



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Programs

Fresh Products  
Branch

March 2005

# Citrus

## California and Arizona

### Shipping Point and Market Inspection Instructions



# Shipping Point and Market Inspection Instructions for California and Arizona 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 California and Arizona Oranges and California and Arizona Grapefruit, Sections 51.1085 and 51.925 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 Oranges (California and Arizona) and Grapefruit (California and Arizona) are printed in the appendix of this handbook. All U.S. standards are available on the Internet under the USDA homepage.

**March 2005**

*This replaces Market Inspection Instructions dated August 2001.*

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

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

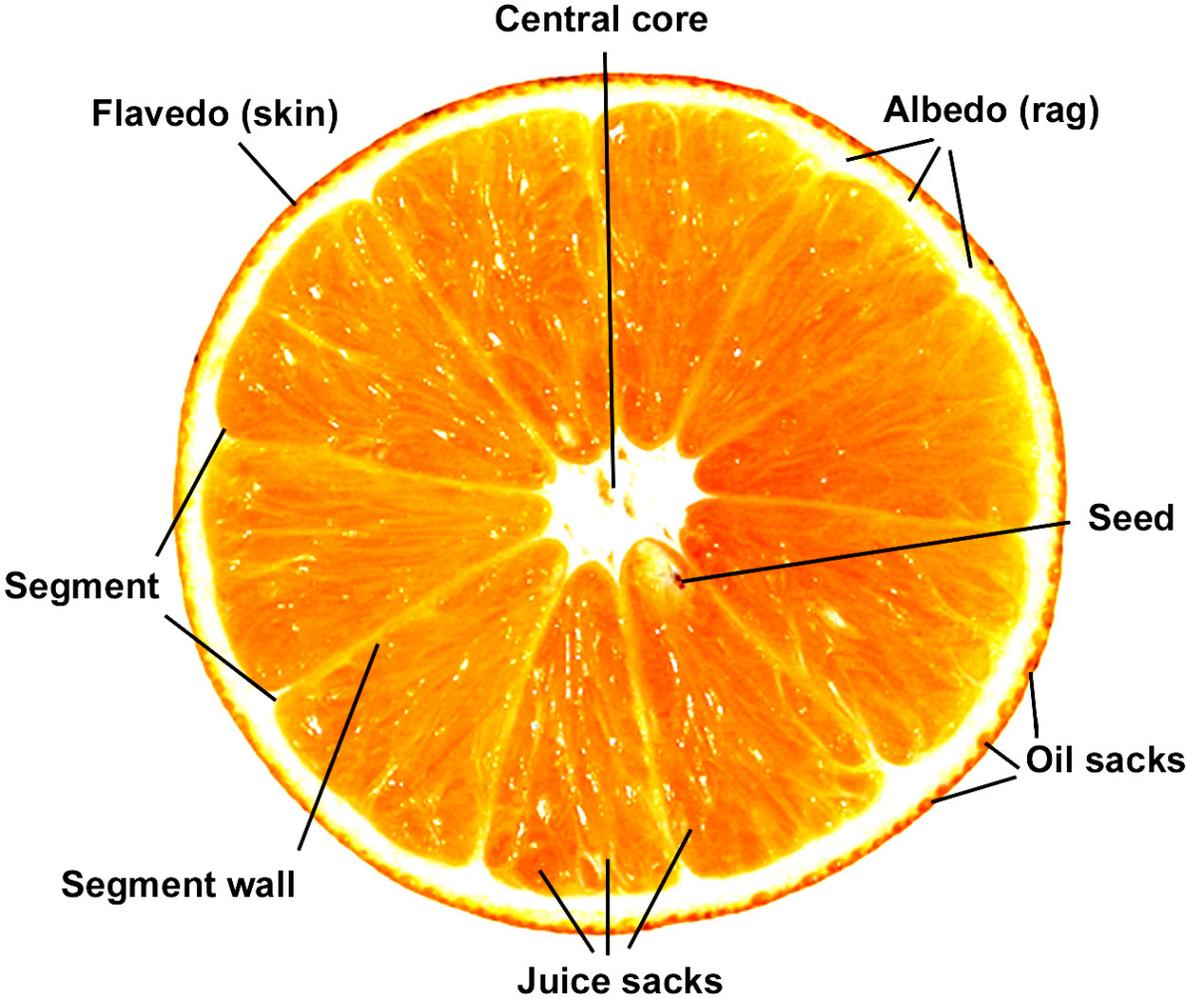
<b>CITRUS ILLUSTRATION.....</b>	<b>1</b>	
<b>SECTION ONE .....</b>	<b>2</b>	
<b>GENERAL.....</b>	<b>2</b>	
<b>REPRESENTATIVE SAMPLING .....</b>	<b>2</b>	
Sample Size .....	2	
Sampling Bulk Loads.....	3	
Number of Samples.....	4	
Sampling For Internal Defects .....	4	
<b>TOLERANCES.....</b>	<b>8</b>	
<b>APPLICATION OF TOLERANCES .....</b>	<b>10</b>	
<b>STANDARDS FOR EXPORT.....</b>	<b>11</b>	
<b>NOTESHEET AND CERTIFICATE .....</b>	<b>12</b>	
Product .....	12	
Number/Type of Containers .....	12	
Brands/Markings.....	13	
Origin.....	13	
<b>TEMPERATURE OF PRODUCT .....</b>	<b>13</b>	
<b>CONDITION OF PACK.....</b>	<b>13</b>	
<b>STANDARD PACK.....</b>	<b>14</b>	
<b>STANDARD SIZING AND FILL (ORANGES ONLY).....</b>	<b>15</b>	
<b>SIZE .....</b>	<b>15</b>	
<b>SECTION TWO - ORANGES.....</b>	<b>17</b>	
<b>QUALITY AND CONDITION.....</b>	<b>17</b>	
Alternaria (Q or C) .....	17	
Broken Skins (Q or C) .....	17	
Bruises (C) .....	18	
Color (Q).....	18	
Creasing (Q).....	19	
Dirt and Other Foreign Matter (Q or C).....	19	
**** Firmness/Puffy (C).....	20	****
Flesh Color and Seed Count .....	20	
Freezing Injury (Q or C).....	21	
Granulation (Tree Dryness) (Q).....	21	
Maturity (Q) .....	22	
Oil Spots or Similar Injuries (Q) .....	23	
Scale (Q) .....	23	
Scars (Q).....	24	
Skin Breakdown (C).....	25	

Shape (Q).....	25
Similar Varietal Characteristics (Q).....	26
Sooty Mold (Q) .....	26
Split, Rough, Wide or Protruding Navel (Q).....	27
Stem Buttons and Attached Stems and/or Leaves .....	27
Stem End Aging (C).....	27
Sunburn (Q).....	28
Texture (Q) .....	29
Decay (C) .....	29
<b>**** SECTION THREE - GRAPEFRUIT .....</b>	<b>31</b>
<b>**** QUALITY AND CONDITION.....</b>	<b>31</b>
Alternaria (Q or C) .....	31
Blossom End Clearing (C) .....	31
Broken Skins (Q or C) .....	32
Unhealed Skin Breaks.....	32
Healed Skin Breaks.....	32
Bruises (C) .....	32
Cluster Rings (Q).....	33
Color (Q).....	34
Dirt and Other Foreign Matter (Q or C).....	34
Firmness (C).....	35
Flesh Color and Seed Count .....	35
Freezing Injury (Q or C).....	36
Granulation (Tree Dryness) (Q).....	37
Maturity (Q) .....	37
Oil Spots or Similar Injuries (Q).....	38
Scale (Q) .....	39
Scars (Q).....	39
Shape (Q).....	40
Similar Varietal Characteristics (Q).....	41
Skin Breakdown (C).....	41
Sooty Mold (Q) .....	42
Sprouted Seeds (C).....	42
Stem Buttons and Attached Stems and/or Leaves .....	43
Sunburn (Q).....	43
Texture (Q) .....	44
Decay (C) .....	46
<b>APPENDIX I - U.S. GRADE STANDARDS .....</b>	<b>47</b>
United States Standards for Grades of Oranges (California and Arizona).....	47
United States Standards for Grades of Grapefruit (California and Arizona) .....	53
<b>APPENDIX II.....</b>	<b>59</b>
Directive on Certifying Various Varieties of Citrus .....	59
Comparison of Areas of Circles Having Different Diameters .....	62
<b>APPENDIX III.....</b>	<b>63</b>
Example 1 - Inspection Notesheet.....	63
Example 1 - Inspection Scoresheet.....	64
Example 1 - Inspection Certificate .....	65

Example 2 - Inspection Notesheet..... 66  
Example 2 - Inspection Scoresheet..... 67  
Example 2 - Inspection Certificate..... 68

---

# CITRUS ILLUSTRATION



# SECTION ONE

---

## GENERAL

These inspection instructions apply to oranges and grapefruit grown in California and Arizona.

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.

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.

---

## 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 California - Arizona citrus shall be a **minimum of 25 fruit for each sample**, regardless of container size.

### SHIPPING POINT

**In-line Certification** - Each sample shall consist of at least 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; if containers contain more than 25 fruit, but less than 50 fruit, examine the entire contents. 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 at least 25 fruit. If containers have less than 25 fruit, a composite sample of 25 fruit or more 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. Sample size for bulk lots or bulk bins shall be limited to a maximum of 100 fruit.

## **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 and bulk lots), examine a minimum of 100 fruit.

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 sample). 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" of the fruit (oranges, grapefruit and lemons – 40 pounds). This calculation provides a 4/5 bushel equivalent. Use the calculated carton equivalent as a guide when determining the number of samples to be examined. EXAMPLE: Net weight of an orange load is approximately 57,000 pounds;  $57,000 \div 40$  (packed net weight) = 1425 cartons.

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 the largest and smallest fruit in 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 with at least 3 samples per lot, or 1/2 of 1% of the total containers packed, whichever is greater, 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 small lots, a minimum of three samples must be examined.

---

## Sampling For Internal Defects

The following plans are designed to provide efficient and accurate methods for sampling for 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 or determined without cutting the fruit (bruising).

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] is known to 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 except for composite samples (50 fruit or entire

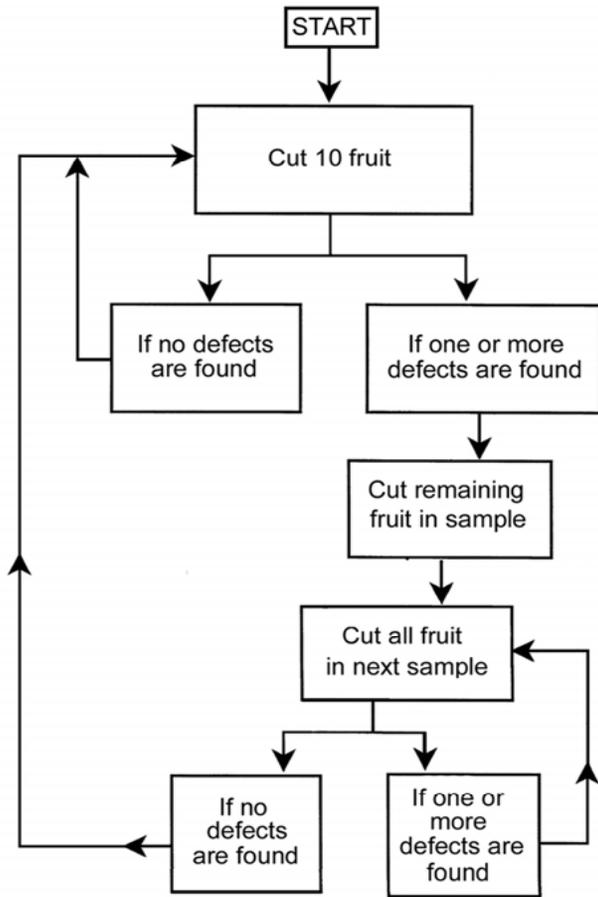
contents if less than 50 fruit in the container). Continue to cut all fruit in each sample until a sample is found free from internal defects. Revert to cutting 10 fruit per sample when no internal defects are found. This does not apply to bagged lots because the entire contents of the bag have already been cut. At **Shipping Point**, do not deviate from the in-line certification sampling size.

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

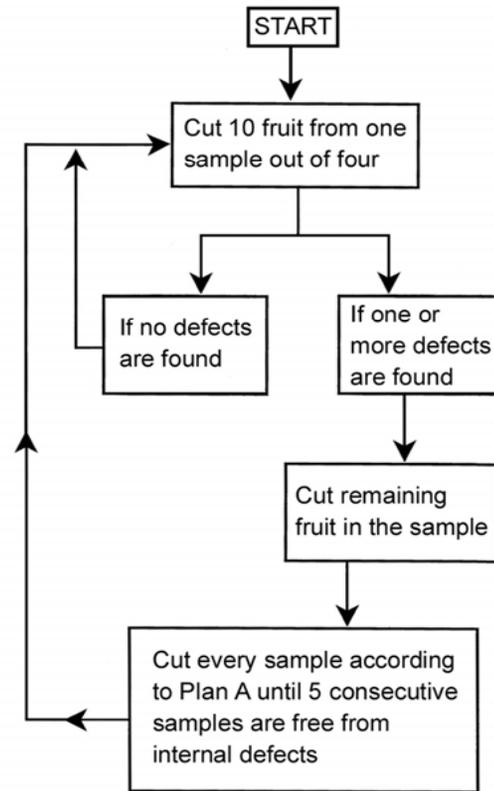
Select the 10 most suspicious fruit without regard to external defects from every fourth sample and cut them for internal defects. If no internal defects are found in the 10 fruit, continue to cut the 10 most suspicious fruit from every fourth sample. If one or more defects are found, cut the remaining fruit in the sample (25), 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 **Shipping Point**, do not deviate from the in-line certification sample size.

# Cutting Plans For Internal Defects

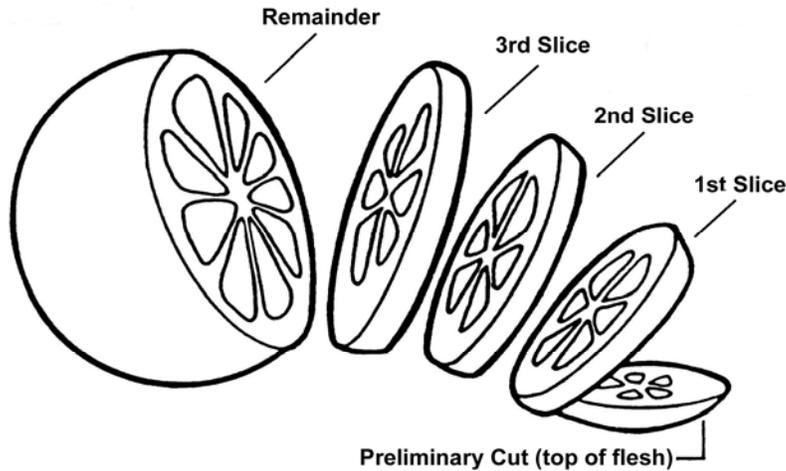
## PLAN A



## 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:** All citrus - 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. No. 1 grade. 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**. Any amount of dryness-mushy condition is scored against the U.S. Fancy grade.

**2<sup>nd</sup> Slice:** All citrus - 1/4 inch. This slice, plus the first slice (totaling 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:** Grapefruit only - 1/4 inch in width. This 1/4 inch slice, plus the previous two slices (totaling 3/4 inch) 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 portions 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 1/4 inch slices to determine the total amount of dryness-mushiness present in the fruit.

---

## **TOLERANCES**

### **ORANGES**

**§51.1091...U.S. No. 1...For defects at shipping point. Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 5 percent shall be allowed for defects causing serious damage, included in this latter amount not more than 1 percent for decay.**

**For defects en route or at destination. Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the grade: Provided, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 7 percent for defects causing serious damage, including therein not more than 5 percent for serious damage by permanent defects and not more than 3 percent for decay.**

### **GRAPEFRUIT**

**§51.932...U.S. No. 1...Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, included in this latter amount not more than 1 percent for decay.**

**For defects en route or at destination. Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade: Provided, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 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.

**ORANGES**

SUMMARY OF LOT TOLERANCES FOR U.S. NO. 1

	SPI (percent)	MKT (percent)
A. Failing color requirements	10	10
B. Defects other than color, including	10	12
1. Permanent defects, (included in B)	10	10
2. Serious damage, (included in B and 1)	5	7
a. Serious damage by permanent defects, (included in 1 and 2)	5	5
b. Decay (included in 2)	1	3

**GRAPEFRUIT**

SUMMARY OF LOT TOLERANCES FOR U.S. NO. 1

	SPI (percent)	MKT (percent)
A. Failing color requirements	10	10
B. Defects other than color, 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 (included in 2)	1	3

## APPLICATION OF TOLERANCES

**§51.1093 and 51.934 Individual samples, based on a minimum 25 count, are subject to the following limitations, unless otherwise specified. 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 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.**

### ORANGES

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

	SPI (percent)	MKT (percent)
A. Failing color requirements	15	15
B. Defects other than color, including	15	18
1. Permanent defects, (included in B)	15	15
2. Serious damage, (included in B and 1)	10	14
a. Serious damage by permanent defects, (included in 1 and 2)	10	10
b. Decay (included in 2)	2*	6*

### GRAPEFRUIT

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

	SPI (percent)	MKT (percent)
A. Failing color requirements	15	15
B. Defects other than color, 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 (included in 2)	2*	6*

\*Provided, That at least one decayed 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.

---

## **STANDARDS FOR EXPORT**

Citrus destined for export shipments are occasionally certified using the tolerances listed in the "Standards for Export" section of the applicable grade standard. Do not apply them unless requested by the applicant.

### **ORANGES**

**§51.1096 (a) Not more than a total of 10 percent, by count, of the oranges in any sample may be soft, affected by decay, have broken skins which are not healed, growth cracks, or be damaged by creasing or skin breakdown, or seriously damaged by split or protruding navels, or by dryness or mushy condition, except that:**

**(1) Not more than one-half of 1 percent shall be allowed for oranges affected by decay;**

**(2) Not more than 3 percent shall have broken skins which are not healed;**

**(3) Not more than 3 percent shall have growth cracks;**

**(4) Not more than 5 percent shall be soft;**

**(5) Not more than 5 percent shall be damaged by creasing;**

**(6) Not more than 5 percent shall be seriously damaged by split or protruding navels;**

**(7) Not more than 5 percent shall be seriously damaged by dryness or mushy condition; and,**

**(8) Not more than 5 percent shall be damaged by skin breakdown.**

**(b) Any lot of oranges shall be considered as meeting the standards for export if the entire lot averages within the requirements specified: Provided, That no sample from the containers in any lot shall have more than double the percentage specified for any one defect, and that not more than a total of 10 percent, by count, of the oranges in any sample has any of the defects enumerated in the standards for export.**

### **GRAPEFRUIT**

**§51.936 (a) Not more than a total of 10 percent, by count, of the grapefruit in any sample may be soft, affected by decay, damaged by skin breakdown, have broken skins which are not healed, or be seriously damaged by dryness or mushy condition, except that:**

**(1) Not more than one-half of 1 percent shall be allowed for grapefruit affected by decay.**

**(2) Not more than 3 percent shall have broken skins which are not healed.**

**(3) Not more than 5 percent shall be soft.**

**(4) Not more than 5 percent shall be seriously damaged by dryness or mushy condition.**

**(5) Not more than 5 percent shall be damaged by skin breakdown.**

**(b) Any lot of grapefruit shall be considered as meeting the standards for export if the entire lot averages within the requirements specified: Provided, That no sample from the containers in any lot shall have more than double the percentage specified for any one defect, and that not more than a total of 10 percent, by count, of the grapefruit in any sample has any of the defects enumerated in the standards for export.**

---

## **NOTESHEET AND CERTIFICATE**

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

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

---

### **Product**

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

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 shall always be reported. In the market and at shipping point locations for stationary lot certification, the inspector shall always verify the container count provided by the applicant for each lot and report it as the "inspector's count." If the number of containers available for inspection does not match the application it is the inspector's responsibility to confirm that the amount presented for inspection constitutes the lot. If an accurate count cannot be determined the inspector may report the count at someone else's authority. However, the reason for doing so must be reported on the notesheet (e.g., numerous pallets with mixed product).

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

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

---

## **Brands/Markings**

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

---

## **Origin**

The inspector, 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.

---

## **TEMPERATURE OF PRODUCT**

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

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

---

## **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-packed containers, or 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 (**shipping point only**). At **Market**, refer to the General Inspection Instructions for specific information pertaining to "reasonable shortage limit."

---

## STANDARD PACK

Each standard contains "standard pack" requirements, which basically correlates to size and arrangement of fruit in place-packed containers. A citrus lot may meet the requirements of the U.S. grades and not meet standard pack requirements, and vice versa. Standard pack is certified only at the request of the applicant and referenced under the Grade heading in connection with the grade statement. **Example:** U.S. No. 1, Standard Pack.

### ORANGES

#### §51.1094 Standard pack.

**(a) Oranges shall be uniform in size and shall be packed in boxes or cartons and arranged according to the approved and recognized methods.**

**(b) All such containers shall be tightly packed and well filled but the contents shall not show excessive or unnecessary bruising because of overfilled containers. When oranges are packed in cartons or in wire-bound boxes, each container shall be at least level full at time of packing.**

### GRAPEFRUIT

#### §51.935 Standard pack.

**(a) Grapefruit shall be fairly uniform in size, and, when packed in boxes, shall be arranged according to the approved and recognized methods.**

**(b) All packages shall be tightly packed and well filled but the contents shall not show excessive or unnecessary bruising because of overfilled packages.**

Not more than 5 percent of the samples in any lot may fail to meet standard pack requirements. If standard pack is in question, please refer to the respective standard for additional information.

Jumble-pack and volume-filled containers cannot be certified under Standard Pack requirements (refer to following section).

---

## **STANDARD SIZING AND FILL (ORANGES ONLY)**

When specifically requested, pack arrangements **other than** place-packed may be certified under the following specifications:

**§51.1095 (a) Boxes or cartons in which oranges are not packed according to a definite pattern do not meet the requirements of standard pack, but may be certified as meeting the requirements of standard sizing and fill: Provided, That the oranges in the container are fairly uniform in size as defined in the standard pack section: And provided further, that the contents have been properly shaken down and the container is at least level full at time of packing.**

**(b) In order to allow for variations incident to proper packing, not more than 5 percent of the samples in any lot may fail to meet the requirements of standard sizing and fill.**

Standard sizing and fill, like standard pack, is certified only at the request of the applicant and referenced under the Grade heading in connection with the grade statement. **Example:** U.S. No. 1, Standard Sizing and Fill.

---

## **SIZE**

Conformance to size requirements is generally not a problem unless the pack is slack or fruit in the container appears irregularly sized. Use the term “fairly uniform” if a lot meets size requirements, “irregular” if size requirements are not met. Do not use the term “uniform” when describing size since the term is not defined. The definition of fairly uniform is specified in the Standard Pack section of each standard and also listed at the end of this handbook section.

When determining size (e.g., 113 size oranges or 64 size grapefruit, etc.), report a range and average diameter. To meet the requirements of fairly uniform, the smallest and largest fruit in a sample must be measured 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.

Size on bulk shipments and fruit in consumer bags should be reported as fairly uniform or irregular based on the facts. Traditional size markings (64, 113, 165, etc.) do not apply in these instances. When reporting size on these lots, state the diameter range in inches.

## **ORANGES**

**§51.1094 Standard pack...(c) “Fairly uniform in size” means that when oranges are packed for 113 carton count or smaller size, or equivalent sizes when packed in other containers, not more than 10 percent, by count, of the oranges in any sample may vary more than five-sixteenths inch in diameter; when packed for sizes larger than 113 carton count or equivalent sizes packed in other containers, not more than 10 percent, by count, of the oranges in any sample may vary more than seven-sixteenths inch in diameter.**

## **GRAPEFRUIT**

**§51.935 Standard pack...(c) Fairly uniform in size means that not more than 5 percent, by count, of the fruit in any sample may be more than one standard size larger or smaller than the standard size for the count packed.**

**(d) Example of standard size grapefruit: The standard size grapefruit for a 64 count is that size grapefruit which will pack tightly 64 grapefruit of uniform size when packed according to the approved and recognized method.**

# SECTION TWO - ORANGES

---

## 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. 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** at market, depending on the circumstances. Factors without designation do not pertain to either category.

**Note:** All references in this standard to area, aggregating area, or length are based on an orange 2-7/8 inches 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 *Scar* section). 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. However, 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 serious damage unless it extends into the flesh of the fruit. If found in this severity, score it as decay.

---

### Broken Skins (Q or C)

Broken skins 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.

**Injury** - When affecting more than the aggregate area of a circle 1/8 inch in diameter.

**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.

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

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

**§51.1102 Injury (h) and §51.1104 Damage (i) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.**

**§51.1109 Serious Damage (i) Bruising when fruit has been split open, peel is badly watersoaked following bruising or albedo and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.**

**Note:** When the definitions are identical for different severities of this defect (**injury/damage**) the most severe will be assessed in each case. When judging fruit for mushy condition (**serious damage**), apply the cutting procedures described by the *Dryness-Mushy Condition* diagram.

---

## **Color (Q)**

“Color” refers to the degree of external 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 affected by discoloration.

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 and U.S. No. 1 grades require well colored fruit except for the Valencia variety. This variety must only be fairly well colored in the U.S. No. 1 grade. Navel oranges, when certified for export, need only be fairly well colored.

The U.S. No. 2 grade requires fairly well colored fruit. There is a separate 10 percent tolerance for fruit failing to meet the color requirements of each grade. At

market, maintain a separate column on the notesheet for fruit not meeting color requirements.

**§51.1098 “Well colored” means that the fruit is at least light orange in color, with not more than a trace of green at the stem end, and not more than 15 percent of the remainder of the surface of the fruit shows green color.**

**§51.1105 “Fairly well colored” means that the yellow or orange color predominates on the fruit.**

---

### **Creasing (Q)**

Creasing is a condition of the rind where the inner, spongy portion (albedo) separates and the overlying, oil-bearing layer (flavedo) sinks. This condition 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 (area affected) does not increase after harvest. If fruit is packed too tightly or containers are stacked too high, the rind may become sunken, water-soaked or split, which can cause an entrance for decay.

**§51.1102 Injury...(b) Slight creasing which is more than barely visible, or which extends over more than 20 percent of the fruit surface;**

**§51.1104 Damage...(c) Creasing which materially weakens the skin, or which extends over more than one-third of the fruit surface;**

**§51.1109 Serious damage...(c) Creasing which seriously weakens the skin, or which is distributed over practically the entire surface;**

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

---

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

Cleanness will seldom be a factor due to the washing process prior to packing. Large amounts of dirt, adhering foreign material or residue on the fruit are scorable when they more than slightly, materially, seriously or very seriously affect the appearance, edible or shipping 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.

**Injury** - when aggregating more than a circle 3/8 inch in diameter.

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

**Serious Damage** - when aggregating more than 1-1/4 inch in diameter.

\*\*\*\*

---

### **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. 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."

\*\*\*\*

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 if only a particular area is affected (refer to the Bruising section). The entire fruit must be affected (e.g., soft, spongy, flabby, etc.) before scoring against each grade. Report as "not firm," "not fairly firm," or "soft" based on the grade that is being certified.

**§51.1099 "Firm" means that the fruit does not yield more than slightly to moderate pressure.**

**§51.1106 "Fairly firm" means that the fruit may yield to moderate pressure but is not soft.**

---

### **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. 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. Any shade of pink or red shall be considered when determining flesh color.

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. 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.

To accurately sample and determine percentages of this defect, use the procedures outlined in the sections; *Cutting for Dryness or Mushy Condition* and *Sampling To Determine Internal Defects*.

If a significant freeze occurs, inspectors will be notified, via a memorandum from Washington, D.C., to score freezing injury as a *condition* defect at the market. 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 at the market.

---

## Granulation (Tree Dryness) (Q)

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

Granulation cannot be detected with any degree of accuracy by external indication alone; therefore, inspectors should cut any suspected fruit in the lot to determine the presence of granulation. For positive verification and percentage calculation, follow the procedures outlined in the section *Cutting for Dryness or Mushy Condition*.

---

## **Maturity (Q)**

Maturity can only be determined by an analysis of the juice. Specific information on maturity requirements at shipping point are contained in the Agricultural Codes of California and Arizona.

At market, do not mention maturity on the certificate unless a juice analysis has been performed. This analysis may be performed at applicant's request. When requested, proper samples must be obtained and the soluble solids/acid ratio 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 a Notice of Sampling (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. \_\_\_\_\_.”

---

### **Oil Spots or Similar Injuries (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. Refer to the official color photographs designated ORG-CP-2-A and B for examples of oil spotting.

**§51.1102 Injury...(e) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 2-1/2 percent of the fruit surface, or which are green and more than 4 in number;**

**§51.1104 Damage...(e) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 5 percent of the fruit surface, or which are green and more than 7 in number;**

**§51.1109 Serious damage...(e) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 10 percent of the fruit surface;**

---

### **Scale (Q)**

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 by purple and red scale. It is not necessary to identify the type of scale; report only as “scale.” Refer to the official models designated No. 1 through No. 5 and No. 7 through No. 11 for examples of scale.

**§51.1102 Injury...(e) Scale when medium or large and more than 5 are present;**

**§51.1104 Damage...(f) Scale when medium or large and more than 7 are present, or when medium or large scale, outside the stem button area, aggregate more than a circle 5/8 inch in diameter.**

**§51.1109 Serious Damage...(f) Scale when medium or large and when aggregating more than a circle 3/4 inch in diameter.**

---

## **Scars (Q)**

Citrus is very susceptible to scarring. This factor is most important when determining grade at shipping point. 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 color, depth and smoothness. Refer to the official color comparator designated **PL-1** for examples of scar colors.

**§51.1102 Injury...(c) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:**

- (1)...very dark and which have an aggregate area exceeding that of a circle one-eighth inch in diameter;**
- (2)...dark, rough or deep and which have an aggregate area exceeding that of a circle one-fourth inch in diameter;**
- (3)...fairly light in color, slightly rough, or with slight depth and which have an aggregate area exceeding that of a circle one-half inch in diameter; and,**
- (4)...light in color, fairly smooth, with no depth and which have an aggregate area of more than 5 percent of the fruit surface;**

**§51.1104 Damage...(d) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:**

- (1)...very dark, with slight depth, and which have an aggregate area exceeding that of a circle one-fourth inch in diameter;**
- (2)...very dark, with no depth, and which have an aggregate area exceeding that of a circle one-half inch in diameter;**
- (3)...dark, and rough or deep, and which have an aggregate area exceeding that of a circle one-half inch in diameter;**
- (4)...dark, and slightly rough or with slight depth, and which have an aggregate area exceeding that of a circle three-fourths inch in diameter;**
- (5)...fairly light in color, slightly rough or with slight depth, and which have an aggregate area of more than 5 percent of the fruit surface; and,**
- (6)...light in color, fairly smooth, with no depth, and which have an aggregate area of more than 10 percent of the fruit surface;**

**§51.1109 Serious Damage...(d) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:**

**(1)...very dark, very rough or very deep, and which have an aggregate area of more than 5 percent of the fruit surface;**

**(2)...dark, rough or deep, and which have an aggregate area of more than 10 percent of the fruit surface;**

**(3)...fairly light in color, slightly rough or of slight depth, and which have an aggregate area of more than 15 percent of the fruit surface; and,**

**(4)...light in color, fairly smooth, with no depth, and which have an aggregate area of more than 25 percent of the fruit surface;**

---

### **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." Refer to the official color photographs designated C-1, CIT-(FLA&TX) 2-IDENT-A, B and CIT-(FLA&TX) 3-IDENT-A, B for examples of skin breakdown.

**§51.1102 Injury...(g)...when exceeding that of a circle 1/8 inch in diameter.**

**§51.1104 Damage...(h)...when exceeding that of a circle 1/4 inch in diameter.**

**§51.1109 Serious Damage...(h)...when exceeding that of a circle 5/8 inch in diameter.**

---

### **Shape (Q)**

Normal shape for the variety must be considered when determining the correct term(s) to use when describing shape. For example, Valencia oranges are slightly more elongated than Navel orange varieties.

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 shall be scored against the total grade tolerance at shipping point and the permanent defects tolerance at market. Refer to the official models designated S-1 and S-2 for examples of shape.

**§51.1100 “Well formed” means that the fruit shows the normal shape characteristic of the variety.**

**§51.1107 “Fairly well formed” means that the fruit is not of the shape characteristic of the variety but is not decidedly flattened, pointed, extremely elongated or otherwise badly deformed.**

---

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

The 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, only consider distinctly different *external* colors or shapes as defects. This defect shall be reported as “dissimilar varieties” 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. These lots are known as “gift packs.”

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

**§51.1097 “Similar varietal characteristics” means that the oranges in any container are similar in color and type.**

---

### **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. Refer to the official color photograph designated CIT-(CA&AZ, FLA&TX)-CP-1 for scoring guidelines on citrus affected by Sooty Mold.

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

**Damage** - Aggregating more than a circle 5/8 inch in diameter.

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

---

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

The navel, located at the blossom end of the variety for which it is named, is actually a partially formed secondary fruit. Any unhealed split is serious damage. Refer to the official models designated N-1 through N-4 for examples of protruding navels.

**§51.1102 Injury...(a) Split, rough, wide or protruding navels when a split is unhealed or is more than one-eighth inch in length; or when the navel protrudes beyond the general contour of the fruit; or when flush with the contour but with the opening so wide, considering the size of the fruit, or the navel growth so folded and ridged that it detracts noticeably from the appearance of the fruit;**

**§51.1104 Damage...(b) Split, rough, wide or protruding navels when there are more than three splits, or when any split is unhealed or is more than one-fourth inch in length; or navels which flare, bulge, or protrude materially beyond the general contour of the fruit; or when the navel opening is so wide, considering the size of the fruit, or the navel growth so folded and ridged that it detracts materially from the appearance of the fruit;**

**§51.1109 Serious Damage...(b) Split or protruding navels when any split is unhealed or is more than one-half inch in length, or when two or more splits aggregate more than 1 inch in length; or navels which protrude seriously beyond the general contour of the fruit; or when the navel opening is so wide, considering the size of the fruit, or the navel growth so badly folded and ridged that it detracts seriously from the appearance of the fruit;**

---

## **Stem Buttons and Attached Stems and/or Leaves**

Stem buttons and attached stems and/or leaves are not defects and should not be 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 and/or 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."

---

## **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.

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

**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.

**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.

---

## **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.

**§51.1102 Injury...which appreciably changes the normal color or shape of the fruit, or which affects more than 10 percent of the fruit surface.**

**§51.1104 Damage...which causes appreciable flattening of the fruit, drying or darkening of the skin, or affects more than 25 percent of the fruit surface.**

**§51.1109 Serious Damage...which causes decided flattening of the fruit, drying or dark discoloration of the skin, or which affects more than one-third of the fruit surface.**

If specimens are not scorable based on the amount of external surface affected by sunburn, fruit may be scored when the amount of internal 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, follow the procedures outlined in the section *Cutting for Dryness or Mushy Condition*.

---

## 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 at shipping point and the permanent defects tolerance at market. Refer to the official models designated T-4, T-5 and TT-1 for examples of texture.

**§51.1101 “Smooth texture” means that the skin is of fairly fine grain for the variety, the “pebbling” is not pronounced, and any furrows radiating from the stem end are shallow.**

**§51.1103 “Fairly smooth texture” means that the skin does not feel noticeably rough or coarse for the variety. The size of the fruit should be considered in judging texture, as large fruit is not usually as smooth as smaller fruit. It is common for the fruit to show larger and coarser “pebbling” on the stem end portion than on the blossom end. The presence of furrows or grooves on the stem end portion of the fruit is a common condition in certain varieties, and the fruit shall not be considered as slightly rough unless the furrows or grooves are of sufficient depth, length, and number as to materially affect the appearance and smoothness of the orange.**

**§51.1108 “Slightly rough texture” means that the skin is not decidedly rough, badly folded, badly ridged, or decidedly lumpy. Heavily “pebbled” skin shall be considered as slightly rough.**

---

## Decay (C)

Decay is a “free from” defect and any amount is scorable. 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 (i.e., early, moderate, or advanced stages).

# SECTION THREE - GRAPEFRUIT

---

## 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. 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** at market, depending on the circumstances. Factors without designation do not pertain to either category.

**Note:** All references in this standard to area, aggregating area, or length are based on a grapefruit 4-1/8 inches 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 *Scar* section). 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. However, 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 serious damage unless it extends into the flesh of the fruit. If found in this severity, score it as decay.

---

### 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 or if the underlying flesh is discolored or mushy.

**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.

---

## **Broken Skins (Q or C)**

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

### **Unhealed Skin Breaks**

The flesh is exposed on “unhealed” skin breaks and any amount is scorable.

At **shipping point**, score any unhealed skin break as very serious damage.

At **market**, score any unhealed skin break as a condition factor (very serious damage).

### **Healed Skin Breaks**

“Healed” skin breaks do not expose the flesh, but the rind is torn or punctured.

**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 healed skin breaks as damage, serious damage or very serious damage based on the above guidelines.

At **market**, 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.

**§51.943 Injury (I); §51.947 Damage (m); and, §51.952 Serious Damage (m) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.**

**§51.955 Very Serious Damage (j) Bruising when fruit has been split open, peel is badly watersoaked following bruising or albedo and**

**juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.**

**Note:** When the definitions are identical for different severities of this defect (**injury/damage/serious damage**) the most severe will be assessed in each case. When judging fruit for mushy condition (**very serious damage**), apply the cutting procedures described by the *Dryness-Mushy Condition* diagram.

---

## **Cluster Rings (Q)**

Cluster rings occur as one or more smooth rings and/or roughened areas of various diameters generally 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 with each other or where a leaf and the fruit touch. Scoring of this defect is based on color, smoothness or both.

### **By Color**

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 affects 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.

### **By Smoothness**

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 and very rough or unsightly to the point that the appearance is very seriously affected.

## **By Color and Smoothness**

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, 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.

Report this defect as “cluster ring scars” and score against the general lot tolerance at shipping point and the permanent defects tolerance at market.

---

## **Color (Q)**

“Color” refers to the amount of external yellow color present. 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 affected by discoloration.

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 separate 10 percent color requirement tolerance. The U.S. No. 2 and U.S. No. 3 grades allow slightly colored fruit.

**§51.938 “Well colored” means that the fruit is yellow in color, with not more than a trace of green.**

**§51.944 “Fairly well colored” means that yellow color predominates on the fruit and that the fruit is free from distinctly green streaks and distinctly green blotches.**

**§51.948 “Slightly colored” means that sufficient yellow color is distributed over the fruit surface and, when blended with the green color present, is equivalent to 25 percent of full yellow color characteristic of the variety.**

---

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

Cleanness will seldom be a factor due to the washing process prior to packing. Large amounts of dirt, adhering foreign material or residue on the fruit are scorable

when they more than slightly, materially, seriously or very seriously affect the appearance, edible or shipping 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.

**Injury** - when aggregating more than a circle 1/2 inch in diameter.

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

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

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

---

### **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 if only a particular area is affected (refer to the *Bruising* section). The entire fruit must be affected (e.g., soft, spongy, flabby, etc.) before scoring against each grade. Report as “not firm,” “not fairly firm,” “spongy” or “soft” based on the grade that is being certified.

**§51.939 “Firm” means that the fruit is not soft, or noticeably wilted or flabby. The skin may feel slightly springy or spongy.**

**§51.949 “Fairly firm” means that the fruit may be slightly soft but is not decidedly flabby. The skin may be thick and slightly puffy.**

**§51.953 “Slightly spongy” means that the fruit is puffy or slightly wilted but not decidedly flabby.**

---

### **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 of grapefruit 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. Any shade of pink or red shall be considered when determining flesh color.

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:** In cut samples, 65% have white flesh, 35% have pink 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.

To accurately sample and determine percentages of this defect, use the procedures outlined in the sections; *Cutting for Dryness or Mushy Condition* and *Sampling To Determine Internal Defects*.

If a significant freeze occurs, inspectors will be notified, via a memorandum from Washington, D.C., to score freezing injury as a *condition* defect at the market. 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 at the market.

---

### **Granulation (Tree Dryness) (Q)**

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

Granulation cannot be detected with any degree of accuracy by external indication alone; therefore, inspectors should cut any suspected fruit in the lot to determine the presence of granulation. For positive verification and percentage calculation, follow the procedures outlined in the section *Cutting for Dryness or Mushy Condition*.

---

### **Maturity (Q)**

Maturity can only be determined by an analysis of the juice. Specific information on maturity requirements at shipping point are contained in the Agricultural Codes of California and Arizona.

At market, do not mention maturity on the certificate unless a juice analysis has been performed. This analysis may be performed at applicant's request. When requested, proper samples must be obtained and the soluble solids/acid ratio 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 a Notice of Sampling (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. \_\_\_\_\_.”

---

### **Oil Spots or Similar Injuries (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. Refer to the official color photographs designated ORG-CP-2-A and ORG-CP-2-B for examples of oil spotting.

**§51.943 Injury...(h) Green spots, oil spots, (oleocellosis) or other similar injuries which are depressed or soft, or which have an aggregate area of more than 2-1/2 percent of the fruit surface, or which are green and more than 4 in number.**

**§51.947 Damage...(i) Green spots, oil spots, (oleocellosis) or other similar injuries which are depressed or soft, or which have an aggregate area of more than 5 percent of the fruit surface, or which are green and more than 7 in number.**

**§51.952...Serious damage...(i) Green spots, oil spots (oleocellosis) or other similar injuries which are soft, or which have an aggregate area of more than 10 percent of the fruit surface;**

**§51.955...Very serious damage...(f) Green spots, oil spots (oleocellosis) or other similar injuries which are badly sunken or soft, or which have an aggregate area of more than 25 percent of the fruit surface.**

---

### **Scale (Q)**

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.

Grapefruit is affected by purple and red scale. It is not necessary to identify the type of scale; report only as "scale." Refer to the official models designated No. 1 through No. 5 and No. 7 through No. 11 for examples of scale.

**§51.943 Injury...(i) Scale, when more than 5 medium to large California red or purple scale are adjacent to the "button" at the stem end, or scattered over the fruit, or any scale which affects the appearance of the fruit to a greater extent.**

**§51.947 Damage...(j) Scale, when more than 10 medium to large California red or purple scale are adjacent to the "button" at the stem end, or scattered over the fruit, or any scale which affects the appearance of the fruit to a greater extent.**

**§51.952 Serious Damage...(j) Scale, when California red or purple scale is concentrated as a ring or blotch, or which is more than thinly scattered over the fruit surface, or any scale which affects the appearance of the fruit to a greater extent.**

**§51.955 Very Serious Damage...(g) Scale so numerous or large that the appearance of the fruit is very seriously affected.**

---

### **Scars (Q)**

Citrus is very susceptible to scarring. This factor is most important when determining grade at shipping point. 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 color, depth and smoothness. Refer to the official color comparator designated PL-1 for examples of scar colors.

**§51.943 Injury...(d)...very rough or very deep; or scars which are very dark when more than one-fourth of an inch in diameter. (e)...dark, rough, or deep and aggregate more than one-half of an inch in diameter. (f)...fairly light in color, slightly rough, or of slight depth and aggregate more than 5 percent of the fruit surface. (g)...light colored, fairly smooth, with no depth and aggregate more than 10 percent of the fruit surface.**

**§51.947 Damage...(e)...very deep; or scars which are very rough or very dark and aggregate more than one-half of an inch in diameter. (f)...dark, rough or deep and aggregate more than three-fourths of an inch in diameter. (g)...fairly light in color, slightly rough, or of slight depth and aggregate more than 10 percent of the fruit surface. (h)...light colored, fairly smooth, with no depth and aggregate more than 15 percent of the fruit surface.**

**§51.952 Serious Damage...(e)...very deep; or scars which are very rough or very dark and aggregate more than one inch in diameter. (f)...dark, rough or deep and aggregate more than 5 percent of the fruit surface. (g)...fairly light in color, slightly rough or of slight depth and aggregate more than 15 percent of the fruit surface. (h)...light colored, fairly smooth, with no depth and aggregate more than 25 percent of the fruit surface.**

**§51.955 Very Serious Damage...(d)...very dark, very rough, or very deep and aggregate more than 10 percent of the fruit surface. (e)...dark, rough or deep and aggregate more than 25 percent of the fruit surface.**

---

## **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 fairly well formed fruit. Fruit not meeting these requirements is scored against the total grade tolerance at shipping point and the permanent defects tolerance at market. The U.S. No. 3 grade allows misshapen fruit. Refer to the official models designated S-1 through S-8 for examples of shape.

**§51.940 “Well formed” means that the fruit shows the normal shape characteristic of the variety.**

**§51.950 “Fairly well formed” means that the fruit is not materially flattened, materially pointed, extremely elongated, or otherwise decidedly deformed.**

**§51.954 “Misshapen” means that the fruit is materially flattened, materially pointed, extremely elongated or otherwise decidedly deformed.**

---

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

The 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 lot of grapefruit, only consider distinctly different *external* colors or shapes as defects. This defect shall be reported as “dissimilar varieties” 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. These lots are known as “gift packs.”

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

**§51.937 “Similar varietal characteristics” means that the fruits in any container are similar in color and type.**

---

### **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.” Refer to the official color photographs designated C-1, CIT-(FLA&TX) 2-IDENT-A, B and CIT-(FLA&TX) 3-IDENT-A, B for examples of skin breakdown.

**§51.943 Injury...(k)...when exceeding that of a circle 1/4 inch in diameter.**

**§51.947 Damage...(l)...when exceeding that of a circle 3/8 inch in diameter.**

**§51.952 Serious Damage...(l)...when exceeding that of a circle 5/8 inch in diameter.**

**§51.955 Very Serious Damage...(i)...when exceeding that of a circle 1-1/4 inches in diameter.**

---

### **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. Refer to the official color photograph designated CIT-(CA&AZ, FLA&TX)-CP-1 for scoring guidelines on Grapefruit affected by Sooty Mold.

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

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

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

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

---

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

During the latter part of the season, grapefruit should be cut to check 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. Disregard these slices.
2. In the remaining portion, 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(s), noting if any extend to the rind. 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 *Sampling to Determine Internal Defects* section.

**Damage** - When more than a total of 6 sprouts, with more than 1 extending to the rind, and the remaining sprouts averaging over 1/4 inch in length.

**Serious damage** - When more than a total of 6 sprouts, with more than 2 extending to the rind, and the remaining sprouts averaging over 1/2 inch in length.

**Very serious damage** - When more than a total of 6 sprouts, with more than 3 extending to the rind, and the remaining sprouts averaging over 3/4 inch in length.

---

### **Stem Buttons and Attached Stems and/or Leaves**

Stem buttons and attached stems and/or leaves are not defects and should not be 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 and/or 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.

**§51.943 Injury...(j)...which appreciably changes the normal color or shape of the fruit, or which affects more than 10 percent of the fruit surface.**

**§51.947 Damage...(k)...which causes appreciable flattening of the fruit, drying or darkening of the skin, or affects more than 25 percent of the fruit surface.**

**§51.952 Serious Damage...(k)...which causes decided flattening of the fruit, drying or dark discoloration of the skin, or which affects more than one-third of the fruit surface.**

**§51.955 Very Serious Damage...(h)...which seriously affects more than one-third of the fruit surface.**

If specimens are not scorable based on the amount of external surface affected by sunburn, fruit may be scored when the amount of internal 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, follow the procedures outlined in the section *Cutting for Dryness or Mushy Condition*.

---

**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). Since the California/Arizona standard contains separate texture and thickness of skin requirements (unlike Florida and Texas grapefruit), report each factor separately.

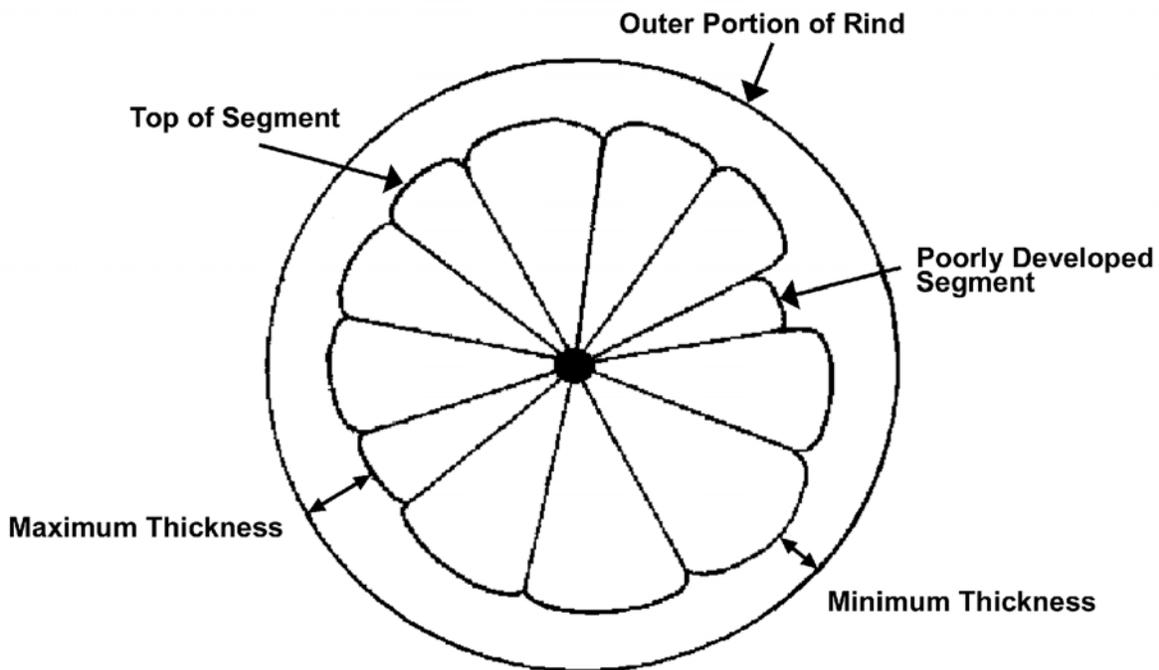
The U.S. Fancy grade requires fruit to have smooth texture for the variety and be fairly thin skinned. The U.S. No. 1 grade requires fruit to have fairly smooth texture and not be excessively thick skinned. The U.S. No. 2 grade requires fruit to have not more than slightly rough texture with no skin thickness requirements. Fruit not meeting these requirements are scored against the total grade tolerance at shipping point and the permanent defects tolerance at market. The U.S. No. 3 grade allows fruit with rough texture. Refer to the official models designated T-1 and T-2 for examples of texture.

**§51.941 “Smooth texture” means that the skin is of fairly fine grain, the “pebbling” is not pronounced, and any furrows radiating from the stem end are short and shallow.**

**§51.945 “Fairly smooth texture” means that the skin does not feel noticeably rough or coarse. The size of the fruit should be considered in judging the texture, as large fruit is not usually as smooth as the small. It is common for the fruit to show larger and coarser “pebbling” on the stem end portion than on the blossom end. Slight furrows or grooves which may be present on the stem end portion of the fruit shall not be considered as slightly rough unless they are of sufficient depth, length, and number to materially affect the appearance and smoothness of the grapefruit.**

**§51.951 “Decidedly rough” means that the skin is materially rough, materially lumpy, decidedly folded, or decidedly ridged.**

## Measuring Minimum-Maximum Rind Thickness



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 the requirement of “fairly thin skinned” and shall be reported as “not fairly thin skinned.” If the average is more than 5/8 inch, it also fails to meet fairly thin skinned and shall be reported as “excessively thick.” One poorly developed segment per fruit is allowed. Do not use a poorly developed segment when determining average measurement. Use **Sample Plan B** when sampling for this factor.

Fruit not meeting skin-thickness requirements for the U.S. Fancy or U.S. No. 1 grades shall be reported as “not fairly thin skinned” or “excessively thick skinned” based on the facts. The U.S. No. 2 and U.S. No. 3 grades do not have a skin-thickness requirement.

**§51.942 “Fairly thin skinned” means that the skin thickness does not average more than 1/2 of an inch, on a central cross section, on a grapefruit 4-1/8 inches in diameter.**

**§51.946 “Excessively thick skinned” means that the skin thickness averages more than 5/8 of an inch, on a central cross section, on a grapefruit 4-1/8 inches in diameter.**

---

**Decay (C)**

Decay is a “free from” defect and any amount is scorable. 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 (i.e., early, moderate, or advanced stages).

---

# APPENDIX I - U.S. GRADE STANDARDS

---

## United States Standards for Grades of Oranges (California and Arizona)<sup>1</sup>

Effective December 27, 1999

### Grades

- 51.1085 U.S. Fancy.
- 51.1086 U.S. No. 1.
- 51.1087 U.S. Combination.
- 51.1088 U.S. No. 2.
- 51.1089 [Reserved].

### Tolerances

- 51.1090 Tolerances.
- 51.1091 U.S. Fancy, U.S. No. 1, and U.S. No. 2 grades.
- 51.1092 U.S. Combination grade.

### Application of Tolerances

- 51.1093 Application of tolerances.

### Standard Pack

- 51.1094 Standard pack.

### Standard Sizing and Fill

- 51.1095 Standard sizing and fill.

### Standards for Export

- 51.1096 Standards for export.

### Definitions

- 51.1097 Similar varietal characteristics.
- 51.1098 Well colored.
- 51.1099 Firm.
- 51.1100 Well formed.
- 51.1101 Smooth texture.
- 51.1102 Injury.
- 51.1103 Fairly smooth texture.
- 51.1104 Damage.
- 51.1105 Fairly well colored.
- 51.1106 Fairly firm.
- 51.1107 Fairly well formed.
- 51.1108 Slightly rough texture.
- 51.1109 Serious damage.

### Grades

#### §51.1085 U.S. Fancy.

“U.S. Fancy” consists of oranges of similar varietal characteristics which are mature, well colored, firm, well formed, of smooth texture, and which are free from decay, broken skins which are not healed, hard or dry skins, exanthema, growth cracks, dryness or mushy condition, and free from injury caused by bruises, split, rough, wide or protruding navels, creasing, scars, oil spots, scale, skin breakdown, sunburn, dirt or other foreign material disease, insects or mechanical or other means. (See §51.1091.)

#### §51.1086 U.S. No. 1.

“U.S. No. 1” consists of oranges of similar varietal characteristics which are mature, firm, well formed, of fairly smooth texture, and which are free from decay, broken skins which are not healed, hard or dry skins,

---

<sup>1</sup>Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act, or with applicable State laws and regulations.

exanthema, growth cracks, and free from damage caused by bruises, dryness or mushy condition, split, rough, wide or protruding navels, creasing, scars, oil spots, scale, skin breakdown, sunburn, dirt or other foreign material, disease, insects or mechanical or other means. Each fruit shall be well colored except Valencia oranges which shall be at least fairly well colored: **Provided**, That navel oranges in any lot which is destined for export and which is certified as meeting the standards for export need be only fairly well colored. (See §51.1091.)

**§51.1087 U.S. Combination.**

“U.S. Combination” consists of a combination of U.S. No. 1 and U.S. No. 2 oranges: **Provided**, That at least 40 percent, by count, of the oranges in each lot shall meet the requirements of the U.S. No. 1 grade. (See §51.1092.)

**§51.1088 U.S. No. 2.**

“U.S. No. 2” consists of oranges of similar varietal characteristics which are mature, fairly well colored, fairly firm, fairly well formed, which may be of slightly rough texture, and which are free from decay, broken skins which are not healed, hard or dry skins, exanthema, growth cracks, and free from serious damage caused by bruises, dryness or mushy condition, split or protruding navels, creasing, scars, oil spots, scale, skin breakdown, sunburn, dirt or other foreign material, disease, insects or mechanical or other means. (See §51.1091.)

**§51.1089 [Reserved].**

**Tolerances**

**§51.1090 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the tolerances, by count, based on a minimum 25 count sample, set forth in the U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. Combination grades are provided as specified.

**§51.1091 U.S. Fancy, U.S. No. 1 grades.**

**For defects at shipping point.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 5 percent shall be allowed for defects causing serious damage, included in this latter amount not more than 1 percent for decay.

**For defects en route or at destination.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the specified grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 7 percent for defects causing serious damage, including therein not more than 5 percent for serious damage by permanent defects and not more than 3 percent for decay.

**§51.1091 U.S. No. 2 grade.**

**For defects at shipping point.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 1 percent for decay.

**For defects en route or at destination.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the specified grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or not more than 3 percent for decay.

**§51.1092 U.S. Combination grade.**

**For defects at shipping point.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 10 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade, included in this amount not more than 1 percent for decay.

**For defects en route or at destination.** Not more than 10 percent, by count, of the oranges in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 12 percent, by count, of the oranges in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or not more than 3 percent for decay.

(a) **For defects at shipping point and en route or at destination.** No part of any tolerance shall be allowed to reduce for the lot as a whole, the 40 percent of U.S. No. 1 oranges required in the U.S. Combination grade, but individual samples may have not less than 30 percent of U.S. No. 1 required: **Provided**, That the entire lot averages within the percentage required.

#### **Application of Tolerances**

##### **§51.1093 Application of tolerances.**

(a) Individual samples, based on a minimum 25 count, are subject to the following limitations, unless otherwise specified. 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 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.

#### **Standard Pack**

##### **§51.1094 Standard pack.**

(a) Oranges shall be fairly uniform in size and shall be packed in boxes or cartons and arranged according to the approved and recognized methods.

(b) All such containers shall be tightly packed and well filled but the contents shall not show excessive or unnecessary bruising because of overfilled containers. When oranges are packed in cartons or in wire-bound boxes, each container shall be at least level full at time of packing.

(c) "Fairly uniform in size" means that when oranges are packed for 113 carton count or smaller size, or equivalent sizes when packed in other containers, not more than 10 percent, by count, of the oranges in any sample may vary more than five-sixteenths inch in diameter; when packed for sizes larger than 113 carton count or equivalent sizes packed in other containers, not more than 10 percent, by count, of the oranges in any sample may vary more than seven-sixteenths inch in diameter.

(1) "Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end of the fruit.

(d) In order to allow for variations incident to proper packing, not more than 5 percent of the samples in any lot may fail to meet the requirements for standard pack.

#### **Standard Sizing and Fill**

##### **§51.1095 Standard sizing and fill.**

(a) Boxes or cartons in which oranges are not packed according to a definite pattern do not meet the requirements of standard pack, but may be certified as meeting the requirements of standard sizing and fill: **Provided**, That the oranges in the samples are fairly uniform in size as defined in the standard pack section: **And provided further**, That the contents have been properly shaken down and the container is at least level full at time of packing.

(b) In order to allow for variations incident to proper packing, not more than 5 percent of the samples in any lot may fail to meet the requirements of standard sizing and fill.

#### **Standards for Export**

##### **§51.1096 Standards for export.**

(a) Not more than a total of 10 percent, by count, of the oranges in any sample may be soft, affected by decay, have broken skins which are not healed, growth cracks, or be damaged by creasing or skin breakdown, or seriously damaged by split or protruding navels, or by dryness or mushy condition, except that:

(1) Not more than one-half of 1 percent shall be allowed for oranges affected by decay;

(2) Not more than 3 percent shall have broken skins which are not healed;

(3) Not more than 3 percent shall have growth cracks;

(4) Not more than 5 percent shall be soft;

(5) Not more than 5 percent shall be damaged by creasing;

(6) Not more than 5 percent shall be seriously damaged by split or protruding navels;

(7) Not more than 5 percent shall be seriously damaged by dryness or mushy condition; and,

(8) Not more than 5 percent shall be damaged by skin breakdown.

(b) Any lot of oranges shall be considered as meeting the standards for export if the entire lot averages within the requirements specified: **Provided**, That no sample from the containers in any lot shall have more than double the percentage specified for any one defect, and that not more than a total of 10 percent, by count, of the oranges in any sample has any of the defects enumerated in the standards for export.

## **Definitions**

### **§51.1097 Similar varietal characteristics.**

"Similar varietal characteristics" means that the oranges in any container are similar in color and type.

### **§51.1098 Well colored.**

"Well colored" means that the fruit is at least light orange in color, with not more than a trace of green at the stem end, and not more than 15 percent of the remainder of the surface of the fruit shows green color.

### **§51.1099 Firm.**

"Firm" means that the fruit does not yield more than slightly to moderate pressure.

### **§51.1100 Well formed.**

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

### **§51.1101 Smooth texture.**

"Smooth texture" means that the skin is of fairly fine grain for the variety, the "pebbling" is not pronounced, and any furrows radiating from the stem end are shallow.

### **§51.1102 Injury.**

"Injury" means any defect which more than slightly affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as injury:

- (a) Split, rough, wide or protruding navels when a split is unhealed or is more than one-eighth inch in length; or when the navel protrudes beyond the general contour of the fruit; or when flush with the contour but with the opening so wide, considering the size of the fruit, or the navel growth so folded and ridged that it detracts noticeably from the appearance of the fruit;
- (b) Slight creasing which is more than barely visible, or which extends over more than 20 percent of the fruit surface;
- (c) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:
  - (1) Scars which are very dark and which have an aggregate area exceeding that of a circle one-eighth inch in diameter;
  - (2) Scars which are dark, rough or deep and which have an aggregate area exceeding that of a circle one-fourth inch in diameter;
  - (3) Scars which are fairly light in color, slightly rough, or with slight depth and which have an aggregate area exceeding that of a circle one-half inch in diameter; and,
  - (4) Scars which are light in color, fairly smooth, with no depth and which have an aggregate area of more than 5 percent of the fruit surface;
- (d) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 2-1/2 percent of the fruit surface, or which are green and more than 4 in number;
- (e) Scale when medium or large and more than 5 are present; and,
- (f) Sunburn which appreciably changes the normal color or shape of the fruit, or which affects more than 10 percent of the fruit surface.
- (g) Skin breakdown when exceeding that of a circle 1/8 inch in diameter.
- (h) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.

### **§51.1103 Fairly smooth texture.**

"Fairly smooth texture" means that the skin does not feel noticeably rough or coarse for the variety. The size of the fruit should be considered in judging texture, as large fruit is not usually as smooth as smaller fruit. It is common for the fruit to show larger and coarser "pebbling" on the stem end portion than on the blossom end. The presence of furrows or grooves on the stem end portion of the fruit is a common condition in certain varieties, and the fruit shall not be considered as slightly rough unless the furrows or grooves are of sufficient depth, length, and number as to materially affect the appearance and smoothness of the orange.

### **§51.1104 Damage.**

"Damage" means any defect which materially affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

- (a) Dryness or mushy condition when affecting all segments more than one-fourth inch at the stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit;

(b) Split, rough, wide or protruding navels when there are more than three splits, or when any split is unhealed or is more than one-fourth inch in length; or navels which flare, bulge, or protrude materially beyond the general contour of the fruit; or when the navel opening is so wide, considering the size of the fruit, or the navel growth so folded and ridged that it detracts materially from the appearance of the fruit;

(c) Creasing which materially weakens the skin, or which extends over more than one-third of the fruit surface;

(d) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:

(1) Scars which are very dark, with slight depth, and which have an aggregate area exceeding that of a circle one-fourth inch in diameter;

(2) Scars which are very dark, with no depth, and which have an aggregate area exceeding that of a circle one-half inch in diameter;

(3) Scars which are dark, and rough or deep, and which have an aggregate area exceeding that of a circle one-half inch in diameter;

(4) Scars which are dark, and slightly rough or with slight depth, and which have an aggregate area exceeding that of a circle three-fourths inch in diameter;

(5) Scars which are fairly light in color, slightly rough or with slight depth, and which have an aggregate area of more than 5 percent of the fruit surface; and,

(6) Scars which are light in color, fairly smooth, with no depth, and which have an aggregate area of more than 10 percent of the fruit surface;

(e) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 5 percent of the fruit surface, or which are green and more than 7 in number;

(f) Scale when medium or large and more than 7 are present, or when medium or large scale, outside the stem button area, aggregate more than a circle 5/8 inch in diameter.

(g) Sunburn which causes appreciable flattening of the fruit, drying or darkening of the skin, or affects more than 25 percent of the fruit surface.

(h) Skin breakdown when exceeding that of a circle 1/4 inch in diameter.

(i) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.

**§51.1105 Fairly well colored.**

"Fairly well colored" means that the yellow or orange color predominates on the fruit.

**§51.1106 Fairly firm.**

"Fairly firm" means that the fruit may yield to moderate pressure but is not soft.

**§51.1107 Fairly well formed.**

"Fairly well formed" means that the fruit is not of the shape characteristic of the variety but is not decidedly flattened, pointed, extremely elongated, or otherwise badly deformed.

**§51.1108 Slightly rough texture.**

"Slightly rough texture" means that the skin is not decidedly rough, badly folded, badly ridged, or decidedly lumpy. Heavily "pebbled" skin shall be considered as slightly rough.

**§51.1109 Serious damage.**

"Serious damage" means any defect which seriously affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

(a) Dryness or mushy condition when affecting all segments more than one-half inch at the stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit;

(b) Split or protruding navels when any split is unhealed or is more than one-half inch in length, or when two or more splits aggregate more than 1 inch in length; or navels which protrude seriously beyond the general contour of the fruit; or when the navel opening is so wide, considering the size of the fruit, or the navel growth so badly folded and ridged that it detracts seriously from the appearance of the fruit;

(c) Creasing which seriously weakens the skin, or which is distributed over practically the entire fruit surface;

(d) Scars (including sprayburn and fumigation injury) which exceed the following aggregate areas of different types of scars, or a combination of two or more types of scars the seriousness of which exceeds the maximum allowed for any one type:

(1) Scars which are very dark, very rough or very deep, and which have an aggregate area of more than 5 percent of the fruit surface;

- (2) Scars which are dark, rough or deep, and which have an aggregate area of more than 10 percent of the fruit surface;
- (3) Scars which are fairly light in color, slightly rough or of slight depth, and which have an aggregate area of more than 15 percent of the fruit surface; and,
- (4) Scars which are light in color, fairly smooth, with no depth, and which have an aggregate area of more than 25 percent of the fruit surface;
- (e) Oil spots (oleocellosis or similar injuries) which are depressed or soft, or which have an aggregate area of more than 10 percent of the fruit surface;
- (f) Scale when medium or large and when aggregating more than a circle  $\frac{3}{4}$  inch in diameter.
- (g) Sunburn which causes decided flattening of the fruit, drying or dark discoloration of the skin, or which affects more than one-third of the fruit surface.
- (h) Skin breakdown when exceeding that of a circle  $\frac{5}{8}$  inch in diameter.
- (i) Bruising when fruit has been split open, peel is badly water-soaked following bruising or albedo and juice sacs are ruptured causing a mushy condition affecting all segments more than  $\frac{3}{4}$  inch at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.

**Note:** All references in this standard to area, aggregating area, or length are based on an orange  $2\frac{7}{8}$  inches in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

---

# United States Standards for Grades of Grapefruit (California and Arizona)<sup>1</sup>

Effective December 27, 1999

## Grades

- 51.925 U.S. Fancy.
- 51.926 U.S. No. 1.
- 51.927 U.S. No. 2.
- 51.928 U.S. Combination grade.
- 51.929 U.S. No. 3.
- 51.930 [Reserved].

## Tolerances

- 51.931 Tolerances.
- 51.932 U.S. Fancy, U.S. No. 1, U.S. No. 2 and U.S. No. 3 grades.
- 51.933 U.S. Combination grade.

## Application of Tolerances

- 51.934 Application of tolerances to individual packages.

## Standard Pack

- 51.935 Standard pack.

## Standards for Export

- 51.936 Standards for export.

## Definitions

- 51.937 Similar varietal characteristics.
- 51.938 Well colored.
- 51.939 Firm.
- 51.940 Well formed.
- 51.941 Smooth texture.
- 51.942 Fairly thin skinned.
- 51.943 Injury.
- 51.944 Fairly well colored.
- 51.945 Fairly smooth.
- 51.946 Excessively thick skinned.
- 51.947 Damage.
- 51.948 Slightly colored.
- 51.949 Fairly firm.
- 51.950 Fairly well formed.
- 51.951 Decidedly rough.
- 51.952 Serious damage.
- 51.953 Slightly spongy.
- 51.954 Misshapen.
- 51.955 Very serious damage.

## Grades

### §51.925 U.S. Fancy.

U.S. Fancy shall consist of grapefruit of similar varietal characteristics which are mature, well colored, firm, well formed, of smooth texture for the variety, and fairly thin skinned; free from decay, broken skins which are not healed, hard or dry skins, dryness or mushy condition, and, free from injury caused by bruises, sprayburn, fumigation, exanthema, scars, green spots, scale, sunburn, oil spots, skin breakdown, sprouting, dirt or other foreign materials, disease, insects or mechanical or other means. (See §51.932.)

### §51.926 U.S. No. 1.

U.S. No. 1 shall consist of grapefruit of similar varietal characteristics which are mature, fairly well colored, firm, well formed, of fairly smooth texture for the variety, and not excessively thick skinned; free from

---

<sup>1</sup>Packing of the product in conformity with the requirements of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable State laws and regulations.

decay, broken skins which are not healed, hard or dry skins, and free from damage caused by bruises, dryness or mushy condition, sprayburn, fumigation, exanthema, scars, green spots, scale, sunburn, oil spots, skin breakdown, sprouting, dirt or other foreign materials, disease, insects or mechanical or other means. (See §51.932.)

**§51.927 U.S. No. 2.**

U.S. No. 2 shall consist of grapefruit of similar varietal characteristics which are mature, slightly colored, fairly firm, fairly well formed, and not decidedly rough; free from decay, broken skins which are not healed, hard or dry skins, and from serious damage caused by bruises, dryness or mushy condition, sprayburn, fumigation, exanthema, scars, green spots, scale, sunburn, oil spots, skin breakdown, sprouting, dirt or other foreign materials, disease, insects or mechanical or other means. (See §51.932.)

**§51.928 U.S. Combination grade.**

U.S. Combination grade shall consist of a combination of U.S. No. 1 and U.S. No. 2 grapefruit: **Provided**, That at least 40 percent, by count, of the grapefruit in each lot shall meet the requirements of the U.S. No. 1 grade. (See §51.933.)

**§51.929 U.S. No. 3.**

U.S. No. 3 shall consist of grapefruit of similar varietal characteristics which are mature, slightly colored, which may be slightly spongy, misshapen, and rough but not seriously lumpy; which are free from decay, broken skins which are not healed, hard or dry skins, and free from very serious damage caused by bruises, dryness or mushy condition, sprayburn, fumigation, exanthema, scars, green spots, scale, sunburn, oil spots, skin breakdown, sprouting, dirt or other foreign materials, disease, insects or mechanical or other means. (See §51.932.)

**§51.930 [Reserved].**

**Tolerances**

**§51.931 Tolerances.**

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the tolerances, by count, based on a minimum 25 count sample, set forth in the U.S. Fancy, U.S. No. 1, U.S. No. 2, U.S. No. 3 and U.S. Combination grades are provided as specified.

**§51.932 U.S. Fancy, U.S. No. 1, U.S. No. 2 grades.**

**For defects at shipping point.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, included in this latter amount not more than 1 percent for decay.

**U.S. Fancy, U.S. No. 1, and U.S. No. 2 grades. For defects en route or at destination.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 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.

**U.S. No. 3 grade. For defects at shipping point.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade, included in this amount not more than 1 percent for decay.

**U.S. No. 3 grade. For defects en route or at destination.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements relating to color. In addition, not more than 12 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the specified grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or not more than 3 percent for decay.

**§51.933 U.S. Combination grade.**

**U.S. Combination grade. For defects at shipping point.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade, included in this amount not more than 5 percent for very serious damage, included in this latter amount not more than 1 percent for decay.

**U.S. Combination grade. For defects en route or at destination.** Not more than 10 percent, by count, of the grapefruit in any lot may fail to meet the requirements of the U.S. No. 2 grade relating to color. In addition, not more than 12 percent, by count, of the grapefruit in any lot may fail to meet the remaining requirements of the U.S. No. 2 grade: **Provided**, That included in this amount not more than the following percentages shall be allowed for defects listed: 10 percent for fruit having permanent defects; or 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.

**U.S. Combination grade. For defects at shipping point and en route or at destination.** No part of any tolerance shall be allowed to reduce for the lot as a whole, the 40 percent of U.S. No. 1 grapefruit required in the U.S. Combination grade, but individual samples may have not less than 30 percent less of U.S. No. 1 required: **Provided**, That the entire lot averages within the percentage specified.

#### **Application of Tolerances**

##### **§51.934 Application of tolerances.**

Individual samples, based on a minimum 25 count, are subject to the following limitations, unless otherwise specified. 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 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.

#### **Standard Pack**

##### **§51.935 Standard pack.**

(a) Grapefruit shall be fairly uniform in size, and, when packed in boxes, shall be arranged according to the approved and recognized methods.

(b) All packages shall be tightly packed and well filled but the contents shall not show excessive or unnecessary bruising because of overfilled packages.

(c) "Fairly uniform in size" means that not more than 5 percent, by count, of the fruit in any sample may be more than one standard size larger or smaller than the standard size for the count packed.

(d) Example of standard size grapefruit: The standard size grapefruit for a 64 count is that size grapefruit which will pack tightly 64 grapefruit of uniform size when packed according to the approved and recognized method.

(e) In order to allow for variations, incident to proper packing, not more than 5 percent of the samples in any lot may fail to meet the requirements of standard pack.

#### **Standards for Export**

##### **§51.936 Standards for export.**

(a) Not more than a total of 10 percent, by count, of the grapefruit in any sample may be soft, affected by decay, damaged by skin breakdown, have broken skins which are not healed, or be seriously damaged by dryness or mushy condition, except that:

(1) Not more than one-half of 1 percent shall be allowed for grapefruit affected by decay.

(2) Not more than 3 percent shall have broken skins which are not healed.

(3) Not more than 5 percent shall be soft.

(4) Not more than 5 percent shall be seriously damaged by dryness or mushy condition.

(5) Not more than 5 percent shall be damaged by skin breakdown.

(b) Any lot of grapefruit shall be considered as meeting the standards for export if the entire lot averages within the requirements specified: **Provided**, That no sample from the containers in any lot shall have more than double the percentage specified for any one defect, and that not more than a total of 10 percent, by count, of the grapefruit in any sample has any of the defects enumerated in the standards for export.

#### **Definitions**

##### **§51.937 Similar varietal characteristics.**

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

##### **§51.938 Well colored.**

"Well colored" means that the fruit is yellow in color, with not more than a trace of green.

##### **§51.939 Firm.**

"Firm" means that the fruit is not soft or noticeably wilted or flabby. The skin may feel slightly springy or spongy.

##### **§51.940 Well formed.**

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

**§51.941 Smooth texture.**

"Smooth texture" means that the skin is of fairly fine grain, the "pebbling" is not pronounced, and any furrows radiating from the stem end are short and shallow.

**§51.942 Fairly thin skinned.**

"Fairly thin skinned" means that the skin thickness does not average more than 1/2 of an inch, on a central cross section, on a grapefruit 4-1/8 inches in diameter.

**§51.943 Injury.**

"Injury" means any defect which more than slightly affects the appearance, or edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as injury:

(a) Sprayburn which changes the color to such an extent that the appearance of the fruit is noticeably injured, or which causes scarring that aggregates more than one-half inch in diameter.

(b) Fumigation injury which noticeably detracts from the appearance of the fruit, or which occurs as small, thinly scattered spots over more than 10 percent of the fruit surface, or as solid or depressed scarring which aggregates more than one-half of an inch in diameter.

(c) Exanthema which noticeably detracts from the appearance of the fruit, or which occurs as small, thinly scattered spots over more than 10 percent of the fruit surface, or as solid scarring which aggregates more than one-half of an inch in diameter.

(d) Scars which are very rough or very deep; or scars which are very dark when more than one-fourth of an inch in diameter.

(e) Scars which are dark, rough, or deep and aggregate more than one-half of an inch in diameter.

(f) Scars which are fairly light in color, slightly rough, or of slight depth and aggregate more than 5 percent of the fruit surface.

(g) Scars which are light colored, fairly smooth, with no depth and aggregate more than 10 percent of the fruit surface.

(h) Green spots, oil spots (oleocellosis) or other similar injuries which are depressed or soft, or which have an aggregate area of more than 2-1/2 percent of the fruit surface, or which are green and more than 4 in number.

(i) Scale, when more than 5 medium to large California red or purple scale are adjacent to the "button" at the stem end, or scattered over the fruit, or any scale which affects the appearance of the fruit to a greater extent.

(j) Sunburn which appreciably changes the normal color or shape of the fruit, or affects more than 10 percent of the fruit surface.

(k) Skin breakdown when exceeding that of a circle 1/4 inch in diameter.

(l) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.

**§51.944 Fairly well colored.**

"Fairly well colored" means that yellow color predominates on the fruit and that the fruit is free from distinctly green streaks and distinctly green blotches.

**§51.945 Fairly smooth.**

"Fairly smooth texture" means that the skin does not feel noticeably rough or coarse. The size of the fruit should be considered in judging the texture, as large fruit is not usually as smooth as the small. It is common for the fruit to show larger and coarser "pebbling" on the stem end portion than on the blossom end. Slight furrows or grooves which may be present on the stem end portion of the fruit shall not be considered as slightly rough unless they are of sufficient depth, length, and number to materially affect the appearance and smoothness of the grapefruit.

**§51.946 Excessively thick skinned.**

"Excessively thick skinned" means that the skin thickness averages more than 5/8 of an inch, on a central cross section, on a grapefruit 4-1/8 inches in diameter.

**§51.947 Damage.**

"Damage" means any injury which materially affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

(a) Dryness or mushy condition, when affecting all segments more than one-fourth of an inch at the stem end, or the equivalent of this amount by volume, when occurring in other portions of the fruit.

(b) Sprayburn which changes the color to such an extent that the appearance of the fruit is materially injured, or which causes scarring that aggregates more than three-fourths of an inch in diameter.

- (c) Fumigation injury which materially detracts from the appearance of the fruit, or which occurs as small, thinly scattered spots over more than 25 percent of the fruit surface, or as solid scarring or depressions which aggregate more than three-fourths of an inch in diameter.
- (d) Exanthema which materially detracts from the appearance of the fruit, or which occurs as small, thinly scattered spots over more than 25 percent of the fruit surface, or as solid scarring, that is not cracked, which aggregates more than three-fourths of an inch in diameter.
- (e) Scars which are very deep; or scars which are very rough or very dark and aggregate more than one-half of an inch in diameter.
- (f) Scars which are dark, rough or deep and aggregate more than three-fourths of an inch in diameter.
- (g) Scars which are fairly light in color, slightly rough, or of slight depth and aggregate more than 10 percent of the fruit surface.
- (h) Scars which are light colored, fairly smooth, with no depth and aggregate more than 15 percent of the fruit surface.
- (i) Green spots, oil spots (oleocellosis) or other similar injuries which are depressed or soft, or which have an aggregate area of more than 5 percent of the fruit surface, or which are green and more than 7 in number.
- (j) Scale, when more than 10 medium to large California red or purple scale are adjacent to the "button" at the stem end, or scattered over the fruit, or any scale which affects the appearance of the fruit to a greater extent.
- (k) Sunburn which causes appreciable flattening of the fruit, drying or darkening of the skin, or affects more than 25 percent of the fruit surface.
- (l) Skin breakdown when exceeding that of a circle 3/8 inch in diameter.
- (m) Bruising when segment walls are collapsed, or albedo and juice sacs are ruptured.

**§51.948 Slightly colored.**

"Slightly colored" means that sufficient yellow color is distributed over the fruit surface and, when blended with the green color present, is equivalent to 25 percent of full yellow color characteristic of the variety.

**§51.949 Fairly firm.**

"Fairly firm" means that the fruit may be slightly soft but is not decidedly flabby. The skin may be thick and slightly puffy.

**§51.950 Fairly well formed.**

"Fairly well formed" means that the fruit is not materially flattened, materially pointed, extremely elongated, or otherwise decidedly deformed.

**§51.951 Decidedly rough.**

"Decidedly rough" means that the skin is materially rough, materially lumpy, decidedly folded, or decidedly ridged.

**§51.952 Serious damage.**

"Serious damage" means any injury which seriously affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

- (a) Dryness or mushy condition, when affecting all segments more than one-half of an inch at the stem end, or the equivalent of this amount by volume, when occurring in other portions of the fruit.
- (b) Sprayburn which changes the color to such an extent that the appearance of the fruit is seriously injured, or which causes scarring that aggregates more than 10 percent of the fruit surface.
- (c) Fumigation injury which occurs as small, thinly scattered spots over more than one-half of the fruit surface, or solid scarring or depressions which aggregate more than 5 percent of the fruit surface.
- (d) Exanthema which occurs as small, thinly scattered spots over more than one-half of the fruit surface, or solid scarring that is not cracked, which aggregates more than 5 percent of the fruit surface.
- (e) Scars which are very deep; or scars which are very rough or very dark and aggregate more than one inch in diameter.
- (f) Scars which are dark, rough or deep and aggregate more than 5 percent of the fruit surface.
- (g) Scars which are fairly light in color, slightly rough or of slight depth and aggregate more than 15 percent of the fruit surface.
- (h) Scars which are light colored, fairly smooth, with no depth and aggregate more than 25 percent of the fruit surface.
- (i) Green spots, oil spots (oleocellosis) or other similar injuries which are soft, or which have an aggregate area of more than 10 percent of the fruit surface.

(j) Scale, when California red or purple scale is concentrated as a ring or blotch, or which is more than thinly scattered over the fruit surface, or any scale which affects the appearance of the fruit to a greater extent.

(k) Sunburn which causes decided flattening of the fruit, drying or dark discoloration of the skin, or which affects more than one-third of the fruit surface.

(l) Skin breakdown when exceeding that of a circle 5/8 inch in diameter.

(m) Bruising when segment walls are collapsed, or albedo is ruptured and juice sacs are ruptured.

**§51.953 Slightly spongy.**

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

**§51.954 Misshapen.**

"Misshapen" means that the fruit is materially flattened, materially pointed, extremely elongated or otherwise decidedly deformed.

**§51.955 Very serious damage.**

"Very serious damage" means any injury which very seriously affects the appearance, or the edible or shipping quality of the fruit. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as very serious damage:

(a) Sprayburn which seriously affects more than 25 percent of the fruit surface.

(b) Fumigation injury which causes deep, rough, or dark scarring which aggregates more than 25 percent of the fruit surface.

(c) Exanthema which aggregates more than 10 percent of the fruit surface, or causes serious cracks.

(d) Scars which are very dark, very rough, or very deep and aggregate more than 10 percent of the fruit surface.

(e) Scars which are dark, rough or deep and aggregate more than 25 percent of the fruit surface.

(f) Green spots, oil spots (oleocellosis) or other similar injuries which are badly sunken or soft, or which have an aggregate area of more than 25 percent of the fruit surface.

(g) Scale so numerous or large that the appearance of the fruit is very seriously affected.

(h) Sunburn which seriously affects more than one-third of the fruit surface.

(i) Skin breakdown when exceeding that of a circle 1-1/4 inches in diameter.

(j) Bruising when fruit has been split open, peel is badly watersoaked following bruising or albedo is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.

(k) Dryness or mushy condition, when affecting all segments more than three-fourths of an inch at the stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.

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

# APPENDIX II

## Directive on Certifying Various Varieties of Citrus

## Appendix II

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 Areas 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

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.

# APPENDIX III

## Example 1 - Inspection Notesheet

CARRIER'S LOT IDENTIFICATION: <b>L 07 12543</b>		LOADING: <input type="checkbox"/> Loaded U.P. <input type="checkbox"/> Not Loaded U.P. <input type="checkbox"/> Loaded U.L. <input type="checkbox"/> Not Loaded U.L.		<b>INSPECTION NOTESHEET</b> U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE FRUIT & VEGETABLE DIVISION	
PREFIX NUMBER STATE <b>08 1500 08</b>		CERTIFICATE NUMBER: <b>EXAMPLE 1</b>		INSPECTION STARTED: m m d d y y Hour Min. A/P <b>08 1500 08 4 5 A M</b>	
Carrier No. Stated by: <b>Applicant</b>		Additional Lot ID:		Inspection Completed: m m d d y y Hour Min. A/P <b>08 1500 10 00 A M</b>	
Carrier Type / Name:		Refrigeration Unit: <input type="checkbox"/> ON <input type="checkbox"/> OFF		Doors: <input type="checkbox"/> OPEN <input type="checkbox"/>	
Condition of Carrier:		Inspection Site: <b>Applicants warehouse</b>		APPLICANT: <b>Pete's Produce</b> Address: <b>Chicago, IL</b>	
SHIPPER: <b>Ace Packers</b> Address: <b>Coachella, CA</b>		BRANDS / MARKS: <b>cartons printed "Ace"</b> <b>Ace Packers, Coachella, CA, Produce of USA, stamped Mark Ruby, 36 size</b> <b>USDA/CA 102-15.</b>			
A: PRODUCT: <b>Grapefruit</b> NUMBER OF CONTAINERS: <b>325 ctos</b>		TEMP. NOTES: <b>39-42°</b>			
B: PRODUCT: <b>Grapefruit</b> NUMBER OF CONTAINERS: <b>300 M/C</b>		TEMP. NOTES: <b>39-41°</b>			
C: PRODUCT: NUMBER OF CONTAINERS:		TEMP. NOTES:			
D: PRODUCT: NUMBER OF CONTAINERS:		TEMP. NOTES:			
Condition of Load & Containers: <input checked="" type="checkbox"/> STACKED ON PALLETS AT ABOVE LOCATION <input type="checkbox"/> INTACT THROUGH LOAD <input type="checkbox"/> PARTLY UNLOADED					
<b>Coaches</b>					

FORM FV-300-N (3-83)



Example 1 - Inspection Certificate

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

## K- EXAMPLE 1

Carrier Identification: 1, 2, 5, 4, 3  
 Carrier / Lot ID Stated by: Applicant  
 Change Type / Name:

Appl. No: U1C  
 Additional Lot ID:

Appl. Name: Petiti Produce  
 Address: Chicago, IL  
 Shipper: Per Produce  
 Address: Coahuila, CA

Inspection Unit:  Open  Closed

Lot: 39  
 Grade: A  
 Description: "Ace" Mand Ruby 36 sig

Lot: 39  
 Grade: B  
 Description: "Ace" Mand Ruby 10/5 #

Inspection Date: 08/15/00  
 Time: 08:45 AM  
 Inspectors: A, M

Number of Containers: 325 cartons  
 300 M/C

Grade	Lot	Quantity	Quality	Remarks
A	39	00	00	Not fairly well colored
A	39	01	00	Quality (seam, pulled stems) (3-8%)
A	39	02	00	skin breakdown
A	39	03	03	Decay (0-11%) mostly early, some in advanced stages.
A	39	06	03	Chickens
B	39	00	00	Not fairly well colored
B	39	02	00	Quality (seam, pulled stems)
B	39	02	00	skin breakdown
B	39	02	02	Decay
B	39	06	02	Chickens

Market Office: Chicago, IL

Inspector's Signature: M. Good

Estimated Total: \$

REMARKS:  
 Lot A: Failed to grade U.S. No. 1 only account condition  
 Lot B: U.S. No. 1

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 PV-305 (10-00) Replaces PV-303 (4-88) and PV-305 (1-00) which are obsolete



Example 2 - Inspection Scoresheet

EXAMPLE 2

A		B		C		D			
PACK: <i>Tight in layers</i>		PACK: _____		PACK: _____		PACK: _____			
SIZE: <i>FU</i>		SIZE: <i>FU</i>		SIZE: _____		SIZE: _____			
SCORESHEET									
USDA/CA PLI Number	Other I.D.	TEMP.	Sacks OK	Q		OK		SKD	
				Dam %	Seca %	OK %	OK %	Dam %	Seca %
<i>A</i> 101-25		<i>40F</i>	<i>50</i>	<i>2</i>	<i>4</i>	<i>1</i>	<i>2</i>	<i>5</i>	<i>10</i>
"		<i>39</i>	<i>50</i>	<i>3</i>	<i>6</i>	<i>2</i>	<i>4</i>	<i>4</i>	<i>8</i>
"		<i>42</i>	<i>50</i>	<i>4B</i>	<i>8</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>4</i>
"			<i>88</i>	<i>4</i>	<i>5</i>	<i>2</i>	<i>2</i>	<i>12</i>	<i>14</i>
"		<i>42</i>	<i>50</i>	<i>3</i>	<i>6</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>4</i>
"			<i>50</i>	<i>3</i>	<i>6</i>	<i>0</i>	<i>-</i>	<i>2</i>	<i>4</i>
			<i>6</i>	<i>35</i>	<i>14</i>	<i>17</i>	<i>44</i>	<i>15</i>	<i>3%</i>
				<i>6%</i>	<i>2%</i>	<i>3%</i>	<i>7%</i>	<i>3%</i>	
				<i>scr</i>		<i>0-9</i>	<i>4-4</i>		
				<i>AS</i>		<i>ⓅA</i>			
				<i>4-8P</i>					
						<i>Den F</i>	<i>WF</i>	<i>FS</i>	<i>WC</i>
USDA/CA	Other I.D.	TEMP.	Sacks OK	Q		OK		SKD	
				Dam %	Seca %	OK %	OK %	Dam %	Seca %
<i>B</i> 101-25		<i>41</i>	<i>28</i>	<i>2</i>	<i>7</i>	<i>0</i>	<i>-</i>	<i>2</i>	<i>7</i>
"			<i>28</i>	<i>1R</i>	<i>4</i>	<i>0</i>	<i>-</i>	<i>0</i>	<i>-</i>
"		<i>39</i>	<i>28</i>	<i>1R</i>	<i>4</i>	<i>1</i>	<i>4</i>	<i>2</i>	<i>7</i>
"			<i>32</i>	<i>3</i>	<i>9</i>	<i>2</i>	<i>6</i>	<i>2</i>	<i>6</i>
"		<i>40</i>	<i>32</i>	<i>1</i>	<i>3</i>	<i>1</i>	<i>3</i>	<i>3</i>	<i>9</i>
"			<i>32</i>	<i>2</i>	<i>6</i>	<i>1</i>	<i>3</i>	<i>1</i>	<i>3</i>
			<i>6</i>	<i>33</i>	<i>16</i>	<i>34</i>	<i>32</i>	<i>13</i>	<i>2%</i>
				<i>6%</i>	<i>3%</i>	<i>6%</i>	<i>5%</i>	<i>2%</i>	
				<i>3-9P</i>		<i>0-11</i>	<i>0-9</i>		
						<i>ⓅA</i>			
						<i>Den F</i>	<i>WF</i>	<i>FS</i>	<i>WC</i>
REMARKS / RESTRICTIONS / SPI									
CARLOT Basis : _____			REPORTED TO: <i>Pete</i>			INSPECTED BY: _____			
HOURLY Basis : _____			DATE: <i>8/15/00</i>			TIME: <i>8:35 Am</i>			
TRAVEL Time : _____			REQUESTED BY: <i>Pete</i>			ASSISTED BY: _____			
EXPENSES : _____			DATE: <i>8/15/00</i>			TIME: <i>6:30 Am</i>			
EST. TOTAL : _____									

4 bags with 7 to 8 fruit per bag

Example 2 - Inspection Certificate

CARRIER IDENTIFICATION		U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE INSPECTION CERTIFICATE	
Carrier/LOT ID: 1,5,4,0	UIC	<b>K-EXAMPLE 2</b>	
Carrier/LOT ID Stated by: Applicant	Address: Lot ID: 10-542451	Inspection Station: 0,8	Time: 1,5
Carrier Type/Name: Applicant	Address: Applicant warehouse	Number of Containers: 300 cartons	AP: A
Inspection Unit: <input type="checkbox"/> CW <input type="checkbox"/> OT	Product: "Semi Choice" Navel 88	Lot ID: CIA US0A/CA 101-25	Inspection Date: 0,7 0,0
Lot: A: 39	Product: "Semi Choice" Navel 10/4 #	Lot ID: CIA US0A/CA 101-21	Inspection Date: 0,0
Lot: B: 39			
Lot: C:			
Lot: D:			
OFFSIZED DEFECTS			
AVERAGE DEFECTS	DEFECTS	OTHER	
06	02	Quality (green, pulled stems) (4-8%)	
07	03	Shin breakdown (4-14%)	
03	03	Waxy (0-9%)	
16	08	Chuckham	Each lot: Waxy is
			mostly early, some in
			advanced stages.
B	06	03	Quality (green, pulled stems) (3-9%)
	05	02	Shin breakdown (0-9%)
	06	06	Waxy (0-11%)
	17	11	Chuckham
GRADE: Each lot: Failed to grade USNO.1 only account condition.			
REMARKS:			
Inspector's Signature: M. Good		Market Office: Chicago, IL	
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 PV-300 (10-90) Reprofile PV-300 (4-88) and PV-395 (1-92) which are obsolete