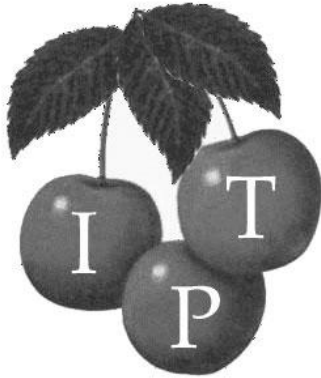


# International Produce Training

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Commodity Reference  
Manual

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## Commodity Reference Manual

**General:** This manual is designed for “on-the-job” use by federal, federal-state, or industry inspectors. It supplements, not replaces the applicable U.S. Grade Standards.

For each commodity, information pertaining to size, quality and condition is provided. Also given are the tolerances for the most commonly used grade(s) and assorted helpful hints, such as the average freezing point and storage requirements for each commodity. In the tolerance section the more important small package limitations (application of tolerances) are included.

The Good Delivery Tolerances are listed for most commodities. Good Delivery Tolerances can be changed on a seasonal basis, so these tolerances are only posted as a guide. Contact PACA for the most recent Good Delivery Tolerances if a dispute is involved.

Under the quality and condition sections, when a term is *italicized*, it is the minimum requirement for the U.S. No. 1 Grade.

Please contact International Produce Training ([www.ipt.us.com](http://www.ipt.us.com)) if you are interested in a holding a training class for your employees. Classes can be designed to meet your specific needs, at your location.

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## General Quantity Terms

Term	Percentage
Practically All	95 to 100%
Generally	90 to 100%
Most (Mostly)	55 to 89%
Approximately Half	46 to 54%
Many	26 to 45%
Some	11 to 25%
Few	1 to 10%
Occasionally	1 to 5%

## Sweet Anise

### Tolerances, by count:

1. For defects: 10% total, including 1% decay
2. For offsize: 10% for stalks failing to meet specified minimum diameter
3. Good Delivery: 15% total, including 3% decay.

### Size:

Size is a requirement of the grade. Show range of diameter in inches or fractions thereof. Unless otherwise specified, the minimum diameter of bulbs shall not be less than 2 inches. Length of stalks may be reported upon request.

### Quality:

1. Cleanness- clean, fairly clean. Score as "Damage by dirt" when caked on bulbous portion of stalk or when materially affecting the appearance of tops and stalks.
2. Trimming- *well trimmed*, poorly trimmed.
3. Blanching- *fairly well blanched* (bulbs are of light greenish to white color).
4. Quality defects:
  - a. Growth cracks- damage when more than 3 branches show one or more growth cracks.
  - b. Seedstems- damage when flower buds are plainly visible or when seedstems have been removed.
  - c. Mechanical damage- when more than 2 branches are cut or loose at base of bulb.

### Condition:

1. Firmness- *firm*, soft, wilted.
2. Freshness- not a requirement of the grade.
3. Color of Tops- green, light green, turning yellow, yellow.

4. Condition defects:
  - a. Freezing injury- damage when epidermis of branches is badly blistered, or when tops are brown or yellow and materially detracting from appearance, or, when combination of these factors materially damage appearance or shipping quality.
  - b. Insects- damage when alive and present in sufficient quantity to detract from appearance.
  - c. Discoloration- damage when bulbous portion shows extensive brown to dark brown areas or when tops are yellow or brown to such an extent as to materially affect the appearance of stalk.

#### **Helpful Hints:**

1. All defects shall be scored as damage only.
2. Storage temperature 32 °F.
3. Average freezing point 30 °F.
4. Do not confuse with other forms of fennel or with the herb anise.

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## **Apples**

#### **Tolerances, by count:**

1. For defects (U.S. No. 1 and higher grades):  
10% total, including  
5% serious damage, including  
1% decay or internal breakdown
2. For offsize: 5% undersize; 10% oversize
3. Good Delivery: 15% total, including 8% serious damage, including 3% decay.

## Methods of Sampling and Calculation of Percentages

- a) When the numerical count is marked on the container, containers are packed to weigh 10 pounds or less, or in any container where the minimum diameter of the smallest apple does not vary more than 1/2 inch from the minimum diameter of the largest apple, percentages shall be calculated on the basis of count.
- b) In all other cases they shall be calculated on the basis of weight.

### Size:

When size is designated by the numerical count for a container, not more than 10 percent of the packages in the lot may fail to be fairly uniform (Fairly uniform means the size of the fruit within the container does not vary more than 1/2 inch diameter from the smallest to largest fruit). When size is designated by minimum and/or maximum diameter, not more than 5 percent of the apples in any lot may be smaller than the designated minimum, and not more than 10 percent may be larger than the designated maximum. For Red Delicious or Golden Delicious varieties only, a combination of minimum diameter and/or weight may be used. When this designation is used, an individual apple will be considered to have met the minimum size requirement even if the apple is smaller than the minimum diameter, provided it is equal to or greater than the weight provided in Table II of this section. However, not more than 5 percent of the apples in any lot may fail to meet either the minimum diameter or minimum weight when so designated. In addition, when Red Delicious or Golden Delicious apples are designated with diameter/weight combinations, they may only be designated according to the following table:

<i>Table II</i>	
<b>Red Delicious</b>	<b>Golden Delicious</b>
2-1/8 inches or 65 grams	63 grams
2-1/4 inches or 75 grams	70 grams
2-3/8 inches or 84 grams	82 grams
2-1/2 inches or 100 grams	95 grams
2-5/8 inches or 115 grams	109 grams
2-3/4 inches or 130 grams	134 grams

Packages which contain 10 pounds or less:

- I. No package may have more than 3 times the tolerance specified, except that at least 3 defective apples may be permitted in any package: *Provided* that not more than 3 apples or more than 18 percent (whichever is the larger amount) may be seriously damaged by insects or affected by decay or internal breakdown.

**Quality:**

1. Maturity- all grades must be mature. Most reliable indications are: taste, a break in ground color from dark to lighter green, flesh change from greenish to whitish color. Do not use the word "mature" on the certificate.
2. Shape- well formed, *fairly well formed* (U.S. No. 1 and higher), slightly deformed (Utility), seriously deformed.
3. Cleanness- "*Clean*" is required for U.S. No.1 and higher grades. This means practically no spray residue. For dirt and dust, this means not materially affected by either. U.S. Utility requires not seriously damaged.
4. Color- only apples varieties listed in Table I shall have the percentage of color specified for the particular variety and grade.
5. Quality defects- See the defect allowance chart.

**Condition:**

1. Firmness terms are:
  - a. Hard- tenacious flesh, starchy flavor, cuts with a snap.
  - b. Firm- becoming crisp has slightly starchy flavor, except for the Delicious variety
  - c. Firm ripe- crisp flesh except that the flesh of the Rome Beauty may be slightly mealy.
  - d. Ripe- mealy flesh and soon will become soft.
  - e. Overripe- see condition defects

There are no standards for pressure test readings. Remember to take two pressure readings on opposite sides of apple.



**Ground color-** For Golden Delicious and other green or yellow varieties may be described in terms of color as green, whitish green, light green, yellowish green (more green than yellow), light yellow, whitish yellow and yellow.

2. Condition defects:

- a. Bruising- which are not slight and incident to proper handling and packing, and which exceed the following allowances, report as injury, damage, or serious damage, respectively, or any combination of lesser bruises which detract from the appearance or edible quality of the apple to an extent greater than the areas described in the following chart:

**(Areas based on apples 3 inches in diameter)**

	<b>U.S. Extra Fancy (injury)</b>	<b>U.S. Fancy &amp; U.S. No. 1 (damage)</b>	<b>U.S. Utility (serious damage)</b>
<b>Depth</b>	1/8 inch	3/16 inch	3/8 inch
<b>Diameter</b>	5/8 inch	7/8 inch	1-1/8 inch

- b. Stem punctures- in place packs score all punctures against quality. In bags and bulk allow an extra 10% of apples with one stem puncture; apples with 2 or more punctures are scored against regular defect tolerances (condition defect).
- c. Freezing injury- not in frozen state. Shows browning of vascular bundles around core, extensive browning of flesh, which is watery and soft; large flattened bruises on apples in the bottom layer of floor layer containers (when cut may show cone of discoloration to core), the central portion of bruise sunken and soft. Describe the severity and location. Score against all grades.
- d. Frozen- ice crystals present. Describe severity and location. Score against all grades.

- e. Internal browning- flesh is brown, but not soft or mealy. Score against all grades.
- f. Internal breakdown- flesh is brown, soft and mealy, often found near end of storage season, but may occur from other causes. Score against all grades.
- g. Bitter pit- affects several varieties. Usually affects the calyx end, and affects flesh. Damage: Score when one or more spots affect the surface of the apple against all grades except U.S. Utility. Serious damage: Score when thinly scattered over 10% of surface.
- h. Jonathon spot- found most commonly on Jonathon variety, but may affect others. It usually affects only the skin. Scoring guideline is same as bitter pit.
- i. Brown or Back Surface Discoloration- Damage: when caused by delayed sunburn, surface scald or any other means and affects an area greater than 1/2 inch in diameter. Serious damage: affects an area greater than 3/4 inch in diameter. Allow proportionally greater amounts for tan to light brown discoloration.
- j. Soft scald- usually occurs as peculiar patches and ribbon like areas on surface, often extends into flesh 1/8 inch or more. All grades free from.
- k. Storage scab- may enlarge as much as 1/4 inch during storage. When showing corked-over areas, score as Quality. When not corked-over, and shows black growth of fungus, score as Condition.
- l. Overripe- means apples which have progressed beyond the stage of ripe, with flesh very mealy or soft; and past commercial quality. Score against all grades.
- m. Decay.

### Helpful Hints:

1. Pack- Tray and cell pack cartons- fairly tight or fairly well filled, loose in cells or molds, not fairly well filled, slack. Very tight- use when excessively bruising has occurred because of overfilling. Lidded cartons and baskets; jumbled or faced and filled cartons- very tight, tight, fairly tight, slightly slack, and slack.

2. Containers- Wholesale- tray pack, cell pack, and bulk fill cartons, and bag masters.
3. Freezing Temperatures- 27.2 to 30.0 °F
4. Recommended storage requirements- depending on varieties- 30 to 40°F with 90 to 95% relative humidity.
5. Watercore is a Quality factor. Visible watercore is scored on sight (free from) in all U.S. grades except U.S. Utility, which allows an area of 1/2 inch.

**Invisible watercore** is not scored against any U.S. Grade until after January 31 of year following production, except for Fuji variety of apples. Invisible watercore shall not be scored against the Fuji variety under any circumstances. U.S. Extra Fancy and U.S. Fancy shall be free from damage, which is shown as “severe” on visual aid illustration. Invisible watercore is not scored against U.S. No. 1 and U.S. Utility grades. Damage by invisible watercore is scored against U.S. Condition Standards at all times.

**U.S. Grades:**

U.S. Extra Fancy

U.S. Fancy

U.S. No. 1

U.S. No. 1 Hail

U.S. Utility

**U.S. Combination Grades:**

U.S. Extra Fancy and U.S. Fancy

U.S. Fancy and U.S. No. 1

U.S. No. 1 and U.S. Utility

At least 50% of the higher grade required. No other combinations permitted. In all U.S. grades and practically all state grades, progressive type defects found after storage and transit (unless repacked) affect condition and not grade (Exception California grades).

**Color Requirements:****Table 1**

Only the varieties listed below shall be required to meet a minimum color requirement	<b>U.S. Extra Fancy</b>	<b>U.S. Fancy</b>	<b>U.S. No. 1</b>
<b><i>Variety</i></b>	<b><i>Percent</i></b>	<b><i>Percent</i></b>	<b><i>Percent</i></b>
Red Delicious	66%	40%	25%
Red Rome	66%	40%	25%
Empire	66%	40%	25%
Idared	66%	40%	25%
Winesap	66%	40%	25%
Jonathon	66%	40%	25%
Stayman	50%	33%	25%
McIntosh	50%	33%	25%
Cortland	50%	33%	25%
Rome Beauty	50%	33%	25%
Delicious	50%	33%	25%
York	50%	33%	25%

## Defects

Factor	U.S. Extra Fancy (injury)	U.S. Fancy (damage)	U.S. No. 1 (damage)
Shape	Fairly well formed	Fairly well formed	Fairly well formed
Healed Insect Sting	Aggregate 1/8" including encircling ring	Aggregate 3/16" including encircling ring	Aggregate 3/16" including encircling ring
Scab	Free from	1/4" aggregate	1/4" aggregate
Visible Watercore	Free from	Free from	Free from
Dark brown or black limbrubs	1/4" aggregate	1/2" aggregate	1/2" aggregate
Smooth net-like russeting	10% of surface	15% of surface	25% of surface
Smooth solid russeting	5% of surface	5% of surface	10% of surface
Slightly rough russeting	1/2" aggregate	1/2" aggregate	1/2" aggregate
Rough russeting	1/4" aggregate	1/4" aggregate	1/4" aggregate
Hail and similar injury	Unbroken skin, when no surface indentation exceeds 1/16" in depth or 1/8" in diameter or aggregate 1/2" in diameter; and when no appreciable discoloration	When no surface indentation exceeds 1/8" in depth; unbroken skin 1/2" aggregate area; well healed broken skin 1/4" aggregate area	Same as U.S. Fancy

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# Apricots

## Tolerances by count:

1. For defects: 10% total, including  
5% serious damage, including  
1% decay
2. For off-size: If packages are marked with numerical count: Not more than 10% of the samples in a lot may fail the 1/4 inch variation requirement designated.  
If packages are marked with minimum size: Not more than 10% by count of the apricots in any sample may be below the minimum size specified.
3. Good Delivery: 15%, total, including 8% serious damage, including 3% decay.

## Size:

In row pack containers, use uniformity terms. In other containers, give range of diameters and amount of undersize. Diameter is the greatest dimension measured from at right angles to a line from the stem to blossom end. Size is not part of grades.

## Quality:

1. Maturity- both grades require *mature*. Immature apricots shall be scored as quality defects.
2. Shape- *well formed*, misshapen.
3. Red blush color- not a grade requirement. Report in general terms if present.
4. Quality defects:
  - a. Immaturity- score against both grades.
  - b. Worm holes- score against both grades.
  - c. Cuts and skin breaks- score against both grades.
  - d. Growth cracks- score well healed growth cracks over 3/8 inch long as damage and over 1/2 inch as serious damage.
  - e. Limbrubs- score smooth and shallow limbrubs when over 1/4 inch in diameter as damage.

- f. Russeting- Score as damage when reddish to brown in color and exceeds 10% of surface, or thick, rough, and very dark and exceeds 5% of the surface.

**Condition:**

1. Firmness terms are:
  - a. Hard- practically unyielding to moderate hand pressure, except a slight yielding may occur on the tip of the surface.
  - b. Firm- softening of suture/tip and from a slight to distinct springiness according to the variety.
  - c. Firm ripe- yields readily to more than slight pressure.
  - d. Ripe- yields readily to slight pressure, ready for immediate consumption.
  - e. Soft- see condition defects
2. Ground color- use terms such as light green, turning yellow, yellow, orange and deep orange.
3. Condition defects:
  - a. Bruising- usually occurs as flattened or indented areas which are softer than surrounding flesh and are discolored. Score as damage when (1) the flesh is discolored deeper than 1/8 inch, or (2) any bruise causing discoloration exceeds the area of a circle 3/8 inch in diameter, or (3) an aggregate of lesser bruises detracts from the appearance, edible, or shipping quality of the apricot.
  - b. Brown discolored areas- score as damage when discoloration exceeds 10% of surface and as serious damage when discoloration exceeds 33% of surface.
  - c. Soft- the flesh of the fruit is mushy and scored as serious damage.
  - d. Decay.

**Helpful Hints:**

1. Average freezing point from 28.9 to 30.1 °F.
2. Recommended storage requirements:
  - a. Temperature- 31 to 32 °F

- b. Relative humidity- 90 to 95%
  - c. Storage life- 1 to 2 weeks
3. Pack- Use the following terms: very tight, tight, fairly tight, or slack (report in inches). Describe pads and other protective material.
  4. Marking and Packing requirements: The minimum size or numerical count shall be plainly labeled, stenciled, or otherwise marked on the package.

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## Artichokes

### Tolerances by count:

1. For defects: 10% total, including 2% decay
2. For off-size- U.S. No. 1 Long Stem requires a minimum stem length of 8 inches. Not more than 5% allowed for artichokes failing to meet this requirement.
3. Good Delivery: 15% total, including 4% decay.

### Size:

Artichokes must be “*fairly uniform in size.*” This is a grade requirement. Not more than 10% of the artichokes in any container may vary not more than 1/2 inch in diameter. Note: This requirement is applied on a container basis, not on the average for the lot. In other words, if one container is found having more than the 10% variation allowed, say 12%, then the entire lot is out of grade. For example, report as “most cartons fairly uniform in size, 15% irregular.” The proper grade statement would be “Fails to grade account irregular sizing in some cartons.”

### Quality:

1. Trimming- U.S. No. 1 requires *properly trimmed*, meaning stems are short and smoothly cut. Stems should be no longer than



- 2-1/2 to 3 inches on larger buds, proportionately shorter on smaller buds. U.S. No. 2 grade has no trimming requirements.
2. Shape- U.S. No. 1 requires *fairly well formed*, meaning not excessively long and pointed. Cone-shaped is considered fairly well formed. U.S. No. 2 has no shape requirements.
  3. Quality defects:
    - a. Slug injury- light to dark, shallow surface discoloration. As a guide, score as damage when more than 10% of outer scales are materially discolored.
    - b. Aphids- damage when feeding injury detracts from appearance, or when aphids are present between scales. If aphids are alive, report as a Condition defect.
    - c. Plum Moth injury- larvae riddles and tunnels into scales. Damage when materially detracting from appearance or when tunnels penetrates into second layer of scales.

**Condition:**

1. Freshness- not a grade requirement, but may be used to describe artichokes that are normal green color and free of condition defects.
2. Compactness- terms are compact, *fairly compact*, spread and badly spread. *Fairly compact* means bud is reasonably firm and outer scales not more than slightly spread. Scales at the tip must tightly enfold bud. Spread means scales at tip are opening, but not enough to expose heart. Such buds are U.S. No. 2. Badly spread means all scales have spread, exposing the heart. Such buds are defects of U.S. No. 2.
3. Condition defects:
  - a. Overdeveloped- buds are brownish, scales are tough, leathery, and stringy and the flower in the center of bud is dark pink or purple and becomes fuzzy. This is a result of aging. Overdeveloped buds are defects of U.S. No. 2. A fast check is to feel stems. If they are soft and flexible, it is not likely that the buds are overdeveloped.

- b. Freezing injury- causes peeling or feathering of epidermis. If severely feathered score as damage. Score on the basis of discoloration if scales are brown or dark in color. Severe freezing will cause internal injury (serious damage). Cut stem off close to the base of the bud – if cut surface is definitely black, internal injury is present.
- c. Discoloration- regardless of cause, discoloration of scales is scored on appearance basis. As a guide, when more than 10% of scales are materially affected, the bud should be scored as damage. Describe the color and extent to which buds are affected.
- d. Decay.

**Helpful Hints:**

- 1. Highest freezing point 29.9 °F
- 2. Recommended storage requirements:
  - a. Temperature, 32 °F
  - b. Relative humidity, 95 to 100%
  - c. Storage life- 1 to 2 weeks
- 3. The U.S. standards apply only to globe artichokes, not to Jerusalem artichokes.

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