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Agricultural
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Fruit and
Vegetable
Division

Fresh Products
Branch

Washington, D.C.

Oranges and Grapefruit

Market Inspection Instructions for Citrus Grown in Texas and States Other Than Florida, California and Arizona

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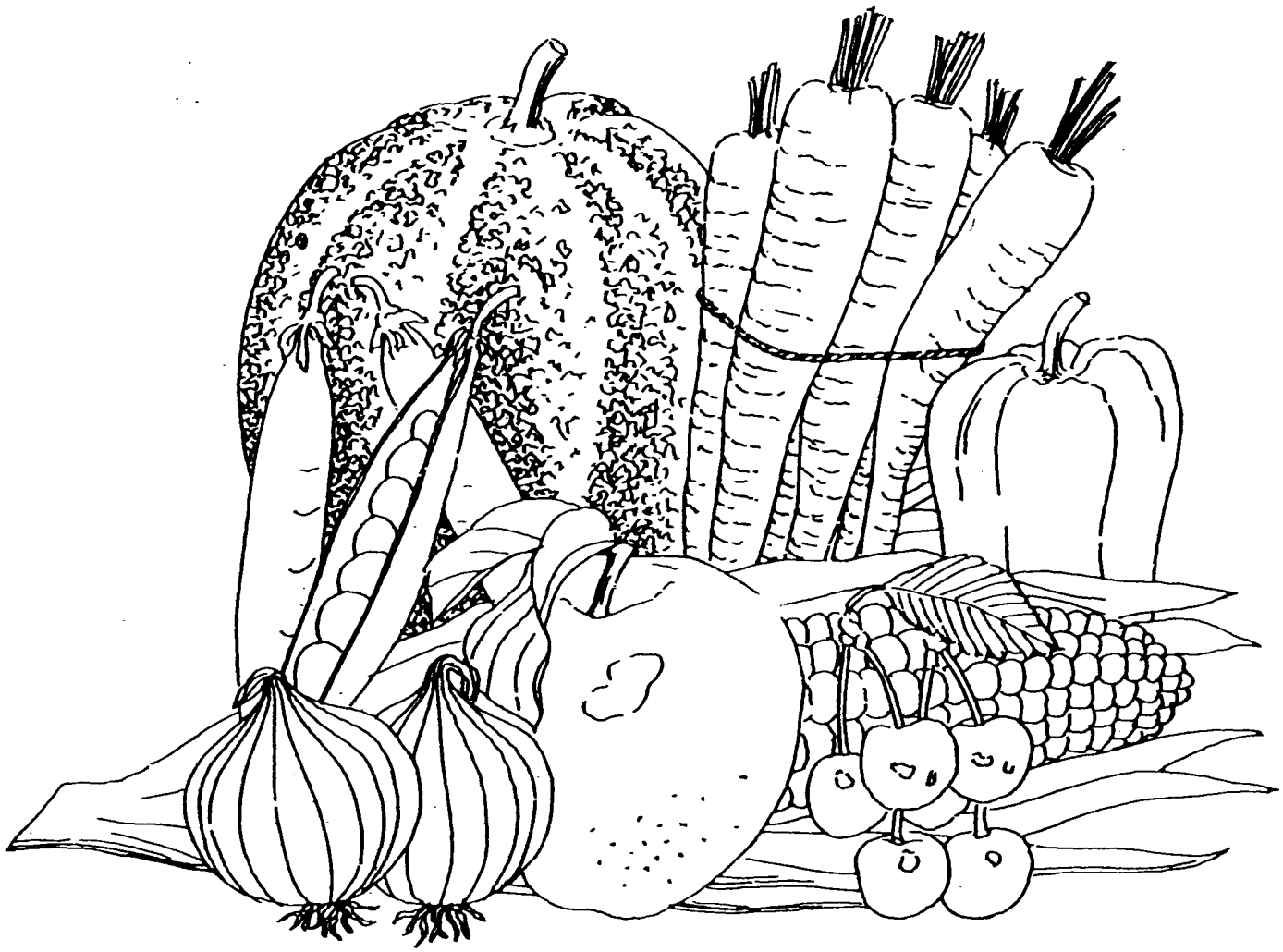

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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
FRUIT AND VEGETABLE DIVISION
FRESH PRODUCTS BRANCH

MARKET INSPECTION INSTRUCTIONS

FOR

CITRUS

(TEXAS AND STATES OTHER THAN FLORIDA,

CALIFORNIA AND ARIZONA) 1/

TYPES

There are numerous types of citrus fruits found on the markets, chief of which are sweet oranges, comprising standard varieties, seedlings, blood oranges, etc: Mandarin oranges (Tangerines, Satsumas, Temples, and King oranges); and Grapefruit. (1)

Producing Areas

Texas. In Texas the main citrus producing area is in what is commonly called the lower Rio Grande Valley. This section consists mainly of Cameron, Hidalgo and Willacy Counties. North of these, Brooks and Jim Wells Counties produce a small amount of grapefruit and oranges. The Laredo and Winter Garden sections have scattered citrus groves, but no car lots are shipped from this area. (2)

The marsh Seedless, Marsh Pink and "Red Blush" or "Ruby Red" are the most important grapefruit varieties. Also, a small quantities of Foster Pink and Duncan are shipped. (3)

Hamlin, Pineapple and Valencia are the principal varieties of oranges. A few Navels and various seeded varieties are shipped early in the season. (4)

Gulf Coast States. Alabama, Louisiana, and Mississippi grow a limited acreage of Satsuma oranges. Also, the Delta area of Louisiana produces a limited volume of various types of oranges. Practically all of this production is marketed in near-by cities. (5)

1/ This supersedes Market Inspection Instructions for Citrus Oranges and Grapefruit (Texas and States other than Florida, California, and Arizona) dated March 1965.

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Fees

(6) For the purpose of assessing fees for inspection for either condition or quality, or for both, each commodity shall be considered as a separate lot. For example: Oranges, grapefruit, tangerines, limes, and lemons shall be considered as different lots.

(7) When a shipment contains mixed citrus fruits, all shall be reported in the body of a single certificate. If it is impractical to cover all products in a shipment on a single certificate, two or more may be issued with a cross reference under "Remarks" to tie the certificates to the same lot.

(8) Car Initials and Number, Kind of Car, Where Inspected and Condition of Car. See General Market Inspection Instructions.

(9) Description of Size, Quality and Condition.

Statements under these headings must be clear, concise, and specific. When reporting defects and off-size on either preliminary reports or official certificates, report the ranges as well as totals, in both numbers of fruit and percentages. See general examples for oranges, grapefruit and tangerines.

(10) Certifying Bulk Loads. Methods of reporting defectives and off-size for bulk shipments shall be the same as for lots packed in containers. Therefore, ranges and totals must be reported in both number of fruit and percentages. Tolerances are based on sample inspection, the number of defective or off-size fruit in the individual sample, and the total number in all samples must be within the limitations specified under the tolerance section in the standard.

:***

(10a) Marketing Order 906 for Oranges and Grapefruit Grown in Lower Rio Grande Valley in Texas have grades that may be marked on the containers. If they are marked on the container they must meet the following requirements or it could be considered misbranded and PACA should be notified.

Texas Fancy Grapefruit - meet all the requirements for a U.S. No. 1 except the allowance for discoloration is reduced so that not more than 40 percent of the surface of the individual grapefruit, in the aggregate, may be affected by discoloration. See "Tolerances" for number of fruit permitted per sample and per load or lot.

Texas Choice Grapefruit - meets all the requirements for a U.S. No. 2 except the allowance for discoloration is reduced so that not more than 60 percent of the surface of the individual grapefruit, in the aggregate, may be affected by discoloration. See "Tolerances" for number of fruit permitted per sample and per load or lot.

Texas Choice Oranges - meets all the requirements for U.S. No. 2 except the definition for "reasonably well colored" is redefined to mean that the yellow or orange color predominates over the green color on at least 75 percent of the fruit surface in the aggregate which is not discolored.

For more complete instructions see Marketing Order 906 ****

PART I - ORANGES

Products Inspected and Distinguishing Marks. (11)

Under this heading the following information should be reported:

1. Type or Variety
2. Type of Container
3. Identifying Marks
4. Quantity Inspected

1. **Type or Variety**. The Inspection Service has no legal authority to certify "variety" alone. The Act under which we operate states that inspection may be made for "Quality and Condition." If, and when, a statement of "variety" is made, it is to identify the product inspected and is, therefore, secondary on the certificate. (12)

When containers are marked with the name of the variety, it should be quoted rather than a positive statement made as to variety. (13)

As a general policy, the inspector should not attempt to certify the variety of oranges. It is difficult to definitely identify Pineapples from Valencias, whose characteristics are influenced by root stock, type and drainage of soil, and by fertilization, cultivation and cultural methods. Requests for variety certification only should be declined with an explanation that the law under which the Inspection Service operates does not cover variety certification. However, seed count and color of flesh may be certified in accordance with the facts, and on Navel oranges the inspector can certify the percentage of fruit that show navel formation (internally or externally), all at applicant's request. (14)

2. **Type of Container**. In Texas the 7/10 bushel carton is the most common type of citrus container. Other containers used include 7/10 bushel wire-bound crate, 1-2/5 bushel wire-bound crate, and bags having a capacity of 5, 8 and 20 pounds net weight. (15)

The type of container shall always be mentioned under this heading without giving too much detail, except in the case of odd sizes which should be described in detail. (16)

3. **Identifying Marks**. The certificate should always show identifying brands, labels, growers or shippers names and addresses, size, weight, grades and variety when shown. When "color added" is stamped on the container or fruit, it should also be reported under this heading. (17)

4. **Quantity Inspected**. The number of containers must be shown on the certificate, either as a statement on authority of the inspector, or as "storage record," "checker's count," "applicant's count," or "manifested as." (18)

CONDITION OF LOAD AND CONTAINERS (19)

See General Market Inspection Instructions.

(20) Temperature of Product

See General Market Inspection Instructions.

(21) Condition of Pack

Packs shall be judged according to both bulge and tightness of the pack.

(22) When Biphenyl or other treated wraps, pads or liners are specified in the contract and the inspector can definitely determine this factor without any question or doubt, it will be satisfactory to report this information under the Pack heading. Thus: "Crates lined with Biphenyl liners."

(23) In addition to the statement concerning condition of pack, it will sometimes be desirable to mention the bulge. As a rule when the bulge is sufficiently high to indicate a satisfactory pack, it need not be mentioned. Unusual condition, such as excessively high bulge, should be reported. Some packs may have a high bulge, but the pack will be loose; on the other hand, flat packs will at times be found with the fruit tight in the box.

Description of Pack

(24) The following terms shall be used to describe the filling of cartons:

(25) Well filled - meaning that the carton is filled so that the fruit is in contact with the cover.

(26) Level full - meaning that the fruit is level with the top edge of the container.

(27) Fairly well filled - meaning that the carton is filled so that the fruit is slightly below the top edge but not more than 1/2 inch below.

(28) Slack - meaning that the fruit is more than 1/2 inch below the top edge of the carton. This term should also be qualified by showing how much the fruit is below the top edge in inches or fractions of an inch.

The following terms shall be used to describe the tightness of (29)
pack within the layers in the carton:

Tight - meaning that fruit is tight enough in layers to prevent (30)
the specimens from moving materially within the package.

Fairly tight - meaning a condition between "tight" and "loose" (31)
in which there is excess of space within the layers but not sufficient
space that an additional row of fruit can properly be added.

Loose - meaning that there is sufficient space so that an addi- (32)
tional row can properly be added to each layer within the container.

Proper description of pack requires the use of terms for both (33)
filling and tightness as for example, "well filled, tight in layers",
"fairly well filled, loose in layers" or other combinations in accor-
dance with the facts.

Cartons which are to be certified as meeting Standard Pack must (34)
be level full at time of packing.

The following terms shall be used in describing the tightness of (35)
a pack within the layers in wire-bound crates:

Very tight - meaning that the pack is too tight and tends to (36)
cause injury.

Tight - meaning that both pack and bulge are satisfactory. (37)

Fairly tight - meaning the condition between "tight" and "slack", (38)
that is, tight enough to prevent the specimens from moving within
the container.

Slack - meaning that the package is not full. This statement (39)
should also be qualified by showing how much the fruit is below the
level of the lid in fractions of an inch or inches.

Examples: (40)

(1) Tight pack in most boxes, many boxes 1/2 inch slack to level full.

(2) Fairly tight, lids showing 1/2 to 1 inch bulge.

(3) Most cartons will filled, many fairly well filled.

(41) Tightness of Wire-bound Crates. - In determining the tightness of wire-bound crates, the inspector should take into consideration whether the package is on a rigid surface, such as a car or pier floor or whether it is resting on the ends of other crates of fruit which might permit the bottom side to become convex. This would make the crate appear slack at the top while in reality it is fairly tight.

(42) Bulge. In reporting the height of the bulge, the measurement is the distance of the highest part of the curve of the lid above the level of the top edge of the ends of the container or the top side slats when they are flush with the tops of the ends.

(43) Standard Pack. The U. S. Standards for Oranges (Texas and States other than Florida, California and Arizona) have defined the term "Standard Pack". It is satisfactory to certify on the basis of "Standard Pack"as well as on the U. S. Grades. A load may meet the requirements of the U. S. Grades and not meet the requirements of "Standard Pack", or vice versa.

(44) The actual certification of Standard Pack should be made under the Grade heading in connection with the grade statement, but the tightness of pack, and the uniformity of sizing which are part of the requirements of Standard Pack should be shown under the headings Pack and Size. As a general policy, Standard Pack certification will be made only on specific request.

(45) The standards define uniformity of sizing in connection with Standard Pack. To meet the Standard Pack requirements, fruit must be "fairly uniform in size."

(46) Standard Sizing and Fill. Boxes or cartons which are not place-packed according to a definite pattern but which are volume filled or jumble packed cannot be certified as Standard Pack because the fruit is not arranged according to the approved and recognized methods. However, such cartons of oranges may be certified as meeting Standard Sizing and Fill if the oranges are fairly uniform in size and they have been properly shaken down and the container is at least level full at time of packing. In the market cartons which are fairly well filled will be considered as meeting the filling requirements of Standard Sizing and Fill. As with Standard Pack, Standard Sizing and Fill certification will be made only on specific request and under the grade heading in connection with the grade statement.

(47) Consumer Bags. When consumer bags are used, even though these bags are packed in master containers, the pack heading should be blocked out.

Reporting Gross or Net Weight of Containers. See General Market Inspection Instructions (paragraphs 479 through 485). (48)

Size

A knowledge of the manifest of a lot of oranges is essential to a satisfactory size inspection. Size generally will not be in question unless the pack is slack or the fruit is irregular in appearance. If the pack is slack or fruit is irregular, the receiver may request inspection to determine whether the fruit meets the size requirements. (49)

In making inspections for size only, each size shall be considered separately and treated as a separate lot. When Quality or Condition Differs According to Sizes see General Market Inspection Instructions section titled as underlined above. (50)

Measuring Diameter. In measuring fruit for diameter, the greatest dimension measured at right angles to a line from stem to blossom end of the fruit should be used. These measurements shall be made with a caliper which has rigid jaws. Turn the fruit in the caliper to make sure that the greatest dimension is obtained. Pliable fruit which has been squeezed out of shape account of tight pack should not be used in the sample for measurement. (51)

Size Marks on Containers. The size marks on the containers should be reported under the Products heading in connection with disguishing marks. If they are not as marked, the facts should be stated under the Size heading. Use general terms in describing the extent of incorrect marking. The actual certification of size and counts should be made under the Size heading even though the size and count markings on the containers are shown under the Products heading. (52)

Describing Size. In describing size under these standards, use the terms "uniform" or "fairly uniform" when the fruit meets these requirements. Report as "irregular" when they fail to meet these requirements. (53)

"Uniform in size" means that not more than the number of fruits permitted in the Tolerance Tables for the number of samples examined, vary more than the following amounts: (54)

(1) 163 size or smaller - not more than 4/16 inch in diameter; and,

(2) 125 size or larger - not more than 5/16 inch in diameter.

(55) "Fairly uniform in size" means that not more than the number of fruits permitted in the Tolerance Tables for the number of samples examined are outside the ranges of diameters for the various pack sizes. Refer to the applicable table of pack sizes in the standards.

(56) "Irregular" - When it is necessary to report a size or lot as "irregular", the number of fruit and the percentage which fails to meet the requirements of "fairly uniform" shall be shown to justify the use of the term "irregular".

(57) Bulk shipments or Consumer bag packs. Request for inspection for size of bulk shipments or consumer bag packs will require the measurement of sufficient fruit to accurately determine the number of fruit below or above a specified minimum and maximum diameter. When a size is specified, as for example, 163 size, determine the number of fruit less than 2-15/16 inches and above 3-5/16 inches in diameter. When the number of fruits below the minimum and above the maximum diameters exceeds the number of fruit permitted in the Tolerance Tables the lot fails to meet the requirements of "fairly uniform". No statement of box sizes will be made on the certificate covering inspection of bulk or bagged fruit. However, the size description shall be given by stating the diameter range in inches and fractions thereof. In addition, report the number of fruit and percentage under and above the specified minimum and maximum diameters.

TOLERANCES FOR ORANGES

(58) Tolerances are specified in the standards under Table II (En Route or at Destination) as acceptance numbers. The total maximum or minimum number of defective or off-size fruit are specified for individual samples as well as for the Total number of samples examined in the lot. No Tolerances shall apply to wormy fruit.

(59) Sample for Grade Determination. Each sample shall consist of 50 oranges, regardless of the size of the container. When individual packages contain at least 50 oranges, the 50 orange sample is taken from one package. When individual packages contain less than 50 oranges (such as 5 or 8 lb. consumer bags), a sufficient number of adjoining packages are opened to form the 50-count sample. It may be necessary in the case of 5 or 8 lb. packages packed in master containers to open as many as 3 or 4 units within the master in order to obtain the 50 count sample.

Number of Samples. The following table gives the minimum number of 50 count samples to be drawn from various size lots. The number of containers listed represents lot sizes for unrestricted inspections. When determining the number of 50 count samples for restricted inspections, figure only the total number of containers involved in that portion of the lot covered by the restriction. (60)

No. of 50 count Samples	No. of 4/5 bu. containers	No. of 5 lb. bags	No. of 8 lbs bags
4	100 or less	800 or less	500 or less
6	101 - 500	801 - 4,000	501 2,500
10	501 - 1,000	4,001 - 8,000	2,501 - 5,000
15	1,000- 2,000	8,001 -16,000	5,001 -10,000
25*	2,001- 4,000	16,001 -32,000	10,001 -20,000
40*	over 4,000	over 32,000	over 20,000

(61)

* Acceptance numbers for these sample sizes can be obtained from the Washington office.

Individual sample limitation. The individual 50-count orange sample is limited to a maximum number of defects or off-size oranges permitted, or to a minimum number of oranges having the amount of discoloration required in certain grades. This limitation is specified in the Tolerance Table under the (AL) absolute limit heading, and does replace the Application of Tolerances section which existed in the old standards. (62)

Quality (63)

Principal factors under this heading are:

1. Maturity
2. Cleanness
3. Color
4. Shape
5. Texture
6. Thickness of skin
7. Permanent Defects.

(64) 1. Maturity. The U. S. Standards specify that the fruit must be mature. No maturity requirements are outlined in the grades, but the fruit must meet the minimum acid ratio test according to standards set forth in the Texas Department of Agriculture Fresh Fruit and Vegetable Inspection Laws.

(65) The minimum acid ratio for oranges is 9 to 1.

(66) The Texas Department of Agriculture Citrus Maturity regulations should be consulted for further information regarding the acid ratio test.

(67) As a general policy, no mention should be made on the certificate with reference to maturity unless there is a specific request for its determination in which case proper samples should be taken for analysis. Where the office is not equipped to make this analysis, the sample may be taken or shipped to the nearest processed products inspection laboratory for analysis.

(68) 2. Cleanness. Cleanness will seldom be a factor in the inspection of oranges as they are generally washed before packing. Normally, all oranges will be reported as clean on the certificate.

(69) 3. Color. In reporting color, the inspector should bear in mind that true color refers to the degree of yellow or orange color and not to discoloration caused by rust mite, Melanose, and other blemishes. A lot may be classified as russets, and still be certified as well colored. In other words, well colored in russets would be the same as well colored in brights.

(70) Color must be judged in normal daylight. Fruit appears greener under artificial light or in a poorly lighted car. When there is any doubt regarding color, the fruit must be judged under daylight.

(71) In describing the color of oranges, various color terms as defined in the standards shall be used. In the U. S. No. 1 grade oranges of the early and mid-season varieties, shall be fairly well colored. Valencia and other late varieties, not less than 50%, by count, of the oranges shall be fairly well colored and the remainder reasonably well colored. When Valencia and other late varieties are packed to meet the U. S. Combination grade, not less than one-half of the percentage of U. S. No. 1 quality required shall be fairly well colored. "Fairly well colored" means that except for one inch, in the aggregate, of green color, the yellow or orange color predominates over the green on that part of the fruit which is not discolored. The one inch (area of a circle one inch in diameter) specified for green color may be any shade of green color from light green to dark green. On the remaining area of the fruit, which is not discolored, the yellow

or orange color must predominate over the green. For example, a fruit with the area of a circle one inch in diameter of green color shall not have any other area in which the green color predominates.

Color Added Fruit

Oranges after reaching a certain stage of maturity are frequently colored by placing the fruit in a closed room and releasing ethylene gas. Oranges may also be colored by passing them through a warm solution to which a dye has been added. (72)

Under the Federal Food, Drug and Cosmetic Act, artificial color may be used on fruit that meets the state maturity standards, provided that each individual fruit is stamped or marked to show the addition of color. (73)

Color added processes are not sufficiently standardized to warrant any mention on the certificate of the degree of color attained. Therefore, no attempt should be made to describe color more than is done with uncolored fruit, but it should be mentioned under "Products Inspected" that the fruit is stamped "Color Added". (74)

No attempt should be made to certify the exact percentage of fruit with the color added treatment since it is impossible in all cases to determine accurately whether all fruit in a lot have been color added. Fruit with stem buttons missing at the time of the color added treatment or those with stem buttons which remain attached after the treatment can be detected by a light brown or orange color of the stem scar or stem button caused by the dye. However, if the stem button becomes detached after the treatment, it is difficult to determine whether the fruit is color added. Request for exact percentage of color added fruits should be declined but it will be satisfactory to certify color added treatment by the use of general terms. Thus: "Most stem buttons and stem scars light brown to orange which indicates 'Color Added Treatment'." (75)

4. Shape. The normal shape for the variety must be considered in determining the correct term or terms in describing shape. Certain varieties are characteristically flat while other varieties tend to be oblong in shape. For example, the Hamlin variety is slightly oval while the Valencia variety tends to be oblong. A fruit of a given shape may be well formed for one variety and only slightly misshapen for another variety. (76)

(77) The following terms from the standards shall be used in describing shapes; (1) Well formed; (2) Slightly misshapen; and, (3) Misshapen. Refer to plaster models illustrating the lower limits for the definitions covering shape.

(78) 5. Texture. Texture refers to the smoothness or roughness of the skin. This varies considerably with the size and variety of the fruit. Large sizes are normally rougher than small sizes for the same variety. Also, Valencias and Navels are rougher than the Pineapple variety. Therefore, in reporting smooth and fairly smooth texture, the size of fruit and variety must be considered in determining the proper descriptive term. Fruit having a smooth texture is generally thin skinned while rough fruit is generally thick skinned. In describing texture, the following terms shall be used: (1) Smooth; (2) Fairly smooth; (3) Slightly rough; and, (4) Rough. Inspectors should carefully study the models on texture.

(79) 6. Thickness of skin is closely associated with texture, and in most cases it is not necessary to make any mention of this factor on the certificate. This is especially true for these standards in which the thickness of skin is included in the definition of the texture term. In most cases, the texture and thickness of the skin are comparable, such as fairly smooth texture and fairly thin skin. However, when there is material difference in the texture and thickness of skin both shall always be reported separately.

(80) 7. Permanent Defects

(a) Creasing
(b) Discoloration
(c) Granulation (tree dryness)
(d) Scale
(e) Green Spots or Oil Spots
(f) Scarring

(81) (a) Creasing. In determining whether creasing is severe enough to affect the grade in question, refer to the definitions of damage and serious damage in the standards.

(82) The term damage as applied to creasing means that which causes the skin to be materially weakened. Creasing which causes the skin to be materially weakened, in most cases,will crack in a tight pack during the packing process or in the handling during the transit period. Fruit which has reached the destination market without cracking or which does not crack upon applying moderate pressure to both ends of the crease should not be considered as damaged.

Creasing will be handled as a quality factor and reported under the Quality heading on the certificate except on color added fruit. On fruit marked "Color Added" all creasing shall be reported under the Condition heading on the certificate, and treated as a condition factor. (83)

(b) Discoloration. The standards provide for additional grades based on discoloration caused by rust mite, superficial scars, Melanose or other means. Discoloration is defined in the standards and is based on the aggregate area of russeting of a light shade of golden brown. Discoloration of a lighter shade of color may be permitted on a greater area and darker shades of color shall be restricted to a lesser area, provided, that no discoloration caused by scars or other means shall be permitted which affects the appearance to a greater extent than the specified area of a light shade of golden brown. (84)

Superficial scars or discoloration caused by other means which do not blend or which are in contrast with the normal color shall be restricted to the extent that the appearance is not affected to a greater extent than the designated shade of color for the specified area. (85)

The term "excessive discoloration" shall be used to describe discoloration which affects the appearance more than the amount permitted for the grade. This is advisable because a fruit may be scored against the U. S. No. 1 grade because of the intensity or kind of discoloration, and yet not be in excess of 1/3 the surface. Light smooth scars which do not cover more than 1/4 of the surface of an orange may affect the appearance more than 1/3 of the surface of a light shade of golden brown and, therefore, are scored as excessive discoloration against the U. S. No. 1 grade. (86)

Excessive discoloration shall be reported separately from other grade defects except in the U. S. Fancy grade. (87)

(c) Granulation (Tree Dryness). The dryness resulting from freezing on the tree is discussed under the Condition heading. Dryness may occur, however, where there has been no freezing, and is then to be regarded either as a varietal peculiarity or the result of the conditions under which the fruit was grown. This kind of dryness is known as granulation. Valencia oranges harvested late in the season, or from young trees even early or in midseason, especially after a drought, are quite likely to show it, particularly in the larger sizes. Thompson Navel oranges may show granulation no matter when they are harvested. In both varieties, the granulated condition sometimes appears throughout all of the pulp of affected fruits, but more often only in the upper or stem-end portion. Even in fruits showing the latter condition, (88)

the granulation if seen in cross section affects all of the pulp and not merely spots in two or three segments, as so often happens in freezing injury.

(89) The standards permit a definite amount of dryness or mushy condition under the definition of damage, serious damage and very serious damaged. The depth specified is for all segments at the stem-end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit. These definitions are based on the average depth for all segments at the stem-end. Therefore, when the dryness or mushy condition is of irregular depth in different segments, the average depth should be used as the basis for scoring. For example, if in 1/2 of the segments the dryness extended to a depth of 1 inch and in the remainder to a depth of 1/2 inch, the average depth would be 3/4 inch.

(90) In tree-frozen fruit, the juice sacs in the affected portions collapse, wither, and separate from each other and from the segment walls. The fruit feels light in weight.

(91) In granulated fruit, the juice sacs do not separate from each other or from the segment walls; they also remain turgid, the juice being displaced by solid matter, which is yellow to grayish-white in color. Such fruit feels firm, but is light in weight.

(92) Frequently fruit shows a large percentage of tree dryness in the large sizes, and none in the smaller sizes. In such cases dryness should be reported according to sizes or by stating the number of fruit and percentage in the large sizes and giving the sizes which show no dryness. This may result in reporting certain sizes below grade on account of dryness. In such cases the grade statement should indicate that the entire lot failed to grade and why. The following statement will usually suffice: "Fails to grade U. S. No. 1 account of grade defects in sizes 125 and 163." However, if the applicant prefers it, the following is permissible: "200's and smaller, grade U. S. No. 1; 163's and larger fail to grade U. S. No. 1 only account of dryness in few samples."

(93) If the inspector encounters fruit which feels abnormally light during periods when no freezing damage has been reported in the shipping sections, he should put aside all such specimens for cutting. If the suspected specimens cut dry enough to affect the grade in question, they should be scored with the other grade defects.

If the dryness or granulation is such that it cannot be determined with any degree of accuracy by weight of the fruit; or an appeal inspection is requested; or if there is a material difference between shipping point and market inspection; the following procedure should be followed: (94)

The following plans are designed to provide efficient, accurate methods of determining internal defects in citrus. Internal defects consist of dryness or mushy condition (freezing injury), granulation (tree dryness), sprouted seeds, or any other defect that cannot be detected without cutting the fruit. Regional or Federal Supervisors may implement these plans anytime they deem them necessary. (94a)

Plan A (Two-Level Sampling Plan) (94b)

This plan should be used when internal defects are known to be present such as immediately following a freeze, and in the late spring and summer months when granulation is a problem.

Plan A is basically the same as our present method of sampling. Presently the inspector randomly cuts fruit in some samples to detect internal defects. If internal defects are found, he cuts the entire sample. Plan A standardizes the procedure of sampling fruit to detect internal defects. (94c)

After the sample has been graded externally, from the original sample select the 10 most suspicious fruit without regard to external defects and cut for internal defects. If no defects are found, do not cut any more fruit in the sample. Continue to cut 10 fruit per sample as long as 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. Continue to cut all the fruit in every sample until a sample is found free from internal defects. Then revert to cutting only 10 fruit per sample as long as no internal defects are found. (94d)

(94e) The following flow chart (figure 1) explains the step by step procedure of how Plan A works.

Plan B ("Skip-Sample Plan")

(94f) This plan is designed to be used as a "spot check" for internal defects. Plan B detects internal defects if present, yet destroys a minimum amount of fruit.

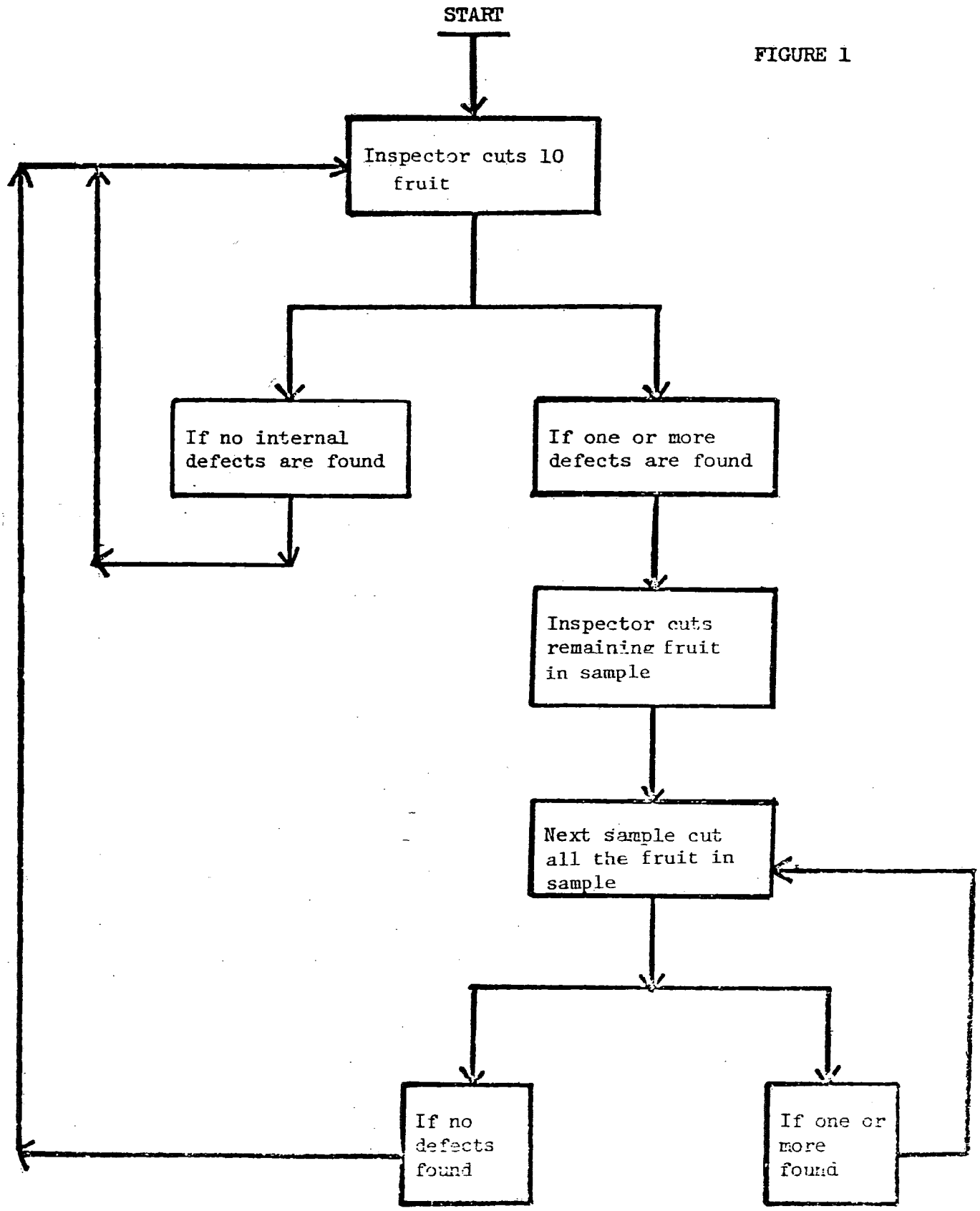
(94g) Plan B is similar to Plan A. The only difference is if no internal defects are found, Plan B requires cutting 10 fruit from only every fourth sample.

(94h) From every fourth sample select the 10 most suspicious fruit without regard to external defects 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 and begin using Plan A. Cut either 10 fruit or all the fruit in the sample according to Plan A until 5 consecutive samples are free from internal defects. Then revert to cutting 10 fruit from one out of every four samples.

(94i) The following flow chart (figure 2) explains the step by step procedure of how Plan B works.

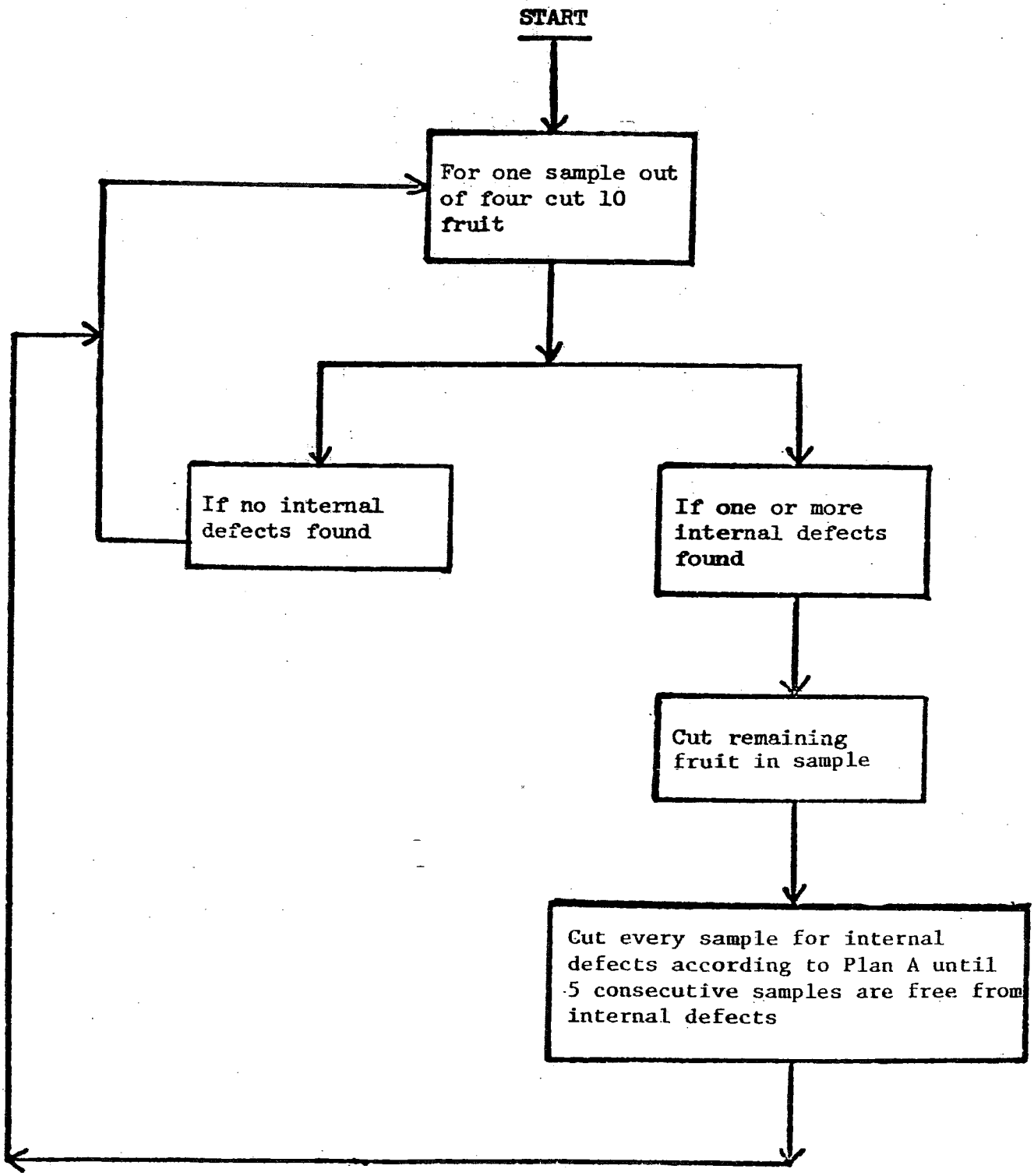
PLAN A

FIGURE 1



PLAN B

FIGURE 2



POLICY AND PROCEDURE FOR CUTTING TO DETERMINING DRYNESS AND MUSHY CONDITION IS THE SAME AS THAT USED IN REPORTING THIS CONDITION DUE TO FREEZING Pars. 117 119. (95)

(d) Scale. There are several types of scale which may be encountered when inspecting oranges. The most common type is the purple scale which has a brownish-purple covering and is roughly the shape of an oyster shell. From an inspection standpoint it is not necessary to identify the type of scale. All types should be reported as scale. In scoring scale, refer to the definitions of injury, damage, serious damage and very serious damage in the standards. Some of the definitions "pin point" scale to a definite area for a specified size fruit. For example, a 200 size orange may have a blotch the area of a circle 5/8" in diameter without being considered as damage. The appearance of this size fruit with a blotch 5/8" in diameter is used as the basis in determining the area permitted on other size fruits. If the scale affects the appearance of other size fruits more than 5/8" blotch on a 200 size orange, it shall be considered as damage. Scattered scale on a 200 size orange, or other size fruit, shall be considered as damage when the appearance is affected more than a 200 size orange with a 5/8" blotch of scale. (96)

(97) As a guide in scoring scale for all sizes, the following charts show the maximum amounts permitted.

(98)

U. S. NO. 1 GRADE

SIZE	BLOTCH	MAXIMUM DIAMETER IN INCHES
125's	(Specified in grade)	3/4 inch
200's		5/8 inch
288's		1/2 inch

U. S. NO. 2 GRADE

SIZE	BLOTCH	MAXIMUM DIAMETER IN INCHES
125's	(Specified in grade)	7/8 inch
200's		3/4 inch
288's		5/8 inch

(99) (e) Green Spots or Oil Spots. Oil spots or green spots are usually found on fruit harvested early in the fall before they have lost their green color. The injury occurs as irregularly shaped yellow, green or brown spots in which the oil glands of the skin stand out because of slight sinking of the tissue between them.

(100) Field observations indicate that oil spotting is a form of bruising injury. It is likely to occur on green fruit if it is handled while wet. Pressure incident to the picking and handling of green colored fruit is likely to cause green spots. Field freezing may also liberate oil and cause spotting.

(101) In scoring green spots or oil spots, refer to the definition of injury, damage, serious damage in the standards. Some of the definitions "pin point" green spots or oil spots to a definite area for a

specified size fruit. As a guide in scoring green spots or oil spots for all sizes, the following charts show the maximum amount permitted.

U.S. NO. 1 GRADE (102)

SIZE		MAXIMUM AGGREGATE AREA DIAMETER IN INCHES
125's	(Specified in grade)	1 - inch
200's		7/8 - inch
288's		3/4 - inch

(f) Scarring. Fruits are subject to scarring which may be caused by thrip or other insects, and mechanical injuries such as scratches and limb rubs while the fruit is still growing on the tree. Scars may be smooth and affect the shape and texture only slightly, or they may be rough and deep and materially affect both the shape and texture. (103)

In the standards scars are judged on the basis of depth, smoothness and appearance. The appearance is based on the extent and amount of discoloration allowed in the grade. Models are provided illustrating the limits for scars permitted in the various grades. (104)

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Sooty Mold. This defect is caused by a fungus that adheres to excretions of the White Fly or other insects. It may occur as light deposits scattered over the surface of the fruit or as heavily concentrated areas at the stem end. Normal washing procedures usually do not remove all fungus deposits. It can be easily scraped with a finger or knife. (104a)

Score as injury when more than slightly affecting the appearance of the fruit; as damage when aggregating more than a circle 5/8 inch in diameter; as serious damage when aggregating more than a circle 3/4 inch in diameter; and, as very serious damage when aggregating more than 25 percent of the surface. (104b)

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GUIDE FOR SCORING SCARRING

(Area based on 200 size orange)

Factor	Allowed in U. S. No. 1				Allowed in U. S. No. 2		
Depth	deep	slight depth	slight depth	no depth	deep	slight depth	no depth
Texture	rough	slightly rough	smooth or fairly smooth	smooth * or fairly smooth	rough	slightly rough	slightly * rough smooth or fairly smooth
Aggregate Area (dia.)	1/4 inch	7/8 inch	1-1/4 inch	Max. amount discoloration (1/3 of surface)	1/2 inch	1-1/4 inch	Max. amount discoloration (1/2 of surface)

* With no depth shall be scored against the discoloration tolerance.

CONDITION

Except for firmness and decay, the factors to be reported under the condition heading will vary considerably with different lots. Firmness and decay statements shall be made on every certificate but other condition factors are reported only when present and severe enough to affect the grade in question, except on specific request of applicant. In that event, they should be followed with the statement "Not affecting grade." The Remarks heading shall also show the reason for reporting factors which do not affect grade. Thus: "Slight skin breakdown not affecting grade reported at applicant's request." (106)

Principal factors under this heading are:

1. Creasing on color added fruit. (107)
2. Firmness.
3. Freezing injury (dryness or mushy condition associated with freezing injury).
4. Skin injuries (skin breakdown).
5. Stem buttons, attached or missing (only at request).
6. Decay.

(1) Creasing on color added fruit shall be reported under the Condition heading on the certificate, and counted against the condition. (108)

Creasing on fruit not color added should be counted against the grade, and reported as a Grade Defect. See Quality heading. (109)

(2) Firmness shall be reported under the Condition heading in conformity with the firmness terms and definitions in the standards. Inspectors should become familiar with these terms as used in the standards before making an inspection, and use the proper term or terms to accurately describe the firmness in accordance with the definitions in the standards. If the fruit only shows signs of "puffy" skins, then score as damage (when the skin separates from more than half of the fruit) and report as "badly puffy." If all the skin has separated from the fruit, then score as serious damage and report as "extremely puffy." However, in the No. 3 grade, the fruit would have to be soft and extremely puffy, report very serious damage as "extremely puffy and soft." If only extremely puffy, then do not score against the No. 3 grade. (110) **** ****

Fruit may feel soft and pliable due to thinness of skin and yet be properly described as firm. Such fruit may be in prime condition and keep for a long period of time before becoming soft. (111)

Reporting Firmness Of Fruit Affected By Decay. In describing firmness of citrus fruits, all decay shall be considered in determining the quantitative term or terms to be used. All stages of decay shall be considered as affecting the firmness. For example, (112)

a lot of oranges with 5% Blue Mold Rot shall be reported as "Generally firm," provided that the fruit not affected by decay meets the requirements of firm.

(113) (3) Freezing Injury or Dryness Associated with Freezing Injury. For a complete description of freezing injury refer to Miscellaneous Publication No. 498. The proper method of reporting transit freezing injury is covered in detail in the General Market Handbook - Part II and shall be followed.

(114) Scoring of Dryness or Mushy Condition - The U.S. Standards permit a definite amount of dryness or mushy condition under the definitions of damage, serious damage and very serious damage. In the definitions of these terms, the depth specified is for all segments at the stem end, or the equivalent of this amount by volume, when occurring in other portions of the fruit.

(115) If segment partition walls show buckling, at a cross section cut near the stem end of the fruit, the lot should be closely examined for further injury such as:

(1) Water soaked condition of core;
(2) Mushy condition of segments or portions of segments;
(3) Partly dry or dry portions of segments; and,
(4) Open spaces in the pulp.

(116) If any of the preceding conditions or any combination of these conditions is present to the extent that by interpretation it is the equivalent of more than the first 1/4 inch slice at the stem end, the fruit is considered damaged.

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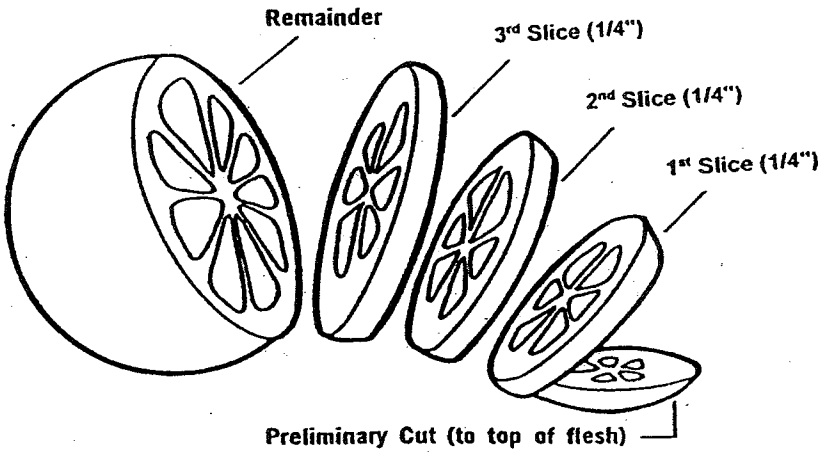
(117) Deleted

The scoring guide for dryness or mushy condition for Texas citrus is as follows: (118

Type of Fruit	Damage	Serious Damage	Very Serious Damage
Oranges Grapefruit	1/4 inch	1/2 inch	3/4 inch

(11

(120) CUTTING TO DETERMINE DRYNESS OR MUSHY CONDITION



Preliminary Cut: The "preliminary cut" is intended to remove only the rind portion of the fruit under the stem button end down to the fleshy portion. It will be varying depths depending on the thickness of the rind at this end of the fruit.

1st Slice: 1/4 inch in width. This 1/4 inch slice may be totally dry or in any stage from mushy to dry in all segments. This represents the maximum volume permitted in the U.S. Fancy and U.S. No. 1 grades. If the total volume of that slice is affected, **any dryness or mushy condition in the remaining portion of the fruit will be considered damage.**

2nd Slice: 1/4 inch in width. This 1/4 inch slice, plus the first 1/4 inch slice, for a total of a 1/2 inch slice, may be totally dry or in any stage 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 the 1/2 inch slice is affected, **any dryness or mushy condition in the remaining portion of the fruit will be considered serious damage.**

3rd Slice: 1/4 inch in width. This 1/4 inch slice, plus the first 1/4 inch slice and the second 1/4 inch slice, for a total of a 3/4 inch slice, may be totally dry or in any stage 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 the 3/4 inch slice is affected, **any dryness or mushy condition in the remaining portion of the fruit will be considered very serious damage.**

Reminder: If any portion of the segments in the slice are **not** mushy or affected by some degree of dryness, additional mushiness or dryness may be allowed in other portions of the fruit, but the total amount must not exceed the equivalent volume permitted. In this case, it will be necessary to cut several 1/4 inch slices to determine the total amount of dryness or mushiness that may be in the fruit.

All types of freezing injury and dryness associated with freezing injury should be reported under the Condition heading. Tree freezing injury or dryness associated with freezing injury will be counted against grade after it is believed that practically no additional change will take place in transit. General instructions will be issued in the Branch Notice from time to time following field freezing. If uncertain as to just how to handle, contact your district supervisor or the Washington office before making a report. (121)

When there are No specific instructions issued in the Branch Notice, the inspector shall treat dryness and mushy condition as a factor of Condition unless it is the equivalent of more than 1/4 inch in excess of what the grade permits, in which case it should be counted against Quality. (122)

SEE PERMANENT DEFECTS HEADING FOR INSTRUCTIONS AS TO REPORTING DRYNESS OR MUSHY CONDITION DUE TO GRANULATION (TREE DRYNESS). (123)

(4) Skin Injury (Skin Breakdown) Fruits occasionally show drying, darkening, or sinking of the oil cells near the stem-end and at times on other portions of the fruit. These injuries are described in detail in the Miscellaneous Publication No. 498 under the heading Aging, Brown Stain, Coloring Room Injury, Heat Injury, Pitting, and Rind Breakdown. While each of these skin injuries are described separately, at times it is impossible for inspectors to identify the specific injury. To avoid the possibility of inaccurate certification, it is necessary to designate some term which can be applied to all these injuries. Therefore, the term "skin breakdown" shall be used in reporting these injuries on the certificate, except when the injury has been diagnosed by a pathologist or the inspector is certain as to the specific injury. In that event, the specific injury may be certified. Generally, there will be no objections to using the term "pitting" to describe the abruptly sunken spots in the peel which vary from 1/4 inch in diameter, where they occur singly, to 1-1/2 to 2 inches or more where several pits coalesce. The term "pox" shall not be used. (124)

Skin breakdown shall be described on the certificate under the Condition heading. In most cases, it will be desirable to show the extent of the injury and its location, which will usually be around the stem-end of the fruit. (125)

"Slight skin breakdown" shall be used in reporting injury which is not severe enough to affect the U. S. No. 1 grade. However, slight injury should not be reported except on specific request of the applicant and then it must be followed with the statement "not affecting the grade." The Remarks heading must also show this information. Thus: "Slight skin breakdown not affecting grade reported at applicant's request." (126)

(127) In scoring skin breakdown, refer to the definitions of damage, serious damage and very serious damage in the standards. The definitions "pin point" skin breakdown to a definite aggregate area for a 200 size orange. The area permitted for the various definitions is used as the basis in determining the amount of area permitted for smaller or larger size fruit.

(128) (5) Stem Buttons - Stem buttons should not be mentioned on the certificate, except on specific request of applicant. In that event, it will be permissible to accurately determine the percentage of fruit with stem buttons attached or missing and report in general terms or show the percentage.

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(128a) (5a) Bruising - Bruising after packing occurs because of jostling and movement in slack packs, pressure from too tight a pack or overhead weight on lower layer packages. Bruising usually occurs as flattened sides or indentations. However, fruit may be flattened on two or more sides and not be scored. Fruit affected by a number of flattened areas tend to regain their shape once unpacked.

(128b) The U.S. Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona) require the U.S. Fancy, U.S. No. 1, and U.S. No. 2 grades to be free from bruises. The U.S. No. 3 grade requires the fruit not be very seriously damaged by any other cause.

(128c) As a guide, score as **bruising** against the U.S. Fancy, U.S. No. 1, and U.S. No. 2 grades when segment walls are collapsed or rag is ruptured and juice sacs are ruptured or areas are flattened to a point where they are so sunken that they can never be restored into their original shape.

(128d) As a guide, score as **very serious damage** when the fruit has been split open, peel is badly watersoaked following bruising or rag 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 the amount, by volume, when affecting more than one area on the fruit. (Use the same cutting and scoring procedures as used for dryness, mushy condition or granulation.)

NOTE: Description of bruised fruit, location in pack and load shall be recorded on the notesheet. ****

(6) Decay. See General Market Inspection Instructions. (129)

For decays affecting citrus, refer to Miscellaneous Publication No. 498 title "Market Diseases of Fruits and Vegetables - Citrus and Other Subtropical Fruits." (130)

In reporting decay, show its stages of development by the use of general terms. Thus: "Range from 1 to 6 fruit per sample, totaling 17 fruit (4%). Blue Mold Rot, mostly in advanced stage, some in initial stage." (131)

Additional Tolerances for Decay En Route or at Destination (132)

The standards provide an additional tolerance for decay en route or at destination. The tolerance for decay is in addition to the total grade defect tolerance provided in the standards for all grades.

GRADE

Refer to General Market Inspection Instructions. (133)

Under the grade heading on the certificate a clear statement must be made to indicate whether the lot meets or fails to meet the requirements of the grade on which it was inspected. If the lot fails to grade, a percentage of grade quality may be reported. The grade statement must be based on the facts in the preceding Quality and Condition headings on the certificate. (134)

Reporting Grade on Combination Grade. Cars are frequently sold on the basis of shipping point certificates showing Combination grade with a given percentage of U.S. No. 1 Quality, or a straight Combination grade. The receiver, as a general rule, when requesting inspection (135)

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in the market is only interested in knowing whether the commodity meets the contract. This being the case, it is not necessary to show the actual percentage of U. S. No. 1 quality found unless this is specifically requested.

When Other Percentages of U. S. No. 1 Quality are Specified in Combination Grade. When cars are sold to contain a higher percentage of U. S. No. 1 Quality than the grade specified, it will be satisfactory to report the grade thus: "U. S. Combination, with at least 60% U. S. No. 1 Quality." (136)

REMARKS

Refer to General Market Inspection Instructions. (137)

GENERAL EXAMPLES

The following general examples of oranges certification cover only the Size, Quality, Condition, and Grade statements. Instructions in the General Market Inspection Instructions give examples under the other headings. (138)

NOTE: The word "Examined": must be shown on the certificate above the "Size" heading as illustrated in the following examples.

EARLY ORANGES

1. Examined: 500 fruit (10-50 count samples)

   Size: Fairly uniform

   Quality: Clean, well formed, mostly fairly smooth, many smooth texture, mostly well, some fairly well colored. Damage by scars, scale and green spots totals 34 fruit (7%).

   Condition: Generally firm. In most samples no decay, in many from 2 to 4 fruit (4 to 8%) per sample, totaling 14 fruit (3%).

   Grade: U. S. No. 1

2. Examined: 500 fruit (10-50 count samples)

   Size: Fairly uniform

   Quality: Clean, well formed, smooth to fairly smooth texture, mostly well, some fairly well colored. Excessive discoloration ranges from 2 to 23 fruit (4 to 46%) per sample totaling 74 fruit (15%). Damage by green spots and scars totals 41 fruit (8%).

   Condition: Generally firm. Decay totals 8 fruit (2%).

   Grade: Fails to grade U. S. No. 1 account discoloration.

3. Examined: 500 fruit (10-50 count samples)

   Size: Fairly uniform

   Quality: Clean, well formed, smooth to fairly smooth texture, well to fairly well colored, and with the required number of fruit having in excess of 1/3 the surface affected by discoloration. Damage by scars, scale and thorn scratches ranges from 4 to 10 fruit (8 to 20%) per sample totaling 75 fruit (15%) including 11 fruit (2%) serious damage.

   Condition: Generally firm. Decay ranges from 2 to 5 fruit (4 to 10%) per sample totaling 26 fruit (5%), Blue Mold Rot in advanced stages. Damage by skin breakdown totals 11 fruit (2%).

   Grade: Fails to grade U. S. No. 1 Bronze account grade defects.

4. Examined: 500 fruit (10-50 count samples)

   Size: Fairly uniform

   Quality: Clean, mostly well, some fairly well formed, mostly smooth to fairly smooth, few slightly rough texture, well to fairly well colored. Damage by scars, green spots and plugs ranges from 7 to 15 fruit (14 to 30%) per sample totaling 98 fruit (20%) including from 1 to 2 fruit (2 to 4%) per sample totaling 15 fruit (3%) serious damage.

   Condition: Generally firm. Decay totals 9 fruit (2%). Damage

by creasing ranges from 3 to 8 fruit (6 to 16%) per sample totaling 52 fruit (10%) including 15 fruit (3%) serious damage.

Grade: Meets quality requirements but fails to grade U. S. Combination with approximately 80%. U. S. No. 1 quality only account condition.

Remarks: Inspection based on U. S. Combination with approximately 80% U. S. No. 1 quality at applicants' request.

VALENCIA AND OTHER LATE VARIETIES

5. Examined: 500 fruit (10-50 count samples)

Size: Fairly uniform

Quality: Clean, mostly well, some fairly well formed, few slightly misshapen, mostly smooth to fairly smooth, few slightly rough texture, mostly well to fairly well, few reasonably well colored. Damage by scars scale and green spots ranges from 4 to 15 fruit (8 to 30%) per sample totaling 96 fruit (19%) including from 1 to 3 fruit (2 to 6%) per sample, totaling 17 fruit (3%) serious damage.

Condition: Generally firm. Decay totals 6 fruit (1%).

Grade: U. S. Combination

6. Examined: 500 fruit (10-50 count samples)

Size: Fairly uniform

Quality: Clean, well formed, smooth to fairly smooth texture, mostly well to fairly well, some reasonably well colored. Damage by scars and scale totals 20 fruit (4%).

Condition: Generally firm. Decay ranges in most samples from 1 to 6 fruit (2 to 12%) in many none, totaling 21 fruit (4%) Blue Mold Rot in advanced stages. Damage by skin breakdown ranges from 3 to 6 fruit (6 to 12%) per sample totaling 45 fruit (9%) including 16 fruit (3%) serious damage, generally occuring around the stem end. Damage by dryness or mushy condition ranges from 3 to 8 fruit (6 to 16%) per sample totaling 62 fruit (12%).

Grade: Meets quality requirements but fails to grade U. S. 1 only account condition.

PART II

GRAPEFRUIT

(139) Products Inspected and Distinguishing Marks

(1) Type or Variety.
(2) Type of Container.
(3) Identifying Marks.
(4) Quantity Inspected.

(140) (1) Type or Variety. (Refer to pars. 12 - 14). As a general policy, the inspector should not attempt to certify the variety of grapefruit. Requests for variety certification only should be declined with an explanation that the regulation under which the Inspection Service operates does not cover variety certification. However, seed count and color of flesh may be certified in accordance with the paragraph headed "Number of Seeds and Color of Flesh".

(141) The Marsh Seedless, Marsh Pink and "Red Blush" or "Ruby Red" are the most important grapefruit varieties. Also, small quantities of Foster Pink and Duncan are shipped.

(142) (2) Type of Container. (Refer to pars. 15 and 16).

(143) (3) Identifying Marks. The certificate should always show identifying brands, labels, growers or shippers names and addresses, size, weight, grades and variety when shown.

(144) (4) Quantity Inspected. (Refer to par. 18).

Condition of Load and Containers

(145) See General Market Inspection Instructions.

Temperature of Product

(146) See General Market Inspection Instructions.

Condition of Pack

(147) (Refer to pars. 21 - 23).

Description of Pack (148)

(Refer to pars. 24 - 42).

Standard Pack. The U. S. Standards for Grapefruit (Texas and States other than Florida, California and Arizona) have defined the term "Standard Pack" (Refer to pars. 43 - 45). (149)

Consumer Bags. (Refer to par. 47). (150)

Reporting Gross or Net Weight of Containers. (Refer to par. 48). (151)

Size

(Refer to pars. 49 and 50). (152)

Measuring Diameter. (Refer to par. 51). (153)

Size Marks on Containers. (Refer to par. 52). (154)

Describing Size. The grapefruit standards contain size requirements based on a minimum and maximum diameter for the various pack sizes. The terms "uniform" and "fairly uniform" are defined in the standards and should be used in describing uniformity of sizing when the fruit meets the requirements. The term "irregular" shall be used in reporting uniformity when it fails to meet the requirements of "fairly uniform." When it is necessary to report a size or lot as irregular, the number of fruit and the percentage which fails to meet the requirements of fairly uniform shall be shown to justify the use of the term irregular. (155)

"Uniform in size" means that not more than the number of fruits permitted in the tolerance tables, vary more than the following amounts: (156)

(1) 64 size and smaller - not more than 6/16 inch in diameter; and,

(2) 54 size and larger - not more than 9/16 inch in diameter.

"Fairly uniform in size". (Refer to par. 55). (157)

"Irregular in size". (Refer to par. 56). (158)

(159) Bulk Shipments or Consumer Packs. Request for inspection of grapefruit for size when in bulk or packed in consumer bags, will require the measurement of a sufficient number of samples to accurately determine the number of fruit below and above a specified minimum and maximum diameter. When a box size is specified, as for example, 80 size, determine the number of fruit less than 3-10/16 inches and above 4-2/16 inches in diameter. No statement of box sizes shall be made on the certificate, and the size description shall be given by stating the diameter range in inches and fractions thereof. In addition, report the range as well as the total, in both numbers of off-size fruit and percentages.

(160) Examples:

1. "Fairly uniform size."
2. "56, 64, 70, sizes fairly uniform. Size 80 irregular with from 1 to 15 fruit (3 to 45%), totaling 55 fruit (17%) under minimum or over maximum diameters."
3. (In Bulk)
"Generally 3-2/16 to 3-14/16, mostly 3-9/16 to 3-12/16 inches in diameter. Ranges from 1 to 8 fruit per sample (3 to 24%), totaling 27 fruit (8%) under 3-6/16 inches or over 3-14/16 inches in diameter."

TOLERANCE FOR GRAPEFRUIT

(161) (Refer to pars. 58 - 59) Keep in mind that the individual sample shall consist of 33 grapefruit regardless of the size of container used.

(162)

TABLE II—EN ROUTE OR AT DESTINATION

Factor	Grades	AL[1]	Number of 33-count samples[2]																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Acceptance numbers (maximum permitted)[3]																			
Decay	All	3	2	3	4	5	6	7	8	9	10	11	12	13	13[4]	14	15	16	17	18	18[4]	19
Very serious damage other than decay	U.S. Fancy U.S. No. 1 U.S. No. 2 U.S. Combination	4	3	5	7	8	10	11	13	14	16	17	18	20	21	23	24	25	27	28	30	31
Total defects including very serious damage other than decay	U.S. Fancy U.S. No. 1 U.S. No. 2 U.S. No. 3	5	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
	U.S. Combination (U.S. No. 2's permitted)	21	18	33	47	62	76	90	104	119	133	147	161	174	188	202	216	230	244	257	271	285
Off-Size		7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
Discoloration	U.S. No. 1 U.S. No. 1 Bright U.S. No. 2 U.S. Combination	7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
			Acceptance numbers (minimum required)[3]																			
	U.S. No. 1 Bronze U.S. No. 2 Russet	0	2	4	8	11	14	18	21	25	28	32	36	39	43	47	50	53	57	61	64	68

[1] Absolute limit permitted in individual 33-count sample.
[2] Sample size—33-count.
[3] Acceptance number—maximum or minimum number of defective or off-size fruit permitted.
[4] Preferred number of samples for this acceptance number.

Number of Samples. The following table gives the minimum number of 33 count samples to be drawn from various size lots. The number of containers listed represents lot sizes for unrestricted inspections. When determining the number of 33 count samples for restricted inspections, figure only the total number of containers involved in that portion of the lot covered by the restriction. (163)

No. of 33 count Samples	No. of 4/5 bu. containers	No. of 5 lb. bags	No. of 8 lb. bags
6	100 or less	700 or less	438 or less
8	101 - 500	701 - 3,500	439 - 2,188
15	501 - 1,000	3,501 - 7,000	2,189 - 4,375
25*	1,001 - 2,000	7,001 -14,000	4,376 - 8,750
40*	2,001 - 4,000	14,001 -28,000	8,751 -17,500
60*	Over 4,000	Over 28,000	Over 17,500

* Acceptance numbers for these sample sizes can be obtained from the Washington office.

Quality

(164) Principal factors under this heading are:

(1) Maturity.
(2) Cleanness.
(3) Color.
(4) Shape.
(5) Texture.
(6) Thickness of Skin.
(7) Number of Seeds and Color of Flesh.
(8) Permanent Defects.

(165) 1. Maturity. (refer to pars. 64 - 66).

(166) The minimum acid ratio for grapefruit is 6.5 to 1.

(167) 2. Cleanness. Cleanness will seldom be a factor in the inspection of grapefruit as they are generally washed before packing. Normally, all grapefruit will be reported as clean on the certificate.

(168) 3. Color. (Refer to pars. 69 - 70).

(169) In the U. S. No. 1 grade grapefruit must be fairly well colored. "Fairly well colored" means that except for one inch, in the aggregate, of green color, the yellow color predominates over the green color on that part of the fruit which is not discolored. The one inch (area of a circle one inch in diameter) specified for green color may be any shade of green from light to dark green. On the remaining area of the fruit, which is not discolored, the yellow color must predominate over the green. For example, a fruit with the area of a circle one inch in diameter of green color shall not have any other area in which the green color predominates.

(170) 4. Shape. The normal shape for the variety must be considered in determining the correct terms in describing shape. For example, the Marsh Seedless grapefruit is usually flat in shape while the Duncan variety tends to be oblong. A grapefruit of a given shape may be well formed for one variety and only slightly misshapen for another variety.

(171) The following terms should be used in describing shapes in the standards: (1) Well formed; (2) slightly misshapen; and (3) misshapen. Refer to plaster models illustrating the lower limits for the definitions covering shape.

5. Texture. Texture refers to the smoothness or roughness of skin which varies considerably with the size of the fruit and variety. Large sizes are normally rougher than small sizes for the same variety. Therefore, in reporting smooth and fairly smooth texture, the size of fruit and variety must be considered in determining the proper descriptive term. In describing texture, the following terms shall be used: (1) Smooth; (2) fairly smooth; (3) slightly rough; (4) rough; and (5) seriously lumpy. Inspectors should study and refer to the model on texture. (172)

6. Thickness of Skin. (Refer to par. 79). (173)

7. Number of Seeds and Color of Flesh. There are a few varieties of grapefruit in which the number of seeds and color of flesh indicate the variety, but such indications are frequently not reliable. Some Marsh seedless grapefruit may have as many as 15 seeds per fruit. Also some pink or red flesh varieties may show a high percentage of fruit with little pink or red color during the fall season, while most of the fruit will show colored flesh during the Winter season, the pink or red color in some instances will fade in the late spring to an extent that the flesh will have only a cloudy or milky appearance, and show no definite pink color. (174)

Example:

(1) "Range from 3 to 47, average 15 seeds per fruit. Flesh mostly faded red, some red color."

Remarks: "Number of seeds and color of flesh reported at applicants request."

8. Permanent Defects. (175)

(a) Discoloration
(b) Granulation (tree dryness)
(c) Scale
(d) Green Spots or Oil Spots
(e) Scarring

(a) Discoloration. (Refer to pars. 84 - 86). (176)

When containers are stamped "Bright," "Bronze" or "Russet," the shipper has specified the degree and amount of discoloration permitted. (177)

**** Excessive discoloration shall be reported separately from other grade defects except in the U.S. Fancy grade. (178)

(b) Granulation (tree dryness). (Refer to pars. 88 - 95). (179)

(c) Scale. There are several types of scale which may be encountered when inspecting grapefruit. The most common type is the purple scale which has a brownish-purple covering and is roughly the shape of an oyster shell. All types should be reported as scale. In scoring scale, refer to the definitions of injury, damage, serious damage and very serious damage in the standards. Some of the definitions "pin point" scale to a diameter for a specified size fruit.

As a guide in scoring for all sizes, the following chart shows the maximum amounts permitted.

U.S. No. 1 Grade

Size	Blotch Max. amount	Ring Max. amount
56's	7/8" dia.	1-5/8" dia.
70's	3/4" dia.	1-1/2" dia.
96's	(Specified in grade) 5/8" dia.	1-3/8" dia.

(d) Green Spots or Oil Spots. (Refer to pars. 99 -101).

As a guide in scoring green spots or oil spots for all sizes the following chart shows the maximum amount permitted.

U.S. No. 1 Grade

SIZE		MAXIMUM AGGREGATE AREA DIAMETER IN INCHES
56's		1-1/8" dia.
70's	(Specified in grade)	1" dia
96's		7/8" dia.

(e) Scarring. (Refer to pars. 103 and 104).

Sooty Mold. This defect is caused by a fungus that adheres to excretions of White Fly or other insects. It may occur as light deposits scattered over the surface of the fruit or as heavily concentrated areas at the stem end. Normal washing procedures usually do not remove all fungus deposits. It can be easily scraped with the finger or knife.

Score as injury when more than slightly affecting the appearance of the fruit; as damage when aggregating more than a circle 3/4 inch in diameter; as serious damage when aggregating more than a circle 1-3/8 inches in diameter; as very serious damage when aggregating more than 25 percent of the surface. ****

Guide for Scoring Scarring

(Area based on 70 size grapefruit)

Factor	Allowed in U. S. No. 1				Allowed in U. S. No. 2			
Depth	very deep	deep	slight depth	no depth	very deep	deep	slight depth	no depth
Texture	very rough	rough	slightly rough	smooth * or fairly smooth	very rough	rough	slightly rough	smooth * or fairly smooth
Aggregate Area (dia.)	1/2 inch	1 inch	10% of surface	Max. amount discoloration (1/2 of surface)	1 inch	5% of surface	15% of surface	Max. amount discoloration (2/3 of surface)

* With no depth shall be scored against the discoloration tolerance.

88) CONDITION

(Refer to par. 106.)

189) Principal factors under this heading are:

1. Firmness.
2. Freezing Injury (dryness or mushy condition associated with freezing injury).
3. Skin Injuries (Skin Breakdown).
4. Sprouted Seeds.

****

4a. Blossom End Clearing.
4b. Bruising.****
5. Stem Buttons, attached or missing (only on request).
6. Decay.

(190) 1. Firmness - (Refer to pars. 110 - 112).

(191) 2. Freezing Injury (dryness or mushy condition associated with freezing injury. (Refer to pars. 113 - 123).

(192) 3. Skin Injuries (Skin Breakdown) - (Refer to pars. 124 - 127).

(193) 4. Sprouted Seeds - During the latter part of the seasons, inspectors should cut a few specimens through the center to determine whether the seeds are sprouted. Normally the seeds do not show sprouts before the early part of March. Sprouted seeds, when present, shall be treated like other condition factors. The following limits are specified for the various grades:

U.S. No. 1 - More than 6 seeds are sprouted, including not more than 1 sprout extending to the rind, and the remainder averaging not over 1/4 inch in length.

U.S. No. 2 - More than 6 seeds are sprouted, including not more than 2 sprouts extending to the rind, and the remainder averaging not over 1/2 inch in length.

U.S. No. 3 - More than 6 seeds are sprouted, including not more than 3 sprouts extending to the rind, and the remainder averaging not over 3/4 inch in length.

(194) Any fruit with sprouts exceeding those permitted in the U.S. No. 3 grade should be scored as very serious damage.

****

In determining the percentages of sprouted seeds, follow the sampling plans for internal defects outlined in paragraphs 94a thru 94i. (195)

4a. Blossom End Clearing. This is a physiological disorder which appears as a watersoaked, translucent, blotchy area or areas occurring mostly around the blossom end, but may also appear elsewhere. It tends to be more prominent on thinner skinned seedless varieties. It is progressive and tends to occur late in the season, particularly following heavy rains that increase the water content of the fruit. It is frequently followed by decay. (195a)

As a guide, score as damage (36 size grapefruit) if the area affected exceeds 3/4 inch in diameter and as serious damage if the area affected exceeds 1 inch in diameter or if underlying flesh is discolored, or mushy.

4b. Bruising. Bruising after packing occurs because of jostling and movement in slack packs, pressure from too tight a pack or overhead weight on lower layer packages. Bruising usually occurs as flattened sides or indentations. However, fruit may be flattened on two or more sides and not be scored. Fruit affected by a number of flattened areas tend to regain their shape once unpacked. (195b)

The U.S. Standards for Grades of Grapefruit (Texas and States other than Florida, California and Arizona) require the U.S. Fancy, U.S. No. 1, and U.S. No. 2 grades to be free from bruises. The U.S. No. 3 grade requires the fruit not be very seriously damaged by any other cause. (195c)

As a guide, score as **bruising** against the U.S. Fancy, U.S. No. 1 and U.S. No. 2 grades when segment walls are collapsed or rag is ruptured and juice sacs are ruptured or areas are flattened to a point where they are so sunken that they can never be restored into their original shape. (195d)

As a guide, score as **very serious damage** when the fruit has been split open, peel is badly watersoaked following bruising or rag 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 the amount, by volume, when affecting more than one area on the fruit. (Use the same cutting and scoring procedures as used for dryness, mushy condition or granulation.) (195e)

NOTE: Description of bruised fruit, location in pack and load shall be recorded on the notesheet. ****

BLANK

5. Stem Buttons - (Refer to par. 128). (196)

6. Decay - (Refer to pars. 129 - 132). (197)

GRADE

Refer to Destination Market Handbook and pars. 134 - 136 of this handbook. (198)

REMARKS

Refer to General Market Inspection Instructions. (199)

GENERAL EXAMPLES

The following general examples of grapefruit certification cover only the Size, Quality, Condition, and Grade statements. Instructions in the General Market Inspection Instructions give examples under the other headings. (200)

NOTE: the word "Examined:" must be shown on the certificate above the "Size" heading as illustrated in the following examples.

1. Examined: 264 fruit (8 - 33 count samples)

   Size: Fairly uniform.

   Quality: Clean, generally well colored, smooth to fairly smooth texture and well to fairly well formed. Total 21 fruit (8%) damage by scale, scars and misshapen.

   Condition: Generally firm. Decay totals 3 fruit (1%).

   Grade: U.S. No. 1

2. Examined: 264 fruit (8-33 count samples)

Size: Fairly uniform

Quality: Clean, mostly fairly well, many well colored, mostly fairly smooth, some smooth, few slightly rough texture, well to fairly well formed. Total 113 fruit (43%) damaged including from 1 to 3 fruit (3 to 9%) per sample, totaling 16 fruit (6%) seriously damaged by scale and scars.

Condition: Generally firm. In most samples from 2 to 5 fruit (6 to 15%) per sample, in some none, total 18 fruit (7%) damage by skin breakdown. Decay totals 3 fruit (1%).

Grade: Meets quality requirements but fails to grade U. S. Combination only account condition.

3. Examined: 330 fruit (10-33 count samples)

Size: Cartons stamped 70's and 80's fairly uniform sizing In cartons stamped 64's from 3 to 8 fruit (9 to 24%) per sample, totaling 46 fruit (14%) offsize including 18 fruit (6%) under 3-15/16 inches and 28 fruit (8%) over 4-8/16 inches in diameter.

Quality: Clean, mostly fairly well to well, some slightly colored, fairly well to well formed, mostly fairly smooth, some slightly rough texture. Serious damage by thorn scratches, scars and scale totals 27 fruit. (8%).

Condition: Firm. No decay.

Grade: U. S. No. 2.

4. Examined: 264 fruit (8-33 count samples)

Size: Fairly uniform

Quality: Clean, mostly well, some fairly well colored, mostly fairly well, many well formed, mostly smooth, some fairly smooth texture. From 4 to 7 fruit (12 to 21%) per sample totaling 40 fruit (15%) damaged by scars, scale and green spots.

Condition: Generally firm. Decay totals 5 fruit (2%).

Grade: Fails to grade U. S. No. 1 account grade defects.

5. Examined: 264 fruit (8-33 count samples)

Size: Fairly uniform

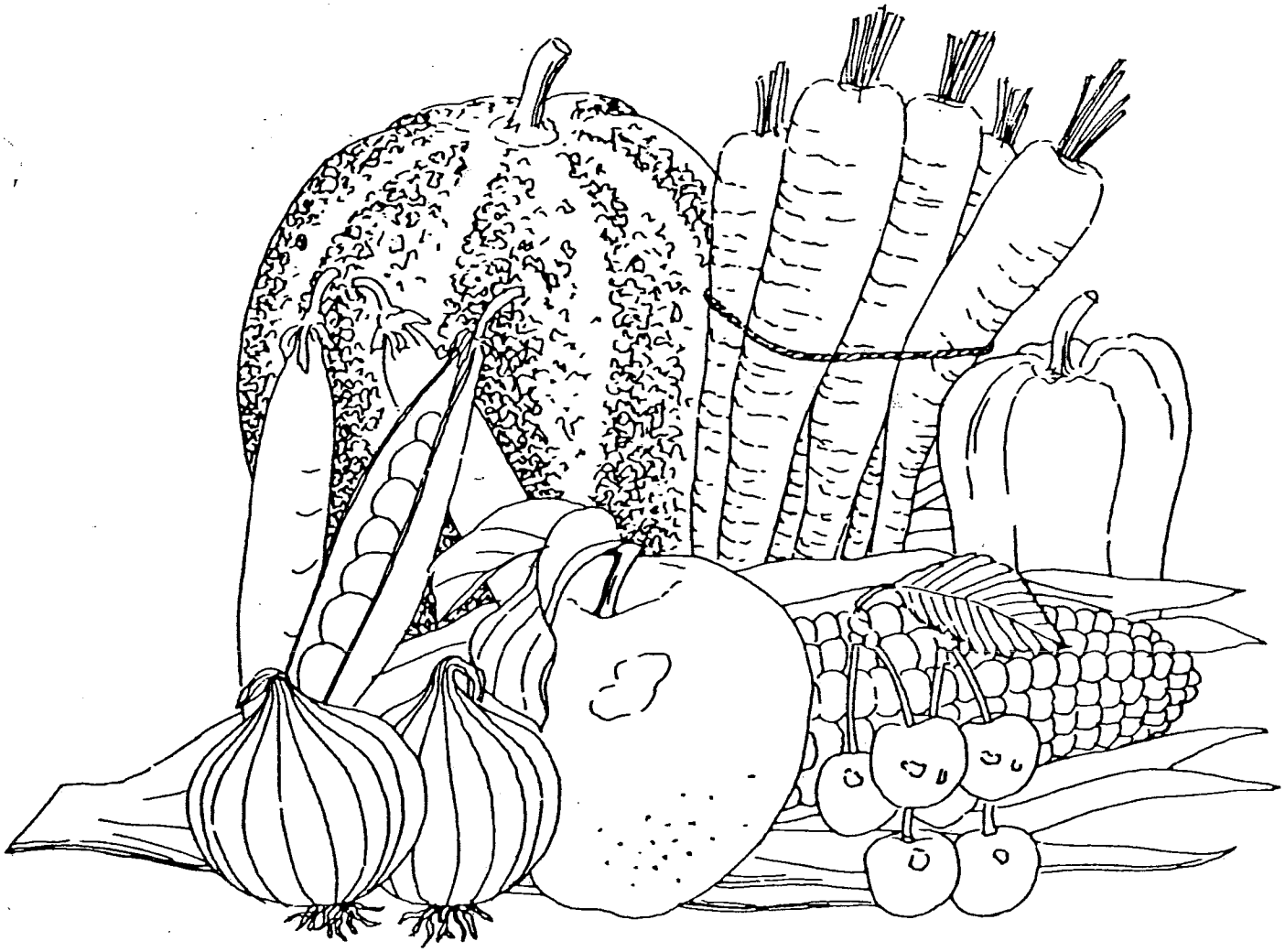
Quality: Clean, well to fairly well colored, well to fairly well formed, smooth to fairly smooth texture. Damage by green spots, scars and scale totals 16 fruit (6%).

Condition: Generally firm. Decay totals 5 fruit (2%). Damage by skin breakdown ranges in most samples from 2 to 7 fruit (6 to 21%) in many none, totaling 21 fruit (8%) including 8 fruit (3%) serious damage. Damage by soft indented bruises ranges in most samples from 4 to 5 fruit (12 to 15%) in some none, totaling 30 fruit (11%).

Grade: Meets quality requirements but fails to grade U. S. No. 1 account condition.

Appendix I

United States Standards



Appendix I U.S. Grade Standards

United States Standards for Grades of Oranges (Texas and States other than Florida, California and Arizona) [1]

Effective September 5, 2003

[1]Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act, or with applicable State Laws and regulations.

General

§51.680 General.

The standards in this subpart apply only to the common or sweet orange group and varieties belonging to the Mandarin group except tangerines for which separate U.S. Standards are issued.

Grades

§51.681 U.S. Fancy.

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

(a) Basic requirements:

(1) Discoloration:

(i)Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration. (See §51.700.)

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Well colored;

(6) Well formed; and,

(7) Smooth texture.

(b) Free from:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Caked melanose;

(5) Creasing;

(6) Cuts not healed;

(7) Decay;

(8) Growth cracks;

(9) Scab;

(10) Skin breakdown;

(11) Sprayburn;

(12) Undeveloped segments; and,

(13) Wormy fruit.

(c) Not injured by:

(1) Green spots;

(2) Oil spots;

(3) Split navels;

(4) Rough, wide or protruding navels;

(5) Scale;

(6) Scars; and,

(7) Thorn scratches.

(d) Not damaged by any other cause.

(e) For tolerances see §51.689.

§51.682 U.S. No. 1.

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

(a) Basic requirements:

(1) Discoloration:

(i) Not more than one-third of the surface, in the aggregate, may be affected by discoloration. (See §51.700.)

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Well formed;

(6) Fairly smooth texture; and,

(7) Color:

(i) Early and midseason varieties shall be fairly well colored.

(ii) For Valencia and other late varieties, not less than 50 percent, by count, shall be fairly well colored and the remainder reasonably well colored.

(b) Free from:

(1) Bruises;

(2) Cuts not healed;

(3) Caked melanose;

(4) Decay;

(5) Growth cracks;

(6) Spraybum;

(7) Undeveloped segments; and,

(8) Wormy fruit.

(c) Not damaged by any other cause.

(d) For tolerances see §51.689.

§51.683 U.S. No. 1 Bright.

The requirements for this grade are the same as for U.S. No. 1 except that no fruit may have more than one-tenth of its surface, in the aggregate, affected by discoloration.

(a) For tolerances see §51.689.

§51.684 U.S. No. 1 Bronze.

The requirements for this grade are the same as for U.S. No 1 except that all fruit must show some discoloration. Not less than the number of fruits required in §51.689, Tables I and II, shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on these fruits shall be of rust mite type.

§51.685 U.S. Combination.

"U.S. Combination" consists of a combination of U.S. No. 1 and U.S. No. 2 oranges: **Provided**, That the number of U.S. No. 2 fruits specified in §51.689, Tables I and II, are not exceeded.

§51.686 U.S. No. 2.

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

(a) Basic requirements:

(1) Discoloration:

(i) Not more than one-half of the surface, in the aggregate, may be affected by discoloration.

(See §51.700.)

(2) Fairly firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Reasonably well colored;

(6) Not more than slightly misshapen, and,

(7) Not more than slightly rough.

(b) Free from:

(1) Bruises;

(2) Cuts not healed;

(3) Decay;

(4) Growth cracks; and,

(5) Wormy fruit.

(c) Not seriously damaged by any other cause.

(d) For tolerances see §51.689.

§51.687 U.S. No. 2 Russet.

The requirements for this grade are the same as for U.S. No. 2 except that not less than the number of fruits required in §51.689, Tables I and II, shall have more than one-half of their surface, in the aggregate, affected by discoloration.

§51.688 U.S. No. 3.

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

(a) Basic requirements:

(1) Mature;

(2) Similar varietal characteristics;
(3) May be misshapen;
(4) May be slightly spongy;
(5) May have rough texture;
(6) Not seriously lumpy or cracked; and,
(7) May be poorly colored.
(i) Not more than 25 percent of the surface may be of a solid dark green color.
(b) Free from:
(1) Cuts not healed;
(2) Decay; and,
(3) Wormy fruit.
(c) Not very seriously damaged by any other cause.
(d) For tolerances see §51.689.

Tolerances

§51.689 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, based on sample inspection, the number of defective or off-size specimens in the lot, shall be within the limitations specified in Tables I and II. No tolerance shall apply to wormy fruit.

Table I -- Shipping Point[1]
(A) For 1 Through 20 Samples
[See footnotes at end of Table I]

Factor	Grades	AL[2]	Number of 50 - count samples[3]																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Acceptance number (maximum permitted)[4]																			
Decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	1	0	1	[5]1	1	2	[5]2	2	3	3	3	[5]3	3	4	4	[5]4	4	5	5	5	5
	U.S. No. 3.	2	0	1	2	[5]2	2	[5]3	3	4	4	[5]4	5	5	[5]5	6	6	[5]6	6	7	7	7
Very serious damage including decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	6	4	6	9	11	14	16	18	20	22	24	26	28	30	33	35	37	39	41	43	45
Total defects including decay and very serious damage.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	8	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
	U.S. Combination (U.S. No. 2's permitted).	29	26	48	70	91	112	134	155	176	197	218	239	260	281	301	322	343	364	384	405	425
Off-size.		10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Discoloration.	U.S. No. 1. U.S. No. 1 Bright U.S. No. 2. U.S. Combination.	10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
			Acceptance number (minimum required)[4]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet	1	3	8	12	18	23	29	34	40	45	51	56	62	68	74	79	85	91	97	102	108

Shipping Point[1]
(B) For 21 Through 40 Samples
[See footnotes at end of Table I]

Factor	Grades	AL[2]	Number of 50 - count samples[3]																			
			21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
			Acceptance numbers (maximum permitted)[4]																			
Decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination	1	[5]5	6	6	6	6	[5]6	6	7	7	7	7	[5]7	7	8	8	8	[5]8	8	9	9
	U.S. No. 3.	2	8	8	[5]8	8	9	9	[5]9	9	10	10	[5]10	11	11	[5]11	11	12	12	[5]12	12	13
Very serious damage including decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	6	47	49	51	53	54	56	58	60	62	64	66	68	70	72	74	76	78	80	81	83
Total defects including decay and very serious damage.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	8	98	103	107	111	116	120	124	129	133	137	141	146	150	154	159	163	167	171	176	180
	U.S. Combination (U.S. No. 2's permitted).	29	446	467	487	508	529	549	570	590	611	631	652	672	693	713	734	754	775	795	816	836
Off-size.		10	98	103	107	111	116	120	124	129	133	137	141	146	150	154	159	163	167	171	176	180
Discoloration.	U.S. No. 1. U.S. No. 1 Bright U.S. No. 2. U.S. Combination	10	98	103	107	111	116	120	124	129	133	137	141	146	150	154	159	163	167	171	176	180
			Acceptance number (minimum required)[4]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	1	114	119	125	131	137	143	149	155	161	166	172	178	184	190	196	202	208	214	220	226

[1]Shipping point, as used in these standards, means the point of origin of the shipment in the production area or at port of loading for ship stores or overseas shipments, or in the case of shipments from outside the continental United States, the port of entry into the United States.
[2]AL -- Absolute limit permitted in individual 50 - count sample.
[3]Sample size -- 50 count.
[4]Acceptance number -- maximum or minimum of defective or off-size fruit permitted.
[5]Preferred number of samples for this acceptance number.

Table II -- En Route or At Destination

Factor	Grades	AL[1]	Number of 50 - count samples[2]																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Acceptance numbers (maximum permitted)																			
Decay.	All.	4	3	4	6	7	9	10	11	13	14	15	16	18	19	20	21	23	24	25	26	27
Very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	6	4	6	9	11	14	16	18	20	22	24	26	28	30	33	35	37	39	41	43	45
Total defects including very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	8	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
	U.S. Combination (U.S. No. 2's permitted).	29	26	48	70	91	112	134	155	176	197	218	239	260	281	301	322	343	364	384	405	425
Off-size.		10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	10	7	12	17	22	27	32	36	41	45	50	54	59	63	68	72	76	81	85	90	94
			Acceptance number (minimum required)[3]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	1	3	8	12	18	23	29	34	40	45	51	56	62	68	74	79	85	91	97	102	108

[1]AL -- Absolute limit permitted in individual 50 - count sample.
[2]Sample size - 50 - count.
[3]Acceptance number - maximum or minimum number of defective or off-size fruit permitted.

Sample for Grade or Size Determination

§51.690 Sample for grade or size determination.

Each sample shall consist of 50 oranges. When individual packages contain at least 50 oranges, the sample is drawn from one package; when individual packages contain less than 50 oranges; a sufficient number of adjoining packages are opened to form a 50-count sample. When practicable, at point of packaging, the sample may be obtained from the grading belt or bins after sorting has been completed.

Standard Pack

§51.691 Standard pack for oranges except Temple variety.

(a) Fruit shall be fairly uniform in size. When packed in approved containers, fruit shall be arranged according to approved and recognized methods.

(b) "Fairly uniform in size" means that not more than the number of fruit permitted in §51.689, Tables I and II, are outside the ranges of diameters given in Table III:

Table III – 7/10 Bushel Carton

Pack Size/ Number of Oranges	Diameter in inches	
	Minimum	Maximum
24	3-12/16	5-1/16
32	3-6/16	4-9/16
36	3-4/16	4-6/16
40	3-2/16	4-4/16
48	2-15/16	4
56	2-13/16	3-13/16
64	2-11/16	3-10/16
72	2-9/16	3-8/16
88	2-8/16	3-4/16
113	2-7/16	3
138	2-6/16	2-12/16

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

Standard Sizing

§51.692 Standard sizing.

(a) Boxes, cartons, bag packs, or bulk loads 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: **Provided**, That the ranges are fairly uniform in size as defined in §51.691.

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

Definitions

§51.693 Mature.
"Mature" shall have the same meaning currently assigned that term in the laws and regulations of the State in which the orange is grown; or as the definition of such term may hereafter be amended.

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

§51.695 Well colored.
"Well colored" means that the fruit is yellow or orange in color with practically no trace of green color.

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

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

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

§51.699 Injury.
"Injury" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which slightly detracts from the appearance, or the edible or marketing quality of the fruit.

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

§51.701 Fairly smooth texture.
"Fairly smooth texture" means that the skin is not materially rough or coarse and that the skin is not thick for the variety.

§51.702 Damage.
"Damage" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the fruit.

§51.703 Fairly well colored.
"Fairly well colored" means that except for a one-inch circle in the aggregate of green color, the yellow or orange color predominates over the green color on that part of the fruit which is not discolored.

§51.704 Reasonably well colored.
"Reasonably well colored" means that the yellow or orange color predominates over the green color on at least two-thirds of the fruit surface in the aggregate which is not discolored.

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

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

§51.707 Slightly rough texture.
"Slightly rough texture" means that the skin is not smooth or fairly smooth but is not excessively rough or excessively thick, or materially ridged, grooved or wrinkled.

§51.708 Serious damage.
"Serious damage" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the fruit.

§51.709 Misshapen.
"Misshapen" means that the fruit is decidedly elongated, pointed or flat sided.

§51.710 Slightly spongy
"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.
§51.711 Very serious damage.
"Very serious damage" means any specific defect described in §51.713, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.
§51.712 Diameter.
"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end of the fruit.

§51.713 Classification of defects.

Table IV

Factor	Injury	Damage	Serious damage	Very serious damage
Ammoniation	----------	Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 3/4 inch in diameter or light colored and aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Buckskin	----------	Aggregating more than a circle 1 inch in diameter on a 200-size orange.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose	----------	----------	Aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Creasing	----------	Materially weakens the skin, or extends over more than one-third of the surface.	Seriously weakens the skin, or extends over more than one-half of the surface.	Very seriously weakens the skin, or is distributed over practically the entire surface.
Dryness or mushy condition	----------	Affecting all segments more than 1/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.

Green spots or oil spots	More than slightly affecting appearance.	Aggregating more than a circle 7/8 inch in diameter on a 200-size orange.	Aggregating more than a circle 1-1/4 inches in diameter on a 200-size orange.	----------
Hail	Not well healed, or aggregating more than a circle 1/4 inch in diameter on a 200-size orange.	Not well healed, or aggregating more than a circle 3/8 inch in diameter on a 200-size orange.	Not well healed, or aggregating more than a circle 1/2 inch in diameter on a 200-size orange.	Not well healed, or aggregating more than a circle 3/4 inch in diameter on a 200-size orange.
Scab	----------	Materially detracts from the shape or texture, or aggregating more than a circle 5/8 inch in diameter on a 200-size orange.	Seriously detracts from the shape or texture, or aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Scale	More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit	Aggregating more than a circle 5/8 inch in diameter on a 200-size orange.	Aggregating more than a circle 3/4 inch in diameter on a 200 size orange.	Aggregating more than 25 percent of the surface.
Scars	Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.	Deep, rough or hard aggregating more than a circle 1/4 inch in diameter; slightly rough with slight depth aggregating more than a circle 7/8 inch in diameter; smooth or fairly smooth with slight depth aggregation more than a circle 1-1/4 inches in diameter. All areas based on a 200-size orange.	Deep, rough aggregating more than a circle 1/2 inch in diameter; slightly rough with slight depth aggregating more than a circle 1-1/4 inches in diameter. All areas based on a 200-size orange.	Deep, rough or unsightly that appearance is very seriously affected.
Skin breakdown	----------	Aggregating more than a circle 1/4 inch in diameter on a 200 size orange.	Aggregating more than a circle 5/8 inch in diameter on a 200-size orange.	Aggregating more than 25 percent of the surface.

Sunburn	----------	Skin is flattened, dry, darkened or hard, aggregating more than 25 percent of the surface.	Affecting more than 1/3 of the surface, hard, decidedly one-sided, or light brown and aggregating more than a circle 1-1/4 inches in diameter on a 200 size orange.	Aggregating more than 50 percent of the surface.
Sprayburn	----------	----------	Hard or aggregating more than a circle 1-1/4 inches in diameter on a 200-size orange.	Aggregating more than 25 percent of the surface.
Split, rough or protruding navels	Split is unhealed; navel protrudes beyond general contour; opening is so wide, growth so folded and ridged that it detracts noticeably from appearance.	Split is unhealed, or more than 1/4 inch in length, or more than 3 well healed splits, or navel protrudes beyond the general contour, and opening is so wide, folded or ridged that it detracts materially from appearance.	Split is unhealed, or more than 1/2 inch in length, or aggregate length of all splits exceed 1 inch, or navel protrudes beyond general contour, and opening is so wide, folded and ridged that it seriously detracts from appearance.	Split is unhealed or fruit is seriously weakened.
Thorn scratches	Not slight, not well healed, or more unsightly than discoloration permitted in the grade.	Not well healed, or hard concentrated thorn injury aggregating more than a circle 5/8 inch in diameter on a 200 size orange.	Not well healed, or hard concentrated thorn injury aggregating more than a circle 3/4 inch in diameter on a 200-size orange.	Aggregating more than 25 percent of the surface.

Metric Conversion Table
§51.714 Metric conversion table.

Inches		Millimeters (mm)
1/4	equals	6.4
5/16	equals	7.9
3/8	equals	9.5
1/2	equals	12.7
5/8	equals	15.9
3/4	equals	19.1
7/8	equals	22.2
1	equals	25.4
1-1/4	equals	31.8
2-3/16	equals	55.6
2-4/16	equals	57.2
2-7/16	equals	61.9
2-8/16	equals	63.5
2-9/16	equals	65.1
2-11/16	equals	68.3
2-12/16	equals	69.9
2-15/16	equals	74.6
3-1/16	equals	77.8
3-3/16	equals	81.0
3-5/16	equals	84.1
3-7/16	equals	87.3
3-9/16	equals	90.5
3-13/16	equals	96.8

Appendix I U.S. Grade Standards

United States Standards for Grades of Grapefruit (Texas and States other than Florida, California and Arizona)[1]

Effective September 5, 2003

Grades

§51.620 U.S. Fancy.

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

(a) Basic requirements:

(1) Discoloration:

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

(i) Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration. (See §51.638.)
(2) Firm;
(3) Mature;
(4) Similar varietal characteristics;
(5) Smooth texture;
(6) Well formed; and,
(7) Well colored.
(b) Free from:
(1) Ammoniation;
(2) Bruises;
(3) Buckskin;
(4) Cuts not healed;
(5) Skin breakdown;
(6) Decay;
(7) Growth cracks;
(8) Scab;
(9) Sprayburn; and,
(10) Wormy fruit.
(c) Not injured by:
(1) Green spots;
(2) Oil spots;
(3) Scale;
(4) Scars; and,
(5) Thorn scratches.
(d) Not damaged by any other cause.
(e) For tolerances see §51.628.

§51.621 U.S. No. 1.

"U.S. No. 1" consists of grapefruit which meet the following requirements:
(a) Basic requirement:
(1) Discoloration:
(i) Not more than one-half of the surface, in the aggregate, may be affected by discoloration. (See §51.638.)
(2) Firm;
(3) Mature;
(4) Similar varietal characteristics;
(5) Fairly well colored;
(6) Fairly smooth texture; and,
(7) Fairly well formed.
(b) Free from:
(1) Bruises;
(2) Cuts not healed;
(3) Caked melanose;
(4) Growth cracks;
(5) Sprayburn;
(6) Decay; and,
(7) Wormy fruit.
(c) Not damaged by any other cause.
(d) For tolerances see §51.628.

§51.622 U.S. No. 1 Bright.

The requirements for this grade are the same as for U.S. No. 1 except that no fruit may have more than one-tenth of its surface, in the aggregate, affected by discoloration.
(a) For tolerances see §51.628.

§51.623 U.S. No. 1 Bronze.

The requirements for this grade are the same as for U.S. No. 1 except that all fruit must show some discoloration. Not less than the number of fruits required in §51.628, Tables I and II, shall have more

than one-half of their surface, in the aggregate, affected by discoloration. The predominating discoloration on these fruits shall be of rust mite type.
(a) For tolerances see §51.628.

§51.624 U.S. Combination.

"U.S. Combination" consists of a combination of U.S. No. 1 and U.S. No. 2 grapefruit: **Provided,** That the number of U.S. No. 2 fruits specified in §51.628, Tables I and II, are not exceeded.

§51.625 U.S. No. 2.

"U.S. No. 2" consists of grapefruit which meet the following requirements:
(a) Basic requirements:
(1) Discoloration:
(i) Not more than two-thirds of the surface, in the aggregate, may be affected by discoloration. (See §51.638.)
(2) Fairly firm;
(3) Mature;
(4) Similar varietal characteristics;
(5) May be slightly colored;
(6) Not more than slightly misshapen; and,
(7) Not more than slightly rough texture.
(b) Free from:
(1) Bruises;
(2) Cuts not healed;
(3) Growth cracks;
(4) Decay; and,
(5) Wormy fruit.
(c) Not seriously damaged by any other cause.
(d) For tolerances see §51.628.

§51.626 U.S. No. 2 Russet.

The requirements for this grade are the same as for U.S. No. 2 except that not less than the number of fruits required in §51.628, Tables I and II, shall have more than two-thirds of their surface, in the aggregate, affected by discoloration.
(a) For tolerances see §51.628.

§51.627 U.S. No. 3.

"U.S. No. 3" consists of grapefruit which meet the following requirements:
(a) Basic requirements:
(1) Mature;
(2) Similar varietal characteristics;
(3) May be misshapen;
(4) May be slightly spongy;
(5) May have rough texture;
(6) Not seriously lumpy or cracked; and,
(7) May be poorly colored.
(i) Not more than 25 percent of the surface may be of a solid dark green color.
(b) Free from:
(1) Cuts not healed;
(2) Decay; and,
(3) Wormy fruit.
(c) Not very seriously damaged by any other cause.
(d) For tolerances see §51.628.

Tolerances

§51.628 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, based on sample inspection, the number of defective or off-size specimens in the individual sample, and the number of defective or off-size specimens in the lot, shall be within the limitations specified in Tables I and II. No tolerance shall apply to wormy fruit.

TABLE I--SHIPPING POINT[1]
(A) FOR 1 THROUGH 20 SAMPLES

Factor	Grades	AL[2]	Number of 33 - count samples[3]																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Acceptance numbers (maximum permitted)[4]																			
Decay.	U.S. Fancy. U.S. No. 1. U.S. Combination. U.S. No. 2.	1	0	0	0	1	[5]1	2	2	2	2	[5]2	2	2	3	3	3	[5]3	3	4	4	4
	U.S. No. 3.	1	0	1	[5]1	1	2	[5]2	2	3	3	[6]3	3	4	4	4	[5]4	5	5	5	[5]5	5
Very serious damage including decay.	U.S. Fancy. U.S. No. 1. U.S. Combination. U.S. No. 2.	4	3	5	7	8	10	11	13	14	16	17	18	20	21	23	24	25	27	28	30	32
Total defects including decay and very serious damage.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	5	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
	U.S. Combination (U.S. No. 2's permitted).	21	18	33	47	62	76	90	104	119	133	147	161	174	188	202	216	230	244	257	271	285
Off-size.		7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
			Acceptance numbers (minimum required)[4]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	0	2	4	8	11	14	18	21	25	28	32	36	39	43	47	50	53	57	61	64	68

See footnotes at end of table.

(B) FOR 21 THROUGH 40 SAMPLES

Factor	Grades	AL[2]	Number of 33 - count samples[3]																			
			21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
			Acceptance numbers (maximum permitted)[4]																			
Decay.	U.S. Fancy. U.S. No. 1. U.S. Combination. U.S. No. 2.	1	4	4	[5]4	4	4	5	5	5	5	5	[3]5	5	5	6	6	6	6	6	[2]6	6
	U.S. No. 3.	1	5	6	6	6	[5]6	6	7	7	7	[5]7	7	8	8	8	[5]8	8	9	9	9	9
Very serious damage including decay.	U.S. Fancy. U.S. No. 1. U.S. Combination. U.S. No. 2.	4	32	34	35	36	38	39	40	42	43	44	45	47	48	49	51	52	53	54	56	57
Total defects including decay and very serious damage.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	5	67	70	73	76	79	82	84	87	90	93	96	99	102	105	107	110	113	116	119	122
	U.S. Combination (U.S. No. 2's permitted).	21	298	312	326	339	353	367	380	394	408	421	435	449	462	476	489	503	517	530	544	557
Off-size.		7	67	70	73	76	79	82	84	87	90	93	96	99	102	105	107	110	113	116	119	122
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	7	67	70	73	76	79	82	84	87	90	93	96	99	102	105	107	110	113	116	119	122
			Acceptance numbers (minimum required)[4]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	0	72	76	80	84	88	92	96	99	103	107	110	114	118	122	126	130	134	137	141	145

[1]Shipping point, as used in these standards, means point of origin of the shipment in the production area or at port of loading for ship stores or overseas shipments, or in the case of shipments from outside the continental United States, the port of entry into the United States.
[2]AL -- Absolute limit permitted in individual 33-count sample.
[3]Same size 33-count.
[4]Acceptance number -- maximum or minimum of defective or off-size fruit permitted.
[5]Preferred number of samples for this acceptance number.

TABLE II --EN ROUTE OR AT DESTINATION

Factor	Grades	AL[1]	Number of 33 - count samples[2]																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Acceptance numbers (maximum permitted)[3]																			
Decay.	All.	3	2	3	4	5	6	7	8	9	10	11	12	13	[4]13	14	15	16	17	18	[4]18	19
Very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. Combination.	4	3	5	7	8	10	11	13	14	16	17	18	20	21	23	24	25	27	28	30	31
Total defects including very serious damage other than decay.	U.S. Fancy. U.S. No. 1. U.S. No. 2. U.S. No. 3.	5	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
	U.S. Combination (U.S. No. 2's permitted).	21	18	33	47	62	76	90	104	119	133	147	161	174	188	202	216	230	244	257	271	285
Off-size.		7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
Discoloration.	U.S. No. 1. U.S. No. 1 Bright. U.S. No. 2. U.S. Combination.	7	5	9	12	16	19	22	25	28	31	34	37	40	44	46	49	52	55	58	61	64
			Acceptance numbers (minimum required)[3]																			
	U.S. No. 1 Bronze. U.S. No. 2 Russet.	0	2	4	8	11	14	18	21	25	28	32	36	39	43	47	50	53	57	61	64	68

[1]Absolute limit permitted in individual 33-count sample.
[2]Sample size - 33-count.
[3]Acceptance number -- maximum or minimum number of defective or off-size fruit permitted.
[4]Preferred number of samples for this acceptance number.

Sample for Grade or Size Determination

§51.629 Sample for grade or size determination.

Each sample shall consist of 33 grapefruit. When individual packages contain at least 33 grapefruit, the sample is drawn from one package; when individual packages contain less than 33 grapefruit, a sufficient number of adjoining packages are opened to form a 33-count sample. When practicable, at point of packaging, the sample may be obtained from the grading belt or bins after sorting has been completed.

Standard Pack

§51.630 Standard pack.

(a) Fruits shall be fairly uniform in size, unless specified as uniform in size. When packed in approved containers, fruit shall be arranged according to the approved and recognized methods.

(b) "Fairly uniform in size" means that not more than the number of fruits permitted in §51.628, Tables I and II, are outside the ranges of diameters given in Table III.

Table III – 7/10 Bushel Carton

	Diameter in inches	
Pack size/ Number of Grapefruit	**Minimum**	**Maximum**
18	4-5/16	5-9/16
23	4-5/16	5
27	4-2/16	4-12/16
32	3-15/16	4-8/16
36	3-13/16	4-5/16
40	3-10/16	4-2/16
48	3-9/16	3-14/16
56	3-5/16	3-10/16

(c) "Uniform in size" means that not more than the number of fruits permitted in §51.628, Tables I and II, vary more than the following amounts:

(1) 32 size and smaller -- not more than six-sixteenths inch in diameter; and,

(2) 27 size and larger -- not more than nine-sixteenths inch in diameter.

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

Definitions

§51.631 Mature.

"Mature" shall have the same meaning currently assigned that term in the laws and regulations of the State in which the grapefruit is grown; or as the definition of such term may hereafter be amended.

§51.632 Similar varietal characteristics.

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

§51.633 Well colored.

"Well colored" means that the fruit is yellow in color with practically no trace of green color.

§51.634 Firm.

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

§51.635 Well formed.

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

§51.636 Smooth texture.

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

§51.637 Injury.
"Injury" means any specific defect described in §51.652, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which slightly detracts from the appearance, or the edible or marketing quality of the fruit.
§51.638 Discoloration.
"Discoloration" means russeting of light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth, superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by speck type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed in the grade.
§51.639 Fairly well colored.
"Fairly well colored" means that except for a 1-inch circle in the aggregate of green color, the yellow color predominates over the green color on that part of the fruit which is not discolored.
§51.640 Fairly well formed.
"Fairly well formed" means that the fruit may not have the shape characteristic of the variety but is not elongated or pointed or otherwise deformed.
§51.641 Fairly smooth texture.
"Fairly smooth texture" means that the skin is not materially rough or coarse and that the skin is not thick for the variety.
§51.642 Damage.
"Damage" means any specific defect described in §51.652, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the fruit.
§51.643 Fairly firm.
"Fairly firm" means that the fruit may be slightly soft, but not bruised, and the skin is not spongy or puffy.
§51.644 Slightly misshapen.
"Slightly misshapen" means that the fruit is not of the shape characteristic of the variety but is not appreciably elongated or pointed or otherwise deformed.
§51.645 Slightly rough texture.
"Slightly rough texture" means that the skin is not smooth or fairly smooth but is not excessively rough or excessively thick, or materially ridged, grooved or wrinkled.
§51.646 Serious damage.
"Serious damage" means any specific defect described in §51.652, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the fruit.
§51.647 Slightly colored.
"Slightly colored" means that, except for a 2-inch circle in the aggregate of green color, the portion of the fruit surface which is not discolored shows some yellow color.
§51.648 Misshapen.
"Misshapen" means that the fruit is decidedly elongated, pointed or flat sided.
§51.649 Slightly spongy.
"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.
§51.650 Very serious damage.
"Very serious damage" means any specific defect described in §51.652, Table IV; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.
§51.651 Diameter.
"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end.

§51.652 Classification of defects.

TABLE IV

Factor	Injury	Damage	Serious Damage	Very Serious Damage
Ammoniation----------	----------	Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 3/4 inch in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.
Buckskin----------	----------	Aggregating more than a circle 1-1/4 inches in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose----------	----------	----------	Aggregating more than a circle 1 inch in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.
Dryness or mushy condition	----------	Affecting all segments more than 1/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.
Green spots or oil spots.	More than slightly affecting appearance.	Aggregating more than a circle 1 inch in diameter on a 70 size grapefruit.	Aggregating more than 1 -1/2 inches in diameter on a 70 size grapefruit.	
Hail----------	Not well healed, or aggregating more than a circle 3/8 inch in diameter on a 70 size grapefruit.	Not well healed, or aggregating more than a circle 1/2 inch in diameter on a 70 size grapefruit.	Not well healed, or aggregating more than a circle 5/8 inch in diameter on a 70 size grapefruit.	Not well healed, or aggregating more than a circle 1 inch in diameter on a 70 size grapefruit.

Scab----------	----------	Materially detracts from the shape or texture, or aggregating more than a circle 3/4 inch in diameter on a 70 size grapefruit.	Seriously detracts from the shape or texture, or aggregating more than a circle 1 inch in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.
Scale----------	More than a few adjacent to the "button" at the stem end or more than 6 scattered on other portions of the fruit.	Blotch aggregating more than a circle 3/4 inch in diameter, or occurring as a ring more than a circle 1-1/4 inches in diameter on a 70 size grapefruit.	Blotch aggregating more than a circle 1 inch in diameter, or occurring as a ring more than a circle 1-1/2 inches in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.
Skin breakdown----------	----------	Aggregating more than a circle 3/8 inch in diameter on a 70 size grapefruit.	Aggregating more than a circle 5/8 inch in diameter on a 70 size grapefruit.	Aggregating more than a circle 1-1/4 inches in diameter on a 70 size grapefruit.
Scars----------	Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.	Very deep or very rough aggregating more than a circle 1/2 inch in diameter; deep or rough aggregating more than 1 inch in diameter; slightly rough or of slight depth aggregating more than 10 percent of fruit surface. All areas based on a 70 size grapefruit.	Very deep or very rough aggregating more than a circle 1 inch in diameter; deep or rough aggregating more than 5 percent of the fruit surface; slight depth or slightly rough aggregating more than 15 percent of fruit surface. All areas based on a 70 size grapefruit.	Very deep or very rough or unsightly that appearance is very seriously affected.
Sprayburn----------	----------	----------	Hard or aggregating more than a circle 1-1/4 inches in diameter on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.

Sunburn----------	----------	Skin is flattened, dry, darkened, or hard, aggregating more than 25 percent fruit surface.	Skin is hard, fruit is decidedly one-sided, aggregating more than one-third of fruit surface.	Aggregating more than 50 percent of fruit surface.
Sprouting----------	----------	More than 6 seeds are sprouted, including not more than 1 sprout extending to the rind, remainder average not over 1/4 inch in length.	More than 6 seeds are sprouted, including not more than 2 sprouts extending to the rind, remainder average not over 1/2 inch in length.	More than 6 seeds are sprouted, including not more than 3 sprouts extending to the rind, remainder average not over 3/4 inch in length.
Thorn scratches----------	Not well healed, or more unsightly than discoloration permitted in the grade.	Not well healed, hard concentrated thorn injury aggregating more than a circle 3/4 inch in diameter, or slight scratches aggregating more than a circle 1 inch in diameter. All areas based on a 70 size grapefruit.	Not well healed, hard concentrated thorn injury aggregating more than a circle 7/8 inch in diameter, or slight scratches aggregating more than a circle 1-1/4 inches in diameter. All areas based on a 70 size grapefruit.	Aggregating more than 25 percent of the surface.

Metric Conversion Table
§51.653 Metric conversion table.

Inches		Millimeters (mm)
1/4	equals	6.4
3/8	equals	9.5
1/2	equals	12.7
9/16	equals	14.3
5/8	equals	15.9
3/4	equals	19.1
7/8	equals	22.2
1	equals	25.4
1-1/4	equals	31.8
1-1/2	equals	38.1
3	equals	76.2
3-2/16	equals	79.4
3-6/16	equals	85.7
3-8/16	equals	88.9
3-10/16	equals	92.1
3-13/16	equals	96.8
3-14/16	equals	98.4
3-15/16	equals	100.0
4-2/16	equals	104.8
4-5/16	equals	109.5
4-8/16	equals	114.3
4-12/16	equals	120.7
5	equals	127.0