



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Division**

**Fresh  
Products  
Branch**

# **United States Standards for Grades of Kiwifruit**

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

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### **§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 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,

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

- (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 limbbruises;
    - (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:
  - (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

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<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.

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 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 1/2 inch (12.7mm) in sizes 30 or larger; 3/8 inch (9.5mm) in sizes 31 through 38; and 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 fruit or discoloration of the flesh extends more than 1/16 inch (1.6 mm) in depth.	When surface of fruit is indented and discoloration of the flesh extends deeper than 1/8 inch (3.2 mm), or causing slight discoloration exceeding the area of a circle 3/8 inch (9.5 mm) in diameter, or lesser bruises aggregating an area of a circle 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 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.
Leaf or Limbrubs	When not smooth, or not light colored, or aggregating more than the area of a circle 3/8 inch (9.5 mm) in diameter.	When not smooth, or not light colored, or aggregating more than the area of a circle 1/2 inch (12.7 mm) in diameter.	When smooth and light colored and aggregating more than the area of a circle 1-1/2 inches (38.1 mm) in diameter, or dark or slightly rough and barklike scars aggregating more than the area of a circle 3/4 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 1/16 inch (1.6 mm) in diameter.	When unhealed or deep, or aggregating more than the area of a circle 1/4 inch (6.4 mm) in diameter.	When unhealed or deep, or aggregating more than the area of a circle 1/2 inch (12.7 mm) in diameter.

Growth Cracks	When not healed, or more than one in number, or more than 1/8 inch (3.2 mm) in length or depth.	When not healed, or more than one in number, or more than 1/8 inch (3.2 mm) in depth, or 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.	When not healed and more than 1/8 inch (3.2 mm) in length or depth, or healed and more than 3/16 inch (4.8 mm) in depth, or 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 the stem cavity.
Scab.....	When cracked, or the aggregate area exceeds that of a circle 1/8 inch (3.2 mm) in diameter.	When cracked, or the aggregate area exceeds that of a circle 1/4 inch (6.4 mm) in diameter.	When the aggregate area exceeds that of a circle 1/2 inch (12.7 mm) in diameter.
Scars.....	When not smooth, or surface of the fruit is depressed more than 1/32 inch (.8 mm), or not light in color, 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 1/8 inch (3.2 mm) in diameter; (2) Fairly light colored, fairly smooth scars when the area exceeds that of a circle 1/4 inch (6.4 mm) in diameter; (3) Light colored, smooth scars when the area exceeds that of a circle 1/2 inch (12.7 mm) in diameter.	When not smooth, or surface of the fruit is depressed more than 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 1/4 inch (6.4 mm) in diameter; (2) Fairly light colored, fairly smooth scars when the area exceeds that of a circle 1/2 inch (12.7 mm) in diameter; (3) Light colored, smooth scars when the area exceeds that of a circle 3/4 inch (19.1 mm) in diameter.	When the surface of the fruit is depressed more than 3/16 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 3/4 inch (19.1 mm) in diameter; (2) Not dark or rough when the area exceeds one-fourth of the fruit surface.

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 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 3/8 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 1/4 inch (6.4 mm) in diameter.	When the aggregate area exceeds that of a circle 3/8 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

<b>Inches</b>	<b>Millimeters</b>
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