameter when the ring area is solid and more diameter when ring area is lighter in color.

When cluster rings do not occur as superficially smooth-fairly smooth areas on the fruit, report as "cluster ring scars" and score against the general lot tolerance.

As a guide, score cluster ring scars as **damage** when areas are raised and very rough, aggregating more than a circle 1/2 inch in diameter; raised and rough aggregating more than a circle 1 inch in diameter; raised and slightly rough aggregating more than 10 percent of the fruit surface.

Score cluster ring scars as **serious damage** when areas are raised and very rough, aggregating more than a circle 1 inch in diameter; raised and rough aggregating more than 5 percent of the fruit surface; raised and slightly rough aggregating more than 15 percent of the fruit surface.

Score cluster ring scars as **very serious damage** when raised or very rough or unsightly to the point that the appearance is very seriously affected.

When areas occur slightly raised and rough with a grayish to light brown color; which will not take a sheen after the waxing-polishing process, report as cluster ring scars and score on the following basis:

**Damage** - When aggregating more than a circle 1-1/4 inches in diameter.

**Serious damage** - When aggregating more than 25 percent of the surface.

**Very Serious Damage** - When aggregating more than 50 percent of the surface.

---

### **Sprouted Seeds (C)**

During the latter part of the season, inspectors are instructed to check grapefruit for sprouted seeds. Seeds generally do not exhibit sprouting before the early part of March.

When cutting to detect sprouting, use the following procedures:

1. Cut a slice, approximately 1 inch in width, from both the stem and blossom ends.

2. Make one cut through the rind only, perpendicular to the stem and blossom ends.
3. Place fingers in the slice where the last cut was made and carefully spread the fruit open to expose sections and/or seeds.
4. Carefully remove the sprouted seed. Measure the sprout where it exits the seed to its longest point. If there are two sprouts from the same seed, measure the longest sprout.

When determining the percentage of sprouted seeds, follow the sampling plans for internal defects in the section *Sampling to Determine Internal Defects*.

**§51.784 Classification of defects. (chart)**

**Damage - more than six seeds have sprouts of more than 1/4 inch (6.4 mm) in length, or more than 3 seeds with sprouts over 3/4 inch (19.1 mm) in length.**

**Serious damage - more than six seeds have sprouts of more than 1/2 inch (12.7 mm) in length, or more than 3 seeds with sprouts over 1 inch (25.4 mm) in length.**

**Very serious damage - more than six seeds have sprouts of more than 3/4 inch (19.1 mm) in length, or more than 3 seeds with sprouts over 1-1/4 inches (31.8 mm) in length.**

## SECTION FOUR - TANGERINES

---

### (17) Specific Factors and Defects

---

#### Color (Q)

"Color" refers to the degree of yellow, orange or reddish blush and not to discoloration caused by rust mite, speck type melanose, and smooth-fairly smooth superficial scars. Judge only that part of the fruit that is not discolored. If the fruit is totally "bronzed," it would meet the requirements of "well colored" since there is "practically no trace of green color." Therefore, "well colored" on a U.S. No. 1 lot would have the same meaning as "well colored" on a U.S. No. 1 Bronze lot.

When determining color, examine the fruit in normal daylight whenever possible. Fruit appears greener in poor lighting conditions or under "artificial" light.

The U.S. Fancy grade requires highly colored fruit. The U.S. No. 1 grade requires fairly well colored fruit. The U.S. No. 2 grade requires reasonably well colored fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade has no color requirements. Tangerines of any color are permitted in this grade.

**§51.1827 "Highly colored" means that the ground color of each fruit is a deep tangerine color, or characteristic color for the variety, with practically no trace of yellow color.**

**§51.1829 "Well colored" means that a good yellow or better ground color predominates over the green color on the entire fruit surface with no distinct green color present, and that some portion of the surface has a reddish tangerine blush, or characteristic color for the variety.**

**§51.1830 "Fairly well colored" means that the surface of the fruit may have green color which does not exceed the aggregate area of a circle 1-1/4 inches (31.8 mm) in diameter and that the remainder of the surface has a yellow or better ground color with some portion of the surface showing reddish tangerine blush, or characteristic color for the variety.**

**§51.1834 "Reasonably well colored" means that a good yellow or reddish tangerine color shall predominate over the green color on at least one-half of the fruit surface in the aggregate, and that each fruit shall show practically no lemon color.**

---

**Shape (Q)**

**§51.1825 "Well formed" means that the fruit has the characteristic tangerine shape and is not deformed.**

**§51.1832 "Fairly well formed" means that the fruit may not have the shape characteristic of the variety but is not badly deformed.**

The normal shape for the variety must be considered when determining the correct term(s) used to describe shape. Fruit of a particular shape may be "well formed" for one variety and "fairly well formed" for another.

The U.S. Fancy and U.S. No. 1 grades require well formed fruit. The U.S. No. 2 grade requires fairly well formed fruit. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade does not have any shape requirements. Tangerines of any shape are permitted in the U.S. No. 3 grade.

---

**Texture (Q)**

The only texture requirement for Tangerines is for the U.S. No. 3 grade; not seriously lumpy. When inspecting tangerines on the U.S. No. 3 grade, do not score the fruit until it is seriously lumpy.

---

**Firmness (C)**

The U.S. Fancy and the U.S. No. 1 grades require fruit to be firm. The U.S. No. 2 grade is required to be fairly firm. Fruit not meeting these requirements are scored against the total grade tolerance. The U.S. No. 3 grade requirement is not flabby.

When testing for firmness, place the fruit in the palm of your hand and squeeze gently. If the fruit "bounces back," it is considered firm. Fruit with thin skin may feel soft or spongy and still be considered firm. Do not score fruit as soft if only a particular area is affected. Score as soft, spongy or flabby when the entire fruit is affected.

**§51.1824 "Firm" means that the flesh is not soft and the fruit is not badly puffy and that the skin has not become materially separated from the flesh of the tangerine.**

**§51.1831 "Fairly firm" means that the flesh may be slightly soft but is not bruised or badly puffy, and that the skin has not become seriously separated from the flesh of the tangerine.**

To determine whether fruit is materially or seriously separated from the flesh, some cutting or peeling of fruit will be necessary. "Materially separated from the

\*\*\*\*

flesh" means that the skin has separated from the flesh over more than 1/2 the area of the fruit. "Seriously separated from the flesh" means that the skin has separated from the flesh over the entire area of the fruit.

\*\*\*\*

---

### Commodity-Specific Defects

**NOTE: All references to area or aggregating area, or length in this standard are based on a tangerine 2-1/2 inches (63.5 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.**

---

### Grooving (Q)

Grooving, on oranges and grapefruit, is included in the texture requirements for each grade. However, there are no texture requirements for tangerines except in the U.S. No. 3 grade. When encountering grooving on tangerines, the scoring guideline is the general definition for damage, serious damage and very serious damage. Refer to orange model G-2, which illustrates damage by grooving. Tangerines appearing worse than the model are a defect, based on materially, seriously or very seriously detracting from the appearance of the fruit.

## SECTION FIVE – GENERAL DEFECTS

---

### (18) Classification of Defects

#### ORANGES

##### §51.1175 Classification of defects. (chart)

**Note:** All references to area or aggregating area, or length in this standard are based on an orange or tangelo 2-7/8 inches (73.0 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

#### GRAPEFRUIT

##### §51.784 Classification of defects. (chart)

**Note:** All references to area or aggregating area, or length in this standard are based on a grapefruit 4-1/8 inches (104.8 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

#### TANGERINES

##### §51.1837 Classification of defects. (chart)

**Note:** All references to area or aggregating area, or length in this standard are based on a tangerine 2-1/2 inches (63.5 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

---

#### Alternaria (Q or C)

Alternaria, when inactive, appears very similar to scars; gray to brown circular spots. Score as a scar using the scar guideline (refer to the section *Scars-Hail-Thorn Scratches*). When appearing as described above, report this defect as a quality factor at the market.

Alternaria, in its active stage, also appears similar to scars. The affected area also includes a halo on the outer edges of the "scar". The center portion of the scar may give the appearance of being easily removed or pulled out. If active Alternaria is found at the market, score as a condition factor and describe the appearance. Do not report as "Alternaria". Score as very serious damage unless it extends into the flesh of the fruit. If found in this severity, score as decay.

---

## **Skin Breaks (Q or C)**

Skin breaks may be caused by several factors: stems puncturing the fruit wall, mechanical damage during packing or harvesting, cuts, hail, thorn scratches, etc.

The flesh is exposed on "unhealed" skin breaks and any amount is scorable. "Healed" skin breaks do not expose the flesh, but the rind is torn or punctured.

### ***Oranges - Tangerines***

**Damage** - When affecting more than the aggregate area of a circle 3/16 inch in diameter.

**Serious damage** - When affecting more than the aggregate area of a circle 1/4 inch in diameter.

**Very serious damage** - When affecting more than the aggregate area of a circle 5/16 inch in diameter.

### ***Grapefruit***

**Damage** - When affecting more than the aggregate area of a circle 1/4 inch in diameter.

**Serious Damage** - When affecting more than the aggregate area of a circle 5/16 inch in diameter.

**Very Serious Damage** - When affecting more than the aggregate area of a circle 3/8 inch in diameter.

At shipping point, score any unhealed skin break as **very serious damage**. Score healed skin breaks as damage, serious damage or very serious damage based on the above guidelines.

At the market, score any unhealed skin break as a condition factor (**very serious damage**). Healed skin breaks will be considered a quality factor and scored as damage, serious damage or very serious damage based on the above guidelines.

---

## **Bruises (C)**

Bruises generally occur because of movement in slack packs, pressure from a tight pack or weight from adjacent cartons. Bruises will have soft areas that, when cut, contain mushy areas in the underlying flesh. Affected fruit may be flattened on two or more sides. If the underlying flesh is not affected, these flattened areas may regain their shape. Do not score flattened areas unless the underlying flesh is mushy.

**ORANGES - GRAPEFRUIT**

**§51.1175, 51.784 Classification of defects. (See chart.)**

**Injury, Damage and Serious Damage - Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.**

**Very Serious Damage - Fruit is split open, peel is badly watersoaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch (19.1 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.**

**TANGERINES**

**§51.1837 Classification of defects. (See chart.)**

**Damage and Serious Damage - Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.**

**Very Serious Damage - Fruit is split open, peel is badly watersoaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 1/2 inch (12.7 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.**

**Note:** Definitions for injury, damage and serious damage by bruising are identical. Whenever bruising is severe enough to score, (segment walls are collapsed or rag is ruptured and juice sacs are ruptured), it shall be categorized as **serious damage**. In order to determine the amount of mushy condition (**very serious damage**), use the cutting procedures described under "Cutting Instructions and Scoring Guide for Dryness-Mushy Condition."  
\*\*\*\*

---

**Buckskin (Q)**

Fruit affected by this disease will have slightly roughened, grayish areas of the abnormally thick rind. Buckskin is caused by rust mites on immature fruit which is aggravated and extended by a surface-growing fungus following the mite injury.

**ORANGES**

**§51.1175 Classification of defects. (See chart.)**

**Damage - Aggregating more than a circle 1 inch (25.4 mm) in diameter.**

**Serious Damage - Aggregating more than 25 percent of the surface.**

**Very Serious Damage - Aggregating more than 50 percent of the surface.**



## **GRAPEFRUIT**

### **§51.784 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.**

**Serious Damage - Aggregating more than 25 percent of the surface.**

**Very Serious Damage - Aggregating more than 50 percent of the surface.**

## **TANGERINES**

### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Serious Damage - Aggregating more than 25 percent of the surface.**

**Very Serious Damage - Aggregating more than 50 percent of the surface.**

---

### **Decay (C)**

Decay is a "free from" defect and any amount is scored as very serious damage. The most common types affecting citrus include Green Mold Rot, Blue Mold Rot, Brown Rot, Sour Rot and Stem End Rot.

At shipping point, do not mention the type of decay or severity (stages). At market, the type of decay is not required on the certificate, but a description of the decay stages must be reported.

---

### **Dirt-Other Foreign Matter (Q or C)**

Cleanness will seldom be a factor due to the generally sandy soil of Florida and the washing process prior to packing. Large amounts of dirt, adhering foreign material or residue on the fruit are scorable when they materially, seriously or very seriously detract from the appearance, edible or marketing quality of the fruit.

Dirt is a quality factor; wax residue is a condition factor. Wax coatings may not be evenly distributed over the fruit surface. Wax residue is scored when it is clumped, or covers a substantial portion of the surface and detracts from the appearance. This fact may not be readily noticeable at the time of packing because the normally clear wax can discolor over time, hence the condition designation.

## **ORANGES - TANGERINES**

**Damage** - when aggregating more than a circle 5/8 inch (15.9 mm) in diameter.

**Serious Damage** - when aggregating more than 1-1/4 inch (31.8 mm) in diameter.

**Very Serious Damage** - when aggregating more than 25 percent of the surface.

## **GRAPEFRUIT**

**Damage** - when aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Serious Damage** - when aggregating more than a circle 1-3/8 inch (34.9 mm) in diameter.

**Very Serious Damage** - when aggregating more than 25 percent of the surface.

---

### **Flesh Color and Seed Count**

There are citrus varieties that may be identified by flesh color and number (or absence) of seeds, but this method is not completely reliable. Some pink and red varieties can have lighter shades of red flesh color during the early part of the season than during mid-season. During late season, the pink or red color may fade to a cloudy or milky appearance, showing little or no pink color. The number of seeds per fruit may vary depending on growing conditions and the genetic makeup of the fruit.

When determining flesh color, randomly select 10 fruit from each sample, make a center cut, perpendicular to a line from stem to blossom end, and examine each portion.

When determining seed count, randomly select 10 fruit from each sample, follow the cutting procedures outlined in the *Sprouted Seeds* section, and count all seeds found.

The determination of flesh color-seed count is only by applicant's request. Report these factors in the "OTHER" section of the FV-300 or in the "REMARKS" section of the FV-184. **Example** (Grapefruit): In cut samples, 65% have white flesh, 35% have pink flesh, reported at applicant's request. (Oranges): In cut samples, 65% have orange flesh, 35% have red flesh, reported at applicant's request. **Example**: In cut samples, fruit generally contains 3 to 12 seeds, mostly 2 to 7 seeds per fruit, reported at applicant's request.

---

## Freezing Injury (Q or C)

Fruit that is affected by freezing injury may exhibit the following characteristics:

1. Segment walls have buckled at a cross section cut near the stem end;
2. Watersoaked condition of the core;
3. Mushy condition of segments or portions of segments;
4. Dry portions of segments; and,
5. Open spaces in the pulp.

If frozen citrus is examined several days after thawing, it will usually have a white or colorless crystalline compound (hesperidin) on the membrane that separates the pulp segments. These crystals may be visible within a few hours of freezing. Several weeks after freezing, the crystals may not be as numerous or conspicuous. When freezing injury is encountered, use the same procedures and scoring guidelines as outlined for dryness or mushy condition.

Dryness from freezing differs from granulation dryness that is attributed to tree dryness. After freezing, affected juice sacs collapse, having been emptied of juice. During granulation, juice sacs do not collapse; they become filled with gelatinous or solid matter.

Use the procedures outlined in the sections; *Cutting for Dryness or Mushy Condition* and *Sampling To Determine Internal Defects* to accurately sample for these conditions.

If a significant freeze occurs, inspectors will be notified, via memorandum from Washington, D.C., to score freezing injury as a *condition* defect. When it is felt that practically no additional change to the fruit will occur in transit, a second notification will be issued, instructing inspectors to score freezing injury as a *quality* defect.

---

## Granulation (Tree Dryness) (Q)

Granulation can be a varietal peculiarity or the result of growing conditions. Citrus that is harvested late in the season, or from young trees during early or mid-season after a drought, may have granulation, particularly in larger sizes. Thompson navel oranges are susceptible to granulation regardless of when they are harvested. During some shipping seasons, granulation may affect varieties that do not normally exhibit this characteristic. In some instances, granulation may occur in larger sizes, while occurring in smaller sizes at other times. It may also be more prevalent at the blossom-end rather than the stem end.

The granulated condition may appear throughout the pulp of affected fruit, or more often, affecting only the stem end portion. Use the procedures and scoring guidelines for dryness-mushy condition, but score granulation as a quality factor against the applicable tolerance for permanent defects.

Juice sacs of granulated fruit remain swollen and do not separate from each other or the segment walls. In such cases, the juice is displaced by yellow to grayish-white solid matter. Affected fruit will generally feel firm, but very light in weight.

Frequently, tree dryness will occur in larger sizes with very little or none in smaller sizes. In such instances, report dryness according to sizes, or by the percentage found in large sizes versus those that do not have dryness. If certain sizes fail to grade, report those separately from the lots that grade.

Dryness-granulation will not be detected with any degree of accuracy by external indication alone. For positive verification, use the procedures outlined in the section *Cutting for Dryness or Mushy Condition*.

---

### **Green Spots (Q)**

Green spots are common on tangerines and, to a lesser extent, on tangelos. This defect is not frequently seen on oranges and grapefruit. Green spots are caused by scale settling on young fruit and subsequently washed or rubbed off during the grading-packing process. Green spots are often noticeable where the scale had once been attached.

#### **ORANGES**

##### **§51.1175 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 3/8 inch (9.5 mm) in diameter, caused by scale.**

**Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter, caused by scale.**

**Serious Damage - Aggregating more than a circle 7/8 inch (22.2 mm) in diameter, caused by scale.**

**Very Serious Damage - Aggregating more than 1/3 of the surface, caused by scale.**

#### **GRAPEFRUIT**

##### **§51.784 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter, caused by scale.**

**Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter, caused by scale.**

**Serious Damage - Aggregating more than a circle 1 inch (25.4 mm) in diameter, caused by scale.**

**Very Serious Damage - Aggregating more than 1/3 of the surface, caused by scale.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Caked Melanose (Q)**

Melanose occurs as small brown raised spots, approximately pin head size. These spots may coalesce to form large scab-like patches known as "caked melanose". When scattered over the fruit surface, they are scored as discoloration (speck type melanose).

Melanose spots may also appear similar to "tear staining." Tear staining is a form of rust mite discoloration with a smooth, diffused appearance. When encountered, score tear staining as discoloration. Melanose is easily distinguished from this defect by its brown glazed appearance, slightly raised texture and distinct "sandpapery" feel. Please refer to the *Discoloration* section for additional scoring information on these defects.

### **ORANGES**

#### **§51.1175 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **GRAPEFRUIT**

#### **§51.784 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 1 inch (25.4 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Oil Spots (Q)**

Oil spots ("Oleocellosis") are likely to occur on green fruit when handled roughly during wet conditions. Pressure on green fruit during picking and handling can also cause this defect.

The most common symptom of oil spots is irregularly-shaped yellow, light green, or brown spots where the oil glands are conspicuous. The severity of this defect depends upon the amount of oil released. Yellow spots will develop on fully colored, mature fruit; light green spots on fruit that was green when picked. Light to dark brown spots are a later or older stage of spots that were originally light green or more severely injured.

### **ORANGES**

#### **§51.1175 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.**

**Damage - Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.**

**Very Serious Damage - Aggregating more than 1/3 of the surface.**

### **GRAPEFRUIT**

#### **§51.784 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.**

**Damage - Aggregating more than a circle 1 inch (25.4 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 1/3 of the surface.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Pulled Stems (Q)**

Pulled stems (plugs) are torn areas of the rind immediately adjacent to the stem button.

### **ORANGES**

**Damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 3/16 inch (4.8 mm) in diameter.

**Serious damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 1/4 inch (6.4 mm) in diameter.

**Very serious damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 5/16 inch (7.9 mm) in diameter or when the flesh is exposed.

### **GRAPEFRUIT**

**Damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 1/4 inch (6.4 mm) in diameter.

**Serious damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 5/16 inch (7.9 mm) in diameter.

**Very serious damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 3/8 inch (9.5 mm) in diameter or when the flesh is exposed.

### **TANGERINES**

**Damage -** When the rind adjacent to the stem button is torn more than the aggregate area of a circle 3/16 inch (4.8 mm) in diameter.

**Serious damage** - When the rind adjacent to the stem button is torn more than the aggregate area of a circle 1/4 inch (6.4 mm) in diameter.

**Very serious damage** - When the rind adjacent to the stem button is torn more than the aggregate area of a circle 5/16 inch (7.9 mm) in diameter or when the flesh is exposed.

---

## Scab (Q)

Scab is a common field disease in Florida and other areas with moist summers. Temple oranges and some tangelo varieties are very susceptible to scab, while sweet oranges exhibit considerable resistance.

Scab occurs on leaves, twigs and fruit, attacking only young host tissue. Symptoms start as small translucent spots which, as they grow older, become irregular scabby areas or outgrowths ranging from buff to dark olive-gray color. The outgrowths can be singular or may coalesce to form large raised patches of tan to gray-colored scab. Fruit severely infected with scab while young may become misshapen due to excessive development of the warty outgrowths.

Infected areas on grapefruit tend to be flatter than on other citrus and appear as scaly patches as the fruit matures. These patches may flake off and leave scar tissue similar to wind scarring or other mechanical injuries. On mature grapefruit, the skin around the scabbed area tends to remain green.

Tangerines, compared to other Florida citrus, are the least likely to be affected by scab.

### ORANGES

#### §51.1175 Classification of defects. (chart)

**Damage** - Materially detracts from the shape or texture, or aggregating more than a circle 5/8 inch (15.9 mm) in diameter.

**Serious Damage** - Seriously detracting from the shape or texture, or aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Very Serious Damage** - Aggregating more than 25 percent of the surface.

### GRAPEFRUIT

#### §51.784 Classification of defects. (chart)

**Damage** - Materially detracts from the shape or texture, or aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Serious Damage** - Seriously detracts from the shape or texture, or aggregating more than a circle 7/8 inch (22.2 mm) in diameter.



**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Materially detracts from the shape or texture, or aggregating more than a circle 3/8 inch (9.5 mm) in diameter.**

**Serious Damage - Seriously detracts from the shape or texture, or aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of surface.**

---

### **Scale (Q)**

Florida citrus is susceptible to several types of scale, most commonly purple and red scale. Purple scale has a brownish-purple covering and is roughly the shape of an oyster shell. Red scale has a reddish color and is circular shaped.

Oranges are affected equally by purple and red scale. Grapefruit is affected predominantly by purple scale and often coalesced into a ring-shape. Tangerines are more affected by red scale, generally scattered over the fruit surface. It is not necessary to identify the type of scale; report only as "scale."

### **ORANGES**

#### **§51.1175 Classification of defects. (chart)**

**Injury - More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit.**

**Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **GRAPEFRUIT**

#### **§51.784 Classification of defects. (chart)**

**Injury - More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit.**

**Damage - Blotch aggregating more than a circle 3/4 inch (19.1 mm) in diameter, or occurring as a ring more than a circle 1-1/4 inches (31.8 mm) in diameter.**

**Serious Damage - Blotch aggregating more than a circle 1 inch (25.4 mm) in diameter, or occurring as a ring more than a circle 1-1/2 inches (38.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Scars-Hail-Thorn Scratches (Q)**

Citrus is very susceptible to scarring. This defect can be caused by many factors while still on the tree (thrips and other insects; wind, hail, thorn scratches, mechanical injuries, etc.).

Scars are judged on the basis of depth and smoothness. If scars are superficial and smooth or fairly smooth, they are scored on the basis of discoloration (refer to the *Discoloration* section). All other scarring is based on the following guidelines:

### **ORANGES**

#### **§51.1175 Classification of defects. (chart)**

**Injury - Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.**

**Damage - Deep or rough aggregating more than a circle 1/4 inch (6.4 mm) in diameter; slightly rough with slight depth aggregating more than a circle 7/8 inch (22.2 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.**

**Serious Damage - Deep or rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; slightly rough with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than 10 percent of fruit surface.**

**Very Serious Damage - Deep or rough or unsightly that appearance is very seriously affected.**

## **GRAPEFRUIT**

### **§51.784 Classification of defects. (chart)**

**Injury - Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.**

**Damage - Very deep or very rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; deep or rough aggregating more than a circle 1 inch (25.4 mm) in diameter; slightly rough or of slight depth aggregating more than 10 percent of fruit surface.**

**Serious Damage - Very deep or very rough aggregating more than a circle 1 inch (25.4 mm) in diameter; deep or rough aggregating more than 5 percent of fruit surface; slight depth or slightly rough aggregating more than 15 percent of fruit surface.**

**Very Serious Damage - Deep or very rough or unsightly that appearance is very seriously affected.**

## **TANGERINES**

### **§51.1837 Classification of defects. (chart)**

**Damage - Deep or rough aggregating more than a circle 1/4 inch (6.4 mm) in diameter; slightly rough with slight depth aggregating more than a circle 3/4 inch (19.1 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than a circle 1-1/8 inches (28.6 mm) in diameter.**

**Serious Damage - Deep or rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; slightly rough with slight depth aggregating more than a circle 1-1/8 inches (28.6 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than 10 percent of fruit surface.**

**Very Serious Damage - Deep or rough or unsightly that appearance is very seriously affected. -**

---

### **Skin Breakdown (C)**

This defect category represents several factors that result in a similar-looking effect. Fruit can be affected by drying, darkening, or sinking of the oil cells near the stem end or other portions of the fruit. Stem end breakdown is a physiological condition caused by a loss of fruit moisture. Pitting is a physiological breakdown of the rind on the fruit shoulder. This contrasts with breakdown associated with aging, which occurs at the stem end. Storage pitting is another type of skin injury affecting citrus. When these, or other similar-appearing injuries occur, they shall be described on the notesheet and certificate as "skin breakdown".

## **ORANGES**

### **§51.1175 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 1/4 inch (6.4 mm) in diameter.**

**Damage - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

## **GRAPEFRUIT**

### **§51.784 Classification of defects. (chart)**

**Injury - Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.**

**Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 1 inch (25.4 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

## **TANGERINES**

### **§51.1837 Classification of defects. (chart)**

**Damage - Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.**

**Serious Damage - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Sooty Mold (Q)**

Sooty mold is caused by a fungus that adheres to excretions of the white fly and other insects. It may occur as light deposits scattered over the fruit surface or as heavily concentrated areas at the stem end. The mold can be easily scraped off with a fingernail or knife. Normal washing procedures do not entirely remove fungus deposits.

## **ORANGES**

**Injury - More than slightly affecting the appearance of the fruit.**

**Damage - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.**

**Serious damage** - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Very serious damage** - Aggregating more than 25 percent of the surface.

### **GRAPEFRUIT**

**Injury** - More than slightly affecting the appearance of the fruit.

**Damage** - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Serious damage** - Aggregating more than a circle 1-3/8 inches (34.9 mm) in diameter.

**Very serious damage** - Aggregating more than 25 percent of the surface.

### **TANGERINES**

**Damage** - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.

**Serious damage** - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Very serious damage** - Aggregating more than 25 percent of the surface.

---

### **Sprayburn (Q)**

Fruit affected by sprayburn has flat, hard darkened areas on the rind. In advanced stages, surface cracking may occur. Darkened areas are usually irregularly sized and reddish to dark brown. Due to its distinctive appearance, sprayburn is easily identified and usually graded out at the packing house. This defect is rarely found in the market.

### **ORANGES**

#### **§51.1175 Classification of defects. (chart)**

**Damage** - Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.

**Serious Damage** - Hard and aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.

**Very Serious Damage** - Aggregating more than 25 percent of the surface.

### **GRAPEFRUIT**

#### **§51.784 Classification of defects. (chart)**

**Damage** - Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.

**Serious Damage** - Hard and aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

### **TANGERINES**

#### **§51.1837 Classification of defects. (chart)**

**Damage - Skin is hard and aggregating more than a circle 3/4 inch (19.1 mm) in diameter.**

**Serious Damage - Skin is hard and aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.**

**Very Serious Damage - Aggregating more than 25 percent of the surface.**

---

### **Stem Buttons and Attached Stems-Leaves**

Stem buttons and attached stems-leaves are not defects and should not mentioned on the certificate unless specifically requested by the applicant. Upon request, the inspector may determine the percentage of fruit with stem buttons attached/missing or with attached/missing stems-leaves. Report the findings in percentages or general terms in the "DESCRIPTION OF PRODUCTS" on the FV-184 or in the "OTHER" section of the FV-300. Reference the applicant's request of these factors under "REMARKS."

---

### **Sunburn (Q)**

This defect appears as a toughened area of the rind caused by exposure to intense sunlight. The area will usually have a bleached appearance or a deep yellow color and definite flattening of the fruit surface in that area. The yellow surface may have a brown or gray center where surface cells have died. Flesh under the affected area will be dried out, containing little or no juice.

Certain varieties may have a small amount of externally-visible sunburn but can exhibit a great deal more when cut.

### **ALL CITRUS**

#### **§51.1175, 51.784, 51.1837 Classification of defects. (chart)**

**Damage - Skin is flattened, dry, darkened, or hard and the affected area exceeds 25 percent of the surface.**

**Serious Damage - Skin is hard and affects more than one-third of the surface.**

**Very Serious Damage - Aggregating more than 50 percent of the surface.**

If specimens are not scorable based on the amount of external surface affected by sunburn, the fruit may be scored when the amount of dryness materially, seriously or very seriously detracts from the appearance, edible or marketing quality of the fruit. To accurately determine the extent of dryness caused by sunburn, apply the cutting procedures described by the *Dryness-Mushy Condition* diagram.

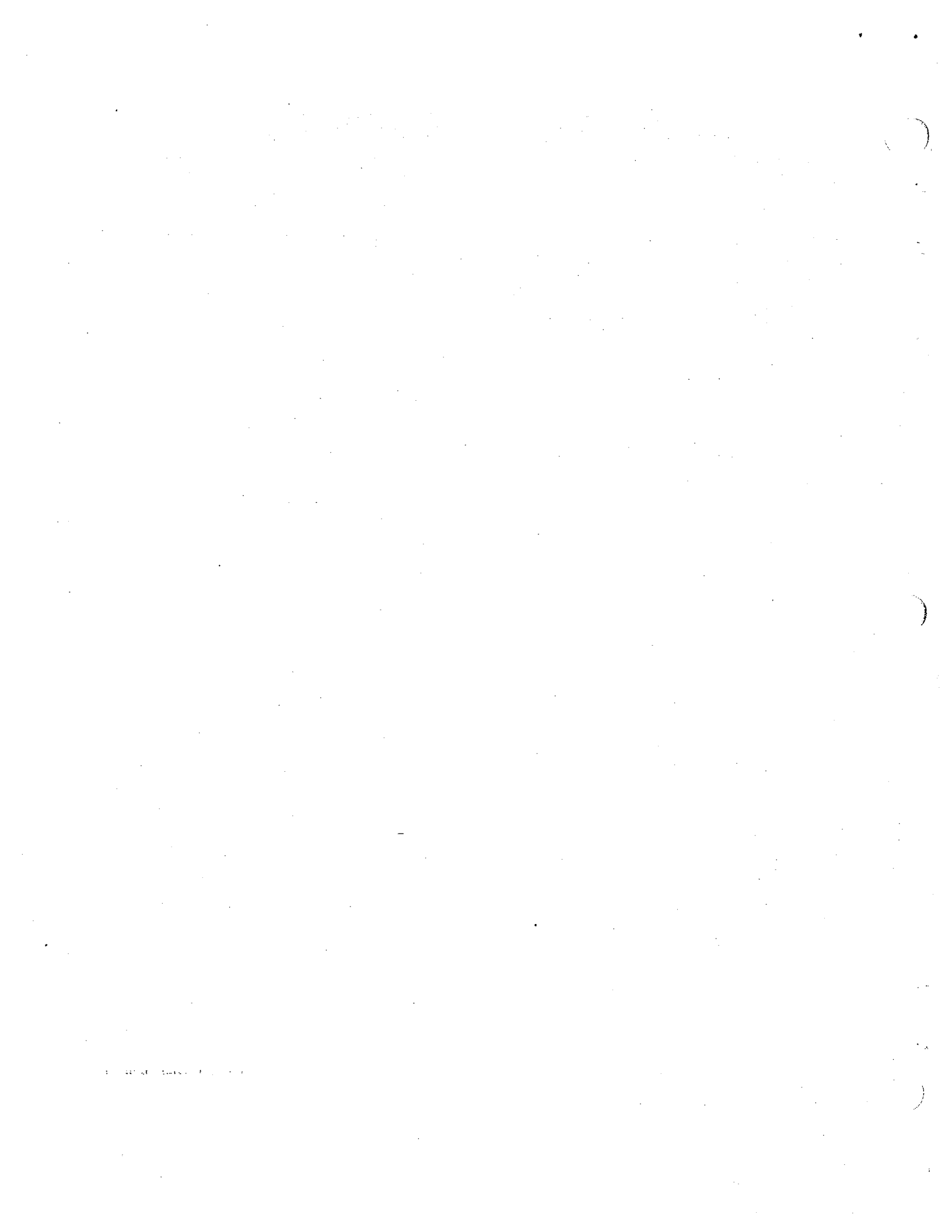
---

### **Wormy Fruit (Q or C)**

Wormy fruit is a "free from" defect. Any worm present in the fruit shall be scored as very serious damage against the tolerance for decay or wormy fruit.

At market, if live worms are present, or a combination of live and dead, report as a condition factor. Report as a quality factor if worms are dead.

To determine the presence of worms, use the sampling plan outlined in the *Sampling To Determine Internal Defects* section.







United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Programs

Fresh  
Products  
Branch

# United States Standards for Grades of Florida Oranges and Tangelos

Effective February 20, 1997  
*(Reprinted - February 1997)*

# United States Standards for Grades of Florida Oranges and Tangelos

---

## **General**

51.1140 General.

## **Grades**

51.1141 U.S. Fancy.

51.1142 U.S. No. 1 Bright.

51.1143 U.S. No. 1.

51.1144 U.S. No. 1 Golden.

51.1145 U.S. No. 1 Bronze.

51.1146 U.S. No. 1 Russet.

51.1147 U.S. No. 2 Bright.

51.1148 U.S. No. 2.

51.1149 U.S. No. 2 Russet.

51.1150 U.S. No. 3.

## **Tolerances**

51.1151 Tolerances.

## **Application of Tolerances**

51.1152 Application of tolerances.

## **Size**

51.1153 Size.

## **Definitions**

51.1154 Similar varietal characteristics.

51.1155 Well colored.

51.1156 Firm.

51.1157 Well formed.

51.1158 Mature.

51.1159 Smooth texture.

51.1160 Injury.

51.1161 Discoloration.

51.1162 Fairly smooth texture.

51.1163 Damage.

51.1164 Fairly well colored.

51.1165 Reasonably well colored.

51.1166 Poorly colored.

51.1167 Fairly firm.

51.1168 Slightly misshapen.

51.1169 Slightly rough texture.

51.1170 Serious damage.

51.1171 Misshapen.

51.1172 Slightly spongy.

51.1173 Very serious damage.

51.1174 Diameter.

51.1175 Classification of defects.

**Standards for Internal Quality of Common Sweet Oranges (Citrus Sinensis (L) Osbeck)**

51.1176 U.S. Grade AA Juice (Double A).

51.1177 U.S. Grade A Juice.

51.1178 Maximum anhydrous citric permissible for corresponding total soluble solids.

51.1179 Method of juice extraction.

**General**

**§51.1140 General.**

The standards contained in this subpart apply only to the common or sweet orange group and varieties and hybrids of varieties belonging to the Mandarin group, except tangerines, and to the citrus fruit commonly known as "tangelo" - a hybrid between tangerine or mandarin orange (*Citrus reticulata*) with either the grapefruit or pomelo (*C. paradisi* and *C. grandis*). Separate U.S. standards apply to tangerines. The standards for internal quality contained in §§51.1176 through 51.1179 apply only to common sweet oranges (*Citrus sinensis* (L) Osbeck).

**Grades**

**§51.1141 U.S. Fancy.**

"U.S. Fancy" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.);

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Smooth texture;

(6) Well colored; and,

(7) Well formed.

(b) Free from:

(1) Ammoniation;

(2) Buckskin;

(3) Caked melanose;

(4) Creasing;

(5) Decay;

(6) Scab;

(7) Split navels;

(8) Sprayburn;

(9) Undeveloped segments;

(10) Unhealed skin breaks; and,

(11) Wormy fruit.

(c) Free from injury caused by:

(1) Bruises;

- (2) Green spots;
- (3) Oil spots;
- (4) Rough, wide or protruding navels;
- (5) Scale;
- (6) Scars;
- (7) Skin breakdown; and,
- (8) Thorn scratches.

(d) Free from damage caused by:

- (1) Dirt or other foreign material;
- (2) Disease;
- (3) Dryness or mushy condition;
- (4) Hail;
- (5) Insects;
- (6) Riciness or woodiness;
- (7) Sunburn; and,
- (8) Other means.

(e) For tolerances see §51.1151.

(f) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1142 U.S. No. 1 Bright.**

The requirements for this grade are the same as for U.S. No. 1 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1143 U.S. No. 1.**

"U.S. No. 1" consists of oranges which meet the following requirements:

(a) Basic requirements:

- (1) Color;
    - (i) Early and midseason varieties shall be fairly well colored.
    - (ii) For Valencia and other late varieties, not less than 50 percent, by count, shall be fairly well colored and the remainder reasonably well colored.
  - (2) Discoloration: Not more than one-third of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.);
  - (3) Fairly smooth texture;
  - (4) Firm;
  - (5) Mature;
  - (6) Similar varietal characteristics; and,
  - (7) Well formed.
- (b) Free from:
- (1) Decay;

- (2) Unhealed skin breaks; and,
- (3) Wormy fruit.
- (c) Free from damage caused by:
  - (1) Ammoniation;
  - (2) Bruises;
  - (3) Buckskin;
  - (4) Caked melanose;
  - (5) Creasing;
  - (6) Dirt or other foreign material;
  - (7) Disease;
  - (8) Dryness or mushy condition;
  - (9) Green spots;
  - (10) Hail;
  - (11) Insects;
  - (12) Oil spots;
  - (13) Riciness or woodiness;
  - (14) Scab;
  - (15) Scale;
  - (16) Scars;
  - (17) Skin breakdown;
  - (18) Split, rough or protruding navels;
  - (19) Sprayburn;
  - (20) Sunburn;
  - (21) Thorn scratches; and,
  - (22) Other means.

(d) For tolerances see §51.1151.

(e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1144 U.S. No. 1 Golden.**

The requirements for this grade are the same as for U.S. No. 1 except that not more than 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1145 U.S. No. 1 Bronze.**

The requirements for this grade are the same as for U.S. No. 1 except at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on each fruit shall be of rust mite type.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double

A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1146 U.S. No. 1 Russet.**

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by any type of discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1147 U.S. No. 2 Bright.**

The requirements for this grade are the same as for U.S. No. 2 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1148 U.S. No. 2.**

"U.S. No. 2" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-half of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.)

(2) Fairly firm;

(3) Mature;

(4) Reasonably well colored;

(5) Similar varietal characteristics;

(6) Not more than slightly misshapen; and,

(7) Not more than slightly rough texture.

(b) Free from:

(1) Decay;

(2) Unhealed skin breaks; and,

(3) Wormy fruit.

(c) Free from serious damage caused by:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Caked melanose;

(5) Creasing;

(6) Dirt or other foreign material;

(7) Disease;

(8) Dryness or mushy condition;

(9) Green spots;

(10) Hail;

- (11) Insects;
- (12) Oil spots;
- (13) Riciness or woodiness;
- (14) Scab;
- (15) Scale;
- (16) Scars;
- (17) Skin breakdown;
- (18) Split, rough or protruding navels;
- (19) Sprayburn;
- (20) Sunburn;
- (21) Thorn scratches; and,
- (22) Other means.

(d) For tolerances see §51.1151.

(e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1149 U.S. No. 2 Russet.**

The requirements for this grade are the same as for U.S. No. 2 except that at least 10 percent of the fruit shall have more than one-half of their surface, in the aggregate, affected by any type of discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

**§51.1150 U.S. No. 3.**

"U.S. No. 3" consists of oranges which meet the following requirements:

- (a) Basic requirements:
  - (1) Mature;
  - (2) Misshapen;
  - (3) Poorly colored;
  - (4) Rough texture, not seriously lumpy;
  - (5) Similar varietal characteristics; and,
  - (6) Slightly spongy.
- (b) Free from:
  - (1) Decay;
  - (2) Unhealed skin breaks; and,
  - (3) Wormy fruit.
- (c) Free from very serious damage caused by:
  - (1) Ammoniation;
  - (2) Bruises;
  - (3) Buckskin;
  - (4) Caked melanose;
  - (5) Creasing;

- (6) Disease;
- (7) Dryness or mushy condition;
- (8) Hail;
- (9) Insects;
- (10) Riciness or woodiness;
- (11) Scab;
- (12) Scale;
- (13) Scars;
- (14) Skin breakdown;
- (15) Split navels;
- (16) Sprayburn;
- (17) Sunburn; and,
- (18) Other means.

(d) For tolerances see §51.1151.

(e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

#### **Tolerances**

##### **§51.1151 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, based on a minimum 25 count sample, are provided as specified:

##### **(a) Defects.**

(1) **U.S. Fancy, U.S. No. 1 Bright, U.S. No. 1, U.S. No. 1 Golden, U.S. No. 1 Bronze, U.S. No. 1 Russet, U.S. No. 2 Bright, U.S. No. 2, and U.S. No. 2 Russet grades.**

(i) **For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, including in this latter amount not more than 1 percent for decay or wormy fruit.

(ii) **For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

(A) 10 percent for fruit having permanent defects; or,

(B) 7 percent for defects causing very serious damage, including therein not more than 5 percent for very serious damage by permanent defects and not more than 3 percent for decay or wormy fruit.

(2) **U.S. No. 3.**

(i) **For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the grade: **Provided**, that included in this amount not more than 1

---

<sup>1</sup>Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.



percent shall be for decay or wormy fruit.

(ii) **For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

(A) 10 percent for fruit having permanent defects; or,

(B) 3 percent for decay or wormy fruit.

(b) **Discoloration.**

(1) **U.S. No. 1 Bright, U.S. No. 1, U.S. No. 2 Bright, and U.S. No. 2.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements relating to discoloration as specified in each grade. No sample may have more than 20 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(2) **U.S. No. 1 Golden.** Not more than 30 percent of the fruit shall have in excess of one-third of their surface, in the aggregate, and no part of any tolerance shall be allowed to increase this percentage. No sample may have more than 40 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(3) **U.S. No. 1 Bronze, and U.S. No. 1 Russet.** At least 30 percent of the fruit shall have in excess of one-third of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage. No sample may have less than 20 percent of the fruit with required discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(4) **U.S. No. 2 Russet.** At least 10 percent of the fruit shall have in excess of one-half of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage: **And provided further**, that the entire lot averages within the percentage specified.

#### **Application of Tolerances**

##### **§51.1152 Application of tolerances.**

Individual samples are subject to the following limitations, unless otherwise specified in §51.1151. Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent or more, and not more than double a specified tolerance of less than 10 percent: **Provided**, that at least one decayed or wormy fruit may be permitted in any sample: **And provided further**, that the averages for the entire lot are within the tolerances specified for the grade.

#### **Size**

##### **§51.1153 Size.**

(a) Fruits shall be fairly uniform in size and shall be packed in containers according to approved and recognized methods.

(b) "Fairly uniform in size" means that not more than 10 percent of the oranges per sample may vary more than one-half inch in diameter.

(c) In order to allow for variations incident to proper sizing, not more than 10 percent of the samples in any lot may fail to meet the requirements of size.

## **Definitions**

### **§51.1154 Similar varietal characteristics.**

"Similar varietal characteristics" means that the fruits in any container are similar in color and shape.

### **§51.1155 Well colored.**

"Well colored" as applied to common oranges and tangelos means that the fruit has characteristic color for the variety with practically no trace of green color.

### **§51.1156 Firm.**

"Firm" as applied to common oranges and tangelos means that the fruit is not soft, or noticeably wilted or flabby; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), "firm" means that the fruit is not extremely puffy, although the skin may be slightly loose.

### **§51.1157 Well formed.**

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

### **§51.1158 Mature.**

"Mature" shall have the same meaning assigned the term in the Florida Citrus Code, Chapter 601, 1995 Edition, and the Official Rules Affecting the Florida Citrus Industry, in effect as of February 12, 1995. These orange maturity requirements are contained in the Florida Citrus Code, Chapter 601, Florida Statutes, Sections 601.19, and 601.20, 1995 Edition, and the State of Florida Department of Citrus Official Rules Affecting the Florida Citrus Industry, Part 1, Chapter 20-13 Market Classification, Maturity Standards and Processing or Packing Restrictions for Hybrids in effect as of February 12, 1995. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from, Florida Department of Citrus, Post Office Box 148, Lakeland, Florida 33802 or copies of both regulations may be inspected at USDA, AMS, F&VD, FPB, Standardization Section, Room 2065-S, 14th and Independence Ave., Washington, DC 20250 or at the Office of the Federal Register, Suite 700, 800 North Capitol Street, Washington, DC.

### **§51.1159 Smooth texture.**

"Smooth texture" means that the skin is thin and smooth for the variety and size of the fruit.

### **§51.1160 Injury.**

"Injury" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects which slightly detracts from the appearance, or the edible or marketing quality of the fruit.

### **§51.1161 Discoloration.**

"Discoloration" means russetting of a light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by speck type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed for the grade.

### **§51.1162 Fairly smooth texture.**

"Fairly smooth texture" means that the skin is fairly thin and not coarse for the variety and size of the fruit.

**§51.1163 Damage.**

"Damage" means any specific defect described in §51.1175, Table I; 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 fruit.

**§51.1164 Fairly well colored.**

"Fairly well colored" as applied to common oranges and tangelos means that except for an aggregate area of green color which does not exceed the area of a circle 1 inch (25.4 mm) in diameter, the characteristic color predominates over the green color.

**§51.1165 Reasonably well colored.**

"Reasonably well colored" as applied to common oranges means that the characteristic color predominate over the green color on at least two-thirds of the fruit surface, in the aggregate.

**§51.1166 Poorly colored.**

"Poorly colored" as applied to common oranges means that not more than 25 percent of the surface may be solid dark green color.

**§51.1167 Fairly firm.**

"Fairly firm" as applied to common oranges and tangelos, means that the fruit may be slightly soft, but not bruised; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), means that the skin of the fruit is not extremely puffy or extremely loose.

**§51.1168 Slightly misshapen.**

"Slightly misshapen" means that the fruit is not of the shape characteristic of the variety but is not appreciably elongated or pointed or otherwise deformed.

**§51.1169 Slightly rough texture.**

"Slightly rough texture" means that the skin is not of smooth texture but is not materially ridged, grooved, or wrinkled.

**§51.1170 Serious damage.**

"Serious damage" means any specific defect described in §51.1175, Table I; 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 marketing quality of the fruit.

**§51.1171 Misshapen.**

"Misshapen" means that the fruit is decidedly elongated, pointed or flatsided.

**§51.1172 Slightly spongy.**

"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.

**§51.1173 Very serious damage.**

"Very serious damage" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.

**§51.1174 Diameter.**

"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end.

§51.1175 Classification of defects.

Table I

Factor	Injury	Damage	Serious Damage	Very Serious Damage
Ammoniation		Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Bruises	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Fruit is split open, peel is badly water-soaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch (19.1 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.
Buckskin		Aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose		Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.

Creasing		Materially weakens the skin, or extends over more than one-third of the surface.	Seriously weakens the skin, or extends over more than one-half of the surface.	Very seriously weakens the skin, or is distributed over practically the entire surface.
Dryness or mushy condition		Affecting all segments more than 1/4 inch (6.4 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch (12.7 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch (19.1 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.
Green spots	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter, caused by scale.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter, caused by scale.	Aggregating more than a circle 7/8 inch (22.2 mm) in diameter, caused by scale.	Aggregating more than 1/3 of the surface, caused by scale.
Oil spots	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.	Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.	Aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.	Aggregating more than 1/3 of the surface.
Scab		Materially detracts from the shape or texture, or aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Seriously detracts from the shape or texture, or aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scale	More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.

<p>Scars, Hail, or Thorn scratches</p> <p>[For smooth or fairly smooth superficial scars see §51.1161.]</p>	<p>Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.</p>	<p>Deep or rough aggregating more than a circle 1/4 inch (6.4 mm) in diameter; slightly rough with slight depth aggregating more than a circle 7/8 inch (22.2 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.</p>	<p>Deep or rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; slightly rough with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than 10 percent of fruit surface.</p>	<p>Deep or rough or unsightly that appearance is very seriously affected.</p>
<p>Skin breakdown</p>	<p>Aggregating more than a circle 1/4 inch (6.4 mm) in diameter</p>	<p>Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.</p>	<p>Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.</p>	<p>Aggregating more than 25 percent of the surface.</p>
<p>Sprayburn</p>		<p>Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.</p>	<p>Hard and aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.</p>	<p>Aggregating more than 25 percent of the surface.</p>
<p>Split, rough, protruding navels</p>	<p>Split is unhealed, or more than 1/8 inch (3.2 mm) in length, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from the appearance.</p>	<p>Split is unhealed, or more than 1/4 inch (6.4 mm) in length, or more than three well healed splits, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from appearance.</p>	<p>Split is unhealed, or more than 1/2 inch (12.7 mm) in length, or two or more splits aggregate more than 1 inch (25.4 mm) in length, or navel protrudes beyond general contour, and opening is so wide, folded and ridged that it detracts from appearance.</p>	<p>Split is unhealed or fruit is seriously weakened.</p>
<p>Sunburn</p>		<p>Skin is flattened, dry, darkened, or hard and the affected area exceeds 25 percent of the surface.</p>	<p>Skin is hard and affects more than one-third of the surface.</p>	<p>Aggregating more than 50 percent of the surface.</p>

Note: All references to area or aggregating area, or length in this standard are based on an orange or tangelo 2-7/8 inches (73.0 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

**Standards for Internal Quality of Common Sweet Oranges (Citrus Sinensis (L) Osbeck)**

**§51.1176 U.S. Grade AA Juice (Double A).**

Any lot of oranges, the juice content of which meets the following requirements, may be designated "U.S. Grade AA Juice (Double A)":

- (a) Each lot of fruit shall contain an average of not less than 5 gallons (18.9 liters) of juice per standard packed box of 1-3/5 bushels.
- (b) The average juice content for any lot of fruit shall have not less than 10 percent total soluble solids, and not less than one-half of 1 percent anhydrous citric acid, or more than the permissible maximum acid specified in Table II of §51.1178.

**§51.1177 U.S. Grade A Juice.**

Any lot of oranges, the juice content of which meets the following requirements, may be designated "U.S. Grade A Juice":

- (a) Each lot of fruit shall contain an average of not less than 4-1/2 gallons (17.0 liters) of juice per standard packed box of 1-3/5 bushels.
- (b) The average juice content for any lot of fruit shall have not less than 9 percent total soluble solids, and not less than one-half of 1 percent anhydrous citric acid, or more than the permissible maximum acid specified in Table II of §51.1178.

**§51.1178 Maximum anhydrous citric acid permissible for corresponding total soluble solids.**

For determining the grade of juice, the maximum permissible anhydrous citric acid content in relation to corresponding total soluble solids in the fruit is set forth in the following Table II together with the minimum ratio of total soluble solids to anhydrous citric acid:

Table II

Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
9.0.....	0.947	9.50-1
9.1.....	0.963	9.45-1
9.2.....	0.979	9.40-1
9.3.....	0.995	9.35-1
9.4.....	1.011	9.30-1
9.5.....	1.027	9.25-1
9.6.....	1.043	9.20-1
9.7.....	1.060	9.15-1
9.8.....	1.077	9.10-1
9.9.....	1.094	9.05-1
10.0.....	1.111	9.00-1
10.1.....	1.128	8.95-1

Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
10.2.....	1.146	8.90-1
10.3.....	1.164	8.85-1
10.4.....	1.182	8.80-1
10.5.....	1.200	8.75-1
10.6.....	1.218	8.70-1
10.7.....	1.237	8.65-1
10.8.....	1.256	8.60-1
10.9.....	1.275	8.55-1
11.0.....	1.294	8.50-1
11.1.....	1.306	8.50-1
11.2.....	1.318	8.50-1
11.3.....	1.329	8.50-1
11.4.....	1.341	8.50-1
11.5.....	1.353	8.50-1
11.6.....	1.365	8.50-1
11.7.....	1.376	8.50-1
11.8.....	1.388	8.50-1
11.9.....	1.400	8.50-1
12.0.....	1.412	8.50-1
12.1.....	1.424	8.50-1
12.2.....	1.435	8.50-1
12.3.....	1.447	8.50-1
12.4.....	1.459	8.50-1
12.5.....	1.471	8.50-1
12.6.....	1.482	8.50-1
12.7.....	1.494	8.50-1
12.8.....	1.506	8.50-1
12.9.....	1.517	8.50-1



Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
13.0.....	1.530	8.50-1
13.1.....	1.541	8.50-1
13.2.....	1.553	8.50-1
13.3.....	1.565	8.50-1
13.4.....	1.576	8.50-1
13.5.....	1.588	8.50-1
13.6.....	1.600	8.50-1
13.7.....	1.612	8.50-1
13.8.....	1.624	8.50-1
13.9.....	1.635	8.50-1
14.0.....	1.647	8.50-1
14.1.....	1.659	8.50-1
14.2.....	1.671	8.50-1
14.3.....	1.682	8.50-1
14.4.....	1.694	8.50-1
14.5.....	1.705	8.50-1
14.6.....	1.718	8.50-1
14.7.....	1.729	8.50-1
14.8.....	1.741	8.50-1
14.9.....	1.753	8.50-1
15.0.....	1.765	8.50-1
15.1.....	1.776	8.50-1
15.2.....	1.788	8.50-1
15.3.....	1.800	8.50-1
15.4.....	1.812	8.50-1
15.5.....	1.824	8.50-1
15.6 or more.....	.....	8.50-1

**§51.1179 Method of juice extraction.**

The juice used in the determining of solids, acids and juice content shall be extracted from representative samples as thoroughly as possible with a hand reamer or by such mechanical extractor or extractors as may be approved. The juice shall be strained through cheese cloth or other approved straining device of extra fine mesh to prevent passage of juice cells, pulp, or seeds.



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Programs**

**Fresh  
Products  
Branch**

# **United States Standards for Grades of Florida Grapefruit**

**Effective February 20, 1997**  
*(Reprinted - February 1997)*

# United States Standards for Grades of Florida Grapefruit

---

## **Grades**

- 51.750 U.S. Fancy.
- 51.751 U.S. No. 1 Bright.
- 51.752 U.S. No. 1.
- 51.753 U.S. No. 1 Golden.
- 51.754 U.S. No. 1 Bronze.
- 51.755 U.S. No. 1 Russet.
- 51.756 U.S. No. 2 Bright.
- 51.757 U.S. No. 2.
- 51.758 U.S. No. 2 Russet.
- 51.759 U.S. No. 3.

## **Tolerances**

- 51.760 Tolerances.

## **Application of Tolerances**

- 51.761 Application of tolerances.

## **Size**

- 51.762 Size.

## **Definitions**

- 51.763 Similar varietal characteristics.
- 51.764 Well colored.
- 51.765 Firm.
- 51.766 Well formed.
- 51.767 Mature.
- 51.768 Smooth texture.
- 51.769 Injury.
- 51.770 Discoloration.
- 51.771 Fairly well colored.
- 51.772 Fairly smooth texture.
- 51.773 Damage.
- 51.774 Fairly firm.
- 51.775 Slightly misshapen.
- 51.776 Slightly rough texture.
- 51.777 Serious damage.
- 51.778 Slightly colored.
- 51.779 Poorly colored.
- 51.780 Misshapen.
- 51.781 Slightly spongy.
- 51.782 Very serious damage.

51.783 Diameter.

51.784 Classification of defects.

**Grades**

**§51.750 U.S. Fancy.**

"U.S. Fancy" consists of grapefruit which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration. (See §51.770.);

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Smooth texture;

(6) Well colored; and,

(7) Well formed.

(b) Free from:

(1) Ammoniation;

(2) Buckskin;

(3) Caked melanose;

(4) Decay;

(5) Scab;

(6) Sprayburn;

(7) Unhealed skin breaks; and,

(8) Wormy fruit.

(c) Free from injury caused by:

(1) Bruises;

(2) Green spots;

(3) Oil spots;

(4) Scale;

(5) Scars;

(6) Skin breakdown; and,

(7) Thorn scratches.

(d) Free from damage caused by:

(1) Dirt or other foreign material;

(2) Disease;

(3) Dryness or mushy condition;

(4) Hail;

(5) Insects;

(6) Sprouting;

(7) Sunburn; and,

(8) Other means.

(e) For tolerances see §51.760.

**§51.751 U.S. No. 1 Bright.**

The requirements for this grade are the same as for U.S. No. 1 except that fruit shall have not

more than one-fifth of its surface, in the aggregate, affected by discoloration. For tolerances see §51.760.

**§51.752 U.S. No. 1.**

"U.S. No. 1" consists of grapefruit which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-third of the surface, in the aggregate, may be affected by discoloration. (See §51.770.);

(2) Fairly smooth texture;

(3) Fairly well colored;

(4) Firm;

(5) Mature;

(6) Similar varietal characteristics; and,

(7) Well formed.

(b) Free from:

(1) Decay;

(2) Unhealed skin breaks; and,

(3) Wormy fruit.

(c) Free from damage caused by:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Caked melanose;

(5) Dirt or other foreign material;

(6) Disease;

(7) Dryness or mushy condition;

(8) Green spots;

(9) Hail;

(10) Insects;

(11) Oil spots;

(12) Scab;

(13) Scale;

(14) Scars;

(15) Skin breakdown;

(16) Sprayburn;

(17) Sprouting;

(18) Sunburn;

(19) Thorn scratches; and,

(20) Other means.

(d) For tolerances see §51.760.

**§51.753 U.S. No. 1 Golden.**

The requirements for this grade are the same as for U.S. No. 1 except that not more than 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. For tolerances see §51.760.

**§51.754 U.S. No. 1 Bronze.**

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on each of these fruits shall be of rust mite type. For tolerances see §51.760.

**§51.755 U.S. No. 1 Russet.**

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by any type of discoloration. For tolerances see §51.760.

**§51.756 U.S. No. 2 Bright.**

The requirements for this grade are the same as for U.S. No. 2 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration. For tolerances see §51.760.

**§51.757 U.S. No. 2.**

"U.S. No. 2" consists of grapefruit which meet the following requirements:

(a) Basic requirements:

- (1) Discoloration: Not more than one-half of the surface, in the aggregate, may be affected by discoloration. (See §51.770.);
- (2) Fairly firm;
- (3) Mature;
- (4) Similar varietal characteristics;
- (5) Slightly colored;
- (6) Not more than slightly misshapen; and,
- (7) Not more than slightly rough texture.

(b) Free from:

- (1) Decay;
- (2) Unhealed skin breaks; and,
- (3) Wormy fruit.

(c) Free from serious damage caused by:

- (1) Ammoniation;
- (2) Bruises;
- (3) Buckskin;
- (4) Caked melanose;
- (5) Dirt or other foreign material;
- (6) Disease;
- (7) Dryness or mushy condition;
- (8) Green spots;
- (9) Hail;
- (10) Insects;
- (11) Oil spots;
- (12) Scab;
- (13) Scale;
- (14) Scars;

- (15) Skin breakdown;
  - (16) Sprayburn;
  - (17) Sprouting;
  - (18) Sunburn;
  - (19) Thorn scratches; and,
  - (20) Other means.
- (d) For tolerances see §51.760.

**§51.758 U.S. No. 2 Russet.**

The requirements for this grade are the same as for U.S. No. 2 except that at least 10 percent of the fruit shall have more than one-half of their surface, in the aggregate, affected by any type of discoloration. For tolerances see §51.760.

**§51.759 U.S. No. 3.**

"U.S. No. 3" consists of grapefruit which meet the following requirements:

- (a) Basic requirements:
  - (1) Mature;
  - (2) Misshapen;
  - (3) Poorly colored;
  - (4) Rough texture, not seriously bumpy;
  - (5) Similar varietal characteristics; and,
  - (6) Slightly spongy.
- (b) Free from:
  - (1) Decay;
  - (2) Unhealed skin breaks; and,
  - (3) Wormy fruit.
- (c) Free from very serious damage caused by:
  - (1) Ammoniation;
  - (2) Bruises;
  - (3) Buckskin;
  - (4) Caked melanose;
  - (5) Disease;
  - (6) Dryness or mushy condition;
  - (7) Hail;
  - (8) Insects;
  - (9) Oil spotting;
  - (10) Scab;
  - (11) Scale;
  - (12) Scars;
  - (13) Skin breakdown;
  - (14) Sprayburn;
  - (15) Sprouting;
  - (16) Sunburn; and,
  - (17) Other means.
- (d) For tolerances see §51.760.



## **Tolerances**

### **§51.760 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, based on a minimum 25 count sample, are provided as specified:

#### **(a) Defects.**

**(1) U.S. Fancy, U.S. No. 1 Bright, U.S. No. 1, U.S. No. 1 Golden, U.S. No. 1 Bronze, U.S. No. 1 Russet, U.S. No. 2 Bright, U.S. No. 2, and U.S. No. 2 Russet.**

**(i) For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, including in this latter amount not more than 1 percent for decay or wormy fruit.

**(ii) For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

**(A) 10 percent for fruit having permanent defects; or,**

**(B) 7 percent for defects causing very serious damage, including therein not more than 5 percent for very serious damage by permanent defects and not more than 3 percent for decay or wormy fruit.**

**(2) U.S. No. 3.**

**(i) For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the grade: **Provided**, that included in this amount not more than 1 percent shall be for decay or wormy fruit.

**(ii) For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

**(A) 10 percent for fruit having permanent defects; or,**

**(B) 3 percent for decay or wormy fruit.**

#### **(b) Discoloration.**

**(1) U.S. No. 1 Bright, U.S. No. 1, U.S. No. 2 Bright, and U.S. No. 2.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements relating to discoloration as specified in each grade. No sample may have more than 20 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within percentage specified.

**(2) U.S. No. 1 Golden.** Not more than 30 percent of the fruit shall have in excess of one-third of their surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to increase this percentage. No sample may have more than 40 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

---

<sup>1</sup>Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.

(3) **U.S. No. 1 Bronze, and U.S. No. 1 Russet.** At least 30 percent of the fruit shall have in excess of one-third of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage. No sample may have less than 20 percent of the fruit with required discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(4) **U.S. No. 2 Russet.** At least 10 percent of the fruit shall have in excess of one-half of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage: **And provided further**, that the entire lot averages within the percentage specified.

#### **Application of Tolerances**

##### **§51.761 Application of tolerances.**

Individual samples are subject to the following limitations, unless otherwise specified in §51.760. Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent or more, and not more than double a specified tolerance of less than 10 percent: **Provided**, that at least one decayed or wormy fruit may be permitted in any sample: **And provided further**, that the averages for the entire lot are within the tolerances specified for the grade.

#### **Size**

##### **§51.762 Size.**

(a) Fruits shall be fairly uniform in size and shall be packed in containers according to approved and recognized methods.

(b) "Fairly uniform in size" means that not more than 10 percent of the grapefruit per sample may vary more than one-half inch in diameter.

(c) In order to allow for variations incident to proper sizing, not more than 10 percent of the samples in any lot may fail to meet the requirements of size.

#### **Definitions**

##### **§51.763 Similar varietal characteristics.**

"Similar varietal characteristics" means that the fruits in any container are similar in color and shape.

##### **§51.764 Well colored.**

"Well colored" means that the fruit has characteristic color for the variety with practically no trace of green color.

##### **§51.765 Firm.**

"Firm" means that the fruit is not soft, or noticeably wilted or flabby, and the skin is not spongy or puffy.

##### **§51.766 Well formed.**

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

##### **§51.767 Mature.**

"Mature" shall have the same meaning assigned the term in the Florida Citrus Code, Chapter 601, 1995 Edition, and the Official Rules Affecting the Florida Citrus Industry, in effect as of February 12, 1995. These grapefruit maturity requirements are contained in the Florida Citrus Code, Chapter 601, Florida Statutes, Sections 601.16, 601.17, and 601.18, 1995 Edition, and the State of Florida Department of Citrus Official Rules Affecting the Florida Citrus Industry, Part 1,

Chapter 20-13 Market Classification, Maturity Standards and Processing or Packing Restrictions for Hybrids in effect as of February 12, 1995. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from, Florida Department of Citrus, Post Office Box 148, Lakeland, Florida 33802 or copies of both regulations may be inspected at USDA, AMS, F&VD, FPB, Standardization Section, Room 2065-S, 14th and Independence Ave., Washington, DC 20250 or at the Office of the Federal Register, Suite 700, 800 North Capitol Street, Washington, DC.

**§51.768 Smooth texture.**

"Smooth texture" means that the skin is thin and smooth for the variety and size of the fruit.

"Thin" means that the skin thickness does not average more than 3/8 inch (9.5 mm), on a central cross section, on grapefruit 4-1/8 inches (104.8 mm) in diameter.

**§51.769 Injury.**

"Injury" means any specific defect described in §51.784, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which slightly detracts from the appearance, or the edible or marketing quality of the fruit.

**§51.770 Discoloration.**

"Discoloration" means russetting of a light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by speck-type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed in the grade.

**§51.771 Fairly well colored.**

"Fairly well colored" means that except for an aggregate area of green color which does not exceed the area of a circle 1 inch (25.4 mm) in diameter, the characteristic color predominates over the green color.

**§51.772 Fairly smooth texture.**

"Fairly smooth texture" means that the skin is fairly thin and not coarse for the variety and size of the fruit. "Fairly thin" means that the skin thickness does not average more than 1/2 inch (12.7 mm), on a grapefruit 4-1/8 inches (104.8 mm) in diameter.

**§51.773 Damage.**

"Damage" means any specific defect described in §51.784, Table I; 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 fruit.

**§51.774 Fairly firm.**

"Fairly firm" means that the fruit may be slightly soft, but not bruised, and the skin is not spongy or puffy.

**§51.775 Slightly misshapen.**

"Slightly misshapen" means that the fruit has fairly good shape characteristic of the variety and is not more than slightly elongated or pointed or otherwise deformed.

**§51.776 Slightly rough texture.**

"Slightly rough texture" means that the skin may be slightly thick but not excessively thick, materially ridged or grooved. "Slightly thick" means that the skin thickness does not average

more than 5/8 inch (15.9 mm), on a central cross section, on a grapefruit 4-1/8 inches (104.8 mm) in diameter.

**§51.777 Serious damage.**

"Serious damage" means any specific defect described in §51.784, Table I; 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 marketing quality of the fruit.

**§51.778 Slightly colored.**

"Slightly colored" means that except for an aggregate area of green color which does not exceed the area of a circle 2 inches (50.8 mm) in diameter, the fruit surface shows some characteristic color.

**§51.779 Poorly colored.**

"Poorly colored" means that not more than 25 percent of the surface may be of a solid dark green color.

**§51.780 Misshapen.**

"Misshapen" means that the fruit is decidedly elongated, pointed, or flatsided.

**§51.781 Slightly spongy.**

"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.

**§51.782 Very serious damage.**

"Very serious damage" means any specific defect described in §51.784, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.

**§51.783 Diameter.**

"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end.

§51.784 Classification of defects.

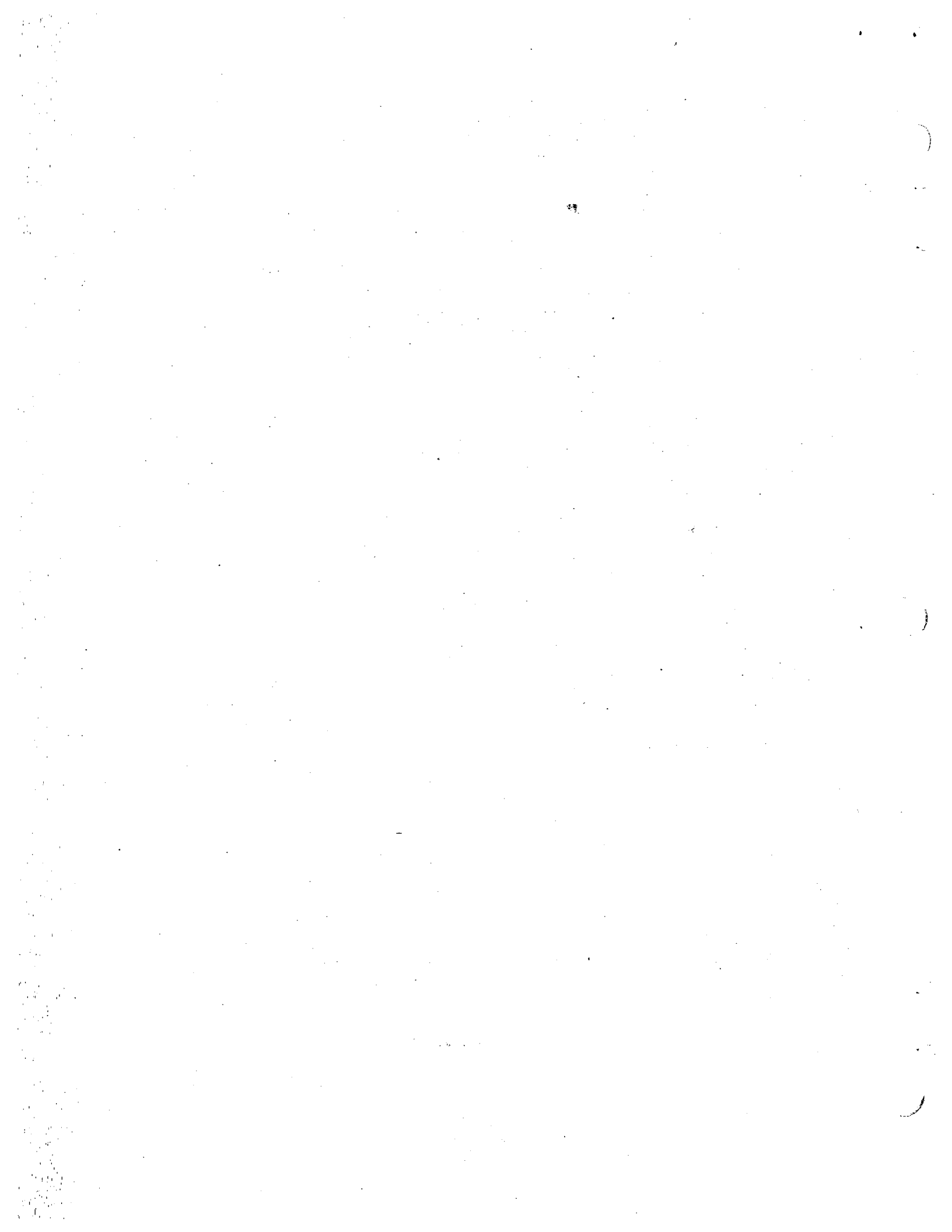
Table I

Factor	Injury	Damage	Serious Damage	Very Serious Damage
Ammoniation		Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than 25 percent of the surface.
Bruises	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Fruit is split open, peel is badly watersoaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch (19.1 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.
Buckskin		Aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose		Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than 25 percent of the surface.
Dryness or mushy condition		Affecting all segments more than 1/4 inch (6.4 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch (12.7 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch (19.1 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.

Green spots	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter, caused by scale.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter, caused by scale.	Aggregating more than a circle 1 inch (25.4 mm) in diameter, caused by scale.	Aggregating more than 1/3 of the surface, caused by scale.
Oil spots	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.	Aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.	Aggregating more than 1/3 of the surface.
Scab		Materially detracts from the shape or texture, or aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Seriously detracts from the shape or texture, or aggregating more than a circle 7/8 inch (22.2 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scale	More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit.	Blotch aggregating more than a circle 3/4 inch (19.1 mm) in diameter, or occurring as a ring more than a circle 1-1/4 inches (31.8 mm) in diameter.	Blotch aggregating more than a circle 1 inch (25.4 mm) in diameter, or occurring as a ring more than a circle 1-1/2 inches (38.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scars, Hail, or Thorn scratches [For smooth or fairly smooth superficial scars see §51.770.]	Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.	Very deep or very rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; deep or rough aggregating more than a circle 1 inch (25.4 mm) in diameter; slightly rough or of slight depth aggregating more than 10 percent of fruit surface.	Very deep or very rough aggregating more than a circle 1 inch (25.4 mm) in diameter; deep or rough aggregating more than 5 percent of fruit surface; slight depth or slightly rough aggregating more than 15 percent of fruit surface.	Very deep or very rough or unsightly that appearance is very seriously affected.

Skin breakdown	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than 25 percent of the surface.
Spraybūrn		Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Hard and aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Sprouting		More than six seeds have sprouts of more than 1/4 inch (6.4 mm) in length, or more than 3 seeds with sprouts over 3/4 inch (19.1 mm) in length.	More than six seeds have sprouts of more than 1/2 inch (12.7 mm) in length, or more than 3 seeds with sprouts over 1 inch (25.4 mm) in length.	More than six seeds have sprouts of more than 3/4 inch (19.1 mm) in length, or more than 3 seeds with sprouts over 1-1/4 inches (31.8 mm) in length.
Sunburn		Skin is flattened, dry, darkened, or hard and the affected area exceeds 25 percent of the surface.	Skin is hard and affects more than one-third of the surface.	Aggregating more than 50 percent of the surface.

Note: All references to area or aggregating area, or length in this standard are based on a grapefruit 4-1/8 inches (104.8 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.







**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Programs**

**Fresh  
Products  
Branch**

# **United States Standards for Grades of Florida Tangerines**

**Effective February 20, 1997**  
*(Reprinted - February 1997)*

## United States Standards for Grades of Florida Tangerines

---

### Grades

- 51.1810 U.S. Fancy.
- 51.1811 U.S. No. 1 Bright.
- 51.1812 U.S. No. 1.
- 51.1813 U.S. No. 1 Golden.
- 51.1814 U.S. No. 1 Bronze.
- 51.1815 U.S. No. 1 Russet.
- 51.1816 U.S. No. 2 Bright.
- 51.1817 U.S. No. 2.
- 51.1818 U.S. No. 2 Russet.
- 51.1819 U.S. No. 3.

### Tolerances

- 51.1820 Tolerances.

### Application of Tolerances

- 51.1821 Application of tolerances.

### Size

- 51.1822 Size.

### Definitions

- 51.1823 Mature.
- 51.1824 Firm.
- 51.1825 Well formed.
- 51.1826 Damage.
- 51.1827 Highly colored.
- 51.1828 Discoloration.
- 51.1829 Well colored.
- 51.1830 Fairly well colored.
- 51.1831 Fairly firm.
- 51.1832 Fairly well formed.
- 51.1833 Serious damage.
- 51.1834 Reasonably well colored.
- 51.1835 Very serious damage.
- 51.1836 Diameter.
- 51.1837 Classification of defects.

### Grades

#### §51.1810 U.S. Fancy.

"U.S. Fancy" consists of tangerines which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-tenth of the surface, in the aggregate, may be affected by

discoloration. (See §51.1828.);

(2) Firm;

(3) Highly colored;

(4) Mature; and,

(5) Well formed.

(b) Free from:

(1) Caked melanose;

(2) Decay;

(3) Unhealed skin breaks; and,

(4) Wormy fruit.

(c) Free from damage caused by:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Creasing;

(5) Dirt or other foreign material;

(6) Dryness or mushy condition;

(7) Disease;

(8) Green spots;

(9) Hail;

(10) Insects;

(11) Oil spots;

(12) Scab;

(13) Scale;

(14) Scars;

(15) Skin breakdown;

(16) Sprayburn;

(17) Sunburn; and,

(18) Other means.

(d) For tolerances see §51.1820.

**§51.1811 U.S. No. 1 Bright.**

The requirements for this grade are the same as for U.S. No. 1 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration. For tolerances see §51.1820.

**§51.1812 U.S. No. 1.**

"U.S. No. 1" consists of tangerines which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-third of the surface, in the aggregate, may be affected by discoloration. (See §51.1828.);

(2) Fairly well colored;

(3) Firm;

(4) Mature; and,

(5) Well formed.

- (b) Free from:
  - (1) Decay;
  - (2) Unhealed skin breaks; and,
  - (3) Wormy fruit.
- (c) Free from damage caused by:
  - (1) Ammoniation;
  - (2) Bruises;
  - (3) Buckskin;
  - (4) Caked melanose;
  - (5) Creasing;
  - (6) Dirt or other foreign material;
  - (7) Disease;
  - (8) Dryness or mushy condition;
  - (9) Green spots;
  - (10) Hail;
  - (11) Insects;
  - (12) Oil spots;
  - (13) Scab;
  - (14) Scale;
  - (15) Scars;
  - (16) Skin breakdown;
  - (17) Sprayburn;
  - (18) Sunburn; and,
  - (19) Other means.
- (d) For tolerances see §51.1820.

**§51.1813 U.S. No. 1 Golden.**

The requirements for this grade are the same as for U.S. No. 1 except that not more than 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. For tolerances see §51.1820.

**§51.1814 U.S. No. 1 Bronze.**

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on each fruit shall be of rust mite type. For tolerances see §51.1820.

**§51.1815 U.S. No. 1 Russet.**

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by any type of discoloration. For tolerances see §51.1820.

**§51.1816 U.S. No. 2 Bright.**

The requirements for this grade are the same as for U.S. No. 2 except that fruit shall have more not than one-fifth of its surface, in the aggregate, affected by discoloration. For tolerances see §51.1820.

**§51.1817 U.S. No. 2.**

"U.S. No. 2" consists of tangerines which meet the following requirements:

(a) Basic requirements:

- (1) Discoloration: Not more than one-half of the surface, in the aggregate, may be affected by discoloration. (See §51.1828.);
- (2) Fairly firm;
- (3) Fairly well formed;
- (4) Mature; and,
- (5) Reasonably well colored.

(b) Free from:

- (1) Decay;
- (2) Unhealed skin breaks; and,
- (3) Wormy fruit.

(c) Free from serious damage caused by:

- (1) Ammoniation;
- (2) Bruises;
- (3) Buckskin;
- (4) Caked melanose;
- (5) Creasing;
- (6) Dirt or other foreign material;
- (7) Disease;
- (8) Dryness or mushy condition;
- (9) Green spots;
- (10) Hail;
- (11) Insects;
- (12) Oil spots;
- (13) Scab;
- (14) Scale;
- (15) Scars;
- (16) Skin breakdown;
- (17) Sprayburn;
- (18) Sunburn; and,
- (19) Other means.

(d) For tolerances see §51.1820.

**§51.1818 U.S. No. 2 Russet.**

The requirements for this grade are the same as for U.S. No. 2 except that at least 10 percent of the fruit shall have more than one-half of their surface, in the aggregate, affected by any type of discoloration. For tolerances see §51.1820.

**§51.1819 U.S. No. 3.**

"U.S. No. 3" consists of tangerines which meet the following requirements:

(a) Basic requirements:

- (1) Mature;
- (2) Not flabby; and,

- (3) Not seriously lumpy.
- (b) Free from:
  - (1) Decay;
  - (2) Unhealed skin breaks; and,
  - (3) Wormy fruit.
- (c) Free from very serious damage caused by:
  - (1) Ammoniation;
  - (2) Bruises;
  - (3) Caked melanose;
  - (4) Creasing;
  - (5) Dirt or other foreign material;
  - (6) Disease;
  - (7) Dryness or mushy condition;
  - (8) Hail;
  - (9) Insects;
  - (10) Scab;
  - (11) Scale;
  - (12) Scars;
  - (13) Skin breakdown;
  - (14) Sprayburn;
  - (15) Sunburn; and,
  - (16) Other means.
- (d) For tolerances see §51.1820.

**Tolerances**

**§51.1820 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, based on a minimum 25 count sample, are provided as specified:

**(a) Defects.**

**(1) U.S. Fancy, U.S. No. 1 Bright, U.S. No. 1, U.S. No. 1 Golden, U.S. No. 1 Bronze, U.S. No. 1 Russet, U.S. No. 2 Bright, U.S. No. 2, and U.S. No. 2 Russet grades.**

**(i) For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, including in this latter amount not more than 1 percent for decay or wormy fruit.

**(ii) For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

**(A) 10 percent for fruit having permanent defects; or,**

---

<sup>1</sup>Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.

(B) 7 percent for defects causing very serious damage, including therein not more than 5 percent for very serious damage by permanent defects and not more than 3 percent for decay or wormy fruit.

(2) **U.S. No. 3.**

(i) **For defects at shipping point<sup>1</sup>.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the grade: **Provided**, that included in this amount not more than 1 percent shall be for decay or wormy fruit.

(ii) **For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

(A) 10 percent for fruit having permanent defects; or,

(B) 3 percent for decay or wormy fruit.

(b) **Discoloration.**

(1) **U.S. No. 1 Bright, U.S. No. 1, U.S. No. 2 Bright, and U.S. No. 2.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements relating to discoloration as specified in each grade. No sample may have more than 20 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(2) **U.S. No. 1 Golden.** Not more than 30 percent of the fruit shall have in excess of one-third of their surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to increase this percentage. No sample may have more than 40 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(3) **U.S. No. 1 Bronze, and U.S. No. 1 Russet.** At least 30 percent of the fruit shall have in excess of one-third of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage. No sample may have less than 20 percent of the fruit with required discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(4) **U.S. No. 2 Russet.** At least 10 percent of the fruit shall have in excess of one-half of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage: **And provided further**, that the entire lot averages within the percentage specified.

#### **Application of Tolerances**

##### **§51.1821 Application of tolerances.**

Individual samples are subject to the following limitations, unless otherwise specified in §51.1820. Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent or more, and not more than double a specified tolerances of less than 10 percent: **Provided**, that at least one decayed or wormy fruit may be permitted in any sample:

<sup>1</sup>Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.

**And provided further**, that the averages for the entire lot are within the tolerances specified for the grade

**Size**

**§51.1822 Size.**

- (a) Fruits shall be fairly uniform in size and shall be packed in containers according to approved and recognized methods.
- (b) "Fairly uniform in size" means that not more than 10 percent of the tangerines per sample may vary more than one-half inch in diameter.
- (c) In order to allow for variations incident to proper sizing, not more than 10 percent of the samples in any lot may fail to meet the requirements of size.

**Definitions**

**§51.1823 Mature.**

"Mature" shall have the same meaning assigned the term in the Florida Citrus Code, Chapter 601, 1995 Edition, and the Official Rules Affecting the Florida Citrus Industry, in effect as of February 12, 1995. These tangerine maturity requirements are contained in the Florida Citrus Code, Chapter 601, Florida Statutes, Sections 601.21, and 601.22, 1995 Edition, and the State of Florida Department of Citrus Official Rules Affecting the Florida Citrus Industry, Part 1, Chapter 20-13 Market Classification, Maturity Standards and Processing or Packing Restrictions for Hybrids in effect as of February 12, 1995. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from, Florida Department of Citrus, Post Office Box 148, Lakeland, Florida 33802 or copies of both regulations may be inspected at USDA, AMS, F&VD, FPB, Standardization Section, Room 2065-S, 14th and Independence Ave., Washington, DC 20250 or at the Office of the Federal Register, Suite 700, 800 North Capitol Street, Washington, DC.

**§51.1824 Firm.**

"Firm" means that the flesh is not soft and the fruit is not badly puffy and that the skin has not become materially separated from the flesh of the tangerine.

**§51.1825 Well formed.**

"Well formed" means that the fruit has the characteristic tangerine shape and is not deformed.

**§51.1826 Damage.**

"Damage" means any specific defect described in §51.1837, Table I; 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 fruit.

**§51.1827 Highly colored.**

"Highly colored" means that the ground color of each fruit is a deep tangerine color, or characteristic color for the variety, with practically no trace of yellow color.

**§51.1828 Discoloration.**

"Discoloration" means russeting of a light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by speck type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed in the grade.



**§51.1829 Well colored.**

"Well colored" means that a good yellow or better ground color predominates over the green color on the entire fruit surface with no distinct green color present, and that some portion of the surface has a reddish tangerine blush, or characteristic color for the variety.

**§51.1830 Fairly well colored.**

"Fairly well colored" means that the surface of the fruit may have green color which does not exceed the aggregate area of a circle 1-1/4 inches (31.8 mm) in diameter and that the remainder of the surface has a yellow or better ground color with some portion of the surface showing reddish tangerine blush, or characteristic color for the variety.

**§51.1831 Fairly firm.**

"Fairly firm" means that the flesh may be slightly soft but is not bruised or badly puffy, and that the skin has not become seriously separated from the flesh of the tangerine.

**§51.1832 Fairly well formed.**

"Fairly well formed" means that the fruit may not have the shape characteristic of the variety but that it is not badly deformed.

**§51.1833 Serious damage.**

"Serious damage" means any specific defect described in §51.1837, Table I; 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 marketing quality of the fruit.

**§51.1834 Reasonably well colored.**

"Reasonably well colored" means that a good yellow or reddish tangerine color shall predominate over the green color on at least one-half of the fruit surface in the aggregate, and that each fruit shall show practically no lemon color.

**§51.1835 Very serious damage.**

"Very serious damage" means any specific defect described in §51.1837, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.

**§51.1836 Diameter.**

"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end.

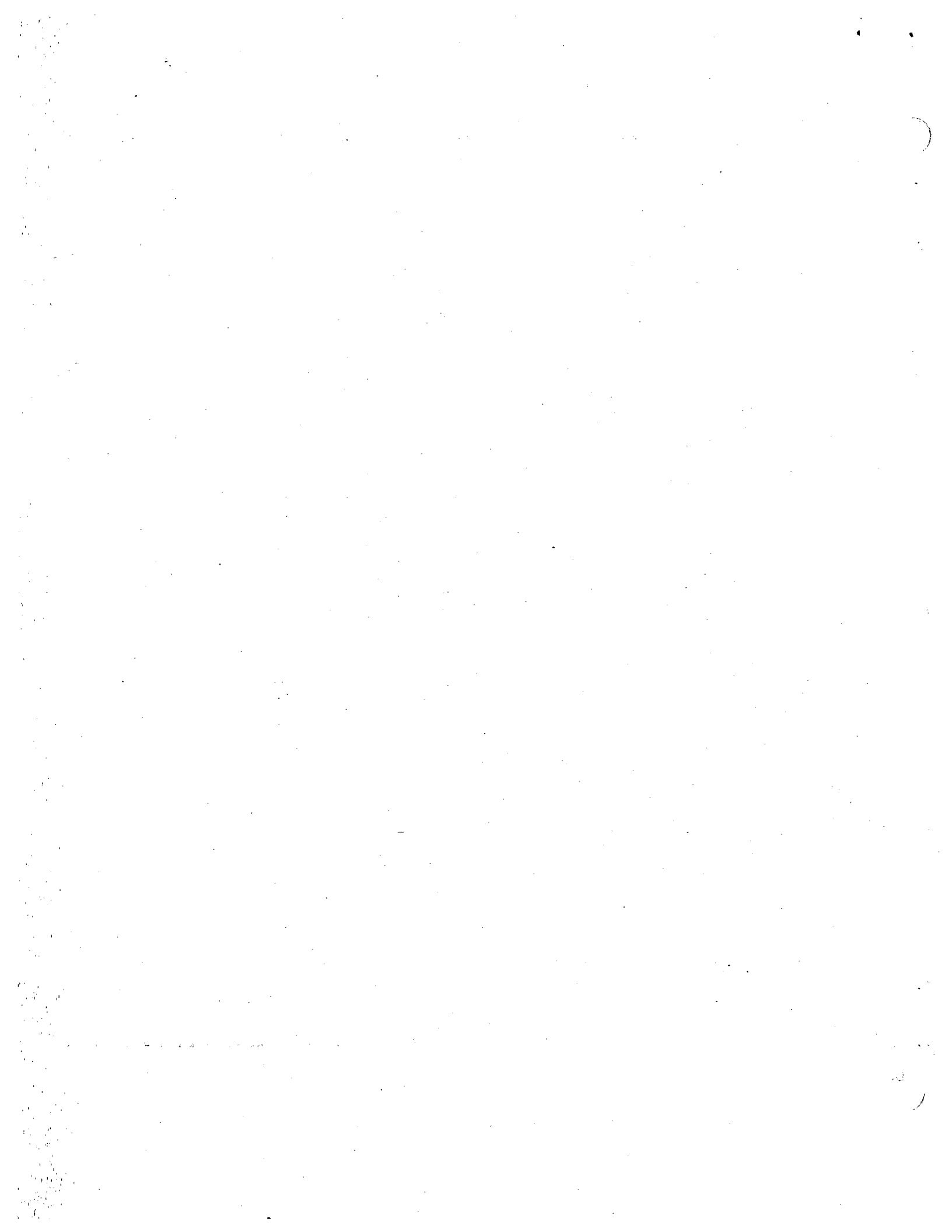
§51.1837 Classification of defects.

Table I

Factor	Damage	Serious Damage	Very Serious Damage
Ammoniation	Not occurring as light speck type, or detracts more than discoloration permitted in the grade.	Scars are cracked or dark and aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than 25 percent of the surface.
Bruises	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Fruit is split open, peel is badly watersoaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 1/2 inch (12.7 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.
Buckskin	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than 25 percent of the surface.
Creasing	Materially weakens the skin, or extends over more than one-third of the surface.	Seriously weakens the skin, or extends over more than one-half of the surface.	Very seriously weakens the skin, or is distributed over practically the entire surface.
Dryness or mushy condition	Affecting all segments more than 1/8 inch (3.2 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/4 inch (6.4 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch (12.7 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.
Green spots	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than 25 percent of the surface.

Oil spots	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scab	Materially detracts from the shape or texture, or aggregating more than a circle 3/8 inch (9.5 mm) in diameter.	Seriously detracts from the shape or texture, or aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scale	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scars, Hail, and Thorn scratches [For smooth or fairly smooth superficial scars see §51.1828.]	Deep or rough aggregating more than a circle 1/4 inch (6.4 mm) in diameter; slightly rough with slight depth aggregating more than a circle 3/4 inch (19.1 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than a circle 1-1/8 inches (28.6 mm) in diameter.	Deep or rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; slightly rough with slight depth aggregating more than a circle 1-1/8 inches (28.6 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than 10 percent of fruit surface.	Deep or rough or unsightly that appearance is very seriously affected.
Skin breakdown	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Sprayburn	Skin is hard and aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Skin is hard and aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.	Aggregating more than 25 percent of the surface.
Sunburn	Skin is flattened, dry, darkened, or hard and the affected area exceeds 25 percent of the surface.	Skin is hard and affects more than one-third of the surface.	Aggregating more than 50 percent of the surface.

Note: All references to area or aggregate area, or length in this standard are based on a tangerine 2-1/2 inches (63.5 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.



United States Department of Agriculture  
 Agricultural Marketing Service  
 Fruit and Vegetable Programs

## Fresh Products Branch Directive

**FPB-618**  
**12/10/98**

### CERTIFYING VARIOUS VARIETIES OF CITRUS

#### I. PURPOSE

This directive is to set forth and standardize Branch policy when inspecting varieties of citrus.

#### II. BACKGROUND

There is a considerable amount of confusion as to which grade standards apply to certain varieties of citrus, this directive should alleviate the confusion. This supersedes the Administrative Letter dated January 23, 1984, and any other references to certifying varieties of citrus.

#### III. POLICY

To maintain uniformity of inspection procedures and results, the Branch policy is as follows:

The headings in the following chart indicate how the fruit shall be certified and what standard they shall be certified under. For varieties in the "ORANGES" column, report as "ORANGES" in the product heading on the certificate, except for "TANGELOS" report as "TANGELOS" and apply the U.S. Standards for Oranges (based on the State in which the fruit is grown). For varieties in the "TANGERINES" column, report as "TANGERINES" in the product heading on the certificate and apply the U.S. Standards for Tangerines (based on the State in which the fruit is grown). For varieties in the "CITRUS FRUIT" column, report as "CITRUS FRUIT" in the product heading on the certificate. For the varieties with one asterisk apply the U.S. Standards for Oranges (based on the State in which the fruit is grown). For varieties with two asterisks apply the U.S. Standards for Tangerines (based on the State in which the fruit is grown). For the varieties with three asterisks do not apply any standards (no established U.S. grade).

ORANGES	TANGERINES	CITRUS FRUIT
Blood (Sanguina)	Dancy	*King Oranges
Navel	Sunburst	*Page
Temple(Royal Mandarin)	Robinson	*Lee
Parson Brown	Algerian	*Sour Orange
Hamlin	Fairchild	*K-Early
Valencia	Honey Tangerine (Murcott)	*Seminole
Lue Gim Gongs	Fallglo	*Satsumas or Emerald
		*Apply the orange standards

Distribution: HQ, FM, FS, CM, EM

Originating Office: Standardization

File Maintenance Instructions: File in Directive Binder and replace  
 FPB Directive dated 11/14/96 with this version.

(continued from previous page)

ORANGES		CITRUS FRUIT
Boone's Early Conner's Seedless Hurds Walker's Early Jaffa Red Navel Queen Ruby Seedling Star Calyx Pineapple Pope Summer Homosassa Rhodes Red Lamb's Late Ambersweet		**Clementines **Osceola **Wilking **Kara **Kinnow **Ponkan **Apply the tangerine standards  ***Melogold ***Pummelos ***Homli ***No established U.S. grade
<b>TANGELOS</b>		
Nova Orlando Minneola		

This list is not inclusive. Whenever a new variety is encountered it will be classified as to what the fruit most closely resembles. Tangerines are generally smaller than oranges, and the rind and fruit sections are loosely adherent. Therefore, when fruit is small and the rind and fruit sections are loosely adherent, the fruit shall be inspected based on the tangerine standards. If the fruit does not meet these criteria, it shall be inspected based upon the orange standards. Grapefruit are generally easier to identify.

For import requirement certification at **port of entry** use the following: for **grapefruit**, apply the U.S. Standards for Grades of Florida Grapefruit and the Florida State maturity requirements; and, for **oranges**, apply the U.S. Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona) and the Texas State maturity requirements, except for navel oranges, in which case apply the U.S. Standards for Grades of Oranges (California and Arizona) and the Texas State maturity requirements.

Inspections requested for non-domestic (imported) fruit other than at port of entry or when import requirements are not in effect, the fruit shall be inspected based on the standards that the fruit most closely resemble; this is in regard to texture, thickness of skin, discoloration and scarring. If a quality and condition inspection is requested, the maturity standards for the U.S. Standards being used shall apply.

*Kenneth R. Myelle*  
Acting Branch Chief

## COMPARISON OF AREA OF CIRCLES HAVING DIFFERENT DIAMETERS

DIAMETER	1/16"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/16"	1	4	16	36	63	99	143	194	253
1/8"		1	4	9	16	25	36	49	64
1/4"			1	2-1/4	4	6-1/4	9	12-1/4	16
3/8"				1	1-3/4	2-3/4	4	5-1/2	7
1/2"					1	1-2/5	2-1/4	3	4
5/8"						1	1-2/5	2	2-1/2
3/4"							1	1-1/3	1-3/4
7/8"								1	1-2/3
1									1

### EXAMPLES

TO COMPARE THE AREA OF A SMALL CIRCLE WITH A LARGER ONE, SELECT THE DIAMETER OF THE SMALL CIRCLE FROM THE VERTICAL LIST ON THE LEFT SIDE. FOLLOW THE HORIZONTAL ROW BESIDE THIS DIAMETER TO THE RIGHT AND STOP UNDER THE DIAMETER OF THE LARGER CIRCLE TO BE COMPARED. THIS WILL SHOW THE AREA OF THE NUMBER OF SMALL CIRCLES NEEDED TO EQUAL THE AREA OF THE LARGER CIRCLE.

**EXAMPLES:** IT TAKES NINE CIRCLES 1/8" IN DIAMETER TO EQUAL THE AREA OF A CIRCLE 3/8" IN DIAMETER; OR,

IT TAKES 1-2/5 CIRCLES 1/2 INCH IN DIAMETER TO EQUAL THE AREA OF A CIRCLE 5/8" IN DIAMETER; OR,

IT TAKES 4 CIRCLES 3/8" IN DIAMETER TO EQUAL THE AREA OF A CIRCLE 3/4" IN DIAMETER.









U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
**INSPECTION CERTIFICATE**  
**K- EXAMPLE 1**

Applicant: **ABC PRODUCE**  
 Address: **MANASSAS, VA**  
 Shipper: **XYZ CITRUS PACKERS**  
 Address: **WABEILLE, FL**  
 Insp. Site: **APPLICANT'S COLOR**

Carrier / Lot ID Stated by: **P.O. 2433**  
 Additional Lot ID: \_\_\_\_\_  
 Carrier Type / Name: \_\_\_\_\_  
 Refrigeration Unit: \_\_\_\_\_  
 Doors:  Open  Closed

Lot	Temp. (F)	Product	Brand / Markings	Original	Lot ID	Number of Containers	Inspection Started (Date, Time)	Inspection Completed (Date, Time)
A	55	GRAPEFRUIT	"ABC, US No. 1, MARSH WHITE, 18 OR 23 SIZE"	FL USDA/EL 246LHS 157	600	CARTONS	08 10 00	01 05 15 PM
B	54	GRAPEFRUIT	"ABC, US No. 1, RUBY RED, 8-5 LB. BAGS"	FL USDA/EL 246LHS 157	500	MY CARTONS		

Lot	Average % Defects	DEFECTS				OTHER
		EXCESSIVE DISCOLORATION	OTHER QUALITY DEFECTS	SKIN BREAKDOWN	DECAY	
A	6	00	00	00	00	EARLY STAGES
B	12	00	00	00	00	EXCESSIVE DISCOLORATION (8-20%) OTHER QUALITY DEFECTS (SPARS, OIL SPOTS) SKIN BREAKDOWN (11-28%) DECAY (0-4%) CHECKSUM
		02	01	00	00	QUALITY DEFECTS (OIL SPOTS) (4-13%) SKIN BREAKDOWN DECAY CHECKSUM

GRADE: **U.S. No. 1 ONLY ACCOUNT QUALITY DEFECTS (EXCESSIVE DISCOLORATION) LOT B: FAILS TO GRADE**  
**U.S. No. 1 ONLY ACCOUNT CONDITION IN SOME SAMPLES.**

Inspector's Signature: **Robert W. Bridges**  
 Market Office: **Washington, DC**

WARNING: Any person who knowingly shall falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such actions, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both.

FORM FV-303 (10-80) Replaces FV-303 (4-88) and FV-388 (1-80) which are obsolete.







U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
**INSPECTION CERTIFICATE**  
**K- EXAMPLE 2**

Applicant: **Bud's Produce**  
Address: **Falmouth, VA**  
Shipper: **Florida's Best**  
Address: **Osceola, FL**  
Insp. Site: **Applicant's Warehouse**

Carrier: **1-0-48652** | **FL**  
Additional Lot ID: **P.O. 54326**  
Carrier Type / Name: **Applicant**

LOT	TEMPERATURES	Product	Brand (Marketing)	Original Lot ID	Number of Containers	Insp. Product
A:	45	Tangerines	"Florida Honey" 4/5 BU, 100 HONEY FL	FL 428-512	450 ctns	N
B:	45	Tangerines	"Florida's Best" 8/5 lbs. HONEY FL	FL 428-546	200 ctns (M)	N
C:						
D:						

LOT	AVERAGE DEFECTS	including DAMAGE, SERIOUS DEFECTS	including OFF-SIZE DEFECTS	OTHER
A:	02	00	00	
	10	03	00	
	04	04	04	
	16	07	04	Decay in early stages
B:	00	00	00	
	02	00	00	
	00	00	00	
	02	00	00	

GRADE: **Lot A: Fails U.S. No. 1 account condition**  
**Lot B: U.S. No. 1**

REMARKS: **X**

Inspector's Signature: **John D. Gode**  
Market Office: **Richmond, VA**  
ESTIMATED TOTAL: \$

WARNING: Any person who knowingly shall falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such actions, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both.



A	B	C	D									
PACK: WF SIZE: FU	PACK: WF SIZE: FU	PACK: WF SIZE: FU	PACK: WF SIZE: FU									
SCORE SHEET				DK	Q	Scars			SKB	D	SD	YSD
USDA #	Other I.D.	TEMP.	Sample Ct			P	U	S				
A	2061-H31	2239	45 F	64	2	2	0	0	3	0	0	
	2061-H31	2236	43	64	0	0	0	0	4	0	0	
	2061-H31	2236	45	64	3 (B)	2	0	0	0	0	0	
				193	(3)	(2)				(4)		
						scars						
B	2489-H28	585	44	56	10 (B)	0	0	0	1	0	0	
	2489-H28	583	44	56	5	0	0	0	1	0	0	
	2489-H28	583	45	56	2 (A)	2	0	0	1	0	0	
				1168	(10)	(1)				(2)		
						scars						
C	2061-H31	7236	43	80	4	0	0	0	2	0	0	
	2061-H31	7236	45	80	5 (B)	1	0	0	1	1	0	
	2061-H31	7239	45	80	1 (D)	2	0	0	2	0	0	
				240	(4)	(1)				(2)	1/2	
						scars						
D	2489-H28		45	100	6 (B)	4	0	0	3	1	0	
	2489-H28		43	100	9 (A)	2	1	0	4	1	0	
	2489-H28		43	100	8	2	0	0	4	1	0	
				300	(8)	(3)	1/2			(4)	(1)	
						scars						
each lot! Dk mm, sa, se generally firm  Clean, well colored well formed fairly smooth  Lots B & D Most cartons scattered throughout lots show wet and stained areas along corners and bottoms affecting from 2 square inches to entire bottoms due to leaking juice of decayed fruit												
REMARKS / RESTRICTIONS / SPI												
CARLOT Basis: _____				REPORTED TO: Joe				INSPECTED BY: <i>John Inspector</i>				
HOURLY Basis: _____				DATE: 8/24/00				TIME: 8:38am				
TRAVEL Time: _____				REQUESTED BY: _____				ASSISTED BY: _____				
EXPENSES: _____				DATE: _____				TIME: _____				
EST. TOTAL: _____												



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
**INSPECTION CERTIFICATE**  
**K- EXAMPLE 3**

Carrier / Lot ID Sited by: **Applicant**  
Carrier / Lot ID Sited by: **Applicant**  
Additional Lot ID: **PO 93688**  
Applicant: **Produce House**  
Address: **Bronx, NY**  
Shipper: **Orange Grover**  
Address: **Umatilla, FL**  
Insp. Site: **Applicants warehouse**

Inspection Started: **08/24/00** hour **06** min **45** sec  
Number of Containers: **39** cartons  
Net Weight: **1602** cartons  
Gross Weight: **90** cartons  
Net Weight: **378** cartons

Lot	Temp	Defects	Product	Brand / Markings	Origin	Lot ID	Net Weight	Gross Weight
A	43	00	ORANGES	"Florida Sunshine" 6 1/2 size 4/5 BU	FL	USDA/FL 2001 H31	39	1602
B	44	03	ORANGES	"Florida Sunshine" 5 1/2 size 4/5 BU	FL	USDA/FL 3481 H31	1602	90
C	43	03	ORANGES	"Florida Sunshine" 6 0 size 4/5 BU	FL	USDA/FL 2001 H31	90	378
D	43	00	ORANGES	"Florida Sunshine" 10 0 size 4/5 BU	FL	USDA/FL 3481 H31	378	1602

OFFSIZE/DEFECTS  
 A: Quality (scars pulled stems) 00%  
 Skin Breakdown 00%  
 Decay 03%  
 Checksum 03%  
 B: Quality (scars) 00%  
 Skin Breakdown 00%  
 Decay (4 to 8%) 10%  
 Checksum 10%  
 C: Quality (scars) 00%  
 Skin Breakdown 00%  
 Decay (1 to 6%) 04%  
 Checksum 04%  
 D: Quality (scars pulled stems) 00%  
 Skin Breakdown 01%  
 Decay (6 to 9%) 08%  
 Checksum 09%

REMARKS: **X**  
 GRADE: **Lot A: US No. 1 Lots B, C, D: Fails to grade US No. 1 account of condition**  
 Each lot: Generally firm  
 Decay mostly moderate stages, some early stages some advanced stages  
 Lots B and D: Most cartons scattered throughout lots show wet and stained areas along corners and bottoms affecting from 2 square inches to entire bottom, due to leaking juice of decayed fruit  
 Inspector's Signature: **Sam Inspector**  
 Market Office: **Bronx NY**  
 ESTIMATED TOTAL \$

WARNING: Any person who knowingly shall falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such actions, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both.  
 FORM FV-300 (10-90) Replaces FV-303 (4-86) and FV-396 (1-80) which are obsolete