



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Division

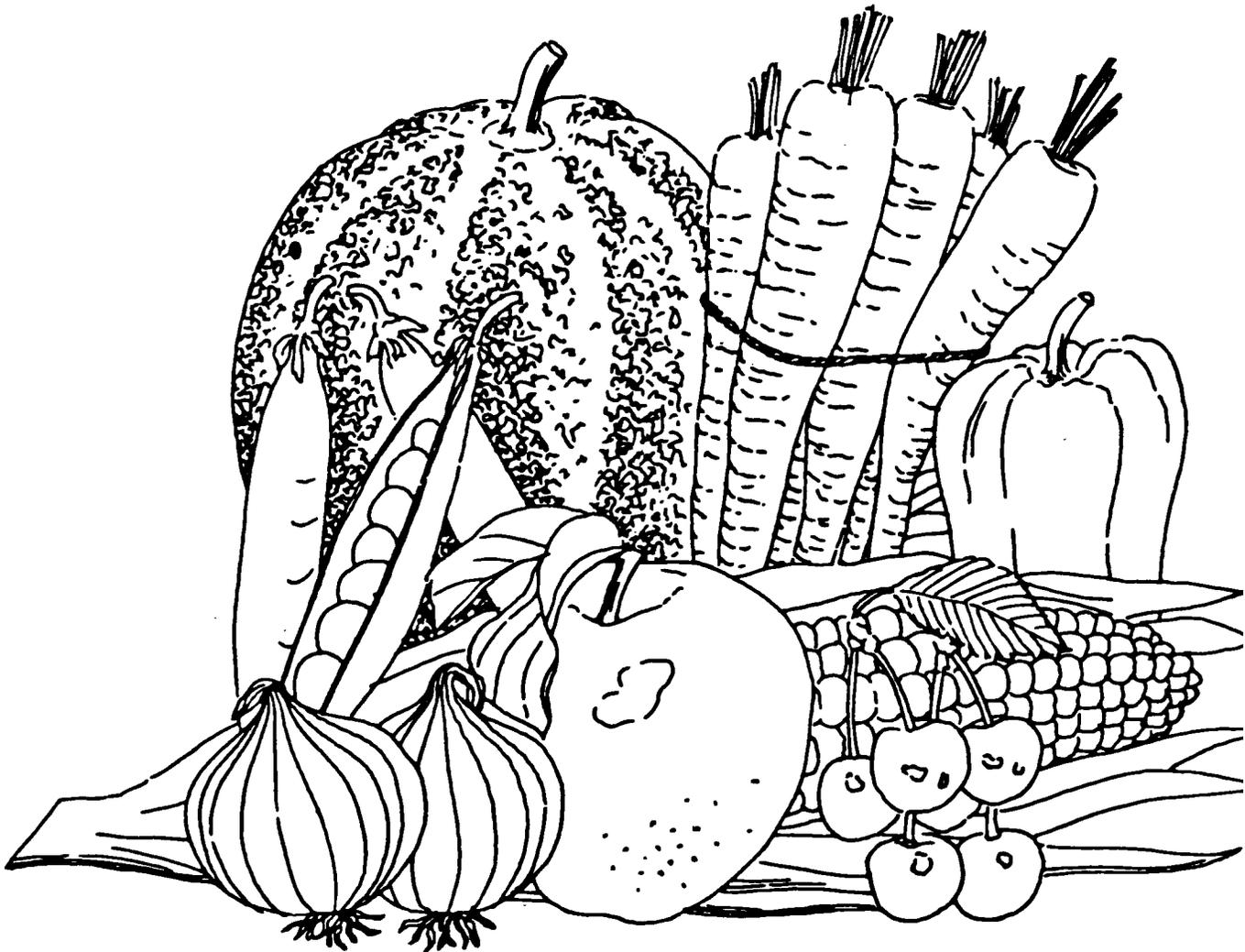
Fresh Products  
Branch

Washington, D.C.

# KIWIFRUIT

## MARKET INSPECTION INSTRUCTIONS

October 1987





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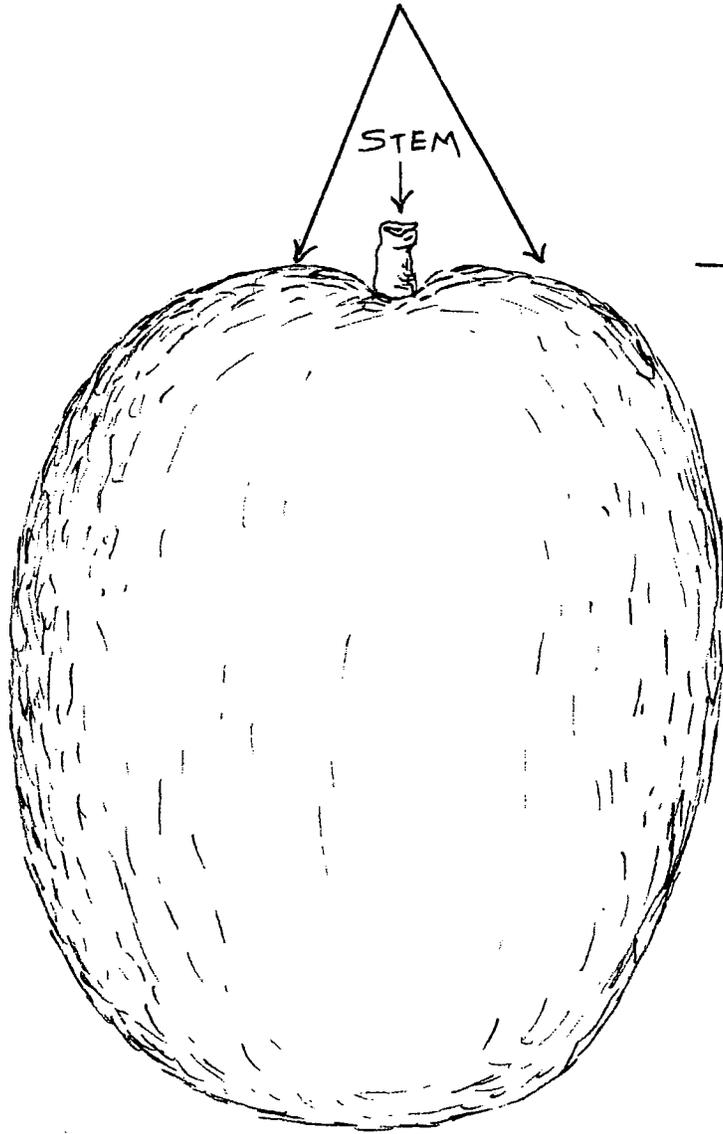
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SHOULDERS

STEM



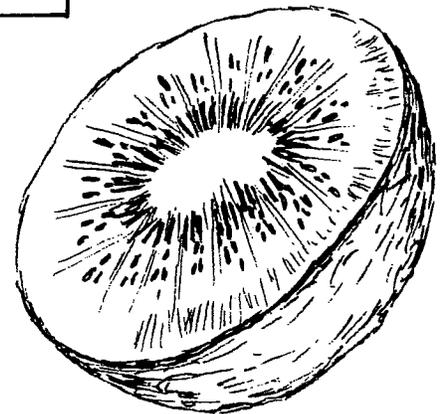
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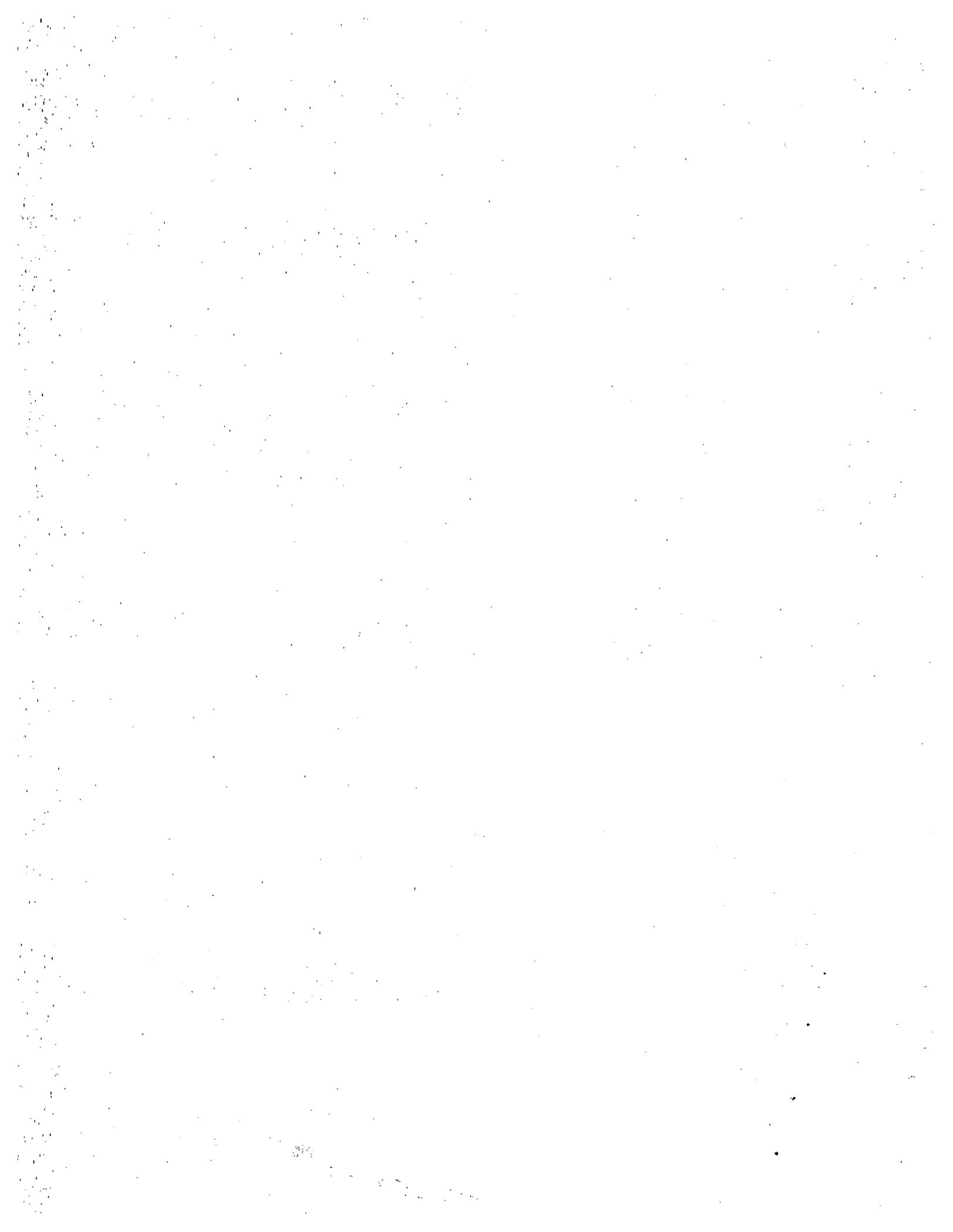
CALYX OR BLOSSOM

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KIWI FRUIT





UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE

FRUIT AND VEGETABLE DIVISION

FRESH PRODUCTS BRANCH

MARKET INSPECTION INSTRUCTIONS

FOR

KIWIFRUIT

GENERAL

These instructions have been developed by the Fresh Products Branch to (1)  
assist officially licensed inspectors in the interpretation and  
application of U.S. Standards for Grades of Kiwifruit. 7 CFR -  
Sections 51.2335-41. These instructions do not establish any new or  
revised substantive rules and supersede previous instructions of  
October 1982.

Refer to the General Market Inspection Instructions for additional  
information pertaining to date, inspection point, carrier, condition of  
carrier, lading, etc., not covered by these instructions.

Webster's Dictionary defines "kiwi" as a flightless New Zealand bird  
(genus Apteryx) with rudimentary wings, stout legs, a long bill, and  
grayish brown hairlike plumage.

Kiwifruit is grown on a plant known as yang-tao or Chinese gooseberry  
(Actinidia chinensis) and is a climbing vine native to China and  
Taiwan.

New Zealanders, the first to realize the value of this fruit and until recently the only ones involved in commercial production, adopted this fruit and called it kiwifruit.

The fruit is ugly, brown, fuzzy, and about the size of a lemon. It sports about three to four days growth of a spiny, brown beard. The flesh is a glowing green color with a cream colored center. There are numerous, soft seeds around the center of the fruit that are edible. The taste is supposedly a cross between a strawberry and a banana. The fruit is high in vitamin C and contains an enzyme (actinidin) that tenderizes meat. The fruit can be used for jam, juice, jelly, or even wine.

#### SAMPLING

- (2) Representative sampling is just as important as correct grade interpretation. If your samples are not representative of the lot, the results will be incorrect regardless of the accuracy of interpretation of grade factors.

The grade standards specify how individual samples shall be obtained. They provide a method for sampling fruit packed in tray-pack containers and a separate method for sampling jumble packed containers, including film bags.

When the fruit is in place-pack containers, inspectors shall use the entire contents of the container as their sample. When the number of fruit per sample is variable, inspectors will need to determine the percent of defects in each sample and divide the total percent of defects by the number of samples. This will result in the average percent of defects for the lot (See General Market Inspection Instructions, paragraph 69).

When fruit is jumble packed in volume fill containers, including film bags, the sample shall consist of at least 50 fruit. It may be necessary to obtain additional fruit from adjoining containers so the sample will be at least 50 fruit.

Inspectors should keep in mind that the application of tolerances for individual containers of 3 pounds or less allows only one fruit that may be frozen or decayed. Inspectors must account for the number of frozen or decayed fruit in each package when inspecting small packages containing less than 50 fruit. Any package weighing 3 pounds or less that is sampled and found to contain more than one frozen and/or decayed fruit would exceed the application of tolerances for individual containers. The lot would fail to meet grade requirements because of excessive frozen and/or decayed fruit in an individual container or containers.

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\*\*\*\*

It is difficult to establish the number of samples to be inspected because of varying conditions. Representative sampling from all portions of the lot is the most important point to keep in mind. However, it is the inspector's responsibility to examine enough samples to ensure an accurate picture of the entire lot. The number of individual samples to be examined per lot may vary according to conditions. \*\*\*\*

#### TOLERANCES

- (3) The following table gives the overall tolerances and restricted tolerances for permanent defects, condition defects, serious damage, and decay for the various grades.

<u>En Route or At Destination</u>	<u>U.S. Fancy</u>	<u>U.S. No. 1</u>	<u>U.S. No. 2</u>
A. Total Defects (%)	12	12	12
1. Permanent Defects			
(included in Total "A")	8	8	8
2. Condition Defects			
(included in Total "A")	12	12	12
3. Serious Damage			
(included in Total "A")	6	6	12
(a) Serious Damage by Permanent Defects			
(included in "1" and "3")	4	4	4*
(b) Internal Breakdown, Decay			
(included in "3")	2	2	2

\*includes not more than 4 percent for sunscald, insects.

APPLICATION OF TOLERANCES

The tolerances are based on count and determination of percentages must (4)  
be made on that basis.

The contents of individual containers in a lot, based on sample  
inspection, are subject to the following limitations:

- (a) A container may contain not more than double any specified tolerance except that at least two defective specimens may be permitted in any container: Provided, that not more than one fruit which is frozen or affected by decay be permitted in any container 3 pounds or less; and provided further, that the averages for the entire lot are within the tolerances specified for the grade.

HEADING ON NOTESHEET

Detailed instructions pertaining to date, inspection point, place of inspection, kind of carrier, lading, etc., which are not covered by these instructions may be found in the General Market Inspection Instructions.

PRODUCTS INSPECTED

- (5) The following information shall be given under this heading:

Commodity, Type or Variety.

Type of Container.

Distinguishing Marks.

State or Country of Origin.

Quantity Inspected.

- (6) Commodity, Type or Variety: This is the first item shown under "Products Inspected" heading on the certificate. The term "Kiwifruit" should be used to identify the product.

Type of Container: The most common container used is a wood or (7)  
fiberboard flat, sometimes referred to as a "tray", with the fruit  
packed in a molded plastic tray. Kiwifruit are also shipped in two and  
three layer tray type fiberboard cartons, volume fill fiberboard  
cartons, and in film bags packed in fiberboard cartons.

Distinguishing Marks: Markings which are labeled, printed, or crayon (8)  
marked on the container should be reported under this heading. This  
also includes name and address of shipper, variety, net weight, sizes,  
lot numbers, etc. If there are several brands or lots, list only the  
principal ones and state "various other brands or marks." If the  
containers bear no brand, grade or any other marking, inspectors should  
report "No distinguishing marks."

State or Country of Origin: State or country of origin markings should (9)  
be quoted. If the containers are not marked, inquiries should be made  
as to origin and a statement made to the effect that the lot was  
invoiced or manifested from a certain State or country.

Quantity Inspected: The number of containers in a lot should always be (10)  
stated on the certificate. This is reported either as a statement on  
authority of the inspector or as applicant's count or as shipper's  
manifest. The count of large lots certified in a warehouse or on a  
platform may be reported on the authority of someone other than the  
inspector. However, it is advisable in such cases for the inspector to  
take a rough count and compare to the number of containers reported.

Examples:

Kiwifruit in trays labeled "Sunny Cal Kiwifruit, Blue Anchor Inc., California" and stamped to denote count (30, 33, 36, 40 noted). Applicant states: 2200 Flats.

Kiwifruit in trays labeled "Chummy Brand Kiwifruit, United Packing Co., Fresno, CA., Produce of USA' and stamped "Hayward" and to denote count (25, 28, 30, 38, 40 noted). Inspectors Count 850 Flats.

Kiwifruit in flats printed "Feather River Brand, Triple B Ranch, Inc., Gridley, CA., Hayward Variety" and stamped to denote count (36, 39, 42, 49 noted). Applicant states: 1000 flats.

CONDITION OF LOAD AND CONTAINERS

- (11) This heading includes the condition of load and containers. The method of arrangement of the load and any shifting, breakage, or other damage to packages should be clearly described, remembering that the certificate may be the basis of future claim settlements.

When the load and containers are in good order, the statement of arrangement is all that is necessary. When the load is "broken" or "partly unloaded", the statement "partly unloaded" should be used. Show the arrangement of the amount left in car or trailer and not the number of packages that have been unloaded. This is done by reporting the number of full and partial stacks remaining.

Often, height of load, vertical stripping, or other factors prohibit counting the number of stacks or pallets remaining on the trailer. Therefore, it is suggested to report the distance from the rear doors to nearest stack.

When the shipment has been unloaded on a pier or into a cold storage or auction room and the method of arrangement of the packages has no bearing on any condition of the product that may be reported, it will be satisfactory to state "stacked at above location". If there is any breakage, it should be described.

Palletized loads: Palletizing has become an economic must in the shipment of many commodities, including kiwifruit. Palletized loads have created a few difficulties for the Inspection Service. Primarily the accessibility of the load or lots on a load. Generally the two pallets nearest rear doors of a trailer are accessible. However, the receiver benefits from palletized loads tremendously. These loads are unloaded faster and with less labor. (12)

When a load of kiwifruit is palletized and the only accessible packages are those in the top layer of one or two pallets nearest rear door, the inspection should be declined unless the applicant is willing to unload enough pallets to enable the inspector to sample a reasonable portion of the lot. Representative sampling of all pallets to be inspected may necessitate the breaking or cutting of bands. If the receiver objects to cutting bands, this is also justification for refusing inspection.

- (13) Shifting of Loads should be Reported in Detail: Claim agents have called attention to the fact that many destination inspection reports do not give complete information regarding a shift in the load. In order that we may render the best possible service to all interested parties, it is important that the inspection certificates show in detail the extent of the shift and the resulting damage.
- (14) Condition of Containers: Containers that are broken, torn, racked out of square, parts or pieces missing, flattened, or with contents missing or spilled shall be mentioned under this heading. Wet spots, moldy spots on containers, and wet or leaking condition due to decay should also be reported under this heading.

For further information regarding "Condition of Load and Containers" refer to General Market Inspection Instructions.

Examples:

(Intact Palletized Load)

Through palletized load. 2 pallets wide - 12 pallets long. 3 rows, 25 layers, lengthwise per pallet.

(Partial Palletized Load)

Partly unloaded - 14 pallets remaining. 1 or 2 pallets wide, 3 rows 20 to 25 layers, lengthwise per pallet. Most pallets have bands intact, many have 1 to 2 bands broken or loose with few flats sunken 1 to 3 inches below level of load.

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Condition of Pack

Kiwifruit is generally packed in molded tray packs. (15)

Therefore, tightness of pack should be determined by the amount of movement or looseness of the kiwifruit in the individual cups in the tray. The following terms should be used to describe this type of pack:

Tight: When there is no movement of the kiwifruit in the cups.

Fairly Tight: When there is only slight movement of the fruit in the cups.

Loose in Cups: When there is free movement of the fruit in the cups.

When describing molded trays, do not use the term "panta pak" or any other trade name on the certificate.

When kiwifruit is packed in other types of packs, the following terms should be used to describe tightness:

Very Tight: This pack is too tight and can cause bruising.

\*\*\*\*

Tight or Well Filled: This is the ideal condition of pack and means the container is properly packed and filled so there is practically no movement within the container. Well filled may also mean level full with the top edge of the container. In those containers where sides are lower than top of ends of containers, the lower edge is the determining side for level full. \*\*\*\*

Fairly Tight or Fairly Well Filled: This is the stage between tight and slack. There maybe slight movement of the fruit in the container.

Slack: This means that the pack is loose and there is free movement of the fruit in the container. The level of the fruit is below the top of the container. Whenever the term "slack" is used, the slackness must be reported in fractions of an inch or inches.

Presence of Wraps, etc: It is a practice to protect fruit from cuts and bruises by using pads and liners in the container. This material if present should be reported under "Pack."

Determining and Reporting Net Weight: Net weight should also be reported under "Pack". Net weight may be certified without making a grade or condition inspection. (See General Market Inspection Instructions).

#### TEMPERATURE OF PRODUCT

- (16) It is of utmost importance to secure temperatures of kiwifruit whether under refrigeration or without refrigeration. Temperatures should be taken of the top and bottom layers and in various other parts of the load, if accessible.

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In cases where heating or freezing is found, numerous temperatures should be taken.

Temperatures of unloaded lots should be taken. These temperatures should be taken at as many different places as possible.

**SIZE**

There are no size requirements in any of the kiwifruit grades. (17)  
Inspectors should report the lot as being "fairly uniform in size" according to the definition and tolerances shown in the Standard Pack section (§51.2338) of the grade standards.

When all or generally all of the containers meet the definition, the lot should be reported in general terms, as "fairly uniform in size" or "generally fairly uniform, few irregular in size." When more than 10 percent of the containers fail to meet the fairly uniform requirements, the range and average percent of containers failing should be reported in addition to the general statement. Inspectors should remember that a container is not considered "irregular" until more than 5 percent of the fruit exceed the allowable variation.

\*\*\*\*

**Height:** The height is the greatest dimension of the fruit including the fleshy-woody stem button (but not the stem proper) to the blossom end protrusion, measured on a line parallel to that line which runs through the center of the fruit from the stem to blossom end.

\*\*\*\*

Width: Width means the same as diameter which is defined in the grade standards. The diameter should be measured with a caliper.

Example:

Mostly fairly uniform, some irregular in size. From 3 to 25 percent, average 15 percent of containers with fruit that exceeds the variation permitted.

QUALITY

(18) The following factors should be reported under this heading:

Maturity.

Shape.

Cleanness.

Other Grade Defects.

(19) Maturity: The U.S. Standards for Grades of Kiwifruit require kiwifruit to be "mature" to meet all grades. "Mature" means that the kiwifruit has reached the stage of maturity which will ensure the proper completion of the ripening process. The minimum average soluble solids of fruits tested must be no less than 6.5 percent, unless otherwise specified. Soluble solids specified less than 6.5 percent are permitted, but must be specified in connection with the grade.

Determining Maturity: The following equipment is necessary to determine maturity (20)  
correctly.

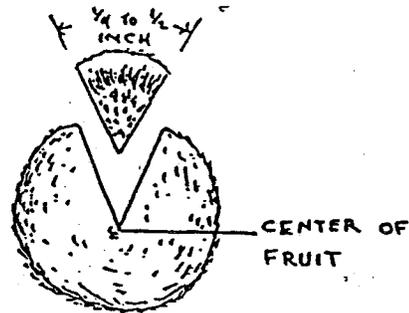
1. Temperature compensated hand refractometer.
2. Knife to cut the fruit.
3. Lime squeezer or similar instrument to extract juice from the wedge shaped piece.
4. Distilled water to standardize and clean refractometer and other equipment.
5. Clean towel or cheesecloth for drying.
6. Small container to hold juice (composite sample).

Inspectors should randomly select 15 fruit from each lot. It is suggested that at least 1 fruit be selected from each sample inspected for grade analysis, however, it may be necessary to select more than 1 fruit from a portion of the samples. Fruit selected shall be tested according to the following procedures. Whether testing individual fruit or using a composite sample the average should be reported on the certificate. At the applicant's request, when testing individual fruit both the range and the average may be reported.

\*\*\*\*  
Fruit shall be tested by removing a wedge shaped piece from between the stem and blossom end; a lengthwise cut parallel to a line running from stem to blossom end.

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The wedge should measure between  $\frac{1}{4}$  and  $\frac{1}{2}$  inch wide at the surface (fuzzy side) and the cut sides should converge at the center of the fruit (See figure). It does not matter whether the skin is left on or cut off the wedge before extracting the juice. The wedge should then be squeezed with enough force to extract a major portion of the juice it contains. If testing individual fruit squeeze the juice of each kiwifruit directly over the refractometer prism.



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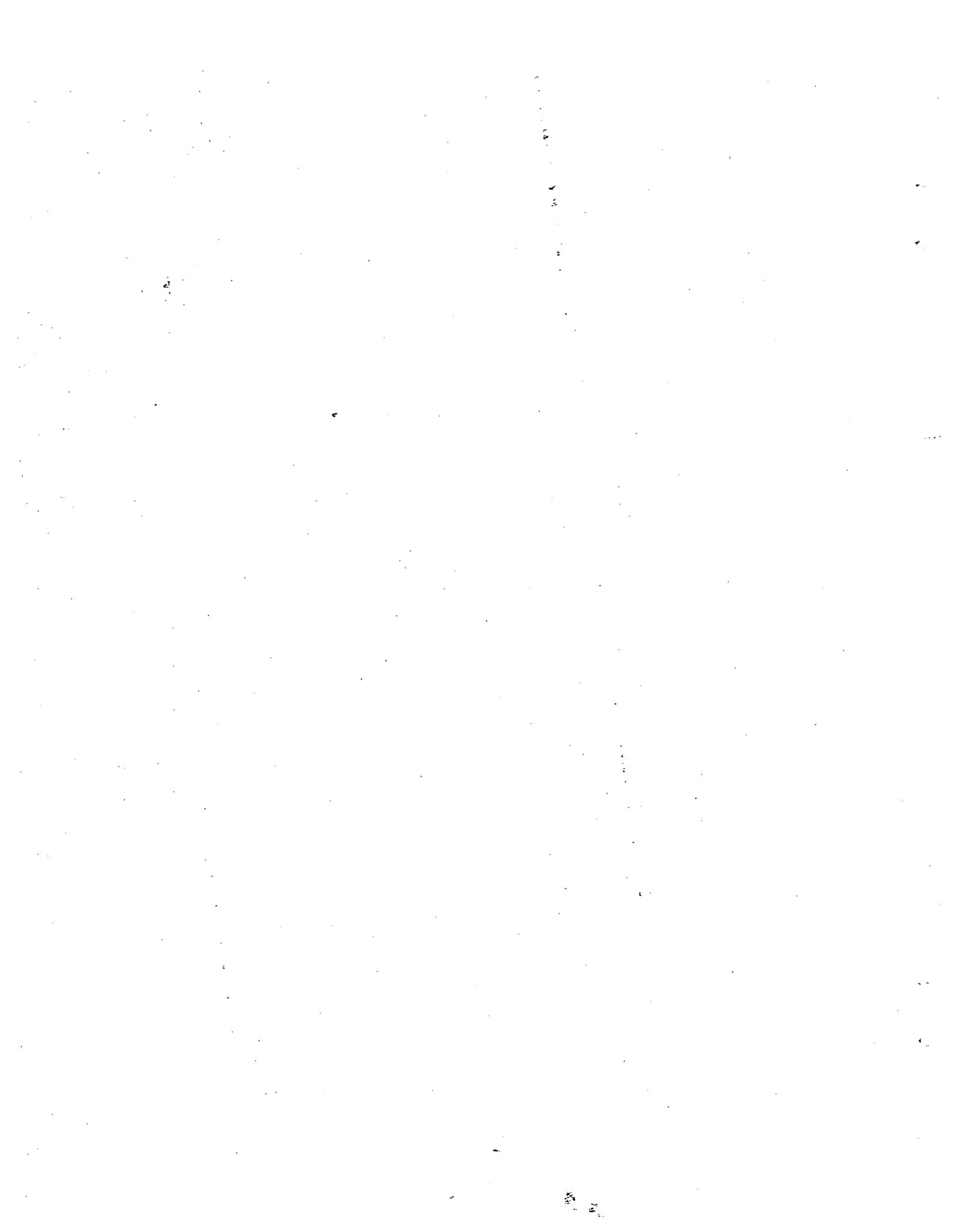
If a composite juice sample is used the extracted juice should be combined in a single container and thoroughly mixed. This single juice sample would then be used to take a soluble solids reading. Close the refractometer prism cover and read the soluble solids in the eyepiece. The prism should be rinsed after each test. If using a composite sample, as a precaution, after the first reading wipe the refractometer prism dry and take a second reading. If there is a difference of .2 brix or less use the first reading. If the second reading is higher than .2 brix but not higher than .4 brix, average the two readings. When the difference is greater than .4 brix disregard both readings and repeat the test.

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Either procedure will be acceptable, however, the separate readings should be recorded on the inspectors notes. Inspectors should remember that a lot cannot meet a U.S. grade if the average soluble solids is less than 6.5 percent, unless otherwise specified. \*\*\*\*

Shape: In describing the shape of kiwifruit, the following terms (21)  
shall be used:

Well Formed: This is a requirement of U.S. Fancy and means that the kiwifruit has the shape characteristic of the variety and slight bumps or other roughness is permitted providing it does not detract from the appearance. An official kiwifruit model illustrating well formed has been issued to various shipping point and terminal market offices.



Fairly Well Formed: This is a requirement of U.S. No. 1 grade and means that the kiwifruit has the shape characteristic of the variety. Slight bumps and other roughness is permitted if it does not materially detract from the appearance.

An official kiwifruit model illustrating fairly well formed has been issued to various shipping point and terminal market offices. Fruit that are thinner on the flat side than this model are considered "not badly misshapen."

Not Badly Misshapen: This is a requirement of U.S. No. 2 grade and means that the kiwifruit is not so decidedly deformed that its appearance is seriously affected.

A "flat" fruit is considered a U.S. No. 2. A "flat" is defined as the width being not more than the height and one side of the kiwifruit being flat. When the width exceeds the height, the fruit is "badly misshapen."

Badly misshapen: This means that the kiwifruit is so decidedly deformed that its appearance is seriously affected and the kiwifruit is considered a cull.

- (22) Cleanness: In describing the cleanness of kiwifruit the following terms shall be used:

Clean: This is a requirement of U.S. Fancy and U.S. No. 1 grade and means that the kiwifruit is practically free from dirt, dust or other foreign material.

Fairly clean: This is a requirement of U.S. No. 2 grade and means that the kiwifruit is reasonably free from dirt or other foreign material.

Dirty: This term is not defined in the grade standards. It shall be used to describe fruit that does not meet the requirements of fairly clean.

Other Defects:

- (23) Leaf or Limbrubs: These marks are produced by fruit rubbing against limbs or leaves of a vine.

Score against U.S. Fancy when:

not smooth;

not light colored; or,

aggregating more than the area of a circle

3/8 inch (9.5 mm) in diameter.

Score against U.S. No. 1 when:

not smooth;  
not light colored; or,  
aggregating more than the area of a circle  
1/2 inch (12.7 mm) in diameter.

Score against U.S. No. 2 when:

smooth and light colored;  
aggregating more than the area of a circle 1-1/2 inches  
(38.1 mm) in diameter; or,  
dark or slightly rough and bark-like scars aggregating  
more than the area of a circle 3/4 inch (19.1 mm)  
in diameter.

Hail Injury: All grades require that fruit be free from "broken skins (24)  
which are not healed," which includes those caused by hail. Healed  
hail marks are scored against each grade when the marks are deep or  
exceed the aggregate area specified. As a guide, deep hail marks  
should be scored against U.S. Fancy and U.S. No. 1 when the depth is  
greater than 1/8 inch, and against U.S. No. 2 when the depth is greater  
than 3/16 inch. Keep in mind that this guide is based on a fruit 2  
inches in diameter or smaller.

Score against U.S. Fancy when:

unhealed; or, deep; or, healed and  
aggregating more than the area of a circle  
1/16 inch (1.6 mm) in diameter.

Score against U.S. No. 1 when:

unhealed; or, deep; or, healed and  
aggregating more than the area of a circle  
1/4 inch (6.4 mm) in diameter.

Score against U.S. No. 2 when:

unhealed; or, deep; or, healed and  
aggregating more than the area of a circle  
1/2 (12.7 mm) in diameter.

- (25) Growth Cracks: These cracks detract from the appearance of the fruit,  
and when unhealed are an entrance for mold and decay.

Score against U.S. Fancy when:

not healed; or, when healed and exceeding the following:  
more than one in number; or,  
more than 1/8 inch (3.2 mm) in length or depth.

Score against U.S. No. 1 when:

not healed; or, when healed and exceeding the following:  
more than one in number;  
more than 1/8 inch (3.2 mm) in depth;  
more than 3/8 inch (9.5 mm) in length if within  
the stem cavity; or,  
more than 1/4 inch (6.4 mm) in length if  
outside the stem cavity.

Score against U.S. No. 2 when:

not healed and more than 1/8 inch (3.2) in length or depth; or,  
healed and more than 3/16 inch (4.8 mm) in depth;  
healed and aggregating more than 5/8 inch (15.9 mm)  
in length if within the stem cavity; or,  
healed and aggregating more than 1/2 inch (12.7 mm)  
in length if outside of the stem cavity.

Scab: This defect is scored on the basis of area and whether (26)  
cracked.

Score against U.S. Fancy when:

cracked; or,  
aggregate area exceeds that of a circle 1/8 inch  
(3.2 mm) in diameter.

Score against U.S. No. 1 when:

cracked; or,  
aggregate area exceeds that of a circle 1/4 inch  
(6.4 mm) in diameter.

Score against U.S. No. 2 when:

aggregate area exceeds that of a circle 1/2 inch  
(12.7 mm) in diameter.

(27) Scars: This defect is scored on the basis of color, degree of roughness, depth and area.

	<u>Injury</u>	<u>Damage</u>	<u>Serious Damage</u>
Not smooth	*	*	
Surface of fruit is depressed:			
More than 1/32 inch (.8 mm)	*		
More than 1/16 inch (1.6 mm)		*	
More than 3/16 inch (4.8 mm)			*
Not light in color	*		

Exceeding any of the following areas, or a combination of two or more types of scars, the seriousness of which exceeds the maximum allowed for any one type:

Dark or rough scars area exceeds that of a circle:

1/8 inch (3.2 mm) in diameter	*		
1/4 inch (6.4 mm) in diameter		*	
3/4 inch (19.1 mm) in diameter			*

Fairly light colored, fairly smooth scars, area exceeds that of a circle:

1/4 inch (6.4 mm) in diameter	*		
1/2 inch (12.7 mm) in diameter		*	

	<u>Injury</u>	<u>Damage</u>	<u>Serious</u> <u>Damage</u>
Light colored, smooth scars area exceeds that of a circle:			
1/2 inch (12.7 mm) in diameter *			
3/4 inch (19.1 mm) in diameter		*	
Not dark or rough, when the area exceeds one-fourth of fruit surface.			*

Heat Injury, Sprayburn and Sunburn: This group of defects is scored on (28) the basis of color, area, depth and appearance of skin.

Score against U.S. Fancy when:

normal color of the skin or flesh is more than slightly changed; or,  
any indentation is present.

Score against U.S. No. 1 when:

skin is blistered, cracked or decidedly flattened;  
normal color of the skin or flesh has materially changed;  
more than one indentation; or,  
indentation exceeds 3/16 inch (4.8 mm) in diameter.

Score against U.S. No. 2 when:

skin is blistered, cracked or decidedly flattened;  
causing any dark discoloration of the flesh;  
more than two indentations are present;  
aggregate area of indentations exceeds that of a  
circle 3/8 inch (9.5 mm) in diameter; or,  
causing a noticeable brownish or darker  
discoloration over more than one-fourth of surface.

- (29) Scale or Scale Marks: These defects are scored on the basis of number of scales or scale marks or area. The scale insect is a grayish or grayish brown color, less than 1/16 inch in diameter. It must be remembered that spots suggesting the presence of scale may also be caused by other factors.

Score against U.S. Fancy when:

more than one large scale or scale mark; or,  
more than three scales or scale marks of any size are present.

Score against U.S. No. 1 when:

aggregate area exceeds that of a circle 1/4 inch (6.4mm) in  
diameter.

Score against U.S. No. 2 when:

aggregate area exceeds that of a circle 3/8 inch (9.5mm) in  
diameter.

Insects:

(30)

Score against U.S. No. 1 Fancy when:

feeding injury is evident on fruit or any insect is present in fruit.

Score against U.S. No. 1 when:

feeding injury materially detracts from appearance or any insect is present in fruit.

Score against U.S. No. 2 when:

feeding injury seriously detracts from appearance or any insect is present in fruit.

Sunscald: This is a free from defect in all of the grades. It is caused by intense heat and is more severe than sunburn. It always shows evidence on the skin, and the flesh is soft, collapsed or broken down. Sunscald is always scored against the restricted tolerance for serious damage.

(31)

In addition to the above defects specifically outlined in the U.S. grade standards, the following defects shall be scored as injury, damage, or serious damage according to the guides given:

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- (32) **Sloping or Drop Shoulder:** This defect is thought to be caused by poor pollination. One shoulder of the fruit drops away from the perpendicular line running through the center of the fruit from the stem to calyx end, causing an obvious slope from one shoulder to the opposite shoulder. This should be scored against the U.S. Fancy grade when the deviation from the perpendicular line is more than ten degrees (10°); against U.S. No. 1 when more than fifteen degrees (15°); and against U.S. No. 2 when more than twenty-five degrees (25°) (See illustration on page 39).

\*\*\*\*

- (33) **Alligator skin:** Alligator skin usually occurs in a checkered pattern on the stem end of the fruit as smooth to slightly rough, light scarring. It may also occur as concentric rings around the stem. It should be scored as follows:

**Score against U.S. Fancy when:** A checking pattern causes a noticeable change in appearance affecting more than 1/2" diameter circle aggregate area occurring outside a 1-1/4" diameter circle centered around the stem/stem scar.

**Score against U.S. No. 1 when:** A checking pattern causes a noticeable change in appearance affecting more than 10 percent aggregate surface area occurring outside a 1-1/4" diameter circle centered around the stem/stem scar.

**Score against U.S. No. 2 when:** A checking pattern causes a noticeable change in appearance affecting more than 20 percent aggregate surface area occurring outside a 1-1/4" diameter circle centered around the stem/stem scar.

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Hayward Mark: This is a genetic defect of the Hayward variety appearing as scars running longitudinally part way to the full length of the fruit. The scars often end in a raised warty protrusion that may vary in size and length. The marks may also develop as a longitudinal furrow instead of a scar.

(34)

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Hayward mark should be scored against U.S. Fancy, U.S. No. 1, or U.S. No. 2 when the following conditions occur:

U.S. Fancy: When any mark or marks are readily apparent and aggregate more than the length of one mark extending  $2/3$  the length of the fruit surface; or when any mark is not shallow; or when any mark has a raised warty protrusion.

U.S. No. 1: When any mark or marks are readily apparent and aggregate more than the length of one mark extending the length of the fruit surface; or when any mark is more than  $1/16$  inch in depth; or when any mark has a raised warty protrusion more than  $1/8$  inch in length.

U.S. No. 2: When any mark or marks are readily apparent and aggregate more than twice the length of the fruit surface; or when any mark is more than  $3/16$  inch in depth; or when any mark has a raised warty protrusion more than  $3/16$  inch in depth.\*\*\*\*

CONDITION

The following should be reported under this heading:

Firmness.

(35)

Condition defects.

Decay.

Firmness: In determining firmness, the fruit shall be placed in the palm of the hand and pressure exerted uniformly with the inside of all the fingers. Never squeeze a fruit between the thumb and fingertips to determine firmness.

(36)

The following terms should be used in reporting firmness:

Hard: The flesh of the kiwifruit is solid and does not yield appreciably even to considerable pressure.

Firm: The flesh of the kiwifruit is fairly solid but yields somewhat to moderate pressure.

Firm ripe: The flesh of the kiwifruit yields readily to moderate pressure.

Ripe: The flesh of the kiwifruit yields readily to slight pressure and is in the most desirable stage for eating.

Soft: This is the final stage of maturity before complete deterioration. Soft fruit is scored as serious damage in all the grades. Ripe fruit showing damage or serious damage by soft bruises is to be scored as bruised and not as soft.

(37) Pressure test: In addition to reporting firmness using these terms, inspectors may be requested to perform a pressure test on the lot. The applicant will use the results to determine storage time and shelf life. Inspectors should not speculate on what the results may indicate. The following procedure shall be used:

1. Select a random blind sample of 15 representative fruit from each lot to be tested.

2. Using a peeling knife (potato peeler), remove the peel only from two areas that are on opposite sides and halfway between the stem and blossom end of each fruit to be tested. Do not remove more than the peel. The removal of a large amount of flesh by making a deep cut when peeling can result on an inaccurate test.
3. Make and record a test in each of the areas peeled (two on each fruit) using a pressure tester fitted with a 5/16 inch head.
4. Show the range and average of all tests (30 total) on the certificate and note under "Remarks" that this test was done at the request of the applicant.

#### DEFECTS

Bruising: This is usually caused by careless or rough handling, (38)  
packing too tightly, too high, or too loosely in the container. The description of bruising on the certificate should include the location in the container and load, degree of firmness of the affected fruit, and as to whether they cause injury, damage or serious damage.

#### Score against U.S. Fancy when:

any slight indentation of the fruit or discoloration  
of the flesh extends more than 1/16 inch (1/6 mm) in depth.

Score against U.S. No. 1 when:

surface of fruit is indented and discoloration of the flesh extends deeper than 1/8 inch (3.2 mm); causing slight discoloration exceeding the area of a circle 3/8 inch (9.5 mm) in diameter, or, an aggregate area of a circle 3/8 inch (9.5 mm) in diameter of lesser bruises which materially detract from the appearance, edible, or shipping quality.

Score against U.S. No. 2 when:

surface of fruit is indented and discoloration of the flesh extends deeper than 1/4 inch (6.4 mm); or, causing discoloration exceeding the area of a circle 1/2 inch (12.7 mm) in diameter, or lesser bruises which seriously detract from the appearance, edible, or shipping quality.

- (39) Discoloration: Black or brown discoloration frequently results from fruit rubbing against each other in the container or against the container. It also may be caused by fruit rubbing against the belts of the sizing machines or sorting tables or excessive vibration at time of packing.

Score against U.S. Fancy when:

color and pattern causes a distinct noticeable appearance (except for water staining) affecting more than 5 percent of surface.

Score against U.S. No. 1 when:

color and pattern causes an unattractive appearance (except for water staining) affecting more than 10 percent of surface.

Score against U.S. No. 2 when:

color and pattern causes a distinct unattractive appearance (except for water staining) affecting more than 25 percent of surface.

Discoloration caused by water staining is not scorable in any of the grades. It is the result of overhead irrigation or early morning dew and occurs as light and uniformly colored streaks on the upper portion of the fruit. Inspectors should refer to visual aid KWI-1-IDENT for identification of discoloration caused by water staining.

Shriveling: Shriveling results from the evaporation of moisture from (40) the surface of the fruit and generally occurs around the stem end. Fruit that has been freshly picked will seldom show shriveling, but fruit removed from storage may show a slight to moderate amount of shriveling around the stem. This may occasionally extend over the shoulders. This type of shriveling is caused by dehydration while the fruit is in storage.

Shriveling should be scored according to the following guides:

U.S. Fancy: When shriveling exceeds five percent of the surface.

U.S. No. 1: When shriveling exceeds ten percent of the surface.

U.S. No. 2: When shriveling exceeds 20 percent of the surface, provided the affected areas are not soft or discolored.

All scorable shriveling in the U.S. Fancy and U.S. No. 1 grades should be scored against the serious damage tolerance.

- (41) Sunken Areas or Pitted Areas: This defect is a result of moisture loss and may occur on fruit that has been in storage for an extended time. It appears as numerous, small, sunken areas or as a single, fairly large, sunken area. Affected fruits are scored under the general definitions of injury, damage, and serious damage. However, the following area guidelines, based on a fruit two inches in diameter or smaller, should be followed. Allow a correspondingly greater aggregate area for larger fruit.

U.S. Fancy: When an area or aggregate areas exceed a circle  $3/8$  inch (9.5mm) in diameter.

U.S. No. 1: When an area or aggregate areas exceed a circle  $1/2$  inch (12.7mm) in diameter.

U.S. No. 2: When an area or aggregate areas exceed a circle  $5/8$  inch (15.9mm) in diameter.

Freezing or Freezing Injury: Freezing or freezing injury occurs under (42) such a variety of conditions that they are among the most difficult factors to accurately describe on the inspection certificate. This injury, if of noticeable extent, detracts greatly from the commercial value of the lot and should be carefully reported.

When reporting freezing or freezing injury, several points are essential. They are as follows:

1. Record pulp temperatures taken in various locations.
2. Extent of injury in load.
3. Extent of injury in containers.
4. Degree to which individual specimens are affected.
5. Describe the pattern of freezing or freezing injury in clear and concise terms.

For further information, the general policy as outlined in the General Market Inspection Instructions should be followed.

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- (43) **Surface Mold:** Fruits that are in storage may sometimes develop a slight to moderate growth of surface mold. The mold seldom extends into the flesh, but it results in a serious marketing problem because it detracts from the appearance of the affected fruit. Inspectors should score surface mold against the U.S. Fancy grade when its color and pattern causes it to be distinctly noticeable over more than 5 percent of the fruit surface. A visual aid (KWI-CP-5) illustrates the amount of surface mold allowed in the U.S. No. 1 and U.S. No. 2 grades. When the mold detracts from the appearance more than that illustrated, it is considered scoreable. Surface mold is scored against the general lot tolerance in each of the grades. \*\*\*\*

- (44) **Decay:** Decay is always considered a condition factor and should be identified by name or accurately described on the certificate. The following paragraphs describe the types of decays that can affect kiwifruit.

Gray Mold Rot (*Botrytis cinerea*): This is the most prevalent decay affecting kiwifruit. The first indication of an infection is the appearance of tiny tufts of white mycelium growing throughout the fruit skin. The flesh in the affected area is very soft, and in advanced stages may be nearly liquefied.

The white mycelium is capable of growing and spreading to adjacent fruits, causing a "nest" of decay. This is the usual mode of spreading in storage. In later stages, the mycelium may change from a white to a pronounced gray color.

Alternaria Rot: Alternaria produces a hard, dry rot and is most often found on sunburned fruit. It is seldom seen in marketing channels because nearly all sunburned fruit is eliminated during the sorting and packing process.

Phomopsis Stem End Rot: Stem End Rot typically occurs at the stem end of the fruit, where wetness often results from exuding juice. A secondary invasion of yeast may cause frothing of the juice and will attract vinegar flies. The flesh in the affected area may become very soft.

Blue Mold Rot: This rot occasionally affects previously injured fruit. It develops slowly and is readily recognized by blue-green growth.

#### GRADE

Refer to General Market Inspection Instructions. Under this heading (45) should be a statement showing whether or not the lot(s) inspected meets the requirements of the grade or other specifications on which the application was based, percentage of U.S. No. 1 Quality, or the grade marked on the containers.

When the load inspected consists of different lots, some of which are up to grade and some which fail to meet the grade requirements, it will be necessary to make separate statements for the different lots. In all such cases, indicate grade on each lot and avoid grade statements that are indefinite or that tend to contradict what has been reported under the previous headings on the certificate. Remember that the grade statement is an interpretation of the facts previously given.

REMARKS

(46) Refer to General Market Inspection Instructions. Under this heading any explanatory or qualifying statements that are necessary to complete the certificate should be made under this heading. They may pertain to one or more of the following:

1. Restrictions to load, size or weight.
2. Information furnished by the applicant such as, carrier number, lot number, designations, etc.
3. Cross reference to another certificate number such as, carrier number, lot number, designations, etc.
4. Percentage of U.S. No. 1 or U.S. No. 2 Quality.
5. Contract specifications.
6. Factors not affecting grade reported at applicant's request.

GENERAL EXAMPLES

**Products Inspected:** Kiwifruit in trays labeled "Rosy Brand, United Packing Co., Fresno, CA." and stamped "Hayward" and to denote count (38 and 40). (47)  
Applicant states 3,600 flats.

**Condition of Load and Containers:** Through palletized load. 2 pallets wide, 3 rows, 25 layers. Lengthwise per pallet.

**Condition of Pack:** Tight in molds. Film lined. Pad under lid.

**Temperature of Product:** At rear doors: Top layer 34 , bottom layer 35 F.

**Size:** Fairly uniform.

**Quality:** Mature, clean, fairly well formed. Grade defects within tolerance. Average 6.0% solids.

**Condition:** Mostly firm, some firm ripe. Average 2% damage by bruising scattered throughout pack. No decay.

**Grade:** U.S. No. 1., 6.0% soluble solids.

**Remarks:** Inspection and certificate restricted to product and lading in upper 6 layers of 6 pallets nearest rear door. Applicant furnished labor to make load accessible for inspection and requested inspection on basis of 6.0% soluble solids.

**Products Inspected:** Kiwifruit in trays labeled "Kiwi, Blue Anchor, Inc., California" and stamped "Hayward" and to denote count (25, 28, 38, and 40 noted).  
Applicant states 3,450 flats.

**Condition of Load and containers:** Through palletized load. 2 pallets wide, 3 rows, 23 to 25 layers. Lengthwise per pallet.

**Condition of Pack:** Tight in molds. Film lined. Pad under cover.

**Temperature of Product:** At rear doors: Top layer 33 , bottom 34 F.

**Size:** Fairly uniform.

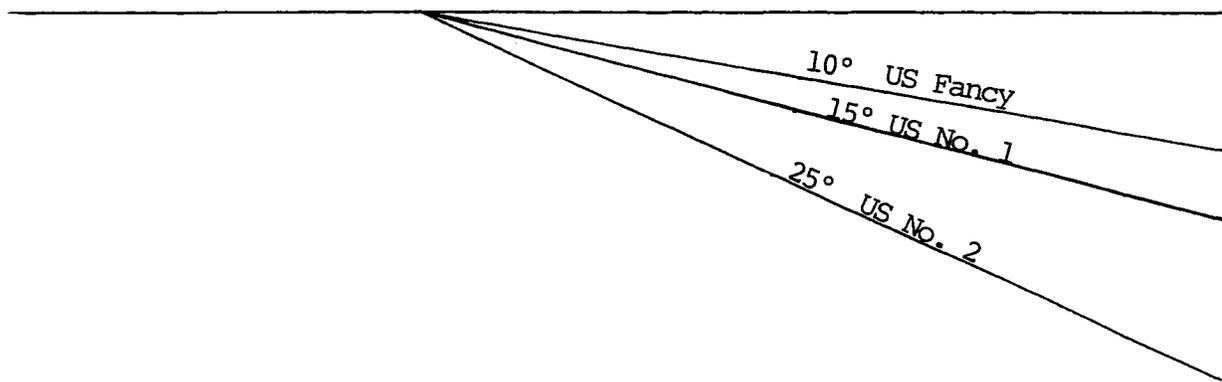
**Quality:** Mature, clean, generally fairly well formed. Grade defects average 6% consisting of scars and misshapen. Average 6.7% soluble solids.

**Condition:** Mostly firm, many firm ripe. From 4 to 15% average 8% soft. No decay.

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

**Remarks:** Inspection and certificate restricted to product and lading in upper 10 layers of 8 pallets nearest rear door being unloaded at time of inspection.

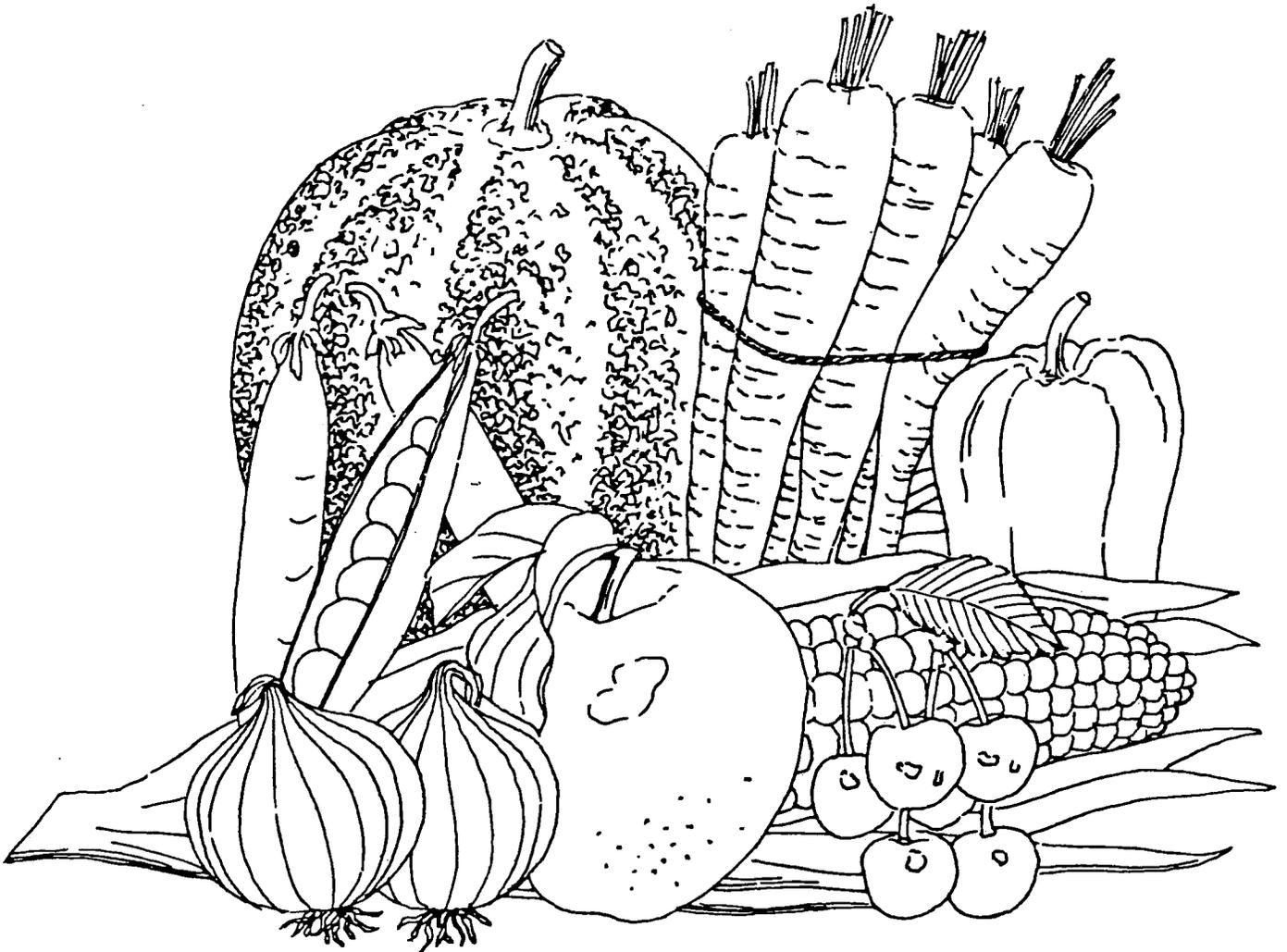
Sloping or Drop Shoulder





# Appendix I

## United States Standards





UNITED STATES STANDARDS FOR GRADES OF  
KIWIFRUIT<sup>1</sup>

Effective October 15, 1986

- Sec.  
51.2335 Grades.  
51.2336 Tolerances.  
51.2337 Application of tolerances.  
51.2338 Standard pack.  
51.2339 Definitions.  
51.2340 Classification of defects.  
51.2341 Sample size for grade determination.
- § 51.2335 Grades.
- (a) "U.S. Fancy" consists of kiwifruit which meet the following requirements:
- (1) Basic Requirements:
- (i) Similar varietal characteristics;  
(ii) Mature;  
(iii) Not soft, overripe, or shriveled;  
(iv) Carefully packed;  
(v) Clean; and,  
(vi) Well formed.
- (2) Free From:
- (i) Worm holes;  
(ii) Broken skins which are not healed;  
(iii) Sunscald;  
(iv) Freezing injury;  
(v) Internal breakdown; and,  
(vi) Decay.
- (3) Free From Injury By:
- (i) Bruises;  
(ii) Leaf or limbrubs;  
(iii) Discoloration;  
(iv) Hail;  
(v) Growth cracks;  
(vi) Scab;
- (vii) Scars;  
(viii) Heat, sprayburn, or sunburn;  
(ix) Scale;  
(x) Insects;  
(xi) Other diseases; and,  
(xii) Mechanical or other means.
- (4) Tolerances. (See § 51.2336)
- (b) "U.S. No. 1" consists of kiwifruit which meet the following requirements:
- (1) Basic Requirements:
- (i) Similar varietal characteristics;  
(ii) Mature;  
(iii) Not soft, overripe, or shriveled;  
(iv) Carefully packed;  
(v) Clean; and,  
(vi) Fairly well formed.
- (2) Free From:
- (i) Worm holes;  
(ii) Broken skins which are not healed;  
(iii) Sunscald;  
(iv) Freezing injury;  
(v) Internal breakdown; and,  
(vi) Decay.
- (3) Free From Damage By:
- (i) Bruises;  
(ii) Leaf or limbrubs;  
(iii) Discoloration;  
(iv) Hail;  
(v) Growth cracks;  
(vi) Scab;  
(vii) Scars;  
(viii) Heat, sprayburn, or sunburn;  
(ix) Scale;  
(x) Insects;  
(xi) Other diseases; and,  
(xii) Mechanical or other means.
- (4) Tolerances. (See § 51.2336)
- (c) "U.S. No. 2" consists of kiwifruit which meet the following requirements:

<sup>1</sup> Compliance with the provisions of these standards shall not excuse failure to comply with provisions of applicable Federal or State laws.

- (1) Basic Requirements:
  - (i) Similar varietal characteristics;
  - (ii) Mature;
  - (iii) Not soft, overripe, or shriveled;
  - (iv) Carefully packed;
  - (v) Fairly clean; and,
  - (vi) Not badly misshapen.
- (2) Free From:
  - (i) Worm holes;
  - (ii) Broken skins which are not healed;
  - (iii) Sunscald;
  - (iv) Freezing injury;
  - (v) Internal breakdown; and,
  - (vi) Decay.
- (3) Free From Serious Damage By:
  - (i) Bruises;
  - (ii) Leaf or limb rubs;
  - (iii) Discoloration;
  - (iv) Hail;
  - (v) Growth cracks;
  - (vi) Scab;
  - (vii) Scars;
  - (viii) Heat, sprayburn, or sunburn;
  - (ix) Scale;
  - (x) Insects;
  - (xi) Other diseases; and,
  - (xii) Mechanical or other means.
- (4) Tolerances. (See § 51.2336)

#### § 51.2336 Tolerances.

In order to allow for variations incident to proper grading and handling, the following tolerances by count, shall be permitted in any lot:

- (a) U.S. Fancy and U.S. No. 1.

(1) For defects at shipping point.<sup>2</sup> 8 percent for fruit which fail to meet the requirements of the specified grade: *Provided*, That included in this amount not more than 4 percent shall be allowed for defects causing serious damage, including in this latter amount not more than 1 percent for fruit affected by internal breakdown or decay.

(2) For defects en route or at destination. 12 percent for fruit which fail to meet the requirements of the specified grade: *Provided*, That included in this amount not more than the

following percentages shall be allowed for defects:

- (i) 8 percent for permanent defects;
- (ii) 6 percent for defects causing serious damage, including therein not more than 4 percent for serious damage by permanent defects and not more than 2 percent for fruit affected by internal breakdown or decay.

- (b) U.S. No. 2

(1) For defects at shipping point.<sup>2</sup> 8 percent for fruit which fail to meet the requirements of this grade: *Provided*, That included in this amount not more than 4 percent shall be allowed for sunscald, insects, internal breakdown or decay, including in this latter amount not more than 1 percent for fruit affected by internal breakdown or decay.

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

- (i) 8 percent for permanent defects including therein not more than 4 percent for sunscald, or insects; and,
- (ii) 2 percent for internal breakdown or decay.

#### § 51.2337 Application of Tolerances.

The contents of individual containers in a lot, based on sample inspection, are subject to the following limitations:

(a) Individual samples shall not have more than double a specified tolerance except that at least two defective specimens may be permitted in any container: *Provided*, That not more than one fruit which is frozen or affected by decay be permitted in any container 3 pounds or less; and, *Provided further*, That the averages for the entire lot are within the tolerances specified for the grade.

#### § 51.2338 Standard pack.

(a) Fruit shall be fairly uniform in size and shall be packed in boxes, flats, lugs, or cartons and arranged according to approved and recognized methods. Containers shall be well filled; contents tightly packed but not be excessively or unnecessarily bruised by overfilling or oversizing. Fruit in the shown face of the

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

container shall be reasonably representative in size and quality of the contents.

(b) When packed in closed containers the size shall be indicated by marking the container with the numerical count.

(c) Boxes, flats, lugs, or cartons:

(1) Fruit packed in containers with cell compartments, cardboard fillers or molded trays shall be of proper size for the cells, fillers, or molds in which they are packed, and conform to the marked count.

(2) In order to allow for variations incident to proper packing in other types of containers, for example, lugs, cartons, or boxes, the number of fruit shall not vary more than two from the marked count.

(d) "Fairly uniform in size" means that fruit in containers marked numerically to denote size may not vary in diameter more than  $\frac{1}{2}$  inch (12.7mm) in sizes 30 or larger;  $\frac{3}{8}$  inch (9.5mm) in sizes 31 through 38; and  $\frac{1}{4}$  inch (6.4mm) in sizes 39 or smaller. Not more than 5 percent, by count, of the fruit in any container may exceed the diameter range specified.

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

(f) In order to allow for variations incident to proper sizing and packing, not more than 10 percent, by count, of containers in any lot may fail to meet these requirements.

#### § 51.2339 Definitions.

"Similar varietal characteristics" means the fruit in any lot and container are similar in shape, color of skin and flesh.

"Mature" means the fruit has reached the stage of development which will ensure the proper completion of the ripening process. The minimum average soluble solids, unless otherwise specified, shall be not less than 6.5 percent.

"Clean" means the fruit is practically free from dirt, dust, or other foreign material.

"Fairly clean" means the fruit is reasonably free from dirt, dust, or other foreign material.

"Well formed" means the fruit has the shape characteristic of the variety and slight bumps or other roughness are permitted providing they do not detract from the appearance.

"Fairly well formed" means the fruit has the shape characteristic of the variety but slight bumps or other roughness are permitted providing they do not materially detract from appearance.

"Badly misshapen" means the fruit is so decidedly deformed that its appearance is seriously affected.

"Carefully packed" means the fruit shows no evidence of rough handling.

"Injury" means any defect described in § 51.2340, or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which more than slightly detracts from the appearance, or the edible or marketing quality.

"Damage" means any defect described in § 51.2340 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.

"Serious damage" means any defect described in § 51.2340 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.

"Permanent defects" means those which are not subject to change during shipment or storage, for example, shape, scars, or growth cracks.

"Condition defects" means those defects which are subject to change during shipment or storage, for example, decay, soft, shriveling, discoloration, or bruises.

§ 51.2340 Classification of defects.

Defects	Injury	Damage	Serious damage
Bruises.....	When any slight indentation of the flesh extends more than $\frac{1}{16}$ inch (1.6 mm) in depth.	When surface of fruit is indented and discoloration of the flesh extends deeper than $\frac{1}{8}$ inch (3.2 mm), or causing slight discoloration exceeding the area of a circle $\frac{1}{8}$ inch (9.5 mm) in diameter, or lesser bruises aggregating an area of a circle $\frac{3}{8}$ inch (9.5 mm) in diameter which materially detract from the appearance, edible or shipping quality.	When surface of the fruit is indented and discoloration of the flesh extends deeper than $\frac{1}{8}$ inch (6.4 mm), or causing discoloration exceeding the area of a circle $\frac{1}{4}$ inch (12.7 mm) in diameter, or lesser bruises which seriously detract from the appearance, edible or shipping quality.
Leaf or Limbrubs.....	When not smooth, or not light colored, or aggregating more than the area of a circle $\frac{3}{8}$ inch (9.5 mm) in diameter.	When not smooth, or not light colored, or aggregating more than the area of a circle $\frac{1}{2}$ inch (12.7 mm) in diameter.	When smooth and light colored and aggregating more than the area of a circle $1\frac{1}{2}$ inches (38.1 mm) in diameter, or dark or slightly rough and barklike scars aggregating more than the area of a circle $\frac{1}{4}$ inch (19.1 mm) in diameter.
Discoloration.....	When color and pattern causes a distinct noticeable appearance (except for water staining) affecting more than 5% of surface.	When color and pattern causes an unattractive appearance (except for water staining) affecting more than 10% of surface.	When color and pattern causes a distinct unattractive appearance (except for water staining) affecting more than 25% of surface.
Hail Injury.....	When unhealed or deep, or aggregating more than the area of a circle $\frac{1}{8}$ inch (1.6 mm) in diameter.	When unhealed or deep, or aggregating more than the area of a circle $\frac{1}{4}$ inch (6.4 mm) in diameter.	When unhealed or deep, or aggregating more than the area of a circle $\frac{1}{4}$ inch (12.7 mm) in diameter.
Growth Cracks.....	When not healed, or more than one in number, or more than $\frac{1}{8}$ inch (3.2 mm) in length or depth.	When not healed, or more than one in number, or more than $\frac{1}{4}$ inch (3.2 mm) in depth, or more than $\frac{1}{8}$ inch (9.5 mm) in length if within the stem cavity, or more than $\frac{1}{4}$ inch (6.4 mm) in length if outside the stem cavity.	When not healed and more than $\frac{1}{8}$ inch (3.2 mm) in length or depth, or healed and more than $\frac{1}{8}$ inch (4.8 mm) in depth, or healed and aggregating more than $\frac{1}{4}$ inch (15.9 mm) in length if within the stem cavity, or healed and aggregating more than $\frac{1}{4}$ inch (12.7 mm) in length if outside the stem cavity.
Scab.....	When cracked, or the aggregate area exceeds that of a circle $\frac{1}{8}$ inch (3.2 mm) in diameter.	When cracked, or the aggregate area exceeds that of a circle $\frac{1}{4}$ inch (6.4 mm) in diameter.	When the surface of the fruit is depressed more than $\frac{1}{16}$ inch (4.8 mm), or when exceeding any of the following aggregate areas, or a combination of two or more types of scars, the seriousness of which exceeds the maximum allowed for any one type: (1) Dark or rough scars when the area exceeds that of a circle $\frac{1}{8}$ inch (3.2 mm) in diameter; (2) Fairly light colored, fairly smooth scars when the area exceeds that of a circle $\frac{1}{4}$ inch (6.4 mm) in diameter; (3) Light colored, smooth scars when the area exceeds that of a circle $\frac{1}{2}$ inch (12.7 mm) in diameter.
Scars.....	When not smooth, or surface of the fruit is depressed when exceeding any of the following aggregate areas, or a combination of two or more types of scars, the seriousness of which exceeds the maximum allowed for any one type: (1) Dark or rough scars when the area exceeds that of a circle $\frac{1}{8}$ inch (3.2 mm) in diameter; (2) Fairly light colored, fairly smooth scars when the area exceeds that of a circle $\frac{1}{4}$ inch (6.4 mm) in diameter; (3) Light colored, smooth scars when the area exceeds that of a circle $\frac{1}{2}$ inch (12.7 mm) in diameter.	When not smooth, or surface of the fruit is depressed more than $\frac{1}{16}$ inch (1.6 mm), or when exceeding any of the following aggregate areas, or a combination of two or more types of scars, the seriousness of which exceeds the maximum allowed for any one type: (1) Dark or rough scars when the area exceeds that of a circle $\frac{1}{8}$ inch (6.4 mm) in diameter; (2) Fairly light colored, fairly smooth scars when the area exceeds that of a circle $\frac{1}{4}$ inch (12.7 mm) in diameter; (3) Light colored, smooth scars when the area exceeds that of a circle $\frac{1}{2}$ inch (19.1 mm) in diameter.	When the surface of the fruit is depressed more than $\frac{1}{16}$ inch (4.8 mm), or when exceeding any of the following aggregate areas, or a combination of two or more types of scars, the seriousness of which exceeds the maximum allowed for any one type: (1) Dark or rough scars when the area exceeds that of a circle $\frac{1}{8}$ inch (19.1 mm) in diameter; (2) Not dark or rough when the area exceeds one-fourth of the fruit surface.

Defects	Injury	Damage	Serious damage
Heat, Sprayburn and Sunburn.	When the normal color of the skin or flesh is more than slightly changed, or any indentation is present.	When the skin is blistered, cracked or decidedly flattened, or the normal color of the skin or flesh has materially changed, or more than one indentation, or indentation exceeds $\frac{3}{16}$ inch (4.8 mm) in diameter.	When the skin is blistered, cracked or decidedly flattened, or causing any dark discoloration of the flesh, or more than two indentations are present, or the aggregate area of indentations exceeds that of a circle $\frac{3}{16}$ inch (9.5 mm) in diameter, or when causing a noticeable brownish or darker discoloration over more than one-fourth of surface.
Scale or Scale Marks.	When more than one large scale or scale mark or more than three scales or scale marks of any size are present.	When the aggregate area exceeds that of a circle $\frac{3}{16}$ inch (6.4 mm) in diameter.	When the aggregate area exceeds that of a circle $\frac{3}{16}$ inch (9.5 mm) in diameter.
Insects.....	When feeding injury is evident on fruit or any insect is present in fruit.	When feeding injury materially detracts from appearance or any insect is present in fruit.	When feeding injury seriously detracts from appearance or any insect is present in fruit.

Classification of defects guidelines are based on fruit 2 inches or smaller in diameter. Accordingly, larger fruit are permitted to have defects relative to their size.

**§ 51.2341 Sample size for grade determination.**

For fruit place-packed in tray pack containers, the sample shall consist of the contents of the individual container. For fruit jumble-packed in volume filled containers, the sample shall consist of at least 50 fruit. When individual containers contain at least 50 fruit, each individual sample is drawn from one container. When individual containers contain less than 50 fruit, a sufficient number of adjoining containers are opened to form a 50 fruit sample.

METRIC EQUIVALENCY TABLE

Inches	Millimeters
1/32.....	.8
1/16.....	1.6
1/8.....	3.2
3/16.....	4.8
1/4.....	6.4
3/8.....	9.5
1/2.....	12.7
5/8.....	15.9
3/4.....	19.1
1.....	25.4
1-1/4.....	31.8
1-1/2.....	38.1
1-3/4.....	44.5
2.....	50.8
2-1/4.....	57.2
2-1/2.....	63.5
2-3/4.....	69.9
3.....	76.2

Authority: Secs. 203, 205, 60 Stat. 1087, as amended, 1090 as amended, 7 U.S.C. 1622, 1624.

Done in Washington, D.C., on October 8, 1986.

James C. Handley,  
*Administrator.*

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