

Preface

A comprehensive resource of product knowledge, the *PMA Fresh Produce Manual* will help your operation succeed in today's competitive market. Its easy-to-use, full-color format was designed specifically for retailers, foodservice operators, and distributors.

The *PMA Fresh Produce Manual* contains specifications for 160 fresh fruits and vegetables: nutrition values, grades, sizes, packaging, availability, storing and handling, receiving and inspecting, and the names and descriptions of major varieties. At the end of this manual, an easy-to-read chart provides a quick reference on ripening after harvest, ethylene sensitivity, and recommendations for water sprinkling and top ice. This information comes from the most recently available sources as of the date of copyright.



We appreciate and invite your comments on the *PMA Fresh Produce Manual*.

The Produce Marketing Association wishes to thank all of the individuals, companies, and organizations that contributed their expertise, time, products, and photographs in order to make this product possible.



Published by the Produce Marketing Association, P.O. Box 6036, Newark, DE 19714-6036, a nonprofit trade association serving the fresh produce industry.

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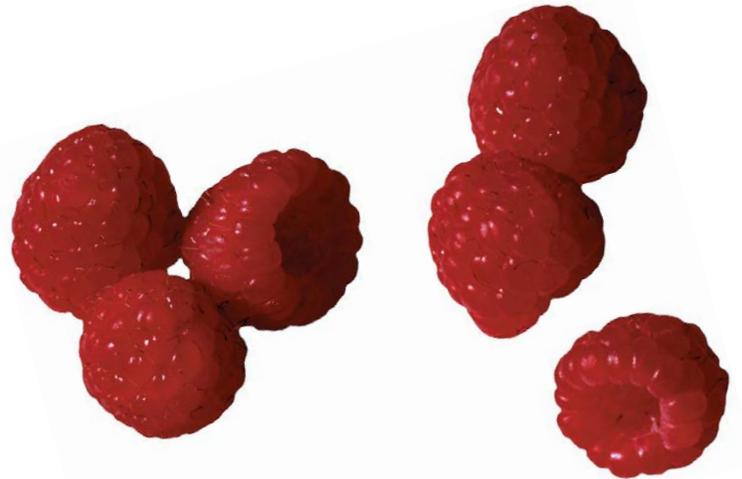
Introduction

About PMA

Based in Newark, Delaware, the Produce Marketing Association serves more than 2,400 members by advancing the marketing of produce and related products and services worldwide. PMA members market fresh fruits, vegetables, and related products, and are involved in the production, distribution, retail, and foodservice sectors of the industry. In addition to our tradition of bringing buyers and sellers together, PMA offers world-class information and educational programming, and advocates for members before consumers and the marketplace.

PMA's leadership in the produce industry is the direct result of over five decades of dedicated partnerships between staff and industry volunteers. Volunteer leaders, working through PMA Boards, advisory councils, committees, and task forces, guide the development of programs and services that help members meet their business goals.

Working closely with these leaders is the PMA staff of about 70 association professionals with expertise in administration, meeting planning, marketing, information, and customer service. PMA benefits from having one of the highest percentages of Certified Association Executives (CAE) in the association industry.



Members benefit from networking opportunities, including major events such as PMA's Fresh Summit International Convention & Exposition, Foodservice Conference Tour & Expo, and Retail Produce Solutions Conference. They also enjoy discounts on a variety of training and education products that enhance productivity, profitability, and professionalism. In addition, PMA members receive a number of services and benefits, including:

- Access to the PMA Information Center for research assistance to answer produce industry questions
- Updates, backgrounders, and conference workshop material on critical industry issues of concern, including regulatory information, such as irradiation, biotechnology, food safety and security, and standardized coding
- Industry studies and educational products

PMA also has programs dealing with food safety and security, research, and consumer information. These are funded in part by contributions from our Gold Circle members. This contribution, in addition to their dues, helps to advance our efforts in these areas.

For more information about PMA and its programs, please visit www.pma.com, or call PMA's Solution Center at +1 (302) 738-7100.

Introduction

Nutrition and Labeling Facts for Retailers, Foodservice Operators, and Distributors

Regulations from the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) create many important requirements that must be followed for the food/nutrition label of food products in the United States, be it in a produce department or part of the health claims of menu items.

The purpose of the new food label is to provide information to consumers, to help them choose more healthful diets, and to offer an incentive to food companies to promote the nutritional qualities of their products.

The Nutrition Labeling and Education Act (NLEA) specifically exempts raw agricultural commodities (including raw fruits and vegetables) from the mandatory nutrition labeling requirements that apply to most foods in the general food supply. However, wax labeling is still required for all fruits and vegetables.

In place of the mandatory program, the 40 most frequently consumed varieties of raw fruits and vegetables identified by the FDA are subject to a voluntary program whereby retailers provide nutrition information at the point of purchase. However, if a nutrient content claim is made for any fresh fruit or vegetable, whether the top 40 or otherwise, the exemption disappears and nutrition labeling at the point of purchase becomes mandatory.

The 20 most frequently consumed raw fruits identified by the FDA are: apple, avocado (California), banana, cantaloupe, grapefruit, grapes, honeydew melon, kiwifruit, lemon, lime, nectarine, orange, peach, pear, pineapple, plums, strawberries, sweet cherries, tangerine, and watermelon. The 20 most frequently consumed raw vegetables identified by the

FDA are: asparagus, bell pepper, broccoli, carrot, cauliflower, celery, cucumber, green (snap) beans, green cabbage, green onion, iceberg lettuce, leaf lettuce, mushrooms, onion, potato, radishes, summer squash, sweet corn, sweet potato, and tomato.

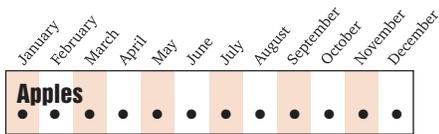
On March 20, 2002, the FDA published a proposed rule to amend the voluntary nutrition labeling guidelines for the 40 most frequently consumed varieties of raw fruits and vegetables in the U.S. The proposed amendment includes changes to nutrient values and serving sizes of some of the top 40 raw fruits and vegetables. The proposed revision can be found on www.fda.gov.

The voluntary program is subject to FDA evaluation every four years to determine whether there is substantial compliance at the retail level. If the FDA determines there is no substantial industry compliance (defined as 60% of retail outlets complying with the posting of information), FDA has said it will propose rules for making nutrition labeling for raw fruits and vegetables mandatory. Should this happen, the Agency has said it will not be limited to requiring labeling for just the top 40 fruits and vegetables.

PMA urges retailers to comply with the voluntary program to avoid having FDA initiate rulemaking that will result in a more rigid and, perhaps, more extensive mandatory program. PMA recommends the FDA's Center for Food Safety and Applied Nutrition Web site at www.cfsan.fda.gov for assistance. In addition, through an industry partnership with Try Foods International, Inc., PMA offers an informative and attractive poster for you to hang in your store or restaurant.

The above provides you with only a very brief overview of your responsibilities in the area of nutrition labeling. Please take the time to fully comply with these important voluntary guidelines. For further information, please contact PMA at +1 (302) 738-7100.

Availability



NOTE: Major production areas include California, Idaho, Michigan, New England, New York, North Carolina, Oregon, Virginia, Washington, and West Virginia.

Variety/Type Descriptions

Braeburn – Solid red to red with some greenish-gold; sweet-tart flavor. Good for eating out of hand and salads.

Crispin/Mutsu – Yellow-green with some pink blush; sweet flavor. Good for eating out of hand and salads.

Empire – Dark red with some yellow flecks; sweet-tart flavor. Good for eating out of hand, salads, and cooking.

Fuji – Color ranges from yellow-green with red highlights to very red; sweet flavor. Good for eating out of hand and cooking.

Gala – Yellow-orange skin with red striping; heart-shaped; sweet flavor. Good for eating out of hand and salads.

Golden Delicious – Yellow-green skin with firm white flesh. Good all-purpose cooking apple as well as for eating out of hand.

Granny Smith – Bright green skin with pink blush; crisp texture and tangy flavor. Good for eating out of hand, salads, and cooking.

Honeycrisp – Juicy with yellow flesh; sweet-tart flavor. Very crisp. Good for eating out of hand, salads, and cooking.

Idared – Two-toned red and green apple with some pink blush; moderately tart flavor. Good for eating out of hand and cooking.

Jonagold – Orange-tinted color; tangy-sweet flavor. A cross of Golden Delicious and Jonathan apples. Good for eating out of hand and cooking.

Jonathan – Brilliant red color with firm juicy texture; tart flavor. Good for eating out of hand and cooking.

McIntosh – Two-toned red and green color; slightly tart flavor. Good for eating out of hand and salads.

Newtown – Green skin with yellow highlights; aromatic flesh with tangy flavor. Good for cooking and baking.

Red Delicious – Heart-shaped with deep ruby red skin; mild sweet flavor and juicy texture. Good for eating out of hand and salads.

Rome – Bright red skin with sweet, slightly juicy flesh. Good for baking and cooking.

Ordering Specifications

Common packaging:

3-, 5-, 8-, 10-lb. bags in boxes
40- to 50-lb. crates, cartons, and bushel baskets/cartons holding loose, bagged, or tray-packed/cell-packed apples
20-lb. ½-cartons
120-count
2 layer - 26-lb. cartons

Grades:

U.S. Extra Fancy
U.S. Fancy
U.S. No. 1
U.S. Utility
Combination
Washington Extra Fancy
Washington Fancy

Differences between grades are based primarily on external appearance. Individual states may set their own grades.

Sizes:

48-, 56-, 64-, 72-, 80-, 88-, 100-, 113-, 125-, 138-, 150-, 163-, 175-, 198-, and 216-count



Equivalents

1 medium apple = 1 cup diced
3 medium apples = 1 pound
2 pounds apples = 1 9-inch pie

Receiving and Inspecting

Good quality apples should be crisp, flavorful, and well-colored with firm smooth skins. Crispness may be determined by measuring flesh firmness with fruit penetrometer. Avoid fruit with bruises, broken skin, or internal browning.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes-high
(NOTE: Fuji and Granny Smith varieties produce low levels of ethylene.)
Sensitive to ethylene exposure: Yes

Apples

Storing tips:

Keep apples in original cartons with lids closed to prevent absorption of odors from other foods or passing odors to other foods. Some varieties (McIntosh, Yellow Newtown) are sensitive to chill damage and should be held at 35-40 degrees F/2-4 degrees C for long-term storage. Store apples away from flowers, fruits, and vegetables that are sensitive to ethylene and may be damaged by the gas. Exposure to ethylene may accelerate softening of apples; keep separated from other ethylene-producing fruits and ripening rooms.

Handling tips:

Keep handling to a minimum to avoid bruising and skin damage.

Nutrition*

Serving Size 1 medium Apple (154g)

Amount Per Serving	% Daily Value
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 22g	7%
Dietary Fiber 5g	20%
Sugars 16g	
Protein 0g	
Vitamin A	2%
Vitamin C	8%
Calcium	0%
Iron	2%

*Based on information published by FDA.

Troubleshooting

Internal browning; brown core; soggy breakdown:

These are indications of chill damage. For best quality, do not store apples below 29 degrees F/-1.5 degrees C.

Soft flesh; loss of crunch:

Lack of refrigeration and exposure to ethylene gas will cause apples to soften and lose their crunch. For best quality, store apples away from ripening rooms and at 32-36 degrees F/0-2 degrees C.

Bruised skin or flesh:

Rough handling may cause bruising. To prevent bruising, keep handling to a minimum and leave apples in original cartons while storing. Do not drop cartons on the floor.

Discoloration:

Apples may discolor if they are sprayed with water before or during storing. To avoid discoloration, keep the surface of apples dry. Do not rinse until ready to use. Wax on apples may turn white if exposed to moisture.

Varieties

Braeburn:



Crispin/Mutsu:



Empire:



Fuji:



Gala:



Golden Delicious:



Granny Smith:



Jonathan:



McIntosh:



Red Delicious:



Rome:



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•					
Washington							•	•				
Imports	•	•										•

Variety/Type Descriptions

Blenheim – Orange fruit with fairly soft texture when ripe; excellent eating quality.

Castlebrite – Bright orange color with moderately tart flavor and good firm texture. Largest volume variety shipped from California.

Improved Flaming Gold – Orange-yellow to yellow in color with fair flavor and juice content.

Katy – Large-sized fruit with good firmness. Yellow-orange color with some blush.

Patterson – Large, firm-fleshed fruit with orange skin; good shipper.

Perfection – Oval, oblong, firm fruit. Skin is clear yellow-orange; no blush. Flesh is yellow-orange.

Tilton – Slightly flat oval fruit; light orange color and sweet-tart flavor.

Ordering Specifications

Common packaging:

24-lb. volume-fill containers
Tray packs holding various counts

Grades:

U.S. No. 1
U.S. No. 2



Sizes:

California (sizes based on the number of apricots per pound in a standard 24-pound volume-fill container):

4, 5, 6, 7, 8, 10, 12, 14, and 16.

NOTE: The majority of California apricot volume is in the 7 through 12 size range. Tray pack sizes are identified by actual fruit count.

Washington: 54-, 60-, 64-, 70-, 80-, 84-, 88-, and 96-count

Equivalents

One pound = 6 to 8 large apricots

Receiving and Inspecting

Look for well-colored, plump apricots with fairly firm texture. Avoid fruit with blemishes, dull-looking skin, soft or mushy spots, or those that appear pale yellow or greenish-yellow in color.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–high
Sensitive to ethylene exposure: Yes

Storing tips:

To ripen apricots, store at room temperature, checking for ripeness daily. Store ripe fruit under refrigeration.

Handling tips:

Handle apricots with care to avoid bruising or fingernail damage. Do not drop containers on floor or dump apricots.



Nutrition*

Serving Size 3 Apricots (105g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 12g	4%
Dietary Fiber 3g	10%
Sugars 9g	
Protein 1g	
Vitamin A	50%
Vitamin C	20%
Calcium	2%
Iron	4%

*These values have not been adopted or approved by FDA. They have been obtained from USDA's Handbook 8, or other databases developed by PMA and its members. While PMA believes use of non-FDA-approved data should not result in FDA regulatory action, such a result can never be assured. Consultation with company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

Decay; mealy texture:

Apricots may begin to decay or become mealy if stored at room temperature when ripe. To prevent decay and mealy texture, store ripe fruit at 32-36 degrees F/0-2 degrees C until ready to display or use. Check and sort ripe fruit daily, displaying or using ripest apricots first.

Asian Pears

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California							•	•	•	•		
Oregon									•	•		
Washington								•	•			
Chile	•	•	•	•	•	•						
Japan	•	•	•								•	•
New Zealand	•	•	•	•	•							

NOTE: Other major production areas include China and Korea.

Variety/Type Descriptions

Apple-shaped fruit; color ranges from green to yellow to brown, depending on variety. Skin may appear smooth and shiny or slightly speckled. Asian pears exhibit a sweet, juicy, and mild flavor. Texture is very crisp and somewhat granular like a pear. Asian pears may be eaten out of hand and added to salads. They may also be baked, poached, or sautéed.

Asian pears are also called Oriental pears, Chinese pears, Japanese pears, Nashi, Sand Apples, Salad pears, and Apple pears (although they are members of the pear family).

Ordering Specifications

Common packaging:

5- and 11-lb. bulk
Single or 2-layer tray packs holding various counts

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality Asian pears should be aromatic and hard. Asian pears do not soften as they become ripe.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low to moderate, depending on variety.
Sensitive to ethylene exposure: Yes

Storing tips:

Keep Asian pears away from other ethylene-producing fruits and ripening rooms.

Handling tips:

Asian pears are very susceptible to bruising; handle with care.

Nutrition*

Serving Size 1 Asian Pear (122g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 13g	4%
Dietary Fiber 4g	18%
Sugars 9g	
Protein 1g	
Vitamin A	0%
Vitamin C	8%
Calcium	0%
Iron	0%

*These values have not been adopted or approved by FDA. They have been obtained from USDA's Handbook 8, or other databases developed by PMA and its members. While PMA believes use of non-FDA-approved data should not result in FDA regulatory action, such a result can never be assured. Consultation with company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Brown spotting:

Asian pears may develop brown spotting if they become moist. Do not sprinkle fruit with water during storage or display.

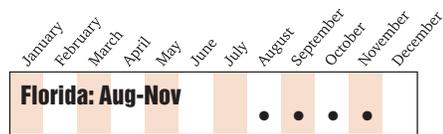
Loss of color; softening of texture:

Asian pears are sensitive to ethylene. Exposure to the gas may cause loss of color and softening. For best quality, keep Asian pears away from other ethylene-producing fruits and ripening rooms.



Availability

A major production area includes:



Variety/Type Descriptions

Heart to conical-shaped fruit with thick, gray-green, bumpy rind. Flesh is creamy white, fine-textured, and contains a few dark seeds. Atemoya flavor is sweet and fruity. Atemoya flesh may be eaten as is, sliced into fruit salads, or pureed and used as an ingredient in beverages or frozen desserts. Flesh only is edible; remove and discard rind and seeds.

Ordering Specifications

Common packaging:

10- and 20-lb. cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose firm fruit with no cracks in the rind. Avoid fruit with discolored skin or moldy stems. When ripe and ready to eat, atemoyas give to gentle pressure.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes-high
Sensitive to ethylene exposure: Yes

Storing tips:

Keep atemoyas away from fruits and vegetables that are sensitive to ethylene and may be damaged by the gas. Ripe atemoyas may be stored at 45-50 degrees F/7-10 degrees C.

Handling tips:

Atemoyas bruise easily; handle with care.

Nutrition

Nutrition information for Atemoyas is not available in the data bases used by PMA.



Troubleshooting

Darkening or black discoloration of the skin:

This is an indication of chill injury. In severe cases, discoloration of the flesh may also appear. To prevent chill injury, do not store atemoyas below 45 degrees F/7 degrees C.

Accelerated softening:

Atemoyas are sensitive to ethylene; exposure to the gas will cause accelerated softening. To prevent premature or accelerated softening, keep atemoyas away from other ethylene-producing fruits and ripening rooms.

Bruising:

Atemoyas are susceptible to bruising, even when the fruit is hard. Often times, bruises will not appear until the fruit softens. To prevent bruising, handle atemoyas with care; do not drop shipping containers on the floor.



Avocados

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Bacon: California	•	•	•	•							•	•
Fuerte: California	•	•	•	•								•
Gwen: California				•	•	•						
Hass: California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•						•	•	•
Chile	•	•					•	•	•	•	•	•
Dominican Republic	•	•									•	•
New Zealand							•	•	•	•	•	•
Pinkerton: California	•	•	•	•	•							
Reed: California				•	•	•	•	•				
Zutano: California				•	•	•	•	•				
Florida Varieties	•	•	•		•	•	•	•	•	•	•	•

Variety/Type Descriptions

Bacon – Oval-shaped fruit with smooth, green, thin skin and yellow-green flesh. Yields to gentle pressure when ripe.

Florida – Varieties differ somewhat in appearance, but are generally large in size with smooth, green skin. Flesh has lower oil content than some California varieties. Skin color remains green as fruit ripens.

Fuerte – Pear-shaped fruit with thin, smooth, green skin and creamy, pale green flesh. Skin remains green when ripe.

Gwen – Plump, oval fruit with pebbly, thick green skin and gold-green flesh. Green skin turns dull as fruit ripens.

Hass – Oval-shaped fruit with thick, pebbly green skin and pale green, creamy flesh. Ripe and ready to eat when yields to gentle pressure.

Pinkerton – Long, pear-shaped fruit with medium thick, slightly pebbled green skin and creamy pale green flesh. Green skin deepens in color as fruit ripens.

Reed – Round fruit with thick green, slightly pebbled skin and buttery flesh. Skin remains green as fruit ripens.

Zutano – Pear-shaped fruit with shiny, thin, yellow-green skin and pale green, light-textured flesh. Skin remains green as fruit ripens.

Ordering Specifications

Common packaging:

California:

- Single-layer, 12 ½-lb. flats
- 2-layer, 25-lb. lugs
- 25-lb. volume-fill boxes
- 37 ½ -lb. RPC's
- 60 = 90 count
- 48 = 72 count

Florida:

- Single-layer, 13 ½-lb. flats
- 2-layer, 27 ½-lb. lugs
- 35-lb. cartons
- 10-lb. natural packs

Grades:

California:

- No U.S. grades given. Generally ordered as #1 or #2.

Florida:

- U.S. No. 1
- U.S. No. 2
- U.S. Combination

Ungraded avocados are called “unclassified.”

Sizes:

California: 36-, 40-, 48-, 60-, 70-, and 84-count

Florida: 6-, 7-, 8-, 9-, 10-, 12-, 14-, 16-, 18-, 20-, and 24-count



Equivalents

- 36 count = 7.4 oz. pulp
- 40 count = 7.0 oz. pulp
- 48 count = 5.4 oz. pulp
- 60 count = 3.9 oz. pulp
- 70 count = 3.6 oz. pulp
- 84 count = 2.6 oz. pulp

Receiving and Inspecting

Unripe: All varieties should be free of bruises and hard or soft spots.

Ripe: Ripe avocados should yield to gentle pressure and should be free of bruises and hard or soft spots. Pulp color and texture should be consistent with variety and free of any dark spots or streaks.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Unripe: 45-50 degrees F/7-10 degrees C
85-95% relative humidity
Ripe: 36-40 degrees F/2-4 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top Ice: No

Ethylene production/sensitivities:

Produces ethylene:

Unripe: Yes-low
Ripe: Yes; keep ripe avocados away from fruits and vegetables that are sensitive to ethylene and may be damaged by it.

Sensitive to ethylene exposure:

Unripe: Yes; unripe fruit is extremely sensitive to ethylene. Exposure may increase symptoms of chill damage.
Ripe: Yes; ethylene promotes continuation of the ripening (softening) process.

Handling tips:

Handle ripe avocados with care to avoid bruising. Do not dump avocados into displays. Check ripeness daily, displaying or using ripest fruit first.

How to prepare:

1. Cut the avocado lengthwise around the seed.



2. Twist the halves in opposite directions to separate.



3. Slip a spoon between the seed and the fruit and work the seed out.



4. Slip a spoon between the skin and fruit and scoop away from the peel.



Nutrition*

Serving Size 1/5 medium Avocado (30g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 45	
Total Fat 6g	9%
Saturated Fat 0.5g	3%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	4%
Sugars 0g	
Protein 1g	
Vitamin A	0%
Vitamin C	4%
Calcium	0%
Iron	0%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

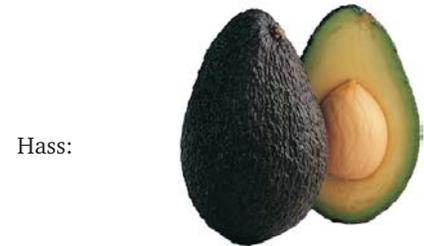
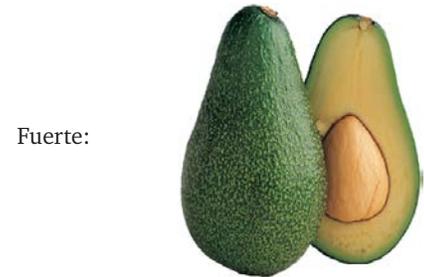
Grayish-brown discoloration of skin or pulp; dark streaks through flesh:

These are indications of chill injury. To prevent chill injury, do not store ripe avocados below 32 degrees F/0 degrees C and unripe avocados below 45 degrees F/7 degrees C. NOTE: Exposure to ethylene gas may increase symptoms of chill damage.

Uneven ripening:

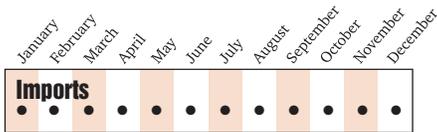
Avocados may exhibit uneven ripening if they are stored at temperatures that are either too low or too high. Improperly stacked avocado boxes may also cause uneven ripening. To prevent uneven ripening, maintain proper storage temperatures for unripe fruit. Ordering preconditioned avocados will also help prevent uneven ripening. Stack avocado boxes on 40" x 48" pallets in an alternating four-block pattern to insure proper air circulation and temperature control.

Varieties



Bananas

Availability



NOTE: Some major production areas include Costa Rica, Ecuador, Columbia, Honduras, and Guatemala. The growing season is year-round for all locations.

Variety/Type Descriptions

Cavendish – Primary variety available commercially. Characterized by a blunt shape of both crown and fingertip ends and a thin skin that turns from green to yellow when fully ripe.

Ordering Specifications

Common packaging:

40-lb. cartons
Volume-fill boxes holding 150 smaller (petite) single bananas

Grades:

No U.S. grades given.

Sizes:

Large – about 16 clusters per 40-lb. box
Small – 150 single bananas per box

Receiving and Inspecting

Bananas should be of uniform shape and color, regardless of degree of ripeness. Avoid fruit with damaged skins.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Mature green and ripe: 60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—ethylene production rate increases with ripening.

Sensitive to ethylene exposure:

Mature green: Yes—ethylene is required to initiate ripening.
Ripe: No

Storing tips:

To ripen bananas in shipping containers, keep containers covered. To slow ripening, remove container lid and plastic cover. Treating mature green bananas with ethylene will help ensure uniform ripening.

Handling tips:

Bananas bruise easily; handle with care.

Nutrition*

Serving Size 1 medium Banana (126g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 29g	10%
Dietary Fiber 4g	16%
Sugars 21g	
Protein 1g	
Vitamin A	0%
Vitamin C	15%
Calcium	0%
Iron	2%

*Based on information published by FDA.



Troubleshooting

Dull skin color when fruit ripens:

This is an indication of chill injury. To prevent chill injury, do not store mature green or ripe bananas below 55 degrees F/13 degrees C.

Accelerated flesh softening; flesh decay; poor color:

These are indications of temperature abuse resulting from exposure to high temperatures. For best quality during short-term storage, maintain temperature range of 60-65 degrees F/16-18 degrees C.

Dark, discolored flesh:

This may be the result of product injury due to rough handling. To prevent bruising or discoloration, handle bananas with care; do not drop shipping containers on the floor.

Bananas, Specialty

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
Burro	•	•	•	•	•	•	•	•	•	•	•	•
Manzano	•	•	•	•	•	•	•	•	•	•	•	•
Niño	•	•	•	•	•	•	•	•	•	•	•	•
Red	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Some major production areas include the Caribbean, Central America, Mexico, and South America. Other areas include Florida and California.

Variety/Type Descriptions

Burro – Short, chunky, and square-shaped banana. Skin color of ripe fruit is yellow with some black spots; flesh is creamy white. Banana flavor is tangier than Cavendish; texture of ripe fruit is fairly soft with some firmness at the center of the fruit. Burro bananas are eaten fresh.

Manzano – Short (finger length), chubby banana. Skin color is green when unripe and turns black as fruit ripens. Banana flavor exhibits a hint of strawberry and apple; texture is soft and slightly firm. Manzano bananas are eaten fresh.

Niño – Short and chubby, these 3” long bananas are also known as Baby, Ladyfinger, or Finger bananas. Skin color is bright yellow with some brown spots when ripe. Flavor is slightly sweeter than the Cavendish; texture is softer and creamier. Niño bananas are smaller than Manzanos and are also known as Honey, Sucrier, or Dominique.

Red – Squat banana shape. Skin color of unripe fruit is greenish-red and turns maroon-red as the fruit ripens. Flavor of a ripe Red banana is sweeter than Cavendish; texture is soft. Red bananas are eaten fresh or may be used as an ingredient in baked goods.

Ordering Specifications

Common packaging:

Niño: 10-, 15-, and 20-lb. bulk cartons
Burro, Manzano, Red: 10-, 20-, and 26-lb. bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Niño: Purchase when green or yellow. Choose firm, plump bananas with no bruises or splits in the skin. Avoid dull or gray-skinned bananas, which will not ripen properly.

Burro, Manzano, Red: Choose bananas that exhibit shape and color characteristics of the particular variety. Avoid bananas with soft spots or significant damage to the skin.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: Yes

Storing tips:

Keep at temperatures above 55 degrees at all times. To ripen in shipping containers, keep containers covered. To slow ripening, remove container lids and plastic covers.

Handling tips:

Specialty bananas are susceptible to bruising; handle with care.



Manzano

Red



Burro

Nutrition

Nutrition information for Specialty Bananas is not available in the data bases used by PMA.

Troubleshooting

Dull skin color of ripe fruit:

This is an indication of chill injury. To prevent chill injury, do not store specialty bananas below 55 degrees F/13 degrees C.

Accelerated flesh softening; flesh decay; poor color:

These are indications of temperature abuse caused by exposure to high temperatures. For best quality during short-term storage, maintain temperature range of 60-65 degrees F/16-18 degrees C.

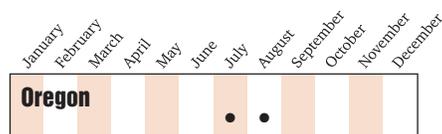
Discolored flesh:

Rough handling may cause discoloration of flesh and bruises on the skin. To maintain good quality, handle bananas with care; do not drop shipping containers on the floor.

Berries, Specialty

Availability

A major production area includes:



Variety/Type Descriptions

Boysenberries – A blackberry-loganberry-raspberry cross. Boysenberries are large (8 grams), and a reddish-purple to deep maroon color.

Loganberries – Commonly found thorn-less, flavor can range from sweet to tart; skin is a dark-red color.

Ordering Specifications

Common packaging:

12 6-oz. clamshells
Half flats of 2 ½-lbs.

Grades:

No U.S. grades given.

Equivalents

Boysenberries: 1 cup = approximately 28 berries

Receiving and Inspecting

Berries should be dry, plump, firm, and uniform in color. Check for leaking or staining that may indicate berries are overripe or have been damaged. Avoid dull or soft berries or those with caps still attached.

Longanberries



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

Discard any berries that have been crushed or are moldy. Blot with paper towel and store in single layer on a tray covered with paper towels. Refrigerate for up to two days.

Handling tips:

Fresh berries are fragile and tender; handle with care and use immediately. Small, frequent deliveries may help keep losses down.

Nutrition*

Boysenberries:

Serving Size 1 cup Boysenberries (144g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 18g	6%
Dietary Fiber 8g	31%
Sugars 11g	
Protein 1g	
Vitamin A	4%
Vitamin C	50%
Calcium	4%
Iron	4%



Boysenberries

Longanberries:

Serving Size 1 cup Loganberries (144g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 18g	6%
Dietary Fiber 8g	31%
Sugars 11g	
Protein 1g	
Vitamin A	4%
Vitamin C	50%
Calcium	4%
Iron	4%

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Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California						•	•	•	•			
Oregon						•	•	•	•			
Chile									•	•		
Guatemala	•	•	•						•	•	•	•
Mexico	•	•	•						•	•	•	•

NOTE: Other major production areas include Texas and Washington.

Variety/Type Descriptions

Common varieties include Cherokee (sweet), Chester (mild/sweet), Kotata (sweet), Marion (tart), Ollalie (sweet), Texas Brazo (sweet), and Waldo (sweet).

Ordering Specifications

Common packaging:

Master shipping cartons holding 12 6-oz. clamshells, 12 ½-pint containers, or pint containers

Grades:

U.S. No. 1
U.S. No. 2

NOTE: Not all blackberries are graded. Ungraded berries are called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality blackberries should be dry, clean, plump, bright, and well-colored. Avoid leaky, soft, or dull berries or those with caps still attached.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

Blackberries are very susceptible to freeze damage. Do not store below 30 degrees F/-1 degree C.

Handling tips:

Blackberries are very perishable; handle with care and use soon after receiving.

Nutrition*

Serving Size 1 cup Blackberries (144g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 70	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 18g	6%
Dietary Fiber 8g	31%
Sugars 11g	
Protein 1g	
Vitamin A	4%
Vitamin C	50%
Calcium	4%
Iron	4%

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Troubleshooting

Fruit breakdown or collapse:

This is an indication of freeze damage. Blackberries are very sensitive to mild freezing; do not store below 30 degrees F/-1 degree C.

Leaky berries:

This may be an indication of overripe fruit. For best quality, inspect blackberries carefully and use shortly after arrival.

Green berries; caps attached:

Green berries or those with caps still attached are under-ripe and should not be used. Always inspect blackberries carefully upon arrival.

Blood Oranges

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•						•
Florida	•	•	•	•	•	•				•	•	•
Australia							•	•				

NOTE: Another major production area is Europe.

Variety/Type Descriptions

Moro – Primary variety grown domestically. Small to medium-sized round fruit with smooth or slightly pitted peel. Peel color is orange with red blush. Juicy pulp is burgundy red in color. Moro flavor is rich orange with a hint of raspberries. May be used fresh as an addition to salads, as a garnish, or as an ingredient in beverages, sauces, marmalades, and desserts.



Ordering Specifications

Common packaging:

20-lb. ½-cartons

Grades:

U.S. Fancy
U.S. No. 1
U.S. Combination
U.S. No. 2

NOTE: Additional grades are given to Florida fruit. Not all oranges are graded. Ungraded oranges are called “unclassified.” Differences between grades are based primarily on external appearance.



Receiving and Inspecting

Good quality blood oranges should be well shaped and exhibit thin, orange peels with some red blush. Blood oranges should be heavy for their size.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–low
Sensitive to ethylene exposure: Yes

Storing tips:

Store blood oranges in a well-ventilated area. Keep away from ethylene-producing fruits, ripening rooms, and foods that absorb odors such as apples, eggs, butter, and cheese.

Nutrition

Nutrition information for Blood Oranges is not available in the data bases used by PMA.

Troubleshooting

Pitted peel; discolored flesh:

These are indications of chill injury. To prevent chill injury, do not store blood oranges below 38 degrees F/3 degrees C.

Peel deterioration and decay:

Exposure to ethylene may accelerate peel deterioration and increase susceptibility to decay. For best quality, keep blood oranges away from ethylene-producing fruits and ripening rooms.

Mold:

Blood oranges may show signs of mold if they are exposed to certain fungi and then stored in an area with warm temperatures and high humidity. To prevent mold from spreading, remove affected fruit and discard. Handle blood oranges with care to avoid injury and maintain short-term storage conditions of 45-50 degrees F/7-10 degrees C with 85-95% humidity.

Blueberries

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Michigan							•	•	•			
New Jersey						•	•	•	•			
North Carolina				•	•	•	•					
Oregon							•	•	•	•	•	
Canada							•	•	•			
Chile	•	•	•	•	•						•	•
Other Imports	•	•	•			•	•	•	•			•

Variety/Type Descriptions

Cultivated Northern Highbush –

Primary type grown for commercial production. Plump, juicy berries with a deep purple to blue-black skin color highlighted by a silvery sheen called “bloom.”

Ordering Specifications

Common packaging:

12 6-oz. and 12 12-oz. dry pints
Clamshells
Cello bags
5- and 10-lb. cartons

Grades:

U.S. No. 1

NOTE: Not all blueberries are graded.

Ungraded berries are called “unclassified.”

Sizes and Equivalents

Extra Large – less than 90 berries per cup
Large – 90-129 berries per cup
Medium – 130-189 berries per cup
Small – 190-250 berries per cup

Receiving and Inspecting

Good quality blueberries should be firm, plump, and dry. They should be deep purple or blue-black in color with a silvery sheen or “bloom.” Blueberries do not ripen after harvest; discard any green berries.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

Store blueberry containers in a single layer in a well-ventilated area.

Nutrition*

Serving Size 1 cup Blueberries (145g)

Amount Per Serving	% Daily Value
Calories 80	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 20g	7%
Dietary Fiber 4g	16%
Sugars 17g	
Protein 1g	
Vitamin A	2%
Vitamin C	30%
Calcium	0%
Iron	2%

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Troubleshooting

Shriveling:

Blueberries may lose moisture and shrivel if they are stored in an area with low humidity. For best quality, maintain humidity level of 90-98% during short-term storage.

Tough-textured skin:

Exposing blueberries to high temperatures may cause skin texture to toughen. Maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Loss of silver sheen or bloom; broken skins:

This may result from rough handling. For best quality, handle blueberries with care. Do not stack blueberry containers.

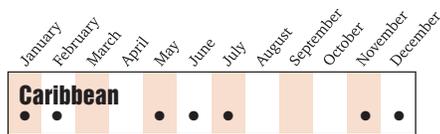
Mold; leaking:

Blueberries may begin to show mold or leak (bleed) if exposed to fluctuating temperatures or if stored in an area with restricted air circulation. To prevent mold and leaking, keep storage temperatures constant and arrange blueberry containers in a single layer to promote adequate air circulation. To prevent the possibility of freeze damage, do not store blueberries below 30 degrees F/-1 degree C.

Breadfruit

Availability

A major production area includes:



Variety/Type Descriptions

This oblong tropical fruit is harvested by hand when it is fully mature, but not necessarily ripe. Mature breadfruit have a dark green rind with light browning; segments on the rind are less angular and more smooth textured when ripe. As breadfruit ripens, the rind begins to yellow. The cream-colored flesh is mild flavored. The main variety is Whiteheart.

Ordering Specifications

Common packaging:

Single layer packs of varying counts, ranging from 27-35 lbs. net weight.

Grades:

No U.S. grades given.

Receiving and Inspecting

Select firm, unscarred, clean fruit with a uniform shape and predominantly green rind. Fully yellow-skinned breadfruit is ready for immediate use and should not be stored. Naturally occurring latex that appears on the surface should be washed away.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

55-65 degrees F/13-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene: Yes

Storing tips:

Fully ripe breadfruit that is wrapped in thick (38-50 micrometers) polyethylene bags can be kept for ten days at 54 degrees F/12 degrees C. Colder temperatures will cause chill injury.

Preparation tips:

Breadfruit can be eaten underripe as a vegetable or ripe as a fruit.

Nutrition*

Serving Size ¼ Breadfruit (96g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber 5g	19%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	45%
Calcium	2%
Iron	2%

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Troubleshooting

Soft flesh:

This is an indication of chill injury. Breadfruit should not be stored below 54 degrees F/12 degrees C.

Soft spots on the rind:

This may indicate bruising or damage done at harvest. Breadfruit is cut from trees and dropped into a net or by hand before being field packed. Fruit that falls to the ground may not show outward bruising, but flesh will be soft where injury occurred.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona						•	•	•	•	•	•	
California				•	•	•	•	•	•	•	•	
Indiana							•	•	•			
Texas				•	•	•	•	•	•	•	•	
Costa Rica	•	•	•	•	•							
Dominican Republic	•	•	•	•	•							
Guatemala	•	•	•	•	•						•	•
Honduras	•	•	•	•	•							
Mexico	•	•	•	•	•	•					•	•

Variety/Type Descriptions

Several varieties are available for commercial production. General characteristics include a thick, creamy rind with yellow netting. Peach-colored flesh is aromatic and juicy with a sweet flavor.

Ordering Specifications

Common packaging:

40-lb. cartons

1½-bushel cartons/crates, and baskets

Grades:

U.S. Fancy

U.S. No. 1

U.S. Commercial

U.S. No. 2

NOTE: Not all cantaloupes are graded. Ungraded cantaloupes are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

9-, 12-, 15-, 18-, and 23-count

Receiving and Inspecting

A good quality cantaloupe should be well shaped with good netting or webbing over creamy-colored rind. Tip end should be smooth and slightly depressed. A ripe cantaloupe will have a distinctive aroma and the blossom end should yield to gentle pressure. Avoid shriveled or bruised fruit or cantaloupe with punctured or cracked rinds.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: No

Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: Yes–medium

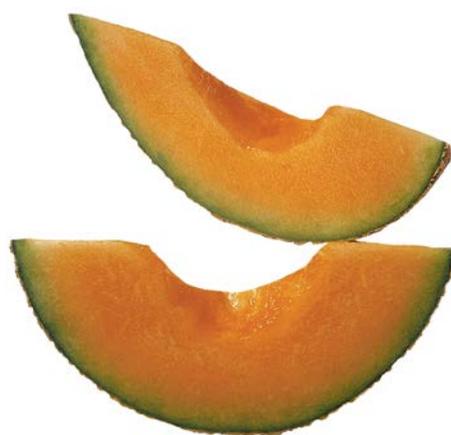
Sensitive to ethylene exposure: Yes

Storing tips:

If cantaloupes are going to be used in 1 or 2 days, they may be held at room temperature (68-72 degrees F/20-21 degrees C). Otherwise, they should be properly refrigerated.

Handling tips:

Handle ripe cantaloupe with care to avoid bruising or damage.



Nutrition*

Serving Size ¼ medium Cantaloupe (134g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Total Carbohydrate 13g	4%
Dietary Fiber 1g	4%
Sugars 12g	
Protein 1g	
Vitamin A	100%
Vitamin C	80%
Calcium	2%
Iron	2%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

Pitting; rind decay:

These are indications of chill injury. To prevent chill injury, do not store cantaloupe below 30 degrees F/-1 degree C.

Bruising:

Bruising may result from rough handling. To prevent bruising, keep handling to a minimum; do not drop containers on floor.

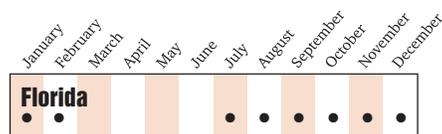
Deterioration of flesh:

Flesh may begin to deteriorate if ripe cantaloupe is exposed to extreme fluctuations in temperature. To prevent deterioration, keep storage temperature constant.

Carambolas/Star Fruit

Availability

A major production area includes:



Variety/Type Descriptions

Glossy yellow, egg-shaped fruit with 4 to 6 fins that produce star shapes when cut crosswise. Skin is smooth, waxy, and edible. Juicy, crisp flesh with a few seeds. Flavor ranges from slightly tart to sweet, depending on variety. Sweet varieties such as Arkin, Fwang Tung, and Thai may be eaten fresh. Tart varieties such as Golden Star, Thayer, and Star King are good for cooking and garnishes.

Ordering Specifications

Common packaging:

- 7-lb. flats holding 16-, 20-, 25-, or 30-count
- 20-lb. suitcases holding 60-, 72-, or 98-count
- Clamshells holding 2 pieces of fruit (16 clamshells per box)

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for firm, shiny-skinned fruit that is yellow-green to yellow in color. Some browning along the fins is natural and does not affect fruit quality. Carambola is often shipped before it is completely ripe and may exhibit some green coloring.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Handling tips:

Handle ripe fruit with care to avoid damage to fins.

Nutrition*

Serving Size 1 Carambola (127g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 10g	3%
Dietary Fiber 3g	14%
Sugars 7g	
Protein 1g	
Vitamin A	15%
Vitamin C	45%
Calcium	0%
Iron	2%

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Troubleshooting

Browning; increased susceptibility to decay:

Carambolas are sensitive to chill injury if stored below 41 degrees F/5 degrees C. For short-term storage of 7 days or less, store carambola at 45-50 degrees F/7-10 degrees C.

Bruised fins:

Fins may become bruised if ripe fruit is handled roughly. For best quality, keep handling to a minimum.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•						
Central and South America	•	•	•	•	•						•	•
Chile								•	•	•	•	•

Variety/Type Descriptions

Also known as Custard Apple. Heart-shaped fruit with embossed-like, dull green skin. Pulp is creamy white with large black seeds. Cherimoya flavor is similar to a cross between banana, papaya, and pineapple. Pulp only is edible. May be eaten as is, sliced or cubed and added to fruit salads, or pureed and served as a dessert topping. Cherimoyas are ripe and ready to eat when they yield to gentle pressure.

Ordering Specifications

Common packaging:

Single-layer tray packs holding various counts

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality cherimoyas should be well-shaped and free of bruises. Ripe fruit yields to gentle pressure. Size of cherimoyas does not affect quality.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very high
Sensitive to ethylene exposure: Yes

Storing tips:

Store ripe cherimoyas at 45-50 degrees F/
7-10 degrees C.

Handling tips:

Cherimoyas bruise easily; handle with care. Cherimoyas are ripe and ready to eat when they yield to gentle pressure.

Nutrition*

Serving Size ¼ Cherimoya (137g)

Amount Per Serving	% Daily Value
Calories 130	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 33g	11%
Dietary Fiber 3g	13%
Sugars 18g	
Protein 2g	
Vitamin A	0%
Vitamin C	20%
Calcium	4%
Iron	4%

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Troubleshooting

Bruising:

Cherimoyas bruise easily from rough handling. Handle product with care; do not drop shipping containers on the floor.

Brown discolored skin; moldy stem:

These are indications of overripe fruit. Always inspect cherimoyas carefully upon arrival and use or display ripe fruit immediately.

Black discoloration of skin:

This is an indication of chill injury. In severe chill injury cases, flesh may also turn black. To prevent chill injury, do not store cherimoyas below 45 degrees F/7 degrees C.



Cherries, Sweet

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•					
Oregon						•	•	•				
Washington					•	•	•					
Chile												•

Variety/Type Descriptions

Bing – Large firm cherry with mahogany skin and flesh; sweet rich flavor.

Chelan – Firm, round, heart-shaped fruit.

Lambert – Dark red, heart-shaped cherry with sweet rich flavor.

Lapins – Mahogany red cherry that exhibits excellent firmness and flavor.

Rainier – Firmly-textured cherry; golden skin with pink-red blush and clear-colored flesh. Sweet delicate flavor.

Sweetheart – Bright red, heart-shaped cherry with mild, sweet flavor and outstanding firmness.

Ordering Specifications

Common packaging:

11- to 20-lb. cartons or lugs
32-lb. crates

Grades:

U.S. No. 1
U.S. Commercial

NOTE: Differences between grades are based primarily on external appearance. Individual growing areas may also set their own grades.

Sizes:

9, 9.5, 10, 10.5, 11, 11.5, and 12 row

Equivalents

80 cherries = 2 cups pitted and sliced
1 pound cherries = 1½ cups juice

Receiving and Inspecting

Look for cherries that are plump with firm, smooth, and brightly colored skins. Avoid cherries with blemishes, rotted or mushy skins. Avoid those that appear either hard and light-colored, or soft, shriveled, and dull. Good quality cherries should have green stems intact.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

Maintain high humidity while storing cherries. Keep separated from foods with strong odors.

Handling tips:

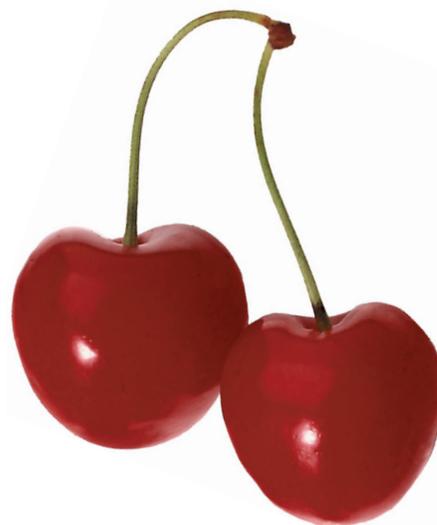
Cherries bruise easily; handle with care.

Nutrition*

Serving Size 1 cup Cherries (140g)

Amount Per Serving	% Daily Value
Calories 90	
Calories from Fat 5	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 23g	8%
Dietary Fiber 3g	12%
Sugars 20g	
Protein 2g	
Vitamin A	2%
Vitamin C	15%
Calcium	2%
Iron	2%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Pitted skin:

Pitting is the result of damage caused by rough handling. To prevent pitting, keep handling to a minimum and do not dump cherries from shipping containers.

Shriveling; dry, dark stem:

These are indications of moisture loss due to low humidity. For best quality, maintain humidity level of 90-98% during storage.

Loss of flavor; dull color:

These are indications of age. For best quality, inspect cherries carefully upon arrival and use soon after receiving.

Hard, light-colored cherries with dry, acidic flavor:

These are indications of immature fruit; do not use.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Dominican Republic	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•
Philippines	•	•	•	•	•	•	•	•	•	•	•	•
Thailand	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include Costa Rica, Honduras, and Jamaica.

Variety/Type Descriptions

Round fruit with a hard, thick brown shell covered with hair-like fibers. White meat inside is slightly sweet with a moist and slightly crunchy texture. A milk-like liquid is contained in the cavity inside. White meat and liquid are edible.

Ordering Specifications

Common packaging:

24- and 30-count box
40- and 50-count sacks

Grades:

Coconuts imported from Puerto Rico are designated Puerto Rico No. 1 and Puerto Rico No. 2.



Receiving and Inspecting

Choose coconuts that are heavy for their size and “slosh” when shaken. Avoid coconuts with cracks or that appear wet around the eyes. Coconuts may be treated with a wax coating or film-wrapped to help prevent moisture loss.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 0.5 ounce Coconut (14g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 50	
Calories from Fat 45	
Total Fat 4.5g	7%
Saturated Fat 4g	21%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	5%
Sugars 1g	
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	2%

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Troubleshooting

Mold:

Coconuts may become moldy if they are exposed to warm, humid conditions. For best quality, store coconuts at 32-36 degrees F/0-2 degrees C.

Weight loss; milk inside dries up:

These are indications of moisture loss. To prevent moisture loss, keep coconuts cold and maintain a high humidity level. Film-wrapping coconuts may also help prevent moisture loss.

Cracked shells:

Exposing coconuts to extreme temperature fluctuations may cause shells to crack. To prevent cracking, do not store coconuts below 26 degrees F/-3 degrees C. Rough handling may also cause cracking of shells. Handle coconuts with care; do not drop shipping containers on the floor.

Cranberries

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Massachusetts									•	•	•	
New Jersey									•	•		
Oregon									•	•	•	
Washington									•	•	•	
Wisconsin												•

NOTE: Other major production areas include Maine and Canada.

Variety/Type Descriptions

Small round and firm berries with deep red to red-maroon color, white flesh, and distinct, tart flavor. Cranberries may be used cooked or uncooked in sauces, relishes, and baked goods.

Ordering Specifications

Common packaging:

18-lb. cartons holding 24 12-oz. poly bags
20-lb. bulk cartons

Grades:

U.S. No. 1



Receiving and Inspecting

Choose cranberries that are clean, firm, and well colored. Avoid cranberries that appear shriveled, soft, or decayed.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 1 cup Cranberries (95g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 12g	4%
Dietary Fiber 4g	16%
Sugars 8g	
Protein 0g	
Vitamin A	0%
Vitamin C	20%
Calcium	0%
Iron	2%

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Troubleshooting

Rubbery texture; red flesh:

These are indications of chill injury. To prevent chill injury, do not store fresh cranberries below 36 degrees F/2 degrees C.

Softening; spoilage:

Rough handling may cause softening and spoilage of cranberries. Spoilage and shriveling may also occur if cranberries are held for extended periods of time, especially at temperatures above 50 degrees F/10 degrees C and/or humidity levels below 90%. For best quality, keep handling to a minimum and use or display cranberries soon after receiving.

Currants, Red/Black

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.						•	•	•				
New Zealand	•	•	•	•								•

Variety/Type Descriptions

Red – Tiny, glossy, semi-transparent, scarlet berries that grow on bushes. Commonly used fresh on salads, desserts, or eaten out of hand. Red currants are the signature flavor in Cumberland sauce.

Black – Deep purple, black berries generally used in jams, jellies, and liqueurs. Black currants have a highly characteristic aroma which provides the flavor for crème de cassis liqueur.

White – An albino form of the red currant. White currants have lower acidity levels, making them excellent to eat out of hand or use in salads and fruit cups.

Ordering Specifications

Common packaging:

4/6-oz. packages



Receiving and Inspecting

Fresh currants should be plump and firm. Avoid any broken fruit or leaking packages. Choose currants without hulls.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–low
Sensitive to ethylene: Yes–low



Nutrition*

Serving Size 1 cup Red Currants (112g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 5g	19%
Sugars 11g	
Protein 2g	
Vitamin A	2%
Vitamin C	80%
Calcium	4%
Iron	6%

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Dates

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California								•	•	•	•	•
China	•	•	•	•	•	•	•	•	•	•	•	•
Iran	•	•	•	•	•	•	•	•	•	•	•	•
Pakistan	•	•	•	•	•				•	•	•	•
Saudi Arabia								•	•	•	•	•
Tunisia							•	•	•	•	•	•

Variety/Type Descriptions

Deglet Noor – Semi-dry, amber-colored date; medium-large size.

Halawy – Soft date with a sweet flavor.

Khadrawy – Soft, dark brown date.

Zahidi – Small, semi-dry date with egg shape and golden color.

Ordering Specifications

Common packaging:

7-oz. plastic cups holding whole dates

8-oz. plastic cups holding pitted dates

15-lb. boxes

Grades:

Dates are subject to grade and size regulations through the Processed Products Inspection Service.



Receiving and Inspecting

Good quality dates should be well colored and exhibit characteristics of the particular variety. Halawy and khadrawy varieties exhibit a soft texture; deglet noor and zahidi varieties are semi-dry and exhibit a firm texture. Avoid dates that show crystallization of sugars or physical defects such as insect damage.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: No

Storing tips:

For long-term storage beyond 7 days, reduce humidity level to 65-70%.

Nutrition*

Serving Size 5 Dates (42g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 31g	10%
Dietary Fiber 3g	12%
Sugars 27g	
Protein 1g	
Vitamin A	0%
Vitamin C	0%
Calcium	2%
Iron	2%

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Troubleshooting

Discoloration; flavor loss; aroma loss:

Dates may show discoloration or loss of flavor/aroma if stored in a warm area. Warm temperatures may also promote molding. For best quality, keep dates cold during storage. High humidity helps maintain preferred soft texture of dates; however, low temperatures are critical in maintaining flavor, aroma and general quality.

Sugaring on surface of dates:

Dates may exhibit a crystal-like sugar film resulting from exposure to warm temperatures and low humidity. Dates may also suffer moisture loss and shriveling if stored in a warm area with low humidity. For best quality, keep dates cold during storage (32-36 degrees F/0-2 degrees C and 90-98% humidity for 7 days or less).

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
Dried Apricots	•	•	•	•	•	•	•	•	•	•	•	•
Dried Figs	•	•	•	•	•	•	•	•	•	•	•	•
Dried Peaches	•	•	•	•	•	•	•	•	•	•	•	•
Dried Pears	•	•	•	•	•	•	•	•	•	•	•	•
Dried Plums	•	•	•	•	•	•	•	•	•	•	•	•
Raisins	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Dried Apricots – Varieties typically used for drying are Blenheim and Tilton.

Dried Figs – Calimyrna and Mission varieties are used for dried figs.

Dried Peaches – Freestone peaches are typically used for drying.

Dried Pears – Bartlett pears are typically used for drying.

Dried Plums – Dried plums used to be called prunes. Only specific plum varieties that will dry whole are used.

Raisins – Common types include natural seedless and golden seedless.

Ordering Specifications

Common packaging:

Consumer cartons
Film bags
Plastic cups
Bulk

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality dried fruits should be well colored. Avoid dried fruit that is darkened, moldy or insect damaged.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storage Tips:

For long-term storage beyond 7 days, reduce humidity to 65-70%.

Nutrition*

Dried Apricots

Serving Size 12 halves Dried Apricot (42g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber 2g	9%
Sugars 18g	
Protein 2g	
Vitamin A	6%
Vitamin C	10%
Calcium	2%
Iron	10%

Dried Figs

Serving Size 2 Dried Figs (37g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 25g	8%
Dietary Fiber 5g	18%
Sugars 18g	
Protein 1g	
Vitamin A	0%
Vitamin C	0%
Calcium	4%
Iron	6%



Dried Plums

Serving Size 5 Dried Plums (42g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber 3g	12%
Sugars 18g	
Protein 1g	
Vitamin A	15%
Vitamin C	2%
Calcium	2%
Iron	6%

Raisins

Serving Size ¼ cup Raisins (41g)

Amount Per Serving	% Daily Value
Calories 120	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 33g	11%
Dietary Fiber 2g	7%
Sugars 27g	
Protein 1g	
Vitamin A	0%
Vitamin C	2%
Calcium	2%
Iron	4%

Dried Fruits

Dried Peach

Serving Size 3 halves Dried Peach (39g)

Amount Per Serving	% Daily Value
Calories 90	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 24g	8%
Dietary Fiber 3g	13%
Sugars 20g	
Protein 1g	
Vitamin A	15%
Vitamin C	4%
Calcium	2%
Iron	8%

Dried Pear

Serving Size 2 halves Dried Pear (35g)

Amount Per Serving	% Daily Value
Calories 90	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 24g	8%
Dietary Fiber 3g	11%
Sugars 18g	
Protein 1g	
Vitamin A	0%
Vitamin C	4%
Calcium	2%
Iron	4%

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Troubleshooting

Dark or brown discoloration; flavor loss; mold; insect damage:

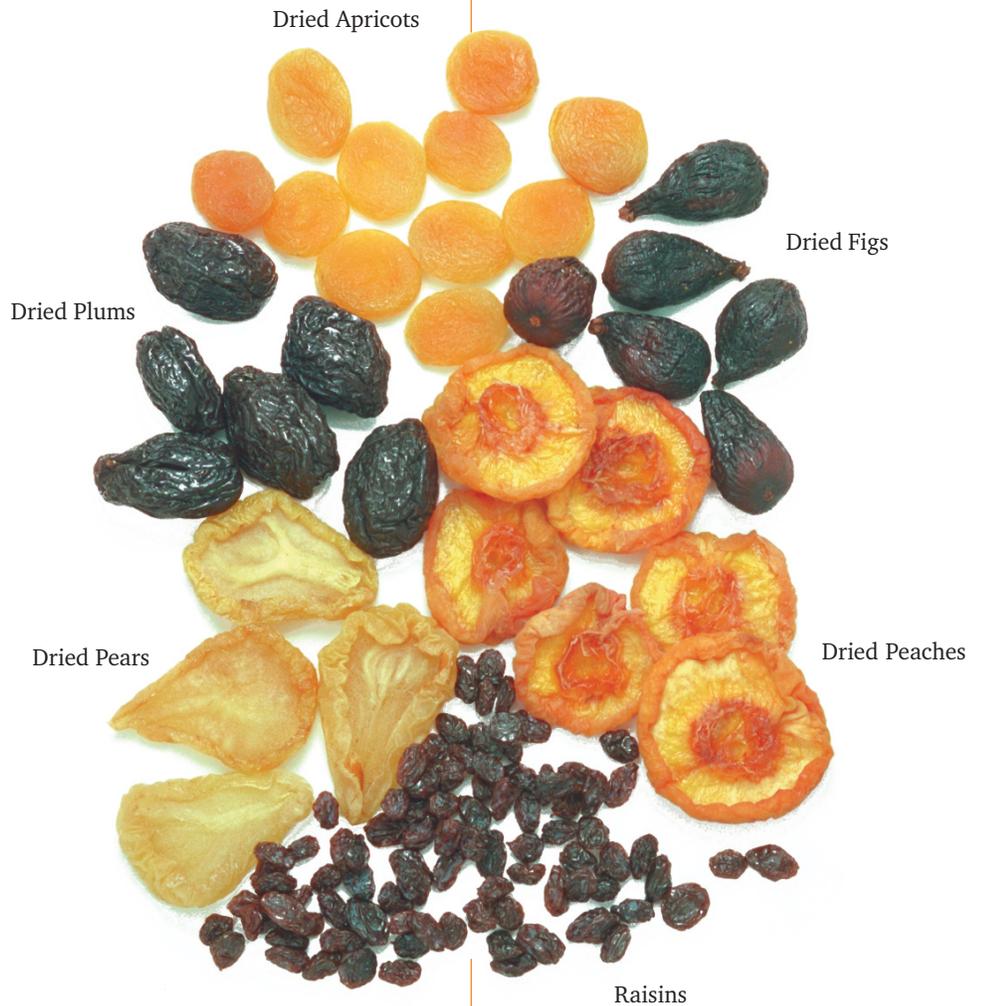
These are signs of damage due to exposing dried fruits to high temperatures. For short-term storage of 7 days or less, store dried fruits at 45-50 degrees F/7-10 degrees C. For long-term storage, reduce humidity level to 65-70%.

Sugaring on surface or in flesh of dried figs, dried plums, or raisins:

Storing figs, dried plums, or raisins in a warm area may cause sugar accumulation on the surface or in the flesh. For best quality, store dried figs, dried plums, and raisins between 45-50 degrees F/7-10 degrees C.

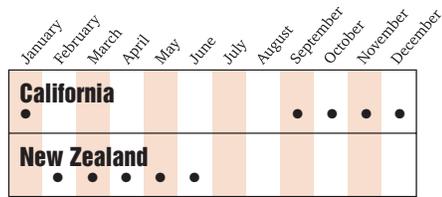
Excessive drying:

Storing dried fruits in a warm area with extremely low humidity may result in excessive drying. For best quality, maintain a relative humidity level of 85-95% for short-term storage of 7 days or less. For longer storage, reduce humidity level to 65-70%.



Availability

Some major production areas include:



Variety/Type Descriptions

Also called Pineapple Guava. Oval-shaped fruit with thin, slightly bumpy skin. Skin color ranges from lime green to olive green. Creamy white flesh has a somewhat gritty or granular texture and contains tiny edible seeds. Feijoa flavor is similar to pineapple with a hint of spearmint. The flesh may be eaten uncooked (fruit salads, edible garnish) or cooked (stewed, jams, jellies). Feijoa skin is typically bitter in flavor and is generally not eaten.

Ordering Specifications

Common packaging:

Single-layer tray packs holding various counts

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality feijoas should be plump with lime green to olive green skin. Avoid product with blemishes or broken skin. Feijoas are ripe and ready to use when they give to gentle pressure.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Nutrition*

Serving Size 3 Feijoas (150g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 10	
Total Fat 1g	2%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 16g	5%
Dietary Fiber 6g	25%
Sugars 10g	
Protein 2g	
Vitamin A	0%
Vitamin C	50%
Calcium	2%
Iron	0%

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Troubleshooting

Brown discoloration of skin:

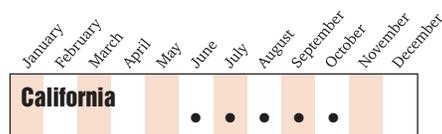
This is an indication of chill injury. In severe cases, flesh may discolor as well. To prevent chill injury, do not store feijoas below 41 degrees F/5 degrees C.



Figs, Fresh

Availability

A major production area includes:



NOTE: Another major production area is Arizona.

Variety/Type Descriptions

Calimyrna – Large, pale-yellow-skinned fig with nutty, sweet flavor. May be eaten fresh or cooked as an ingredient in chutney or preserves.

Kadota – Greenish-yellow skin; amber flesh.

Mission – Purple to black-skinned fig with pink flesh. May be eaten fresh or cooked.

Ordering Specifications

Common packaging:

Single or 2-layer tray packs

Grades:

No U.S. grades given.

Receiving and Inspecting

Fresh figs should be plump and fairly soft when ripe. Avoid figs that are damaged from rough handling.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: No

Storing tips:

Fresh figs are very perishable; do not store longer than 7 days. Keep away from fruits and vegetables that are sensitive to ethylene and may be damaged by it.

Handling tips:

Fresh figs are delicate; handle with care.

Nutrition*

Serving Size 3 medium Figs (150g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 29g	10%
Dietary Fiber 5g	20%
Sugars 24g	
Protein 1g	
Vitamin A	4%
Vitamin C	6%
Calcium	6%
Iron	4%

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Troubleshooting

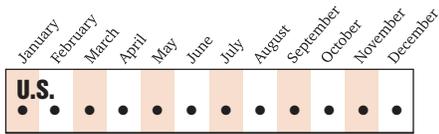
Freeze damage:

Fresh figs are susceptible to freeze damage. For best quality, do not store fresh figs below 28 degrees F/-2 degrees C.

External damage:

Fresh figs are very delicate, especially when ripe and ready to eat. Rough handling may cause fresh ripe figs to burst. For best quality, keep handling to a minimum. Do not drop shipping containers on the floor.

Availability



Variety/Type Descriptions

Fruit Salad Mix – blend of melon balls or chunks, grapes, and pineapple chunks

Grapes – proportioned clusters

Mango – slices

Melons – balls, chunks, slices

Papaya – slices

Pineapple – chunks, spears, wedges

Ordering Specifications

Common packaging:

While specific packaging varies by supplier, some common types include:

Consumer packs:

Fruit salad mix/melons: Plastic containers and pouches; glass jars

Grapes: Pre-portioned: Loose-pack boxes

Mango and papaya slices: Glass jars

Pineapple: 12-, 16-, 40-, and 80-oz. film bags; 5-lb. plastic pouches

Foodservice packs:

Fruit salad mix/melons: Plastic containers and pouches; glass jars

Grapes: Pre-portioned: Loose-pack boxes

Pineapple: 5-lb. plastic pouches

Grades:

No mandatory U.S. grades given.

Receiving and Inspecting

Fresh-cut fruits should be fresh and well colored. Avoid product that is discolored or slimy. Bags or containers should be intact. Avoid punctured or ripped containers. While fresh-cut fruits may be moist, they should not be wet. NOTE: Some fresh-cut fruits may extract juice during transportation resulting in some liquid in the bag or container. This is normal and does not affect overall quality of the fruit. Fresh-cut fruits should arrive cold. Warm product will deteriorate rapidly and valuable shelf life may be lost.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: No

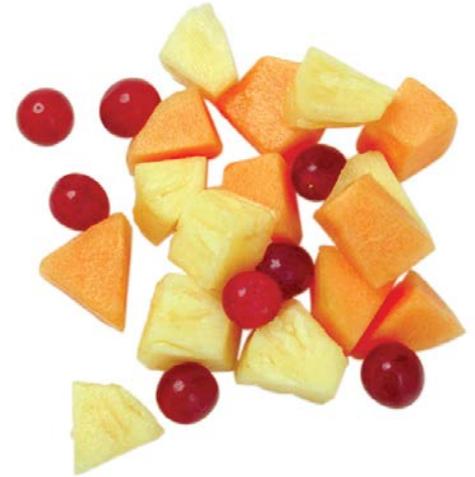
Storing tips:

Keep fresh-cut fruits cold during storage to help maintain freshness and shelf life.

Handling tips:

Handle fresh-cut containers with care to prevent punctures or rips. Always use good rotation practices; first items in should be used or displayed first. Pay attention to expiration and “sell by” dates as well as shelf life information stamped on individual packages or shipping containers, and use or display product accordingly. Discard product that is past its “sell by” or expiration date.

Retailers: Follow supplier guidelines for arranging fresh-cut packages during display to maintain proper air circulation.



Nutrition

Refer to individual commodity pages for fresh cut fruit nutrition information.

Troubleshooting

Discoloration; slimy or wet product; foul odor:

These are indications of temperature abuse resulting from exposing fresh-cut items to warm temperatures. To maintain quality and shelf life, fresh-cut items must be kept cold at all times.

Store fresh-cut fruit at 32-36 degrees F/ 0-2 degrees C and maintain a humidity level of 90-98%. Always pay attention to supplier “use by” recommendations and expiration dates.

NOTE: Fresh-cut fruits may extract juice during transportation resulting in some liquid in the bag or container. This is normal and should not affect the quality of the fruit.

Gooseberries

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California											•	•
Oregon							•	•				
Washington		•	•	•	•							
New Zealand										•	•	•

Variety/Type Descriptions

The grape-sized fruit of a spiny shrub native to Europe. Gooseberries may be light green, white, yellow, pink, deep crimson, or almost black. The most common variety found in the U.S. market is round, light green, and juicy. Gooseberries, a relative of the currant, are different from Cape Gooseberries which have a papery husk and tart, bitter flavor.

Ordering Specifications

Common packaging:

12-count

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for plump berries with intact skin and no mold. Color should be consistent except for natural light-colored striations running from top to bottom.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-34 degrees F/0-1 degree C
Relative humidity: 90-98%

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes-low
Produces ethylene: Yes-low

Storing tips:

Gooseberries will keep in 32-34 degree F/0-1 degree C storage for up to two weeks. They may also be frozen after par-boiling in either whole form or as a puree.

Nutrition*

Serving Size 1 cup Gooseberries (150g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 10	
Total Fat 1g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 6g	26%
Sugars 9g	
Protein 1g	
Vitamin A	8%
Vitamin C	70%
Calcium	4%
Iron	2%

*These values have not been adopted or approved by FDA. They have been obtained from USDA's Handbook 8, or other databases developed by PMA and its members. While PMA believes use of non-FDA-approved data should not result in FDA regulatory action, such a result can never be assured. Consultation with company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Mold:

Gooseberries are susceptible to mold; keep dry and cool.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona/California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•		•	•	•	•	•
Texas	•	•	•	•	•					•	•	•

Variety/Type Descriptions

NOTE: Grapefruit is usually classified as white or pink/red, and seeded or seedless. White and pink/red grapefruit are similar in flavor.

Duncan – Thin-skinned, juicy with white meat; contains a cluster of seeds in the center of the fruit.

Flame – Round, very smooth, thin rind, external red blush and dark red flesh, and few seeds.

Golden – Honey-colored meat, bright yellow skin, and few seeds.

Marsh White – Smooth, thin skin with white meat, and few seeds.

Pink – Reddish-pink meat, smooth, yellow rind with some pink tinge, and few seeds.

Rio Red – Fairly red meat with yellow rind, seedless.

Ruby Red – Red-tinged meat, smooth, yellow rind with some red blush, and few seeds.

Star Ruby – Deep red meat, yellow rind with red blush, seedless.



Ordering Specifications

Common packaging:

Arizona/California:
 35-lb. cartons
 17 ½-lb. cartons
 10- to 12-lb. single-layer cartons
 5-, 8-, and 10-lb. bags

Florida:
 4/5-bushel cartons
 5-, 8-, 10- and 14-lb. bags
 Bins holding bulk and bagged product

Texas:
 20- and 40-lb. cartons
 5-, 8-, 10-, and 18-lb. bags
 Bins holding bulk or bagged fruit

Grades:

U.S. Fancy
 U.S. No. 1
 U.S. No. 2
 U.S. Combination
 U.S. No. 3

NOTE: Additional U.S. grades are given to Florida/Texas grapefruit. Not all grapefruit is graded. Ungraded grapefruit is called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

California: 27-, 32-, 36-, 40-, 48-, 56-, and 64-count

Florida: 27-, 32-, 36-, 40-, and 48-count

Texas: 23-, 27-, 32-, 36-, 40-, 48-, and 56-count

Equivalents

1 medium grapefruit = 10-12 sections
 1 medium grapefruit = 2/3 cup juice
 1 medium grapefruit = 3-4 tablespoons grated peel

Receiving and Inspecting

Look for grapefruit with smooth, blemish-free skins. It should be heavy for its size and well-shaped. Grapefruit may exhibit some regreening of the skin; this does not adversely affect internal fruit quality.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
 85-95% relative humidity

Retail display tips:

Water sprinkle: No
 Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
 Sensitive to ethylene exposure: Yes

Storing tips:

Store grapefruit in a well-ventilated area.

Handling tips:

Keep cartons off the floor to prevent dampening from condensation of moisture in the room.

Grapefruit

Nutrition*

Serving Size ½ medium Grapefruit (154g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 16g	5%
Dietary Fiber 6g	24%
Sugars 10g	
Protein 1g	
Vitamin A	15%
Vitamin C	110%
Calcium	2%
Iron	0%

*Based on information published by FDA.

Troubleshooting

Pitting or browning of skin; watery breakdown of flesh:

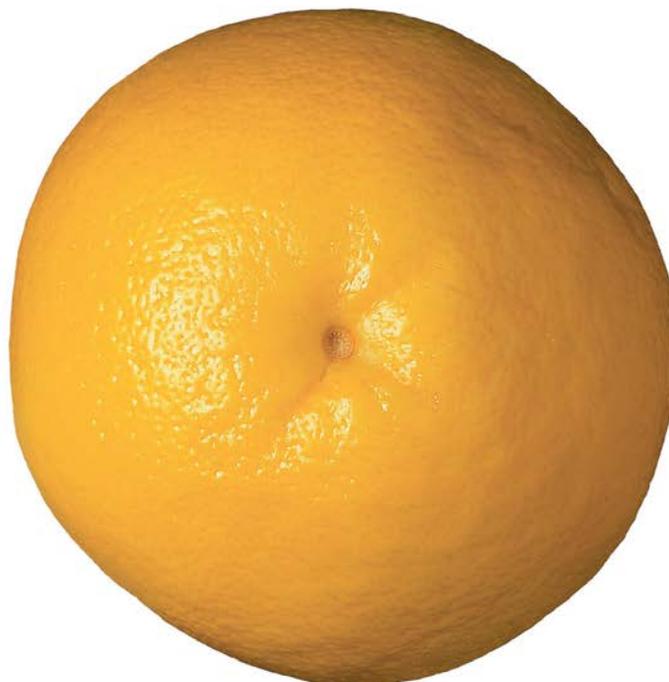
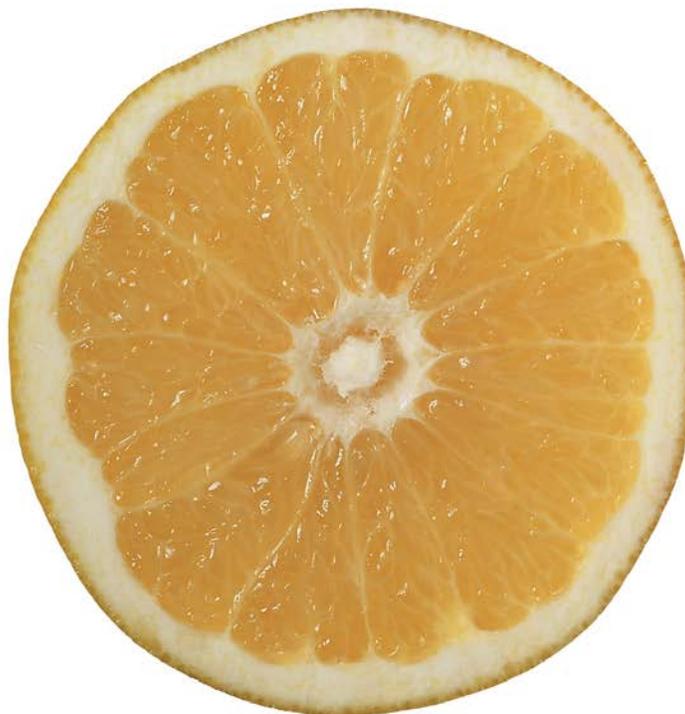
These are indications of chill injury. To prevent chill injury, do not store grapefruit below 45 degrees F/ 7 degrees C.

Skin deterioration; flesh decay:

Exposure to ethylene may accelerate skin deterioration and increase grapefruit's susceptibility to decay. For best quality, keep grapefruit away from ethylene-producing fruits and ripening rooms.

Mold:

Grapefruit may show signs of mold if exposed to certain fungi and then stored at warm temperatures and high humidity. To prevent mold from spreading, remove affected fruit and handle grapefruit with care to avoid injury. Maintain short-term storage temperature of 45-50 degrees F/7-10 degrees C and a humidity level of 85-95%.



Availability

Some major production areas include:

California:

	January	February	March	April	May	June	July	August	September	October	November	December
Autumn Royal								•	•	•	•	•
Beauty Seedless				•	•	•	•	•				
Calmeria	•							•	•	•	•	
Christmas Rose	•						•	•	•	•	•	
Crimson Seedless	•					•	•	•	•	•	•	
Emperor	•								•	•	•	
Fantasy Seedless					•	•	•	•	•			
Flame Seedless				•	•	•	•	•	•	•	•	•
Marroo Seedless					•	•	•	•	•	•	•	
Niabell							•	•	•	•		
Perlette Seedless				•	•	•						
Red Globe	•				•	•	•	•	•	•	•	•
Ribier	•						•	•	•	•	•	
Rouge	•								•	•	•	
Ruby Seedless	•						•	•	•	•	•	
Sugraone					•	•	•					
Thompson Seedless	•				•	•	•	•	•	•	•	
Tudor Premium Red								•	•	•	•	

Chile:

	January	February	March	April	May	June	July	August	September	October	November	December
Crimson Seedless	•	•	•	•	•							
Fantasy Seedless	•	•	•									•
Flame Seedless	•	•	•									•
Perlette	•											•
Red Globe	•	•	•	•	•							
Ribier				•	•							
Ruby Seedless				•	•	•						
Sugraone	•	•	•									•
Thompson Seedless	•	•	•	•								•

Variety/Type Descriptions

Green:

Calmeria – Large, light green, elongated, seeded grape.

Perlette Seedless – Medium, light green color, nearly round, seedless grape.

Sugraone – Large, bright green, elongated, seedless grape.

Thompson Seedless – Medium to large, light green, cylindrical, seedless grape.

Red:

Christmas Rose – Large, dark red, oval, seeded grape.

Crimson Seedless – Medium-sized, bluish-red, cylindrical, seedless grape.

Emperor – Large, dark red, oval, seeded grape.

Flame Seedless – Medium-sized, red, round, seedless grape.

Red Globe – Very large, red, round, seeded grape.



Rouge – Large, dark red, oval, seeded grape.

Ruby Seedless – Medium-sized, deep red, oval, seedless grape.

Tudor Premium Red – Large, red, oval, seedless grape.

Blue-Black:

Autumn Royal – Large, blue-black, oval, elongated, seedless grape.

Beauty Seedless – Medium-sized, bluish-black, oval, seedless grape.

Fantasy Seedless – Large, blue-black, oval, elongated, seedless grape.

Marroo Seedless – Medium to large, blue-black, nearly round, seedless grape.

Niabell – Medium, dark purple to black, round, seeded grapes.

Ribier – Large, dark blue-black, round seeded grape.

NOTE: Other grape varieties include Concord and Champagne.



Grapes

Ordering Specifications

Common packaging:

16- to 22-lb. cartons and lugs
Containers holding pre-portioned bunched grapes

Grades:

U.S. Extra Fancy Table
U.S. Fancy Table
U.S. No. 1 Table
U.S. Institutional Pack

NOTE: Not all grapes are graded. Ungraded grapes are called “unclassified.”

Receiving and Inspecting

Grape bunches should be well-colored with plump berries firmly attached to green pliable stems. Grapes should be consistent with the color and shape of the particular variety.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Maintain adequate air circulation during storage. Keep grapes away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size $\frac{3}{4}$ cups Grapes (126g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 90	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 23g	8%
Dietary Fiber 1g	4%
Sugars 20g	
Protein 0g	
Vitamin A	0%
Vitamin C	2%
Calcium	2%
Iron	0%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

Shatter:

Detachment of berries from the cluster is called shatter. Shatter increases with rough or excessive handling. Shatter can be reduced by gentle handling and maintaining recommended temperature and relative humidity levels.

Moisture:

Never wash grapes in preparation for the display. The natural protective layer created by the grapes, called bloom, will be removed. This allows for dehydration or water loss to occur. Once the bloom is removed, it dramatically increases the grape's susceptibility to mold and decay.

Air circulation:

Grape lugs should be kept away from air blasts. Moving air has a drying effect on grapes. The rate of drying is directly related to the velocity of air.

Ethylene gas:

Table grapes are not sensitive to ethylene. However, exposure to ethylene may be a secondary factor in shatter. Reduce the effects of ethylene exposure by maintaining cold temperatures and good air movement.

Odor sensitivity:

Never store odorous products with grapes; they absorb odors.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•				•						
Florida	•	•	•			•	•	•			•	•

Variety/Type Descriptions

Round to oblong-shaped fruit with light green to yellow edible skin. Flesh may be white, yellow, salmon, or red and contains tiny edible seeds. When ripe, guavas exhibit a distinct fruity aroma and sweet flavor. Guavas may be used cooked or uncooked.

Ordering Specifications

Common packaging:

Single-layer tray packs
Bulk cartons of various weights

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality guavas should be firm and free of bruises or decay. Ripe guavas should exhibit a fragrant aroma.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: Yes

Nutrition*

Serving Size 1 Guava (90g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 5g	19%
Sugars 5g	
Protein 1g	
Vitamin A	15%
Vitamin C	280%
Calcium	2%
Iron	2%

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Troubleshooting

Increased decay:

This is an indication of chill injury. To prevent chill injury, do not store guavas below 45 degrees F/7 degrees C.

Accelerated ripening:

Guavas are sensitive to ethylene; exposure to the gas may cause accelerated ripening which is indicated by flesh softening and skin color changes from green to yellow. To prevent accelerated ripening, keep guavas away from ethylene-producing fruits and ripening rooms.

Honeydew Melons

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona						•	•	•	•	•	•	
California					•	•	•	•	•	•	•	•
Texas					•	•	•	•		•	•	•
Mexico	•	•	•	•	•	•	•			•	•	•

Variety/Type Descriptions

Honeydew melons are characterized by a large, round shape and smooth, creamy yellow rind. Flesh is light green, juicy, and sweet. Orange-fleshed honeydew is also available; flavor is similar to cantaloupe.

Ordering Specifications

Common packaging:

30-lb. cartons
2/3-cartons

Grades:

U.S. No. 1
U.S. Commercial
U.S. No. 2

Sizes:

4-, 5-, 6-, 8-, 9-, 10-, and 12-count

Receiving and Inspecting

Choose honeydew melons that are heavy for their size and well-shaped. Ripe honeydew melons are characterized by a creamy yellow rind, light green, juicy flesh, and a slightly soft blossom end. Honeydews are picked while they are still firm which is characterized by a whiter rind color with slight green tinge and a hard blossom end. (However, all honeydew melons should have a soluble solids content of 10% before they are harvested to ensure good flavor.) Firm melons may be softened by holding at room temperature.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—medium
Sensitive to ethylene exposure: Yes

Storing tips:

Riper honeydew melons may be stored at 45-50 degrees F/7-10 degrees C. Exposing firm honeydew melons to ethylene gas can help promote softening and color change from green to creamy yellow.

Handling tips:

Handle ripe honeydew melons with care to avoid bruising. Do not drop shipping containers on the floor.

Nutrition*

Serving Size $\frac{1}{10}$ medium
Honeydew Melon (134g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 35mg	1%
Total Carbohydrate 13g	4%
Dietary Fiber 1g	4%
Sugars 12g	
Protein 1g	
Vitamin A	2%
Vitamin C	45%
Calcium	0%
Iron	2%

*Based on information published by FDA.



Troubleshooting

Pitted rind; reddish-tan discoloration of flesh; failure to ripen:

These are indications of chill injury. To prevent chill injury, do not store honeydews below 45 degrees F/7 degrees C.

Decay; flesh softening; off flavor:

This may be an indication of age or product that was held for an extended period of time. These symptoms may not appear until after honeydew is taken out of storage and held at room temperature. For best quality, inspect honeydews carefully and use ripe product shortly after receiving.

Bruising:

Honeydew melons may bruise if handled roughly. Handle melons with care; do not drop shipping containers on the floor.



Horned Melons

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California								•	•	•		
New Zealand	•	•	•	•	•							

Variety/Type Descriptions

Small, oval-shaped melon with golden-yellow, spiked rind. Pulp is bright green with a jelly-like consistency and contains small edible white seeds. Pulp only is edible. Flavor of horned melon is a subtle combination of cucumber, banana, and lime. Horned melon is used uncooked. May be halved and served alone or as a dessert topping.

Ordering Specifications

Common packaging:
Single-layer tray packs

Grades:
No U.S. grades given.

Receiving and Inspecting

Good quality horned melons should have yellow rinds; avoid melons with split or cracked rinds.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Keep horned melons away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle horned melons with care to prevent bruising.

Nutrition

Nutrition information for Horned Melons is not available in the data bases used by PMA.



Troubleshooting

Bruised or damaged rinds:

Horned melons are susceptible to bruised or damaged rinds. To prevent bruising, handle melons with care. Store and display fruit in a single layer; do not stack.

Pitted rind; water-soaked spots; softening:

These are indications of chill injury. To prevent chill injury, do not store horned melons below 45 degrees F/7 degrees C.

Accelerated yellowing; softening:

Horned melons are sensitive to ethylene; exposure to the gas may cause accelerated yellowing and softening. To prevent accelerated yellowing and softening, keep horned melons away from ethylene-producing fruits and ripening rooms.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•				•	•	•
Chile			•	•	•	•	•	•	•	•		
New Zealand					•	•	•	•	•	•	•	

Variety/Type Descriptions

Hayward – Predominant variety available. Plump, oblong fruit with thin, brown, fuzzy skin. Flesh is emerald green with tiny, edible, black seeds; flavor is mild and sweet.

Gold Kiwifruit – Smooth-skinned, more oblong in shape with a hard, pointed crown at one end. Interior flesh is golden yellow with black seeds. Flavor is more tropical, milder, and sweeter than green kiwifruit.

Ordering Specifications

Common packaging:

Single-layer tray packs
3-layer tray packs
Volume-fill containers
20-pound bags
Loose-fill bins

Grades:

California:
U.S. Fancy
U.S. No. 1
U.S. No. 2

New Zealand:
Class 1

Differences between grades are based primarily on external appearance.

Sizes:

25-, 27-, 28-, 30-, 33-, 36-, 39-, 42-, 45-, 46-, and 49-count

Receiving and Inspecting

Kiwifruit should be plump with no wrinkles or signs of exterior damage. Unripe fruit will be firm to the touch; ripe fruit will give to gentle pressure.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degreesF/0-2 degrees C
90-98% humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene:
Unripe: Yes–low
Ripe: Yes–high

Sensitive to ethylene exposure:

Unripe: Yes
Ripe: Yes

Storing tips:

Unripe kiwifruit is extremely sensitive to ethylene; exposure will accelerate softening and other physiological disorders.

Nutrition*

Serving Size 2 medium Kiwifruit (148g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 10	
Total Fat 1g	2%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 24g	8%
Dietary Fiber 4g	16%
Sugars 16g	
Protein 2g	
Vitamin A	2%
Vitamin C	240%
Calcium	6%
Iron	4%

*Based on information published by FDA.



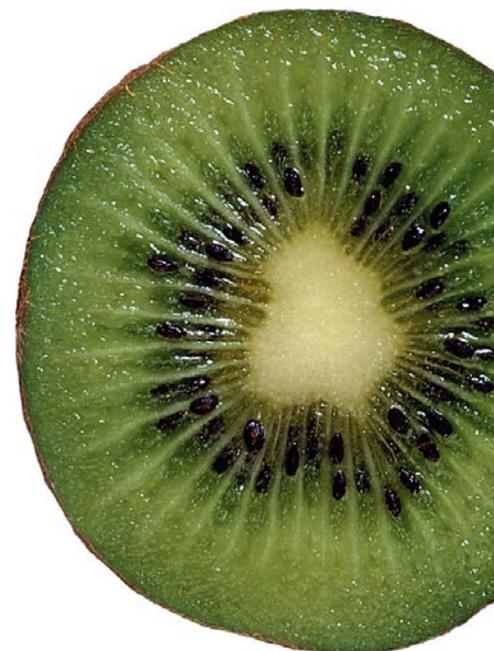
Troubleshooting

Bruised or broken skin:

Ripe kiwifruit may exhibit bruised or broken skin if handled roughly. Keep handling to a minimum and do not drop shipping containers on the floor.

Softening; shriveling; mold:

These are signs of spoilage due to accelerated ripening from exposure to ethylene gas. To prevent premature ripening, particularly in unripe kiwifruit, keep product away from ethylene-producing fruits and ripening rooms.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•						•
Florida	•	•	•							•	•	•

Variety/Type Descriptions

Small oblong fruit with golden-orange peel. Flesh contains tiny white seeds. Kumquats are completely edible. Peel is sweet-tart; flesh is juicy and tart. Kumquats may be used cooked or uncooked. Can be used for preserves, marmalades, sauces, snacks, and garnishes.

Ordering Specifications

Common packaging:

5-lb. bags
10-lb. bulk cartons

NOTE: Kumquats may be shipped with leaves and stems attached.

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality kumquats should be firm and well-colored. Avoid fruit that is soft or shriveled.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

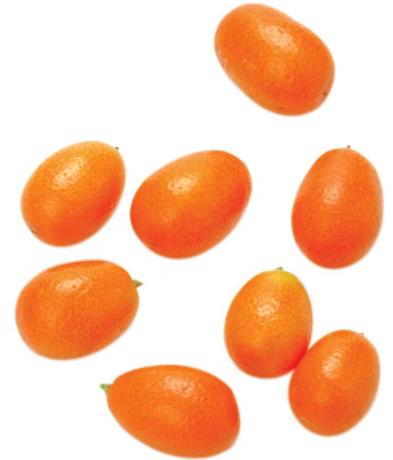
Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 7 Kumquats (133g)

Amount Per Serving	% Daily Value
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 22g	7%
Dietary Fiber 9g	35%
Sugars (Not Available)	
Protein 1g	
Vitamin A	8%
Vitamin C	80%
Calcium	6%
Iron	2%

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Troubleshooting

Chill injury:

Kumquats are susceptible to chill injury if stored at low temperatures. To prevent chill injury, do not store below 41 degrees F/5 degrees C.

Lemons

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•	•			•	•	•	•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
Chile							•	•				
Spain					•	•	•	•				

NOTE: Other major production areas include Florida, Texas, Australia, and New Zealand.

Variety/Type Descriptions

Primary varieties are Eureka and Lisbon. Both have smooth, firm skins, juicy flesh, and few seeds. Other noted varieties include Bearss, Avon, Harney and Villafranco.

Meyer – Much sweeter than ordinary lemons. They have an attractive appearance, with yellowish-orange rind which is smooth, soft, and thin. The pulp is usually a dark yellow color, very juicy and tender.

Ordering Specifications

Common packaging:

- 40-lb. cartons
- 10-lb. mini-pack cartons
- 8-lb. consumer cartons
- 2-, 3-, and 5-lb. bags

Meyer lemon: 10-lb. and 18-lb. bulk containers

Grades:

- U.S. No. 1
- U.S. Export No. 1
- U.S. Combination
- U.S. No. 2

Sizes:

- 75-, 95-, 115-, 140-, 165-, 200-, and 235-count

Equivalents

- 6 medium lemons = 1 cup juice
- 1 medium lemon = 3 tablespoons juice
- 1 medium lemon = 3 tablespoons grated peel

Receiving and Inspecting

Lemons should be firm, heavy for size, and have thin smooth skins. Ripe lemons should also have a pleasant citrus fragrance. Avoid lemons with bruised, discolored, or wrinkled skins.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

- 45-50 degrees F/7-10 degrees C
- 85-95% relative humidity

Retail display tips:

- Water sprinkle: No
- Top ice: No

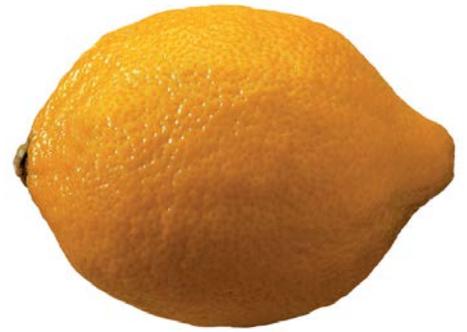
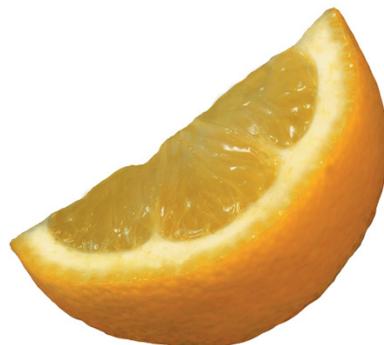
Ethylene production/sensitivities:

- Produces ethylene: Yes—very low
- Sensitive to ethylene exposure: Yes

Storing tips:

Maintain adequate air ventilation during storage. Keep cartons off the floor to help prevent dampening of boxes from condensation of moisture in the room. Store lemons away from foods with strong odors and ethylene-producing fruits.

Meyer lemons will keep for up to 20 days if refrigerated.



Nutrition*

Serving Size 1 medium Lemon (58g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 1g	4%
Sugars 1g	
Protein 0g	
Vitamin A	0%
Vitamin C	40%
Calcium	2%
Iron	0%

*Based on information published by FDA.

Troubleshooting

Skin deterioration; flesh decay:

Exposure to ethylene may accelerate skin deterioration and increase lemon's susceptibility to decay. For best quality, keep lemons away from ethylene-producing fruits and ripening rooms.

Pitting of skin; interior discoloration; loss of juice:

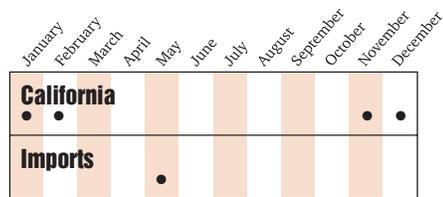
These are indications of chill injury. To prevent chill injury, do not store lemons below 45 degrees F/7 degrees C.

Decay or mold; shortened shelf life:

Storing lemons at high temperatures may promote product decay and shorten shelf life. For best quality, maintain short-term storage temperatures of 45-50 degrees F/7-10 degrees C. Decay may also result from cuts or scratches caused by rough handling. Handle lemons with care; do not drop shipping containers on the floor. To prevent mold from spreading, remove affected product immediately.

Availability

Some major production areas include:



Variety/Type Descriptions

A cross between a kumquat and lime, limequats are slightly smaller than a Mexican lime, have a smooth rind, and vary in color from light to deep yellow. Limequats are as juicy and acidic as limes, but with a sweet, aromatic rind.

Ordering Specifications

Common packaging:

10-lb. bulk packs

Receiving and Inspecting

Select smooth, glossy fruit that is firm and heavy for its size.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C

85-95% relative humidity

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—low

Sensitive to ethylene: Yes—very low

Storing tips:

Will keep for two days at room temperature and in the refrigerator for up to two weeks.

Nutrition

Nutrition information for Limequats is not available in the data bases used by PMA.



Troubleshooting

Shriveled skin:

Avoid fruit with shriveled skin. This is an indication of aged fruit.

Limes

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Key/Mexican – Thin-skinned fruit with yellow-green color and sweet-tart flavor.

Persian/Tahiti – Thin, smooth, and shiny skin; brilliant green color and sweet-tart flavor.

Ordering Specifications

Common packaging:

10-lb. cartons
40-lb. cartons

Grades:

U.S. No. 1
U.S. Combination
U.S. No. 2

NOTE: Not all limes are graded. Ungraded limes are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

28-, 36-, 42-, 48-, 54-, 63-, and 72-count

Equivalents

1 medium lime = 2 tablespoons juice
1 medium lime = 2 teaspoons grated peel

Receiving and Inspecting

Limes should be heavy for their size and firm with smooth, shiny skins. Persian/Tahiti limes are bright green in color; Key/Mexican limes are more yellow-green. Avoid limes that are light in weight, shriveled, spongy, or significantly discolored.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Store limes in a well-ventilated area and away from direct sunlight. Keep cartons off the floor to prevent boxes from becoming damp.

Handling tips:

Handle limes with care to avoid bruising and internal decay.

Nutrition*

Serving Size 1 medium Lime (67g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 2g	8%
Sugars 0g	
Protein 0g	
Vitamin A	0%
Vitamin C	35%
Calcium	0%
Iron	0%

*Based on information published by FDA.



Troubleshooting

Pitting or discoloration of skin:

This is an indication of chill injury. To prevent chill injury, do not store limes below 45 degrees F/7 degrees C.

Skin deterioration; decay:

Limes are sensitive to ethylene; exposure to the gas may cause skin deterioration and increase the fruit's susceptibility to decay. To prevent damage from ethylene, keep limes away from ethylene-producing fruits and ripening rooms.

Shriveling; loss of juice:

Low humidity may cause limes to lose moisture. For best quality, maintain humidity level of 85-95%.

Pebbly brown or black skin:

This is an indication of bruising or decay caused by rough handling. Always handle limes with care; do not drop shipping containers on the floor.

Longans and Lychees

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida						•	•					
Israel							•	•	•			
Mexico					•	•						
Taiwan						•	•	•				

Variety/Type Descriptions

Longan – Round fruit that ranges in size from an olive to a plum. Fruit is covered by a thin, light brown shell. Pulp is juicy and translucent with a single large seed. Pulp texture is similar to a grape. Pulp only is edible; may be eaten fresh or cooked.

Lychee – Small round fruit covered by a thin, bumpy red to brown-colored shell. Pulp is gray-white and translucent with a single large seed. Pulp texture is similar to a grape. Pulp only is edible; sweet flavor is similar to grapes or cherries. May be eaten fresh or cooked.

Ordering Specifications

Common packaging:

10-lb. bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for heavy fruits. Avoid longans and lychees with cracked shells or those that are shriveled.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

To delay moisture loss and color change from red to brown, store lychees in a perforated plastic bag; keep humidity level high.

Handling tips:

Longans and lychees should not be peeled until just before they are served.

Nutrition*

Longans

Serving Size (cups unknown) Longan (140g)

Amount Per Serving	% Daily Value
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 2g	6%
Sugars 19g	
Protein 2g	
Vitamin A	0%
Vitamin C	200%
Calcium	0%
Iron	2%



Lychees

Serving Size 15 Lychees (144g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 24g	8%
Dietary Fiber 2g	7%
Sugars 22g	
Protein 1g	
Vitamin A	0%
Vitamin C	170%
Calcium	0%
Iron	2%

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Troubleshooting

Discoloration; decay:

These are indications of chill injury. To prevent chill injury, do not store longans or lychees below 32 degrees F/ 0 degrees C.

Shriveling:

Longans and lychees may lose moisture and shrivel if they are stored in an area with low humidity. To prevent moisture loss, maintain humidity level of 90-98%. Rough handling causing cracks in the skin may also lead to moisture loss and shriveling. Handle fruit with care; do not drop shipping containers on the floor.

Loquats

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida								•	•			
Hawaii						•	•					
Chile	•	•										•

Variety/Type Descriptions

Round to slightly pear-shaped fruit; size similar to apricot. Yellow-orange skin with creamy to orange flesh with a single large seed. Loquat flavor is sweet and slightly acidic; similar to a cross between cherries, plums, and grapes. Texture is firm and juicy. Loquats may be eaten fresh or cooked. Although loquat skin is edible, peeling may be necessary if skin is quite fuzzy.

Ordering Specifications

Common packaging:

Single-layer tray packs
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality loquats should be firm, free of any green color, and exhibit a sweet aroma.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Handling tips:

Loquats bruise easily and turn brown; handle with care.

Nutrition*

Serving Size 9 medium Loquats (144g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 17g	6%
Dietary Fiber 2g	10%
Sugars 9g	
Protein 1g	
Vitamin A	45%
Vitamin C	2%
Calcium	2%
Iron	2%

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Troubleshooting

Bruising:

Loquats bruise easily. To prevent bruising, keep handling to a minimum; do not drop shipping containers on the floor.

Internal browning; weight loss; shriveling:

These are indications of damage caused by exposure to warm temperatures. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

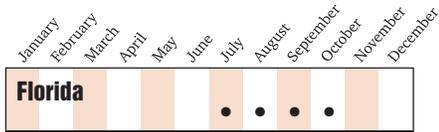
Water-soaked and soft spots:

These are symptoms of freeze damage. To prevent freeze damage, do not store loquats below 30 degrees F/-1 degree C.

Mamey Sapotes

Availability

A major production area includes:



Variety/Type Descriptions

Oval fruit with rough brown skin. Pink to salmon-colored flesh contains a single pit. Flesh only is edible; sweet flavor and smooth texture. A ripe mamey yields to gentle pressure. May be used fresh in fruit salads or pureed and used as an ingredient in beverages or frozen desserts.

Ordering Specifications

Common packaging:

7- and 18-lb. cartons holding various counts.

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose firm fruit. Avoid damaged, bruised, or shriveled fruit. Mameys soften quickly and will give to gentle pressure when ready to use.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Unripe: 60-65 degrees F/16-18 degrees C
85-95% relative humidity
Ripe: 45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: Yes

Handling tips:

Mameys are susceptible to bruising; handle fruit with care.

Nutrition

Nutrition information for Mamey Sapote is not available in the data bases used by PMA.



Troubleshooting

Bruising:

Mameys are susceptible to bruising; handle fruit with care and do not drop shipping containers on the floor.

Water-soaked or soft spots; increased decay:

These are indications of chill injury. To prevent chill injury, do not store mameys below 45 degrees F/7 degrees C.

Mandarins/Tangerines/Tangelos/Tangors

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•			•	•	•	•	•	•
California	•	•	•	•			•	•	•	•	•	•
Florida	•	•	•	•					•	•	•	•
Australia							•	•	•			
Mexico	•										•	•
South Africa					•	•	•	•	•			
Spain	•	•	•							•	•	•
Pixie mandarin: California		•	•	•								

NOTE: Another major production area includes Japan.

Variety/Type Descriptions

Mandarins:

Afourer – Oblate, medium sized fruit. Deep orange-colored skin. Easy to peel with an intensely rich flavor. Virtually seedless.

Clementine – There are numerous clementine varieties. Most offer a deep orange-colored skin which is easy to peel and an orange interior with virtually no seeds (seediness dependent on variety).

Pixie – A cross between a King mandarin and Dancy mandarin, fruit are small, firm, sweet, and juicy with a bumpy pale orange to yellowish-orange rind; short broad neck. They are easily peeled and almost always seedless. Also called a Pixie tangerine. Fruit should have a dull orange color and feel plump, uniform, and slightly soft to the touch.



Mandarin

Satsuma – Light orange (with some green) skin; easy to peel. Medium orange interior with no seeds; mild, sweet flavor.

Tangerines:

Dancy – Pebbly, red-orange skin; easy to peel. Deep orange interior with some seeds; sweet, mellow flavor.

Fairchild – Pebbly, deep orange skin; easy to peel. Bright orange interior with some seeds.

Honey – Smooth, yellow-orange skin; easy to peel. Deep orange interior with some seeds; sweet, rich flavor.

Sunburst – Smooth skin, deep red orange; easy to peel. Deep orange juicy interior with some seeds.

Tangelos (cross between a grapefruit and a tangerine):

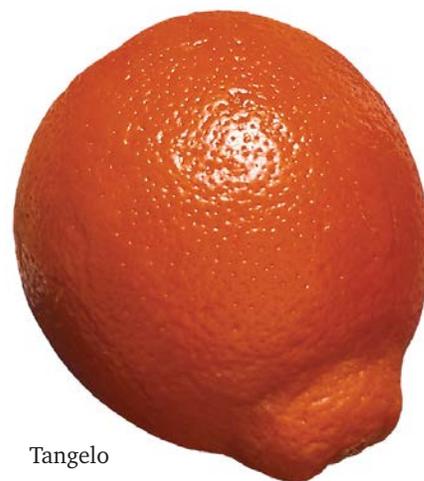
Minneola – Large fruit with knob-like formation at the stem end. Deep red-orange skin with a texture that ranges from smooth to slightly pebbled. Bright orange interior with few, if any, seeds and tart-sweet flavor.

Orlando – Flat, round, and rather large fruit with orange, slightly pebbled, tight-fitting skin. Light orange interior with few seeds.

Tangor (cross between a mandarin and an orange):

Royal – Resembles an orange with rounder and larger shape than other tangerines. Deep, red-orange slightly rough skin; easy to peel. Light orange interior with some seeds; spicy, tart-sweet flavor.

Temple – Medium-large fruit, averaging about 2¾ - 3 inches in diameter. The fruit is slightly flattened in shape and may have a short, wrinkled neck. Rind color at maturity is a deep reddish-orange. The flesh is a mild orange color. Seeds usually number between 15 and 20 per fruit.



Tangelo

Ordering Specifications

Common packaging:

Arizona/California:
28- and 40-lb. cartons
5- and 8-lb. specialty cartons
3- and 5-lb. bags

Pixie: 18-lb. bulk containers

Florida:
43-lb. 4/5-bushel cartons
30-lb. ½-bushel cartons
3-, 4-, and 5-lb. bags

Grades:

Fancy
Choice

Differences between grades are based primarily on external appearance.

NOTE: The above grades apply to all mandarins/tangerines/tangelos/tangors. Additional grades are given to Florida fruit.

Sizes:

California/Arizona:
Medium, large, jumbo, mammoth, colossal, and super colossal

Florida:
64-, 80-, 100-, 120-, 150-, and 176-count per 43-lb. carton

Mandarins/Tangerines/Tangelos/Tangors

Equivalents

5 medium Pixie mandarins =
approximately 2 cups or 16 oz.

Receiving and Inspecting

Look for fruit with peel color and texture that is characteristic of the particular variety. A good quality mandarin should also be heavy for its size. Avoid fruit with soft spots, water-soaked spots, or mold.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Pixie mandarin: 45-48 degrees F/7-8 degrees C

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

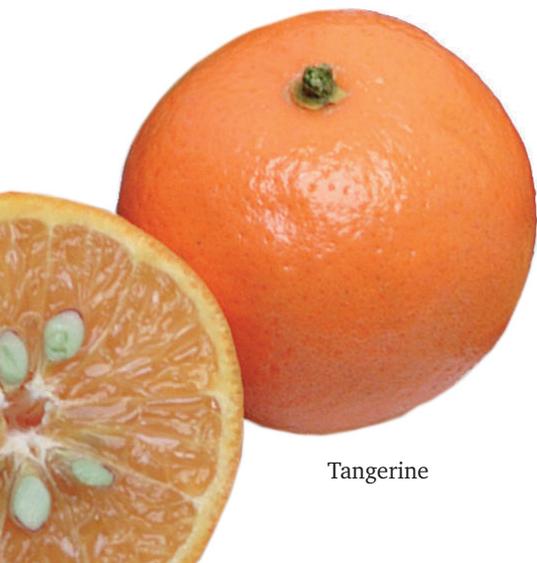
Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Keep mandarins, tangerines, tangelos, and tangors away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle fruit with care to prevent bruising. Do not drop containers on floor or dump fruit.



Tangerine

Nutrition

Tangerine*

Serving Size 1 medium Tangerine (109g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 13g	4%
Dietary Fiber 3g	12%
Sugars 8g	
Protein 1g	
Vitamin A	0%
Vitamin C	50%
Calcium	4%
Iron	0%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Mandarin**

Serving Size 1 medium Mandarin (84g)

Amount Per Serving	% Daily Value
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 9g	3%
Dietary Fiber 2g	8%
Sugars 7g	
Protein 1g	
Vitamin A	15%
Vitamin C	45%
Calcium	2%
Iron	0%

Tangelo**

Serving Size 1 medium Tangelo (96g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 2g	9%
Sugars 9g	
Protein 1g	
Vitamin A	4%
Vitamin C	90%
Calcium	4%
Iron	0%

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Troubleshooting

Soft, spongy texture; increased decay:

These are indications of chill injury and old fruit. To prevent chill injury, do not store fruit below 38 degrees F/3 degrees C.

Decay; loss of flavor:

This is an indication of age. For best quality, inspect fruit carefully upon arrival; do not hold for extended periods of time.

Bruising:

Mandarins, tangerines, tangelos, and tangors are susceptible to bruising if handled roughly. To prevent bruising, keep handling to a minimum; do not drop containers on floor or dump fruit.

Deterioration of flesh:

Deterioration may occur if fruit is stored at high temperature. For best quality, store at 45-50 degrees F/7-10 degrees C.

Accelerated deterioration of peel; increased incidence of decay:

These are indications of damage caused by exposure to ethylene. For best quality, keep fruit away from ethylene-producing fruits and ripening rooms.

Mangoes

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida					•	•	•	•	•			
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Primary varieties include Tommy Atkins and Keitt. Other varieties include Ataulfo, Hayden, Kent, and Van Dyke. Round to oval fruit; similar to pear in size. Juicy yellow-orange flesh surrounds a flat seed. Thin skin turns from green to yellow-green or yellow with red blush as the fruit ripens. Ripe mangoes yield to gentle pressure and emit a fruity aroma.

Ordering Specifications

Common packaging:

Single-layer tray packs
40-lb. cartons

Grades:

No U.S. grades given.

Sizes:

6-, 10-, 12-, 14-, 16-, 18-, and 20-count

Receiving and Inspecting

Choose mangoes that are well shaped and free of bruises or blemishes. Unripe mangoes should be fairly firm with green skin. Ripe mangoes should give to gentle pressure; skin color should range from greenish-yellow to yellow with red blush, depending on the specific variety. Avoid shriveled or discolored mangoes or those with soft spots.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Ripe: 45-50 degrees F/7-10 degrees C
85-95% relative humidity
For ripening: 55-70 degrees F/
13-21 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes-medium
Sensitive to ethylene exposure: Yes

Handling tips:

Handle mangoes with care to avoid bruising or damaging the fruit; do not drop shipping containers on the floor.

Nutrition*

Serving Size ½ Mango (103g)

Amount Per Serving	% Daily Value
Calories 70	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 18g	6%
Dietary Fiber 2g	7%
Sugars 15g	
Protein 1g	
Vitamin A	80%
Vitamin C	50%
Calcium	2%
Iron	0%

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Troubleshooting

Accelerated softening or ripening of fruit:

Mangoes are sensitive to ethylene; exposure to the gas may cause premature softening or ripening of the fruit. To prevent premature softening or ripening, keep unripe mangoes away from ethylene-producing fruits or ripening rooms.

Pitting or gray discoloration of skin; uneven ripening:

These are indications of chill injury. Chill injury may also result in poor flavor. To prevent chill injury, do not store mangoes below 50 degrees F/10 degrees C.

Ripening:

Hayden: turns yellow, with an orange or red blush when ripe.

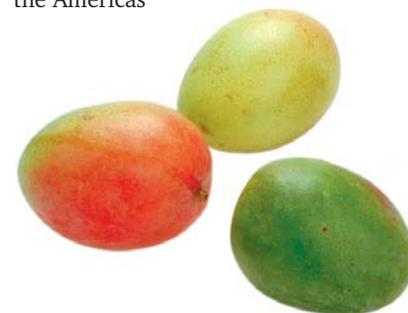
Tommy Atkins: turns red or yellow when ripe.

Kent: turns yellow or remains green when ripe, with a few hints of color.

Keitt: stays green when ripe, and may have a slight yellow blush.

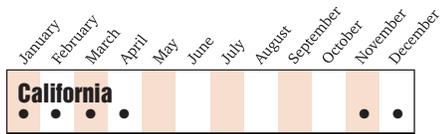
Ataulfo: remains yellow when ripe.

Source: Fresh Produce Association of the Americas



Availability

A major production area includes:



Variety/Type Descriptions

A cross between a pummelo and a white grapefruit, melogolds can be over 6" in diameter. They have a smooth, yellow-green rind. Flavor is slightly less sweet than a pummelo.

Ordering Specifications

Common packaging:

14-count cartons

Grades:

Choice
Fancy

Receiving and Inspecting

Melogolds should be aromatic with a firm rind that is bright yellow.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Store at 47-48 degrees F/8 degrees C
75-85% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

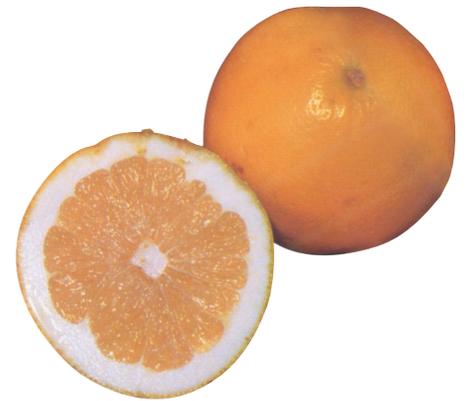
Store melogolds in a well-ventilated area away from ethylene-producing fruits and ripening rooms.

Handling tips:

Keep cartons off the floor to prevent dampening from condensation of moisture in the room.

Nutrition

Nutrition information for Melogolds is not available in the data bases used by PMA.



Troubleshooting

Pitting or browning of skin; watery breakdown of flesh:

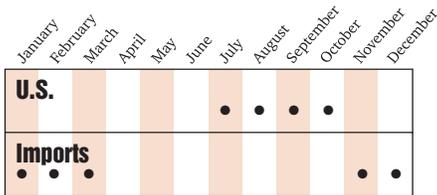
These are indications of chill injury. To prevent chill injury, do not store melogolds below 47 degrees F/ 8 degrees C.

Skin deterioration; flesh decay:

Exposure to ethylene may accelerate skin deterioration and increase melogold's susceptibility to decay. For best quality, keep melogolds away from ethylene-producing fruits and ripening rooms.

Melons

Availability



Variety/Type Descriptions

Casaba – Large, round melon with yellow, slightly ridged rind. Creamy white flesh with sweet, juicy flavor.

Crenshaw – Large melon with round base and slightly pointed stem end. Smooth golden-green rind with golden-pink to creamy flesh; mild sweet flavor.

Juan Canary – Oblong-shaped melon with yellow rind. Creamy white flesh with sweet flavor.

Persian – Globular-shaped melon with mottled green and yellow rind. Pink-orange flesh with sweet, delicate flavor.

Santa Claus – Oblong-shaped melon with mottled green and yellow rind. Light green flesh with sweet flavor.

Ordering Specifications

Common packaging:

30-lb. cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

A good quality melon should be heavy for its size, well shaped, and exhibit rind and flesh colors that are characteristic of its variety. Most ripe melons will be fragrant and slightly soft at the blossom end.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95 % relative humidity

Juan Canary: 45-50 degrees F/
7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: Yes

Storing Tips:

Riper melons may be stored at 45-50 degrees F/7-10 degrees C.

Handling Tips:

Handle ripe melons with care to avoid bruising or damage.

Nutrition*

Serving Size $\frac{1}{10}$ Casaba Melon (164g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 10g	3%
Dietary Fiber 1g	5%
Sugars 9g	
Protein 1g	
Vitamin A	0%
Vitamin C	45%
Calcium	0%
Iron	4%

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Troubleshooting

Pitting of rind; decay; failure to ripen:

These may be indications of chill injury. To prevent chill injury, do not store melons below 45 degrees F/7 degrees C.

Decay; flesh softening; off flavor:

These may be indications of age or product that was held for an extended period of time. Often these symptoms will not appear until after melons are taken out of storage and held at room temperature. For best quality, inspect melons carefully and display or use shortly after receiving.

Bruising:

Melons may become bruised from rough handling. For best quality, handle fruit with care and do not drop shipping containers on the floor.

Varieties

Casaba:



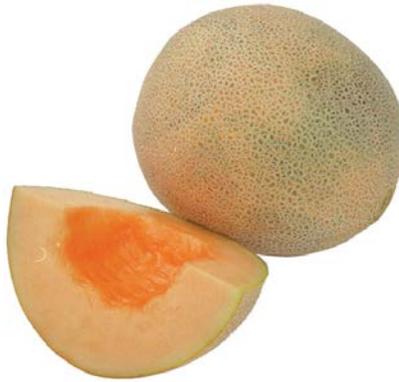
Crenshaw:



Juan Canary:



Persian:



Santa Claus:



Nectarines

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•		
Washington						•	•	•	•			
Chile	•	•	•									•

Variety/Type Descriptions

August Red – Large size; skin is solid red.

Fantasia – Medium to large size; primarily red skin.

Firebrite – Medium size; creamy skin with a bright red blush.

July Red – Large size; skin has some red blush.

Mayglo – Small size; yellow flesh with a red blush.

May Grand – Small to medium size; skin has a maroon-red blush.

Red Diamond – Medium to large size; golden skin with a bright red blush.

Red Jim – Large size; skin has a deep red blush.

September Red – Medium to large size; skin has some red blush.

Spring Red – Medium size; creamy skin with a bright red blush.

Summer Bright – Medium to large size; skin has a red blush.

NOTE: When stored at 32 degrees F/0 degrees C, nectarine varieties differ in their average post-harvest life as follows:

- Early-season varieties (before July 1) – 6 weeks
- Mid-season varieties (July-August) – 4 weeks
- Late-season varieties (September and beyond) – 2 weeks

Ordering Specifications

Common packaging:

Single-layer tray packs
2-layer tray packs
25-lb. volume-fill boxes

Grades:

U.S. Fancy
U.S. Extra No. 1
U.S. No. 1
U.S. No. 2

NOTE: Not all nectarines are graded. Ungraded nectarines are called “unclassified.”

Sizes:

48-, 56-, 64-, 72-, 80-, 88-, 96-, and 108-count

Equivalents

1-lb. fresh nectarines = 3 medium nectarines
1-lb. fresh nectarines = 2 cups sliced
1-lb. fresh nectarines = 1¾ cups diced
1-lb. fresh nectarines = 1½ cups pureed

Receiving and Inspecting

Good quality nectarines should be plump and well-colored with smooth, unblemished skins. Avoid shriveled or rotting nectarines.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–high (Unripe fruit produces less ethylene.)
Sensitive to ethylene exposure: Yes;
ethylene promotes ripening (softening).

Storing tips:

Do not store unripe nectarines between 36-46 degrees F/2-8 degrees C. This may cause chill injury and promote internal breakdown of the fruit (mealy texture, browning, and poor flavor).

To ripen nectarines, hold at 55-70 degrees F/13-21 degrees C. Store nectarines away from drafts to prevent dehydration and shriveling.

Handling tips:

Nectarines bruise easily; handle with care.

Nutrition*

Serving Size 1 medium Nectarine (140g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 70	
Calories from Fat 5	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 17g	6%
Dietary Fiber 1g	4%
Sugars 13g	
Protein 1g	
Vitamin A	8%
Vitamin C	15%
Calcium	0%
Iron	2%

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Troubleshooting

Bruised skin or flesh:

Nectarines may bruise from rough handling. To prevent bruising, keep handling to a minimum; do not drop shipping containers on the floor.

Shriveling:

Nectarines may lose moisture and shrivel if they are exposed to drafts. To maintain good quality, keep nectarines at a relative humidity of 85-95% during transport and storage.

Flesh browning; lack of juice; poor flavor; failure to ripen:

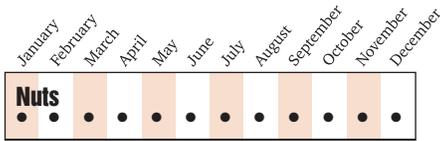
These are indications of chill injury. To ripen nectarines, store at 55-70 degrees F/13-21 degrees C. Otherwise, store ripe fruit at 32-36 degrees F/0-2 degrees C.

Flesh breakdown:

This is an indication of freeze injury. Flesh breakdown does not appear until after fruit thaws. To prevent freeze injury, do not store nectarines below 30 degrees F/-1 degree C.



Availability



Some major production areas include:

Almonds: California

Brazil Nuts: Brazil

Filberts: Oregon, Washington, and Turkey

Macadamia Nuts: California, Australia, Guatemala, Hawaii, South Africa

Peanuts: Alabama, Georgia, North Carolina, Oklahoma, Virginia

Pecans: Georgia, New Mexico, Texas, Mexico

Pistachios: California, Turkey

Walnuts: California

NOTE: Other major production areas include Florida and South Carolina.



Variety/Type Descriptions

Almond – The predominant variety in California is Nonpariel; others include Butte, Carmel, Fritz, Mission, Monterey, Neplus, and Price. Tear drop-shaped, cinnamon-brown kernel with medium to light brown shell. Almonds are available as in-shell, whole shelled, sliced, slivered, diced, and chopped.

Brazil Nut – Solid white kernel with three-sided dark brown, rough shell.

Filbert – Also called hazelnut. Small amber kernel with acorn-shaped brownish-orange, smooth shell.

Macadamia Nut – Marble-sized and golden-brown, macadamia nuts have an extremely hard shell. The meat is creamy, buttery, and sweet.

Mixed Nuts – Mixture of in-shell nuts including Almonds, Brazil Nuts, Filberts, Pecans, and Walnuts.

Peanut – Varieties include Virginia, Spanish, Valencia, and Runner. Small, oval-shaped kernel with light brown to pinkish-red paper cover. Hour-glass-shaped shell usually holds 2 to 3 kernels, depending on the variety. Peanuts are available in-shell, shelled, or roasted.

Pecan – Medium-brown kernel with oval, light brown shell.

Pistachio – Small oval-shaped, thin tan shell that is split open at one end; kernel inside is greenish-tan. Some pistachios may be dyed red. Pistachios are available in-shell or shelled, salted or unsalted, and raw.

Walnut – Varieties include Eureka, Franquette, Hartley, and Payne. Hard, golden-yellow shell with slightly rough texture. Kernel inside ranges in color from extra light amber to amber. Walnuts are available in-shell, shelled as whole, half kernels, chopped, and in diced kernels of various sizes.



Ordering Specifications

Common packaging:

In-shell nuts:

Bulk cartons of various weights
Peanuts: Polypropylene tote bags and mesh bags

In-shell pistachios are available in cello packages and jars of various weights.

Shelled nuts:

Cans, cello packages, and jars of various weights
Peanuts: Bulk cartons, tote bags, and burlap bags

Grades:

Almonds (in-shell):

U.S. No. 1
U.S. No. 1 Mixed
U.S. No. 2
U.S. No. 2 Mixed

Almonds (shelled):

U.S. Fancy
U.S. Extra No. 1
U.S. No. 1
U.S. Select Sheller Run
U.S. Standard Sheller Run
U.S. No. 1 Whole and Broken
U.S. No. 1 Pieces

Brazil Nuts (in-shell):

U.S. No. 1

Mixed Nuts (in-shell almonds, Brazil

nuts, filberts, pecans, walnuts):

U.S. Extra Fancy
U.S. Fancy
U.S. Commercial or U.S. Select

Peanuts (in-shell Virginia):

U.S. Jumbo Hand Picked
U.S. Fancy Hand Picked

Peanuts (shelled Spanish):
U.S. No. 1 Spanish
U.S. Spanish Splits
U.S. No. 2 Spanish

Peanuts (shelled Virginia):
U.S. Extra Large Virginia
U.S. Medium Virginia
U.S. No. 1 Virginia
U.S. Virginia Splits
U.S. No. 2 Virginia

Peanuts (shelled Runner):
U.S. No. 1 Runner
U.S. Runner Splits
U.S. No. 2 Runner

Pistachios (in-shell):
U.S. Fancy
U.S. Extra No. 1
U.S. No. 1
U.S. Select

Pistachios (shelled):
U.S. Fancy
U.S. Extra No. 1
U.S. No. 1

Walnuts (in-shell):
U.S. No. 1
U.S. No. 2
U.S. No. 3

Walnuts (shelled):
U.S. No. 1
U.S. Commercial

NOTE: Not all nuts are graded.
Ungraded nuts are called “unclassified.”

Sizes:

Pistachios:
Colossal = Less than 18 per ounce
Extra Large = 18-20 per ounce
Large = 21-25 per ounce
Medium = 26-30 per ounce
Small = More than 30 per ounce

Receiving and Inspecting

Avoid nuts with moldy or rancid kernels.

In-shell nuts should be clean and free of severely damaged or cracked shells.

NOTE: Pistachio shells are naturally split open at one end.

Macademia nut shells should be smooth and light brown. Avoid shells with black spots or other blemishes. If shelled, macademia nuts should smell fresh and show no signs of rancidity.

Peanuts must meet USDA specifications with regard to grading, foreign material, moisture, and aflatoxin.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity (if nuts are packaged in moisture-proof containers)

Macademia nuts: 55-60 degrees F/12-15 degrees C

NOTE: Reduce relative humidity to 60-65% for bulk nuts.

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Nuts absorb moisture from the air easily and become soggy. Nuts stored in bulk containers should be frequently rotated for optimum freshness. Nuts absorb odors easily; keep away from foods with strong odors.

Store nuts in a well-ventilated area; keep shipping containers off the floor to prevent moisture absorption. Shelled nuts are more perishable than in-shell nuts.

Nutrition*

Dried Almonds

Serving Size 1 ounce Dried Almond (28g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 160	
Calories from Fat 130	
Total Fat 14g	22%
Saturated Fat 1g	6%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 3g	13%
Sugars 1g	
Protein 6g	
Vitamin A	0%
Vitamin C	0%
Calcium	8%
Iron	6%

Brazil Nuts

Serving Size 1 ounce Brazil Nuts (28g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 200	
Calories from Fat 170	
Total Fat 19g	30%
Saturated Fat 8g	39%
Cholesterol (Not Available)	
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	8%
Sugars 1g	
Protein 4g	
Vitamin A	0%
Vitamin C	0%
Calcium	4%
Iron	6%

Filberts

Serving Size 1 ounce Filberts (28g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 180	
Calories from Fat 160	
Total Fat 17g	26%
Saturated Fat 1.5g	6%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 3g	11%
Sugars 1g	
Protein 4g	
Vitamin A	0%
Vitamin C	2%
Calcium	4%
Iron	8%

Peanuts

Serving Size 1 ounce Peanuts (28g)

Amount Per Serving	% Daily Value
Calories 160	
Calories from Fat 130	
Total Fat 14g	21%
Saturated Fat 2g	10%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	10%
Sugars 1g	
Protein 7g	
Vitamin A	0%
Vitamin C	0%
Calcium	2%
Iron	8%

Pecans

Serving Size 1 ounce Pecans (28g)

Amount Per Serving	% Daily Value
Calories 200	
Calories from Fat 180	
Total Fat 20g	31%
Saturated Fat 2g	9%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	6%
Sugars 1g	
Protein 3g	
Vitamin A	0%
Vitamin C	0%
Calcium	(Not Available)
Iron	4%

Pistachios

Serving Size 1 ounce Pistachios (28g)

Amount Per Serving	% Daily Value
Calories 160	
Calories from Fat 110	
Total Fat 13g	19%
Saturated Fat 1.5g	8%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 3g	12%
Sugars 2g	
Protein 6g	
Vitamin A	4%
Vitamin C	2%
Calcium	4%
Iron	6%

Walnuts

Serving Size 1 ounce Walnuts (28g)

Amount Per Serving	% Daily Value
Calories 190	
Calories from Fat 170	
Total Fat 18g	28%
Saturated Fat 1.5g	9%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	8%
Sugars 1g	
Protein 4g	
Vitamin A	0%
Vitamin C	0%
Calcium	2%
Iron	4%

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Troubleshooting

Loss of texture; mold; rancid or stale flavor; insect damage:

Although nuts are generally less susceptible to deterioration than fresh fruits and vegetables, they can suffer flavor or texture loss if they are stored in a warm area for an extended period of time. Storing nuts in an area with high humidity may also cause mold or rancid flavor. For long-term storage, hold nuts at 32-36 degrees F/0-2 degrees C and 60-65% relative humidity. Storing shelled nuts in vacuum-packed containers or freezing them will help maintain quality during long-term storage.

Dried-out kernels:

Nuts may lose moisture if stored in an area with extremely low humidity. For best quality, maintain humidity level of 60-65%.

Off flavor:

Nuts may absorb odors during storage. Keep away from foods with strong odors, especially during long-term storage.

Varieties



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona/California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•	•	•	•	•	•	•
Texas	•	•	•	•							•	•

Variety/Type Descriptions

Cara Cara – Flesh is reddish-pink and the taste has undertones of raspberries, strawberries, and sweet grapefruit. Also known as the Red Navel or Scarlet Navel orange.

Hamlin – Thin-skinned with juicy, sweet flavor and some seeds.

Navel – Juicy, sweet flavor; contains very few seeds. Easy to peel. Good for eating out of hand.

Valencia – Thin-skinned with juicy, sweet flavor and some seeds. Good for juicing and eating out of hand.

Ordering Specifications

Common packaging:

Arizona/California:
20- and 40-lb. cartons
12- to 13-lb. consumer cartons
4-, 5-, 8-, and 10-lb. bags
5-lb. and 18-lb. bulk cartons

Florida:
4/5-bushel cartons
3-, 4-, 5-, 8-, 10-, and 14-lb. bags
Bins holding bulk or bagged product

Texas:
20- and 40-lb. cartons
4-, 5-, 8-, 10-, and 18-lb. bags
Bins holding bulk or bagged product
5-lb. and 18-lb. bulk cartons

Grades:

Fancy
Choice

NOTE: Additional grades are given to Florida/Texas fruit. Not all oranges are graded. Ungraded oranges are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

Arizona/California: 48-, 56-, 72-, 88-, 113-, 138-, and 163-count
Florida: 64-, 80-, 100-, and 125-count
Texas: 56-, 64-, 80-, 100-, 125-, and 144-count

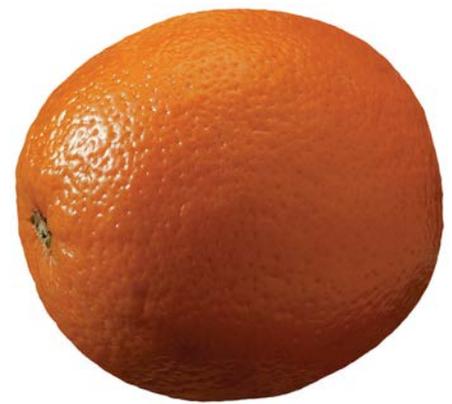
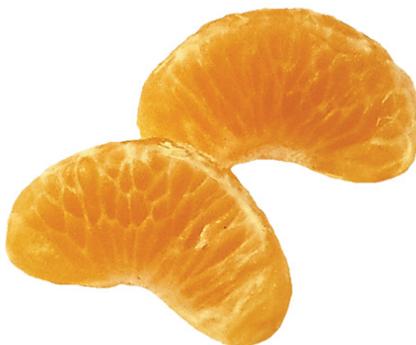
Equivalents

2-4 medium oranges = 1 cup juice
2 medium oranges = 1 cup bite-size pieces
1 medium orange = 10-12 segments
4 teaspoons grated peel

Cara Cara orange: 3 oranges = approximately 2 cups or 16 oz.

Receiving and Inspecting

All varieties should be firm, heavy for size, and have fine-textured skin. Skin color of a ripe orange ranges from orange to greenish-orange. Many oranges go through a regreening process on the tree in which the skin color begins to turn from orange back to green again. Regreening is a natural occurrence and does not affect the flavor quality of the orange.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Store oranges in a well-ventilated area; keep cartons off the floor to prevent boxes from becoming damp. Keep oranges separated from foods that absorb odors such as eggs, apples, cheese, or butter.

Oranges

Nutrition*

Serving Size 1 medium Orange (154g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 7g	28%
Sugars 14g	
Protein 1g	
Vitamin A	2%
Vitamin C	130%
Calcium	6%
Iron	2%

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Troubleshooting

Pitting of skin; discoloration:

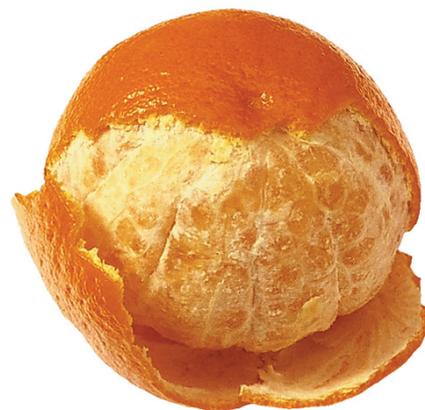
This may be an indication of chill injury. Oranges from Arizona and California are more susceptible to chill injury. To prevent damage from chilling, do not store oranges below 38 degrees F/ 3 degrees C.

Skin deterioration; flesh decay:

Exposure to ethylene may accelerate skin deterioration and increase oranges' susceptibility to decay. For best quality, keep oranges away from ethylene-producing fruits and ripening rooms.

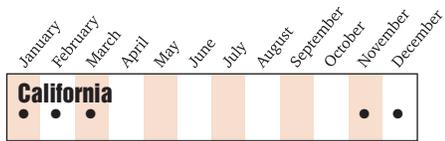
Mold:

Molding may occur if orange containers are stored directly on the floor. To prevent molding, store orange containers off the floor to prevent them from becoming damp. Keep storage area well-ventilated. Do not hold oranges for long periods of time; the longer the oranges are stored, the greater the incidence of decay-causing fungi.



Availability

A major production area is:



NOTE: Another production area is Israel.

Variety/Type Descriptions

Fruit is a cross between a grapefruit and a pummelo. Sweet fruit flavor without the bitterness of grapefruit, oroblanco are slightly larger and have a thicker rind. They are nearly seedless.

Ordering Specifications

Common packaging:

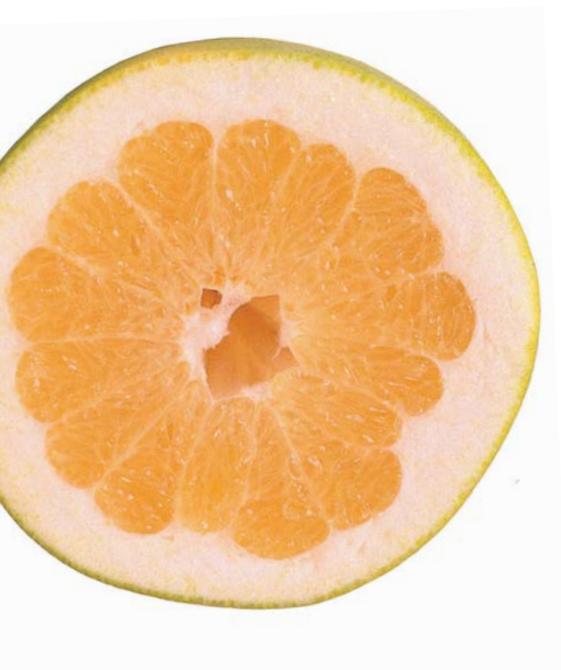
Single-layer 18-lb. cartons
5-lb. box of approximately five oroblanco

Grades:

No U.S. grades given.

Receiving and Inspecting

Select fruit heavy for size with smooth, uniformly yellow rinds. Avoid fruit with blemishes or soft spots, which may indicate bruised pulp.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

47-48 degrees F/8 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

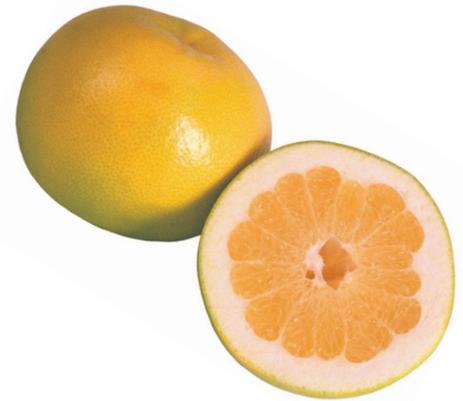
Store oroblanco in a well-ventilated place. Will keep refrigerated for up to one month if properly stored and temperature is kept at 47-48 degrees F/8 degrees C.

Handling tips:

Store cartons off the floor to prevent moisture accumulation.

Nutrition

Nutrition information for Oroblancos is not available in the data bases used by PMA.



Troubleshooting

Pitting or browning of skin; watery breakdown of flesh:

These are indications of chill injury. To prevent chill injury, do not store oroblanco below 47 degrees F/8 degrees C.

Skin deterioration; flesh decay:

Exposure to ethylene may accelerate skin deterioration and increase fruit's susceptibility to decay. For best quality, keep oroblanco away from ethylene-producing fruits and ripening rooms.

Papayas

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Varieties include Kapoho, Sunrise, and Waimanalo. All are pear-shaped with a smooth greenish-yellow skin that turns yellow-orange as the fruit ripens. Papaya flesh is juicy with a sweet, melon-peach flavor. Small black seeds fill the center cavity. Flesh color ranges from deeper orange for the Sunrise variety to peach-colored for the Kapoho variety. Some imported varieties exhibit red flesh color.

Ordering Specifications

Common packaging:

10-lb. cartons

Grades:

No U.S. grades given.

All papayas shipped from Hawaii to the U.S. mainland are given a Hawaii No. 1 grade.

Sizes:

6-, 8-, 10-, and 12-count

Equivalents

1 medium papaya = approximately ¼ pounds

1 medium papaya = approximately 2 cups diced

1 medium papaya = approximately 1¼ to 1½ cups puree

Receiving and Inspecting

Good quality papayas should be firm with unblemished skins, regardless of degree of ripeness. (Most papayas are shipped while still green to prevent damage from rough handling.) Avoid papayas with large dark spots on peel, or those that are soft, moldy, or leaking at the stem end.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—medium
Sensitive to ethylene exposure: Yes;
ethylene promotes softening

Handling Tips:

A papaya is ripe and ready to eat when it yields to gentle palm pressure and the peel is approximately ¾ yellow to yellow-orange in color. Handle papayas with care to avoid damage.

Nutrition*

Serving Size ½ medium Papaya (152g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 3g	11%
Sugars 9g	
Protein 1g	
Vitamin A	8%
Vitamin C	160%
Calcium	4%
Iron	0%

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Troubleshooting

Pitting of skin; decay; failure to ripen; off flavor:

These are indications of chill injury. To prevent chill injury, do not store papayas below 45 degrees F/7 degrees C.

Dark spots on skin:

Dark spots may be the result of damaged fruit due to rough handling. For best quality, handle papayas with care; do not drop shipping containers on the floor.

Skin discoloration; hard flesh areas:

This damage may be caused by excessive heat treatments (in temperature and/or duration) or a delay in cooling following heat treatments that are required for quarantine (insect control). For best quality, always inspect papayas carefully upon arrival.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California							•	•	•	•	•	•
Florida	•	•				•	•	•	•	•	•	•
New Zealand	•	•	•	•	•							

NOTE: Another major production area is Columbia.

Variety/Type Descriptions

Round to egg-shaped fruit with leathery, purple-brown skin. Skin darkens and becomes wrinkled and brittle as fruit ripens. Pulp has a jelly-like consistency with many crunchy seeds. Passion fruit flavor is sweet-tart and lemony. Pulp and seeds are edible; may be eaten alone or used as an ingredient in dessert toppings, sauces, beverages, and jams or jellies.

Ordering Specifications

Common packaging:

Single-layer tray packs holding various counts
Bulk cartons

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality passion fruits should be large and heavy. Wrinkled or shriveled skin is a sign of ripe fruit and does not indicate poor quality. When ripe and ready to eat, passion fruit skin should be very wrinkled, brittle, and almost black.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes-high
Sensitive to ethylene exposure: Yes

Storing tips:

Passion fruits are high producers of ethylene gas; keep separated from fruits and vegetables that are sensitive to ethylene and may be damaged by it.

Nutrition*

Serving Size 8 Passion Fruit (144g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 140	
Calories from Fat 10	
Total Fat 1g	2%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 40mg	2%
Total Carbohydrate 34g	11%
Dietary Fiber 15g	60%
Sugars 19g	
Protein 3g	
Vitamin A	20%
Vitamin C	70%
Calcium	2%
Iron	15%

*These values have not been adopted or approved by FDA. They have been obtained from USDA's Handbook 8, or other databases developed by PMA and its members. While PMA believes use of non-FDA-approved data should not result in FDA regulatory action, such a result can never be assured. Consultation with company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Water-soaked spots; accelerated decay:

These are indications of chill injury. To prevent chill injury, do not store passion fruit below 45 degrees F/7 degrees C.

Peaches

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•		
Georgia					•	•	•					
South Carolina					•	•	•	•	•			
Washington							•	•	•			
Chile	•	•	•								•	•

Variety/Type Descriptions

Peach shapes vary from round to somewhat oblong, with slight to prominent tips. Flavors range from sweet to slightly tart. Availability of specific varieties depends on the season. Seasons for individual varieties are short and often overlap. Common varieties include:

Elegant Lady – Medium to large freestone.

Fairtime – Large freestone.

Flavor Crest – Medium to large semi-freestone.

Last Change – Large freestone.

O’Henry – Large freestone.

Queen Crest – Small to medium semi-freestone.

Red Top – Medium freestone.

Rich Lady – Medium to large freestone.

Spring Lady – Small to medium freestone.

Summer Lady – Large freestone.

White Lady – Medium to large freestone.

NOTE: When stored at 32 degrees F/0 degrees C, peach varieties differ in their average postharvest life as follows:

- early-season varieties (before July 1) – 6 weeks
- mid-season varieties (July-August) – 4 weeks
- late-season varieties (September and beyond) – 2 weeks

Ordering Specifications

Common packaging:

Single-layer tray packs
2-layer tray packs
25- and 30-lb. volume-fill boxes

Grades:

U.S. Fancy
U.S. Extra No. 1
U.S. No. 1
U.S. No. 2

NOTE: Not all peaches are graded. Ungraded peaches are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

Western Sizes:
48-, 56-, 64-, 72-, 80-, 88-, 96-, and 108-count per 22-lb. carton
Eastern Sizes:
2, 2¹/₈, 2¹/₄, 2³/₈, 2¹/₂, 2⁵/₈, 2³/₄, and 3-inch fruit diameter

Equivalents

1 lb. peaches = 2 large or 3 medium size peaches
1 lb. peaches = 2 cups peeled and sliced
1 lb. peaches = 1 2/3 cups peeled and diced
1 lb. peaches = 1½ cups peeled and pureed



Receiving and Inspecting

Choose bright, fresh-looking peaches. Skin color should be creamy or yellow with varying degrees of red blush or mottling, depending on the variety. Ripe peaches should give to gentle palm pressure. Avoid bruised or discolored peaches. Green coloring indicates immaturity. Shriveling at the stem end or excessive softening are indications of overripe peaches.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–high (Unripe fruit produces less ethylene.)
Sensitive to ethylene exposure: Yes, ethylene promotes ripening (softening).

Storing tips:

Do not store unripe peaches between 36-46 degrees F/2-8 degrees C which may cause chill injury and promote internal breakdown (flesh browning, lack of juice, and poor flavor).
To ripen peaches, hold at 55-70 degrees F/13-21 degrees C.

Handling tips:

Peaches bruise easily; handle with care.

Nutrition*

Serving Size 1 medium Peach (147g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 70	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 18g	6%
Dietary Fiber 2g	8%
Sugars 14g	
Protein 1g	
Vitamin A	8%
Vitamin C	15%
Calcium	0%
Iron	2%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

Bruised skin:

Rough handling may cause bruising. Handle peaches with care; do not drop shipping containers on the floor.

General deterioration; discoloration of flesh around stone:

Storing peaches at high temperature may cause deterioration or flesh discoloration. For best quality, store ripe fruit at 32-36 degrees F/0-2 degrees C. Do not hold ripe peaches for extended periods.

Uneven ripening; shriveling; flavor loss:

These are indications of immature fruit. Always inspect peaches carefully after receiving. Green-tinged skin may also indicate immaturity. Mature peaches should exhibit a creamy or yellow background skin color.

Flesh breakdown upon thawing:

This is an indication of freeze injury. To prevent freeze injury, do not store peaches below 30 degrees F/-1 degree C.

Flesh browning; mealy texture; poor flavor:

These are indications of chill injury. To ripen peaches, store at 55-70 degrees F/13-21 degrees C. Otherwise, store ripe fruit at 32-36 degrees F/0-2 degrees C for 7 days or less.



Pears

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Anjou: Oregon, Washington	•	•	•	•	•	•	•	•	•	•	•	•
Bartlett: California						•	•	•	•	•		
– Oregon, Washington							•	•	•	•	•	
Red Bartlett: California						•	•	•	•	•		
– Oregon, Washington							•	•	•	•	•	
Bosc: Oregon, Washington	•	•	•	•					•	•	•	•
Comice: Oregon, Washington	•	•	•						•	•	•	•
Forelle: Oregon, Washington	•	•	•						•	•	•	•
Packham: California						•						
– Oregon and Washington									•			
– Australia, Chile, New Zealand	•	•	•	•								
Red Anjou: Oregon, Washington	•	•	•	•	•	•			•	•	•	•
Seckel: Oregon, Washington	•	•							•	•	•	•

NOTE: Other major production areas include Michigan, New York, and Argentina.

Variety/Type Descriptions

Anjou – Egg shape with thin light-green to yellow-green skin. Creamy, fine-textured flesh with a spicy and sweet flavor. Skin color does not change as fruit ripens. Good for eating out of hand and salads.

Anjou, Red – Egg shape with red skin. Creamy, fine-textured flesh with a spicy and sweet flavor. Skin color does not change as fruit ripens. Good for eating out of hand and salads.

Bartlett – Bell-shaped fruit with thin skin that turns from green to yellow as fruit ripens. White, slightly granular, juicy flesh with sweet flavor. Good for eating out of hand, desserts, and salads.

Bartlett, Red – Similar to Bartlett in shape and flavor; skin turns bright red when fully ripe. Good for eating out of hand, desserts, and salads.

Bosc – Symmetrical body with long, tapering neck. Skin is cinnamon-brown russet in color and flesh is tender and sweet. Good for eating out of hand as well as broiling, poaching, and baking.

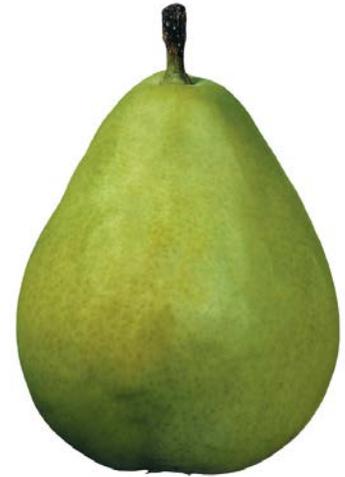
Comice – Chubby shape with short neck and stem. Greenish yellow skin color with some red blush and juicy sweet flesh. Good for desserts and salads.

Forelle – Medium to small bell-shaped pear. Skin turns golden yellow to brilliant red blush and freckles as fruit ripens. Flesh is sweet and juicy. Good for eating out of hand.

Packham – Large rounded pear with a short neck. Skin remains green or green-yellow when ripe. Very similar to a Bartlett with slightly bumpier skin. Packhams used to be grown in the U.S., but most production is now imported.

Seckel – Small, elliptical-shaped fruit with skin color that ranges from dark maroon to olive green with maroon blush. Creamy flesh with sweet, aromatic, and spicy flavor. Good for desserts.

Taylors Gold – Chubby shape with short neck and stem. Fully russeted golden pear. Rich and sweet. Lightly perfumed. Tastes best as it turns golden yellow.



Ordering Specifications

Common packaging:

45-lb. cartons or 4/5-bushel boxes
46-lb. cartons or 4/5-bushel boxes
23-lb. ½-cartons/lugs

Grades:

Summer/Fall (primarily Bartlett):
U.S. No. 1
U.S. Combination
U.S. No. 2

Winter:

U.S. Extra No. 1
U.S. No. 1
U.S. Combination
U.S. No. 2

NOTE: Not all pears are graded. Ungraded pears are called “unclassified.” Individual states may also set their own grades. Differences between grades are based primarily on external appearance.

Sizes:

70-, 80-, 90-, 100-, 110-, 120-, 135-, and 150-count

NOTE: Sizes are based on the number of pears that fit in a packing box designed to hold 44-45 pounds of pears.

Receiving and Inspecting

Unripe – Pears should be fairly firm with no cuts or bruises.

Ripe – Pears should be slightly firm, but yield to gentle pressure at the stem end. Skin color should be consistent with variety.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—high (Unripe pears produce less ethylene.)
Sensitive to ethylene exposure: Yes; ethylene accelerates ripening (change of skin color from green to yellow) and flesh softening.

Storing tips:

For long-term storage, pears should be held at approximately 32 degrees F/0 degrees C with a humidity of 90-95%. Treating pears with ethylene (100 ppm) for 2 days will promote faster and more uniform ripening.

Handling tips:

Handle pears with care to prevent bruising. Do not drop shipping containers on the floor.

Nutrition*

Serving Size 1 medium Pear (166g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 10	
Total Fat 1g	2%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 25g	8%
Dietary Fiber 4g	16%
Sugars 17g	
Protein 1g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	0%

*Based on information published by FDA.

Troubleshooting

Bruising; scuffing; stem puncture:

These are indications of improper handling. Handle pears with care; do not drop shipping containers on the floor.

Lack of flavor:

Improperly ripened fruit can result in low sugar or juice content. For best quality, ripen pears at 55-70 degrees F/13-21 degrees C.

Long ripening period:

Improper temperature control can also result in long ripening periods. Always store pears at the proper temperature.

Off flavor:

Overripe fruit may exhibit an off flavor. Check pears daily for ripeness.

Shriveling:

Low humidity may cause fruit to shrivel. Keep humidity level at 90-98%.

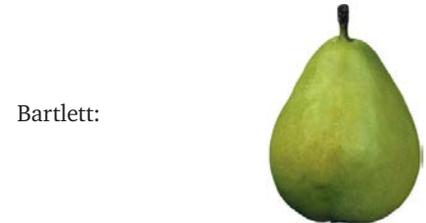
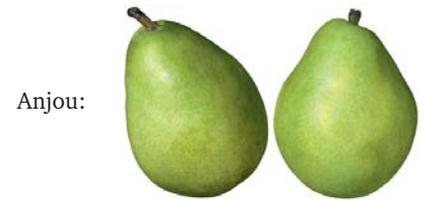
Uneven ripeness:

Storing pears at high temperatures may promote uneven ripening. To ripen pears, store at 55-70 degrees F/13-21 degrees C.

Water-soaked appearance:

This may be an indication of freeze injury. To prevent freeze injury, do not store pears below 29 degrees F/-1.5 degrees C.

Varieties



Pepino Melons

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California								•	•	•	•	•
New Zealand	•	•	•	•	•							

Variety/Type Descriptions

Round to oval-shaped fruit; smooth, pale yellow skin with dull purple stripes. Golden yellow, juicy flesh contains edible seeds and exhibits a mild, sweet flavor that is similar to a combination of cantaloupe and cucumber. Pepino melons are eaten fresh (alone or added to fruit salads.)

Ordering Specifications

Common packaging:

Single-layer tray packs

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose melons with a sweet, honeysuckle-like aroma. Skin color of a ripe Pepino melon should be pale yellow with dull purple striping. Ripe melons should also give to gentle pressure like a ripe plum. Avoid soft or bruised fruit. Green skin color indicates unripe fruit.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Nutrition

Nutrition information for Pepino Melons is not available in the data bases used by PMA.



Troubleshooting

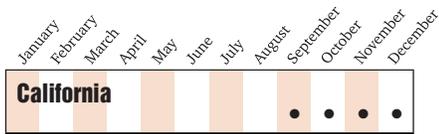
Pitting; water-soaked spots; accelerated decay:

These are indications of chill injury. To prevent chill injury, do not store Pepino melons below 45 degrees F/7 degrees C.



Availability

A major production area is:



Variety/Type Descriptions

Fuyu – Round, slightly squat-shaped fruit with green stem; similar in size to a baseball. Skin color ranges from pale orange to brilliant orange-red. The Fuyu persimmon exhibits a sweet, mild flavor and crisp, crunchy texture when ripe and ready to eat. Because of its firm texture, the Fuyu may be eaten raw like an apple or sliced into salads. The pulp may also be pureed and used as an ingredient in baked goods.

Hachiya – Heart-shaped fruit with smooth, brilliant orange-red skin. A ripe Hachiya persimmon exhibits a sweet and spicy flavor and very soft texture. Because of its soft texture, the Hachiya pulp is ideal for use as an ingredient in baked goods.

Ordering Specifications

Common packaging:

Single and 2-layer tray packs
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose well-shaped persimmons with good coloring. Some blemishing or discoloration of the skin is acceptable and does not affect eating quality. Avoid green or shriveled persimmons or those with broken skins.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Keep persimmons away from ethylene-producing fruits and ripening rooms. To ripen persimmons, hold at 60-65 degrees F/16-18 degrees C.

Handling tips:

Fuyu persimmons are slightly firm when ripe and ready to eat. Hachiya persimmons are very soft when ripe and ready to eat.

Nutrition*

Serving Size 1 Fuyu Persimmon (168g)

Amount Per Serving	% Daily Value
Calories 120	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 31g	10%
Dietary Fiber 6g	24%
Sugars 25g	
Protein 1g	
Vitamin A	70%
Vitamin C	20%
Calcium	2%
Iron	2%

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Troubleshooting

Accelerated softening of flesh:

Persimmons are very sensitive to ethylene; exposure to the gas will cause accelerated softening of flesh. To prevent premature softening, keep persimmons away from ethylene-producing fruits and ripening rooms.

Shriveling:

Persimmons may lose moisture and shrivel if held for long periods of time. For best quality, store ripe persimmons at 32-36 degrees F/0-2 degrees C and 90-98% relative humidity. Use or display ripe fruit quickly.

Water-soaked spots:

This is an indication of freeze injury. To prevent freeze injury, do not store persimmons below 28 degrees F/-2 degrees C.



Pineapples

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
Costa Rica	•	•	•	•	•	•	•	•	•	•	•	•
Honduras	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Smooth Cayenne – Predominant variety sold commercially. Characterized by a dry, crisp shell and dark green crown leaves. Shell color of a ripe pineapple ranges from greenish-brown to golden brown. Shell color does not indicate ripeness or sugar content. Interior flesh is firm and light yellow with a sweet to sweet-tart flavor.

NOTE: Other varieties include Queen and Red Spanish.

Ordering Specifications

Common packaging:

20-lb. single-layer cartons
40-lb. 2-layer cartons

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all pineapples are graded. Ungraded pineapples are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

6-, 8-, 10-, 12-, and 14-count per 40-lb. carton

NOTE: Counts 8 to 14 are most predominant for retail; counts 12 and 14 are typically ordered for foodservice.

Receiving and Inspecting

Good quality pineapples should be heavy for their size, well shaped, and fresh looking with dark green crown leaves. Shells should be dry and crisp and range in color from greenish-brown to golden brown. Color of shell does not indicate ripeness or sugar content. Shell color is determined by the amount of sun exposure during growing. Pineapples with greenish-brown shells may be just as ripe and sweet as those with golden brown shells. Contrary to popular belief, pineapples do not ripen after harvesting. They are picked when fully ripe. A ripe pineapple should have a distinctive aroma and a soluble solids content of 12% or higher.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Handling tips:

Although pineapples have a tough-looking exterior, they can bruise easily. Handle fruit with care.



Nutrition*

Serving Size 2 slices-3" diameter, 3/4" thick Pineapple (112g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 16g	5%
Dietary Fiber 1g	4%
Sugars 13g	
Protein 1g	
Vitamin A	0%
Vitamin C	25%
Calcium	2%
Iron	2%

*Based on information published by FDA.

Troubleshooting

Dull appearance; water-soaked flesh; dark core; rapid decay when removed from storage:

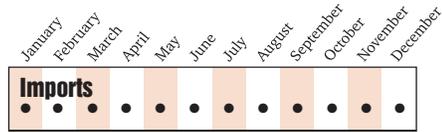
These are indications of chill injury. To prevent chill injury, do not store pineapples below 45 degrees F/ 7 degrees C.

Wet boxes:

This may be an indication of overripe or damaged fruit. Carefully inspect containers immediately after receiving. Handle pineapples with care; do not drop containers on the floor.



Availability



NOTE: Some major production areas include Colombia, Ecuador, Mexico, and Venezuela.

Variety/Type Descriptions

Banana-shaped fruit with thick greenish-yellow skin. Starchy flesh must be cooked. Plantains may be used at various stages of ripeness. In its green stage, a plantain tastes like a potato or squash. When cooked at this stage, it can be used as a side dish or as an ingredient in soups, meat dishes, and casseroles. When cooked in its soft, ripe stage, the plantain exhibits a sweet flavor and may be used in desserts.

Ordering Specifications

Common packaging:
45- to 50-lb. cartons

Grades:
No U.S. grades given.

Receiving and Inspecting

Choose plantains with uniform shapes. Avoid those with bruises or gouges. Plantains are often sold in their hard, green stage. Like bananas, the skin of the plantain will first turn yellow and then darken as the fruit ripens. Plantains with dark skins indicate ripe, sweet fruit that is ideal for use in a cooked dessert. Black-skinned fruit with mold around the stem end indicates old product and should be avoided.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes; ethylene production increases with ripening.
Sensitive to ethylene exposure: Yes; ethylene promotes ripening.

Storing tips:

Plantains may be ripened with bananas in ripening rooms (60-65 degrees F/15-18 degrees C, 90-95% relative humidity, and 100 ppm ethylene for 2 to 3 days).

Handling tips:

Handle plantains with care to avoid skin discoloration and browning of pulp. Maintain a high humidity level to minimize water loss and skin browning.

Nutrition*

Serving Size 1 medium Plantain (179g)

Amount Per Serving	% Daily Value
Calories 220	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 57g	19%
Dietary Fiber 4g	16%
Sugars 10g	
Protein 2g	
Vitamin A	40%
Vitamin C	50%
Calcium	0%
Iron	6%

*These values have not been adopted or approved by FDA. They have been obtained from USDA's Handbook 8, or other databases developed by PMA and its members. While PMA believes use of non-FDA-approved data should not result in FDA regulatory action, such a result can never be assured. Consultation with company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Black skin with mold around stem end:

This is an indication of age. For best quality, inspect plantains carefully upon arrival. Do not hold for long periods of time once plantains become soft and ripe.

Dull skin color; failure to ripen:

These are indications of chill injury. To prevent chill injury, do not store plantains below 56 degrees F/13 degrees C.

Plums

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•		
Oregon								•	•			
Washington								•	•			
Chile	•	•	•	•								•

Variety/Type Descriptions

Plums range in shape from oblong to round and flavors vary from sweet to slightly tart. Availability of specific varieties depends on the season. Individual variety seasons are short and often overlap. Common plum varieties include:

Angeleno – Deep purple to black skin and amber flesh.

Black Amber – Deep black skin and amber flesh.

Black Beaut – Black skin with yellow to red flesh.

Casselman – Red and yellow skin with orange flesh.

Fortune – Bright red skin and yellow flesh.

French Prune – Elongated shape; mottled red skin and yellow flesh.

Friar – Deep black skin and amber flesh.

Kelsey – Greenish-yellow skin and yellow-white flesh.

Larry Ann – Bright red skin.

Red Beaut – Bright red skin with yellow flesh.

Royal Diamond – Deep red to black skin and amber flesh.

Santa Rosa – Purple-crimson skin and amber flesh.

Simka – Deep purple skin and yellow flesh.

Ordering Specifications

Common packaging:

2-layer tray packs
28-lb. volume-fill containers

Grades:

U.S. Fancy
U.S. No. 1
U.S. Combination
U.S. No. 2

NOTE: Not all plums are graded. Ungraded plums are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

20-, 25-, 30-, 35-, 40-, 45-, 50-, 55-, 60-, 65-, 70-, 80-, 90-, 100-, 120-, 140-, and 170- count

NOTE: Counts are based on the number of plums in a 10-lb. sample of fruit.

Equivalents

1 lb. fresh plums = 6 medium-size plums
1 lb. fresh plums = 2½ cups sliced
1 lb. fresh plums = 2 cups diced
1 lb. fresh plums = 1¾ cups pureed

Receiving and Inspecting

Look for smooth, plump, and fairly firm plums with coloring that is consistent with the specific variety. Avoid plums with punctured or discolored skins or that appear shriveled, soft, or leaky.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–high (Unripe fruit produces less ethylene.)
Sensitive to ethylene exposure: Yes;
ethylene promotes ripening (softening).

Storing tips:

To ripen plums, hold at 55-70 degrees F/13-21 degrees C. (Ethylene treatment at 100 ppm is required to ripen some plum varieties such as Casselman and Angeleno which produce very small quantities of ethylene on their own.) A ripe plum should give to gentle pressure at the tip end. Keep ripe plums away from fruits and vegetables that are sensitive to ethylene and may be damaged by the gas.

Handling tips:

Plums bruise easily; handle with care.

Nutrition*

Serving Size 2 medium Plums (151g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 2g	8%
Sugars 13g	
Protein 1g	
Vitamin A	8%
Vitamin C	10%
Calcium	0%
Iron	2%

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Troubleshooting

Flesh browning; mealy texture:

This is an indication of chill injury. To prevent chill injury, do not store unripe plums between 36-46 degrees F/2-8 degrees C. To ripen plums, hold at 55-70 degrees F/13-21 degrees C. Store ripe fruit at 32-36 degrees F/0-2 degrees C.

Flesh browning; loss of flavor:

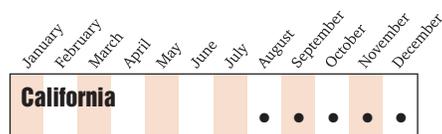
Plums may lose flavor or turn brown if they are held for extended periods of time. For best quality, keep storage time of ripe fruit to a minimum.



Pomegranates

Availability

A major production area is:



Variety/Type Descriptions

Also called Chinese apples. Round fruit with a turret-like calyx; size similar to a small grapefruit. Pomegranate skin is red with a leathery texture. Inside, a shiny white membrane surrounds clusters of crimson-colored seeds. Only the seeds are edible and exhibit a juicy, crisp texture and tangy-sweet flavor. Seeds are eaten uncooked.

Ordering Specifications

Common packaging:

- 6-pack tray, Euro-tray (18)
- 2-layer tray packs
- Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good-quality pomegranates should be large in size, well colored, and show no signs of deterioration.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Preparation tips:

To prepare pomegranates for use, bend back the rind and pull out seeds. Do not cut pomegranates.

Nutrition*

Serving Size 1 Pomegranate (154g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber less than 1 gram	4%
Sugars 21g	
Protein 1g	
Vitamin A	0%
Vitamin C	15%
Calcium	0%
Iron	2%

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Troubleshooting

Rind pitting or discoloration; internal discoloration or decay:

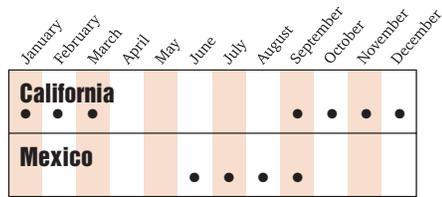
These are indications of chill injury. To prevent chill injury, do not store pomegranates below 32 degrees F/0 degrees C.

Loss of juice:

Pomegranates may lose moisture if they are stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.

Availability

Some major production areas include:



Variety/Type Descriptions

Also called cactus pear. Barrel-shaped fruit; size similar to an egg. Slightly prickly, firm skin ranges in color from green to dark red. Flesh inside is seedy and meaty and ranges in color from dark red to pale green, depending on the variety. Prickly pear flavor is sweet and similar to watermelon; texture is soft and slightly granular. Pulp only is edible; usually eaten as is or added to salads. May also be used as an ingredient in jellies, marmalades, or sauces.

Ordering Specifications

Common packaging:

Tray packs
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good-quality prickly pears should be tender and well-colored. Avoid moldy fruit or fruit with soft spots. Prickly pears are ready to eat when they are slightly soft, but not mushy.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Handling tips:

Prickly pears are susceptible to bruising; handle with care.

Nutrition*

Serving Size 1 Prickly Pear (103g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 10g	3%
Dietary Fiber 4g	15%
Sugars (Not Available)	
Protein 1g	
Vitamin A	2%
Vitamin C	25%
Calcium	6%
Iron	2%

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Troubleshooting

Bruising:

Prickly pears bruise easily. Handle with care and do not drop shipping containers on the floor.

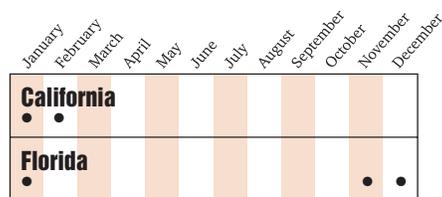
Brown discoloration of skin; water-soaked spots:

These are indications of chill injury. To prevent chill injury, do not store prickly pears below 41 degrees F/5 degrees C.

Pummelos

Availability

Some major production areas include:



Variety/Type Descriptions

Also called Chinese grapefruit. Round to pear-shaped fruit; similar in appearance to grapefruit, but larger. Smooth skin ranges from greenish-yellow to yellow. A layer of white pulp just beneath the skin is very thick. Pummelo flesh is firm and varies in color from white to dark pink. Some pummelos contain seeds, others are seedless. Pummelo flavor is similar to grapefruit, but sweeter and less acidic. Juice content is typically less than a grapefruit. Pummelos may be halved or sectioned and eaten as is or added to fruit salads or desserts.

Ordering Specifications

Common packaging:

10-, 25-, and 40-lb. cartons holding various counts.

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality pummelos should have smooth skins that are free of mold, decay, or blemishes. Pummelo shape may vary from round to pear-shape.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C 85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Store pummelos in a well-ventilated placed. Keep away from ethylene-producing fruits and ripening rooms.

Handling tips:

Keep cartons off the floor to prevent moisture accumulation.

Nutrition*

Serving Size ¼ Pummelo (152g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 2g	6%
Sugars 13g	
Protein 1g	
Vitamin A	0%
Vitamin C	150%
Calcium	0%
Iron	0%

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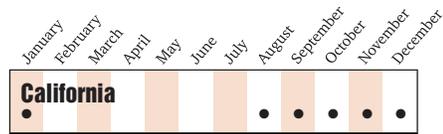
Troubleshooting

Brown discoloration of skin; increased decay:

These are indications of chill injury. To prevent chill injury, do not store pummelos below 45 degrees F/7 degrees C.

Availability

A major production area is:



Variety/Type Descriptions

Pineapple quince and perfumed quince are the two most common varieties available:

Pineapple – Round to pear-shaped fruit; size similar to a large apple. Yellow skin and white flesh with a firm and rather dry texture. Pineapple-like flavor is somewhat acidic. Pineapple quince must be peeled, cored, and cooked (typically poached, stewed, baked, or braised).

Perfumed – Fruit is shaped like a mini-football with smooth yellow skin and white flesh. Flavor of the perfumed quince is tart. Perfumed quince must be peeled, cored, and cooked (often used in jams, jellies, marmalades, and syrups).

Ordering Specifications

Common packaging:

2-layer tray packs
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality quinces should be large and smooth. Minor bruising should not affect eating quality since quinces are cooked.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes–high
Sensitive to ethylene exposure: Yes

Storing tips:

Quinces are high producers of ethylene; keep away from fruits and vegetables that may be damaged by the gas.

Handling tips:

Quinces bruise easily; handle with care.

Nutrition*

Serving Size 1 Quince (92g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 14g	5%
Dietary Fiber 2g	7%
Sugars 12g	
Protein 0g	
Vitamin A	0%
Vitamin C	25%
Calcium	2%
Iron	4%

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Troubleshooting

Bruising:

Quinces are very susceptible to bruising; handle product with care; do not drop shipping containers on the floor.

Water-soaked or soft spots:

These are indications of freeze damage. To prevent freeze damage, do not store quinces below 30 degrees F/1 degree C.



Raspberries

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•	•	•
Oregon						•	•	•				
Washington						•	•	•				
Chile	•	•	•	•								•
Europe							•	•				
Mexico				•	•							
New Zealand, Australia	•	•	•	•								•

Variety/Type Descriptions

Red raspberry varieties include Meeker, Willamette, Amity, Heritage, and Sweet Briar. Golden raspberries are also available in limited supplies. Due to varietal differences the appearance of red raspberries can vary from dull and dark to bright and shiny.

Ordering Specifications

Common packaging:

- 5-lb. boxes holding 12 6-oz. or 9 8-oz. containers
- 6-lb. boxes holding 12 8-oz. containers
- 9-lb. boxes holding 24 6-oz. containers

Grades:

- U.S. No. 1
- U.S. No. 2

Note: Not all raspberries are graded. Ungraded berries are called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality raspberries should be dry, plump, and firm. Avoid moldy, soft, or leaky berries, or berries that break apart easily and don't hold their shape.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Handling tips:

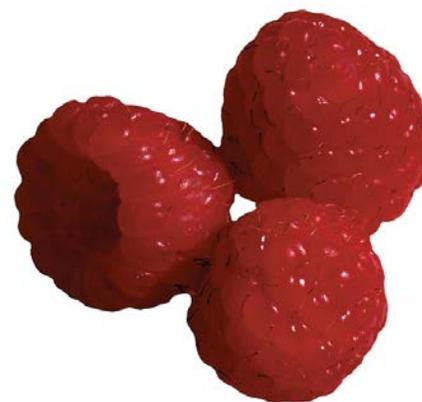
Raspberries are highly perishable and should be used within 1-2 days after arrival. Handle berries with care to prevent damage.

Nutrition*

Serving Size 1 cup Raspberries (123g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 14g	5%
Dietary Fiber 8g	33%
Sugars 6g	
Protein 1g	
Vitamin A	4%
Vitamin C	50%
Calcium	2%
Iron	4%

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Troubleshooting

Leaking; deterioration:

Berries may leak or begin to deteriorate if they are mishandled. For best quality, handle berries with care; do not drop shipping containers on the floor.

Decay:

Raspberries may decay if they are allowed to stand at room temperature. Keep raspberries properly refrigerated until ready to use or display.

Product breakdown:

Raspberries are sensitive to even light freezing. To prevent this, do not store raspberries below 30 degrees F/-1 degree C.



Strawberries

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•								•
Mexico	•	•	•	•	•	•	•				•	•

NOTE: Other major production areas include New York, Pennsylvania, and Oregon.

Variety/Type Descriptions

Fresh strawberries are not typically sold by variety, but rather according to their point of origin. California-grown varieties include Chandler, Selva, Seascape, and Camaroso.

Ordering Specifications

Common packaging:

- 12-lb. flats holding 12 one-pint containers
- 9-lb. flats holding 8 16-oz. clamshells or 16 8-oz. clamshells
- 6-lb. bulk half-trays
- 6-lb. trays holding place-packed strawberries with stems

Grades:

- U.S. No. 1
- U.S. Combination
- U.S. No. 2

NOTE: Not all strawberries are graded. Ungraded berries are called “unclassified.” Differences between grades are based primarily on external appearance.

Equivalents

- 1 pint = approximately 12 large stemmed berries
- 1 pint = approximately 36 small berries
- 1 pint = approximately 3 ¼ cups whole medium berries
- 1 pint = approximately 2 ¼ cups sliced berries
- 1 pint = approximately 1 2/3 cups puree
- 1 cup whole strawberries = approximately 4 ounces

Receiving and Inspecting

Strawberries should be plump and firm with a bright red color and natural shine. Caps should be fresh, green, and intact. Avoid strawberries with green or white color, or those that appear mushy, shriveled, or leaky.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Storing tips:

Place strawberries in the cooler immediately upon receiving. Do not spray berries with water or remove caps during storage.

Handling tips:

Handle strawberries with care to prevent damage.

Nutrition*

Serving Size 8 medium Strawberries (147g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 12g	4%
Dietary Fiber 4g	16%
Sugars 8g	
Protein 1g	
Vitamin A	0%
Vitamin C	160%
Calcium	2%
Iron	4%

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Troubleshooting

Loss of color or flavor; shriveling:

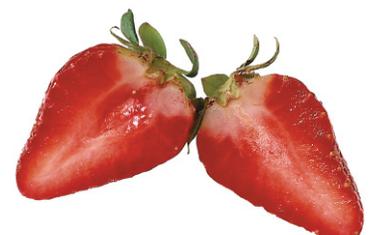
Strawberries may lose color and flavor or begin to shrivel if stored for long periods of time. For best quality, maintain proper storage temperatures and use strawberries soon after receiving.

Internal breakdown:

Strawberries may begin to deteriorate if they are sprayed before or during storage, or if the green caps are removed prior to rinsing. For best quality, do not spray berries during storage. (Berries should not be rinsed until just before they are used. Remove green caps after berries are rinsed to help preserve the strawberry flavor and prevent internal breakdown.)

Decay:

Delays in cooling strawberries soon after harvest or handling strawberries at temperatures above 36 degrees F/2 degrees C will accelerate the growth of gray mold. In addition to maintaining proper temperatures, shippers may use 15% carbon dioxide-enriched air during transportation to delay decay incidence on strawberries. For best quality, always inspect strawberries carefully upon arrival.



Tamarillos

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California										•	•	•
New Zealand	•	•	•								•	•

Variety/Type Descriptions

Egg-shaped fruit with pointed end. Smooth skin is glossy and ranges in color from golden-yellow to scarlet. Golden apricot-colored flesh contains seeds; flavor is somewhat bitter, tart, and tomato-like. Tamarillo texture is meaty. Tamarillos must be peeled and are best when cooked (sauces, chutneys, relishes).

Ordering Specifications

Common packaging:

Single-layer tray packs
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality tamarillos should be firm and heavy. Tamarillos are generally sold with stems attached. A ripe tamarillo should yield to gentle pressure and emit a fragrant aroma.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

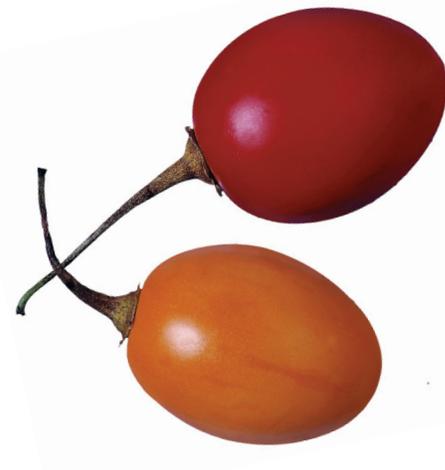
Produces ethylene: Yes—very low
Sensitive to ethylene exposure: No

Handling tips:

Handle tamarillos with care to avoid bruising.

Nutrition

Nutrition information for Tamarillos is not available in the data bases used by PMA.



Troubleshooting

Pitting of skin; discoloration:

These are indications of chill injury. To prevent chill injury, do not store tamarillos below 45 degrees F/7 degrees C.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida					•	•	•	•	•	•	•	•
Haiti		•	•	•							•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•
New Mexico					•	•	•	•	•			

NOTE: Other major production areas include Jamaica and Granada.

Variety/Type Descriptions

Also called tamarindo. Brittle brown shells shaped like plump string beans. Pulp inside is soft and brown; contains medium-sized seeds. Pulp flavor is a cross between apricots and dates and is also somewhat lemony. Texture is soft and slightly dry. Pulp may be eaten uncooked or used as an ingredient in chutneys and curried dishes.

Ordering Specifications

Common packaging:

Bulk cartons
Film bags

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality tamarind pods should be whole with few cracks. Avoid crumbled product.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

For best quality, place tamarinds in vented plastic bags or boxes with plastic liners during storage.

Handling tips:

Tamarind pods are brittle and can crack easily. Keep handling to a minimum.

Nutrition*

Serving Size 25 Tamarinds (50g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 120	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 31g	10%
Dietary Fiber 3g	10%
Sugars (Not Available)	
Protein 1g	
Vitamin A	0%
Vitamin C	2%
Calcium	4%
Iron	8%

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Troubleshooting

Cracked or crumbled pods:

Tamarind pods are brittle and very susceptible to cracking or crumbling. Keep handling to a minimum; do not stack or pile product. Maintain humidity level of 85-95% during storage.

Tomatillos

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Small round fruit covered with a parchment-like green husk. Fruit resembles a green Cherry tomato. Green flesh contains tiny seeds; solid texture. Tomatillo flavor is lemony and slightly acidic. Husks must be removed before using. Tomatillos may be used cooked (stews, casseroles) or uncooked (chopped into salads, guacamole, cold soups, and sandwiches).

Ordering Specifications

Common packaging:

10-lb. bulk cartons
Prepackaged containers

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality tomatillos should be firm and dry with clean, close-fitting husks. Avoid soft tomatillos or those that exhibit black discoloration or mold.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Keep tomatillos dry and well ventilated during storage.

Handling tips:

Handle tomatillos with care to minimize bruising.

Nutrition*

Serving Size 2 medium Tomatillos (68g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	5%
Sugars (Not Available)	
Protein 1g	
Vitamin A	2%
Vitamin C	15%
Calcium	0%
Iron	2%

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Troubleshooting

Pitting; discoloration; increased decay:

These are all indications of chill injury. To prevent chill injury, do not store tomatillos below 45 degrees F/7 degrees C.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•				•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Although there are many varieties of tomatoes, they are generally sold according to type. The most common types include:

Cherry – Small round shape with shiny red skin and firm flesh.

Grape – Small oblong shape with shiny red skin, firm flesh, and concentrated flavor. Also known as Bryan or baby Romas. Originally propagated in China, grape tomatoes are now widely cultivated. Flavor is more concentrated and sugar content higher than in conventional varieties.

Roma – Plump, oblong shape with shiny red skin and firm flesh.

Round/Globe – Round shape with shiny red skin and firm flesh.

Teardrop – Small, pear-shaped tomatoes 1-1½” long with a crisp, sweet flavor. Also called poire-joli or pear tomatoes. Red teardrops are bright orange-red, yellow teardrops are yellow with an under-blush of green.

NOTE: Tomatoes are generally designated as vine ripens or mature greens. Vine ripe tomatoes are picked at stages 2, 3, and sometimes 4 of ripeness. Mature green tomatoes are picked at stages 1 or 2 of ripeness.

Ripening Progression

Stage 1/Green – Tomato surface is completely green; shade of green may vary from light to dark.

Stage 2/Breakers – Definite break of color from green to yellow-tan, pink, or red on 10% or less of tomato surface.

Stage 3/Turning – Yellow-tan, pink, or red color shows on over 10% but not more than 30% of tomato surface.

Stage 4/Pink – Pink or red color shows on over 30% but not more than 60% of tomato surface.

Stage 5/Light Red – Pinkish-red or red color shows on over 60% but not more than 90% of tomato surface.

Stage 6/Red – Red color shows on over 90% of tomato surface.

Ordering Specifications

Common packaging:

Vine Ripens/Mature Greens:
2 to 3-layer place pack lugs
25-lb. bulk containers

Romas: 25-lb. bulk containers

Cherry: Flats holding 12 one-pint baskets

Greenhouse: 15-lb. single-layer flats

Grape:
4 7-oz.
4 2.5-lb. clamshells
6 1-lb. clamshells
12 1-pint clamshells

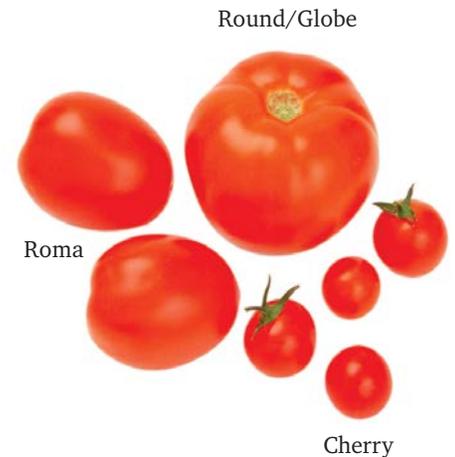
Teardrop: 12 6-oz. packages

Grades:

U.S. No. 1
U.S. Combination
U.S. No. 2
U.S. No. 3

Greenhouse tomatoes:
U.S. No. 1
U.S. No. 2

NOTE: Not all tomatoes are graded. Ungraded tomatoes are called “unclassified.” Differences between grades are based primarily on external appearance.



Sizes:

As of November 6, 2000, new size specifications for Central and South Florida growers only are:

6X7 (formerly Medium) = 2-⁹/₃₂ to 2-¹⁹/₃₂ inches.

6X6 (formerly Large) = 2-¹⁷/₃₂ to 2-²⁹/₃₂ inches.

5X6 (formerly Extra large) = 2-²⁵/₃₂

Old Size Designations*
Current Size Designations
Minimum Diameter
Maximum Diameter

Old Size Designations*	Current Size Designations	Minimum Diameter	Maximum Diameter
7x7**	Small**	2- ⁴ / ₃₂	2- ⁹ / ₃₂
6x7	Medium	2- ⁸ / ₃₂	2- ¹⁷ / ₃₂
6x6	Large	2- ¹⁶ / ₃₂	2- ²⁵ / ₃₂
5x6	Extra Large	2- ²⁴ / ₃₂	

*Old size designations may still be given to tomatoes that are not inspected by the USDA.

**Under a federal marketing order, Florida does not ship small tomatoes.

Receiving and Inspecting

Good quality tomatoes should have bright, shiny skins (regardless of degree of ripeness) and firm flesh. Avoid tomatoes that are soft or mushy, lacking in color, or have blemishes or growth cracks. Inspect tomatoes immediately upon arrival to ensure that the degree of ripeness, size, and quantity is consistent with order specifications.



Tomatoes

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Ripe and mature green: 60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene:
Mature green: Yes–low
Ripe: Yes–medium

Sensitive to ethylene exposure:

Mature green: Yes
Ripe: No

Storing tips:

To delay ripening of mature green tomatoes, store at 55-60 degrees F/13-16 degrees C. Tomatoes are very susceptible to chill injury and should not be stored below 50 degrees F/10 degrees C. If ripe tomatoes must be placed in a cooler, wrap boxes in thermal blankets and store near the cooler door to reduce the possibility of chill injury. Keep unripe tomatoes out of direct sunlight.

Handling tips:

Tomatoes are delicate and can bruise easily which may promote spoiling. Handle tomatoes with care; do not drop containers on the floor or dump tomatoes. Store and display tomatoes stem-end up to help preserve quality.

Nutrition*

Serving Size 1 medium Tomato (148g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 35	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 1g	4%
Sugars 4g	
Protein 1g	
Vitamin A	20%
Vitamin C	40%
Calcium	2%
Iron	2%

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Troubleshooting

Decay; softening; loss of flavor; failure of mature greens to ripen properly:

These are indications of chill injury. To prevent chill injury, do not store tomatoes below 50 degrees F/10 degrees C. Moisture accumulation on or in containers during storage may also promote product decay. Store containers off the floor to keep them from getting damp. Maintain moderate air circulation and inspect tomatoes daily during storage.

Bruising:

Tomatoes bruise easily and may eventually spoil. To prevent bruising and possible spoilage, handle tomatoes with care; do not drop shipping containers on the floor.

Uneven color development:

Exposing tomatoes to temperatures above 86 degrees F/30 degrees C for longer than a few hours will result in uneven color development of mature green or breaker tomatoes.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California						•	•	•	•			
Florida	•		•	•	•	•	•	•	•	•	•	•
Georgia						•	•	•				
Texas					•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•						•	•

Variety/Type Descriptions

Many types of watermelon are grown throughout the United States. The most common types sold commercially include:

Icebox – Round shape with dark or light green rind. Juicy red or yellow flesh with seeds.

Picnic – Large round or oblong shape. Rind color ranges from light to dark green, with or without stripes. Red juicy flesh with seeds.

Seedless – Oval to round shape. Light green rind with dark green stripes. Juicy red or yellow flesh with a few tiny white edible seeds.

Yellow – Oblong to long shape. Light green rind with mottled stripes. Juicy yellow to bright orange flesh.

Ordering Specifications

Common packaging:

35- to 85-lb. cartons holding various counts
Bulk bins

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

Sizes:

Picnic: 15-45 pounds
Ice Box: 5-15 pounds
Seedless: 10-25 pounds
Yellow: 10-30 pounds

Receiving and Inspecting

A good quality watermelon should exhibit shape and rind color that is characteristic of its variety. All varieties should be firm and symmetrical. Watermelons should be ripe upon arrival. They do not ripen after harvesting. Ripe indicators include a dull rind, dried stem, and yellowish underside where the melon touched the ground. A ripe watermelon will also produce a distinct hollow sound when thumped. Immaturity is indicated by a shiny rind and a white, pale green, or light yellow underside.

Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

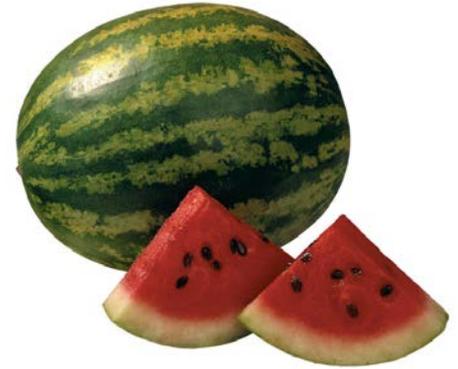
Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep watermelon away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle watermelon with care to prevent external or internal bruising.

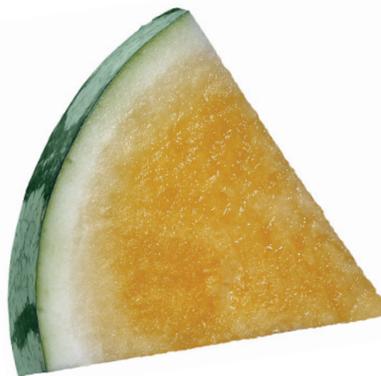


Nutrition*

Serving Size 1/18 medium Watermelon (259g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 25g	8%
Dietary Fiber 2g	7%
Sugars 23g	
Protein 1g	
Vitamin A	20%
Vitamin C	25%
Calcium	2%
Iron	4%

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Troubleshooting

Pitting of rind; off flavor; loss of color:

These are indications of chill injury. To prevent chill injury, do not store watermelon below 41 degrees F/5 degrees C.

Mealy or soft flesh:

Watermelon is extremely sensitive to ethylene gas; exposure will promote softening of flesh. For best quality, keep watermelon separated from ethylene-producing fruits. Do not store near ripening rooms.

White Sapotes

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California							•	•	•	•	•	•
Florida					•	•						

Variety/Type Descriptions

Round fruit; size similar to an orange or grapefruit. Skin color ranges from bright green to bright yellow; flesh is cream-colored with a few flat seeds. White sapote flavor is sweet and mild. Flavor of specific varieties varies from fruity to coconut or caramel-like. Texture of a ripe Sapote is soft and somewhat juicy. Flesh only is edible; may be eaten plain or pureed and added to beverages or used as an ingredient in baked goods.

Ordering Specifications

Common packaging:

9 10-lb. packs
Single-layer tray packs

Grades:

No U.S. grades given.

Receiving and Inspecting

White sapotes are best when received while still hard and allowed to ripen at room temperature.

NOTE: Sapotes ripen very quickly. A ripe sapote will give to gentle pressure.



Storing and Handling

Temperature/humidity recommendations for short-term storage of 7 days or less:

Unripe: 60-65 degrees F/16-18 degrees C
85-95% relative humidity
Ripe: 45-50 degrees F/7-10 degrees C
90-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes
Sensitive to ethylene exposure: Yes

Storing tips:

Exposure to ethylene gas may cause accelerated ripening and softening.

Handling tips:

White sapotes bruise easily; handle with care.

Nutrition*

Serving Size 1 Sapote (225g)

Amount Per Serving	% Daily Value
Calories 310	
Calories from Fat 15	
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Total Carbohydrate 76g	25%
Dietary Fiber 6g	26%
Sugars 0g	
Protein 5g	
Vitamin A	15%
Vitamin C	70%
Calcium	10%
Iron	15%

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Troubleshooting

Bruising:

White sapote skin is very thin and susceptible to bruising. To prevent bruising, handle sapotes with care; do not drop shipping containers on the floor.

Brown discoloration of skin; increased decay:

These are indications of chill injury. To prevent chill injury, do not store white sapotes below 45 degrees F/7 degrees C.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California:	•	•	•	•	•	•	•	•	•	•	•	•
Mexico:	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Big Heart – Thornless, conical artichoke; green color with some purple tinge. Some frost damage may appear on petals during winter which is only a cosmetic defect. Good flavor and wide hearts.

Desert Globe – Conical to round in shape; green color. Thorns are less prominent with this variety. Some frost damage may appear on petals during winter, which is only a cosmetic defect. Good edible petals with well-developed hearts.

Green Globe – Globe-shaped in winter and spring; conical-shaped in summer and fall. Green color with some purple at the base in summer. Thorns are more prominent in summer and fall. Some frost damage may appear on petals during winter, which is only a cosmetic defect. Good edible petals with heavy hearts.

Imperial Star – Thornless; generally conical-shaped; seasonal variations will be rounded; glossy, green color; compact appearance. Winter harvests may show frost damage on outer petals. This is a cosmetic defect only. Frost tends to enhance the flavor.

Ordering Specifications

Common packaging:

22-lb. cartons

Grades:

U.S. No. 1

U.S. No. 2

Differences between grades are based primarily on external appearance.

Sizes:

Small (2 inches or less in diameter)

Medium (8 to 10 ounces each)

Large (15 to 20 ounces each)

Receiving and Inspecting

Artichokes should be heavy for their size, compact, and firm with soft green color. Shape and color will vary somewhat, depending on variety and season. During spring, artichokes will be globe-shaped; during the summer and fall, artichokes will be more conical with slightly flared petals. During winter, artichokes may exhibit a white blistered or bronze appearance due to exposure to frost. This cosmetic defect does not affect quality, and in fact, enhances the nutty flavor of the artichoke. Avoid artichokes that appear wilted, moldy, significantly discolored, or woody.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: Ok

Top Ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: No

Handling tips:

Handle artichokes with care to avoid bruising.

Preparation tips:

Wash artichoke under running water.

Pull off lower outer petals. Cut stems to 1 inch or less. Snip off tips of petals.

Place in acidified water to preserve green color. Cook by boiling, steaming, microwaving, or sautéing.



Nutrition*

Serving Size 1 medium Artichoke (128g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 120mg	5%
Total Carbohydrate 13g	4%
Dietary Fiber 7g	28%
Sugars 3g	
Protein 4g	
Vitamin A	4%
Vitamin C	25%
Calcium	6%
Iron	10%

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Troubleshooting

Wilting or molding:

Artichokes may wilt or become moldy if they are stored under improper temperature and humidity conditions. For best quality, maintain a storage temperature of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.

Significant discoloration:

This may indicate damage resulting from rough handling. To prevent discoloration, handle artichokes with care.

Woody appearance:

This may indicate over mature product. Be sure to inspect artichokes carefully upon arrival for best quality and freshness.

Asparagus

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•							
Michigan			•	•	•							
New Jersey			•	•	•							
Washington			•	•	•	•						
Chile										•	•	
Mexico	•	•	•	•	•	•	•	•	•	•	•	•
Peru	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Asparagus is a member of the lily family. Commercial forms are actually the shoots of the immature plant. The two most common types are:

Green – Predominant type for fresh availability. Green stalks with some white at base. Green tips with some purple tinge.

White – Almost perfectly smooth and rounded at the tip, with no bract development visible. Spears are thicker, more tender, and have a more subtle flavor than green asparagus.

Ordering Specifications

Common packaging:

28-lb. pyramid cartons holding bunches
12- to 15-lb. ½-pyramid cartons
30-lb. loose-fill pyramid cartons

Grades:

U.S. No. 1, U.S. No. 2

Sizes:

Washington:

Small – ¼” to ⅜”
Standard – ⅜” and larger
Large and Jumbo – ⅞” and larger

Other areas:

Small – ⅜” and larger
Standard – ⅝” and larger
Large: ⅞” and larger
Extra Large – 10/16” and larger
Jumbo – 13/16” and larger

Receiving and Inspecting

Asparagus should be fresh and firm with compact tips. Spears should be straight and round, and should snap easily when bent. Contrary to popular belief, diameter of spears is not an indicator of quality. Spears with larger diameters are just as tender and flavorful as slender spears. Avoid asparagus with wilted appearance or spreading tips.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

To promote better shelf life, stand asparagus, butt-end down, in 1 inch water. Store away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 5 Asparagus Spears (93g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	8%
Sugars 2g	
Protein 2g	
Vitamin A	10%
Vitamin C	15%
Calcium	2%
Iron	2%

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Troubleshooting

Dull gray-green color; limp tips:

These are indications of chill injury. To prevent chill injury, do not store asparagus below 36 degrees F/2 degrees C.

Tough spears:

Asparagus is sensitive to ethylene; spears may become tough if exposed to the gas. For best quality, store asparagus away from ethylene-producing fruits and ripening rooms.

Decay; tough texture; loss of flavor:

Asparagus will deteriorate and lose flavor if stored at high temperatures. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Dried up butt ends:

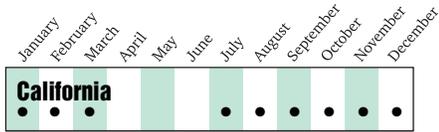
Asparagus butt ends may become dry if exposed to low humidity. For best quality, maintain humidity level of 90-98%. To help maintain quality, stand asparagus bunches, butt-end down, in shallow water. NOTE: Asparagus with white butt ends is less perishable than asparagus with green butt ends.



Australian Blue Squash

Availability

A major production area includes:



Variety/Type Descriptions

Large pumpkin-shaped squash that is flattened at both ends. Exterior color is a gray/blue/green color and may even develop an orange tinge upon storing. Interior flesh is orange.

Ordering Specifications

Common packaging:

25-lbs.
Bulk

Grades:

No U.S. grades given



Receiving and Inspecting

Do not be alarmed by unusual divots in the skin. These are spots where the squash sealed itself.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

50-55 degrees F/10-12 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Store and handle like other hard-shelled squash in a dry, cool place.



Nutrition*

Serving Size $\frac{3}{4}$ cup cooked
Australian Blue Squash (85g)

Amount Per Serving	% Daily Value
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 1g	4%
Sugars 3g	
Protein 1g	
Vitamin A	70%
Vitamin C	15%
Calcium	2%
Iron	2%

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Baby Vegetables

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
Beets	•	•	•	•	•	•	•	•	•	•	•	•
Bok Choy	•	•	•	•	•	•	•	•	•	•	•	•
Carrots	•	•	•	•	•	•	•	•	•	•	•	•
Cauliflower	•	•	•	•	•	•	•	•	•	•	•	•
Corn							•	•	•	•		
Kohlrabi	•	•	•	•	•	•	•	•	•	•	•	•
Leeks	•	•	•	•	•	•	•	•	•	•	•	•
Soft Shell Squash	•	•	•	•	•	•	•	•	•	•	•	•
Turnips	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: For major production areas, refer to specific commodity pages.

Variety/Type Descriptions

Common baby vegetables available commercially include:

Beets – Gold, red, stripes

Bok Choy

Carrots – French, round, white

Cauliflower – White, green, purple

Corn

Kohlrabi – Red, green

Leeks

Soft-shell Squash – Green and yellow zucchini, green and yellow summer, crookneck, pattypan, scallopini

Turnips

Ordering Specifications

Common packaging:

Cartons holding 12 to 24 bunches
Cartons holding 100-count baby corn
10-lb. cartons holding baby soft-shell squash

Grades:

No U.S. grades given.

Receiving and Inspecting

Like their larger counterparts, baby vegetables should appear fresh and well colored. Green tops or blossoms should also be fresh and well colored. Avoid baby vegetables that show signs of shriveling, pitting, discoloration, or decay.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

Beets, Bok Choy, Carrots, Cauliflower, Corn, Kohlrabi, Leeks and Turnips:
32-36 degrees F/0-2 degrees C
90-98% relative humidity

Soft-Shell Squash:
45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle:

- Beets, Bok Choy, Carrots, Corn, Kohlrabi, Leeks, and Turnips – Ok
- Cauliflower, and Soft-Shell Squash – No

Top ice:

- Beets, Carrots, Corn, Kohlrabi, Leeks and Turnips – Ok
- Bok Choy, Cauliflower, and Soft-Shell Squash – No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure:

- Beets, Bok Choy, Carrots, Cauliflower, Leeks, Soft-Shell Squash, and Turnips – Yes
- Corn, Kohlrabi – No



Storing tips:

Maintaining proper temperature and humidity conditions during storage is critical for baby vegetables because these items are more susceptible to water loss, chill, and freeze injuries, and physical damage than their larger counterparts. Because of their increased susceptibilities, baby vegetables should be used or displayed soon after receiving. Do not hold for a long period of time. Baby vegetables designated as sensitive to ethylene exposure should be kept away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle baby vegetables with care to prevent physical damage. Do not drop shipping containers on the floor.

Nutrition

Refer to individual commodity pages for Baby Vegetables' nutrition information.

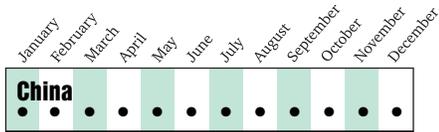
Troubleshooting

Refer to specific commodity pages.

Bamboo Shoots

Availability

A major production area includes:



Variety/Type Descriptions

The young shoots of a dozen or so edible varieties of bamboo are cut as soon as they emerge from the ground. White or ivory-colored, tender and cone-shaped, bamboo shoots are usually found in 4” lengths with the fibrous outer green and brown overlapping leaves removed. The Japanese word for bamboo shoots is takenoko.

Ordering Specifications

Common packaging:

Water-packed: 12 7.5- or 8-oz. plastic tubs
24 12-oz. packs
Fresh: 2-kilogram cartons, bulk
Dried: varying sized packages

Grades:

No U.S. grades given.

Equivalents

25 slices = 1 cup



Receiving and Inspecting

Look for shoots with no blemishes, consistent color, and crisp texture.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

38-40 degrees F/3-4 degrees C

Retail display tips:

Water Sprinkle: No
Top Ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Nutrition*

Serving Size 1 cup Bamboo Shoots (151g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 3g	13%
Sugars 2g	
Protein 4g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	4%

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Troubleshooting

Fresh bamboo shoots are available in the spring. Soft spots, mold, and dark coloring indicate decay caused by age.

Beans, Snap

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•	•	
Florida	•	•	•	•	•	•				•	•	•
Georgia	•	•	•	•	•						•	•
Mexico	•	•	•	•								•

NOTE: Other major production areas include New York, Oregon, and Wisconsin.

Variety/Type Descriptions

Green – Long, straight pods, green color. Pods should snap easily when bent.

Yellow wax – Long, straight pods; creamy to yellow color. Pods should snap easily when bent.

Green and yellow wax beans are also called string beans.

Ordering Specifications

Common packaging:

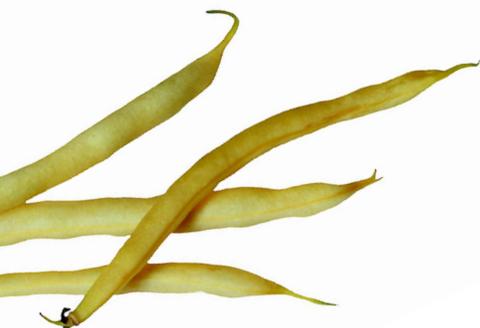
15- to 22-lb. cartons
30-lb. bushel containers

Beans, yellow wax:
10-lb bulk

Grades:

U.S. Fancy
U.S. No. 1
U.S. Combination
U.S. No. 2

Differences between grades are based primarily on external appearance.



Receiving and Inspecting

Good quality snap beans should have long, straight pods and be well colored. They should also be free of decay or blemishes and snap easily when bent.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

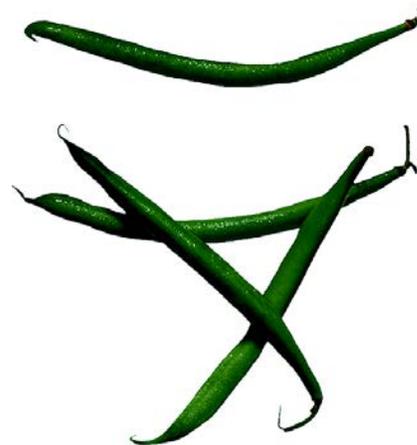
Maintain moderate air circulation when storing beans. High air circulation may cause dehydration; low temperatures may cause chill injury. For best quality, keep storage time to a minimum, and separate beans from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size ¾ cup cut Beans, Snap (83g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 3g	12%
Sugars 2g	
Protein 1g	
Vitamin A	4%
Vitamin C	10%
Calcium	4%
Iron	2%

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Troubleshooting

Pitting; russetting:

These are indications of chill injury. To prevent chill injury, do not store beans below 41 degrees F/5 degrees C.

Loss of green color:

Green beans may lose their color if exposed to ethylene gas. For best quality, store beans away from ethylene-producing fruits and ripening rooms.

Wilting; shriveling:

Snap beans may wilt or shrivel if stored in areas with low humidity. For best quality, maintain humidity level of 85-95%.

Decay:

Storing beans at high temperatures combined with high humidity may promote rapid deterioration. Exposure to high temperatures may also cause rotting or mold. For best quality, maintain storage temperatures of 45-50 degrees F/7-10 degrees C.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
New Jersey	•	•	•	•	•	•	•	•	•	•	•	•
New York	•	•	•	•	•	•	•	•	•	•	•	•
Texas	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include Colorado and Ohio.

Variety/Type Descriptions

Dark purple-red round roots with purple-red tops and large, dark green leaves. Early or new-crop beets are usually sold with tops attached; late-crop beets are usually sold topped.

Some common varieties are Detroit, Ruby, Crosby, and Early Wonder.

Ordering Specifications

Common packaging:

25- and 50-lb. sacks holding loose beets
Cartons holding 12 or 24 bunches

Grades:

U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.

NOTE: Beets are graded as bunched, with short-trimmed tops, and topped.

Receiving and Inspecting

Choose small to medium-size beets with firm, smooth skins and purple-red color. Tops should be clean, fresh, and tender. Avoid beets that are shriveled, soft, or have rough or flabby skins.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 1 Beet (82g)

Amount Per Serving	% Daily Value
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 65mg	3%
Total Carbohydrate 8g	3%
Dietary Fiber 2g	9%
Sugars 5g	
Protein 1g	
Vitamin A	0%
Vitamin C	6%
Calcium	2%
Iron	4%

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Troubleshooting

Sprouting; decay:

Beets may begin to sprout or decay if they are stored at high temperatures. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C. Low air circulation may also promote decay; be sure to maintain adequate air circulation while storing beets. Bunched beets are more perishable than topped beets.

Wilting:

Beets may begin to wilt if stored in an area with low humidity. For best quality, maintain humidity level of 90-98%.

Rough, woody texture:

This may be an indication of age. For best quality, choose small to medium-sized beets with tender, fresh green tops. Small size usually indicates younger, more tender beets.



Belgian Endive

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•						•	•	•
Belgium	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A relative of chicory, Belgian endive is characterized by an elongated head (approximately 5 inches) consisting of white, compact leaves with creamy yellow tips. Flavor is mild and slightly bitter.

Ordering Specifications

Common packaging:

10-lb. wooden boxes

NOTE: Belgian endive is usually packed in layers that are separated by paper.

Grades:

No U.S. grades given.

Imports are designated as Quality 1.



Receiving and Inspecting

Look for uniformly shaped, firm heads with compact leaves. Avoid Belgian endive with open or green leaves.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: Ok

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: Yes

Storing tips:

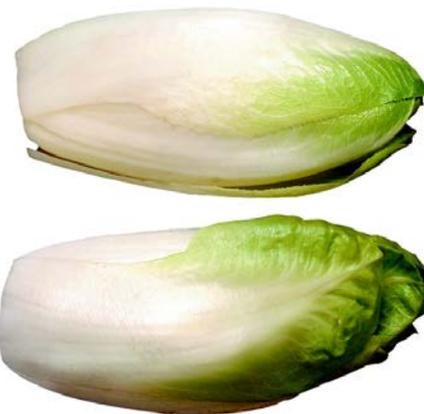
Store Belgian endive in a dark area away from light. Keep away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Belgian Endive (43g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	5%
Sugars 0g	
Protein 1g	
Vitamin A	20%
Vitamin C	6%
Calcium	2%
Iron	2%

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Troubleshooting

Open or green leaves:

Belgian endive leaves may open or turn green if the product is exposed to sunlight. Always store Belgian endive in a dark area. For best quality, display product in its original shipping container.

Leaf browning:

Storing Belgian endive in a warm area may promote browning of leaves. Exposure to ethylene may also cause leaf browning. For best quality, maintain storage temperature of 32-36 degrees F/ 0-2 degrees C. Keep Belgian endive away from ethylene-producing fruits and ripening rooms.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•		
Mexico	•	•	•	•						•	•	•

Variety/Type Descriptions

Member of the squash family. Cucumber-shaped melon with bumpy greenish-yellow skin. Flavor is mild and somewhat bitter. Flavor is most delicate when melon is green. As melon ripens, skin color turns yellowish-orange and flavor becomes stronger. Skin is edible; spongy pulp and seeds should be removed before using.

Ordering Specifications

Common packaging:

10-lb. bulk cartons

Grades:

No. U.S. grades given.

Receiving and Inspecting

Choose bitter melons with shiny, greenish-yellow skins. Avoid melons with brown spots.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-48 degrees F/ 7-8 degrees
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low when ripe
Sensitive to ethylene exposure: Yes

Storing tips:

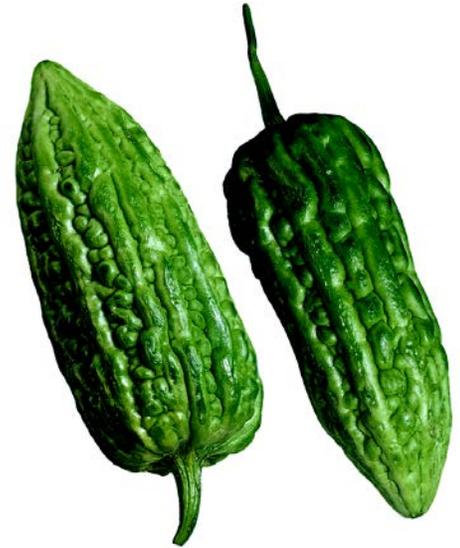
Keep bitter melon away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Bitter Melon pieces (93g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 3g	10%
Sugars (Not Available)	
Protein 1g	
Vitamin A	8%
Vitamin C	130%
Calcium	2%
Iron	2%

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Troubleshooting

Water-soaked appearance; pitting; accelerated decay:

These are indications of chill injury. To prevent chill injury, do not store bitter melons below 34-36 degrees F/ 1-2 degrees C.

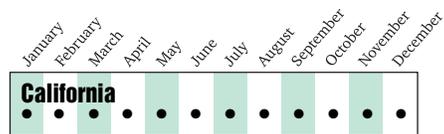
Yellowing; loss of green color:

Bitter melons are sensitive to ethylene; exposure to the gas may cause yellowing and loss of green color. For best quality, keep bitter melons away from ethylene-producing fruits and ripening rooms.

Black-eyed Peas

Availability

A major production area includes:



Variety/Type Descriptions

Buff-colored, kidney-shaped bean with a black spot at the inner curve. Sold fresh or dried. Black-eyed peas require less soaking than other dried beans, and pre-soaked black-eyed peas are also available.

Ordering Specifications

Common packaging:

12 11-oz. bags or tubs

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for clean, unbroken skins with a fresh smell and no slime.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-34 degrees F/0-1 degree C

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene: No

Storing tips:

Black-eyed peas will keep refrigerated for about two weeks. Pre-soaked beans may last longer, in consistent temperatures.

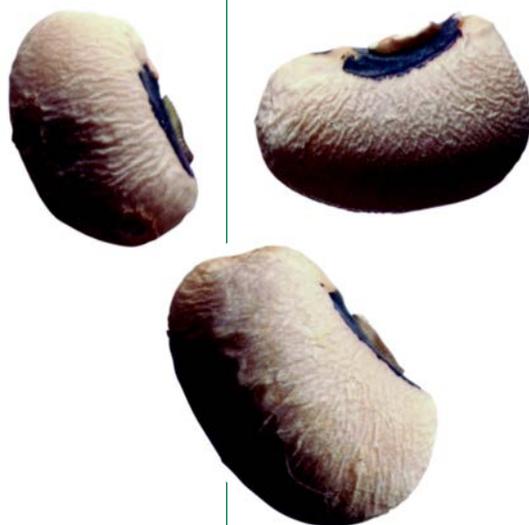


Nutrition*

Serving Size ½ cup Black-eyed Peas (47g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	5%
Sugars (Not Available)	
Protein 2g	
Vitamin A	15%
Vitamin C	25%
Calcium	4%
Iron	2%

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Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Bulb-like base with thick white stalks and large, dark green leaves. Bok choy's mild flavor is similar to cabbage; texture is tender-crisp. Bok choy is normally cooked (stir-fried as a side dish or added to soups).

Ordering Specifications

Common packaging:

30- to 70-lb. cartons and crates

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality bok choy should exhibit clean, crisp stalks and fresh-looking leaves. Avoid wilted or significantly discolored product.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep bok choy away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup shredded Bok Choy (70g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 45mg	2%
Total Carbohydrate 2g	1%
Dietary Fiber less than 1 gram	3%
Sugars 0g	
Protein 1g	
Vitamin A	40%
Vitamin C	50%
Calcium	8%
Iron	4%

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Troubleshooting

Wilting:

Bok choy is susceptible to wilting if stored in an area with low humidity. For best quality, maintain humidity level of 90-98%.

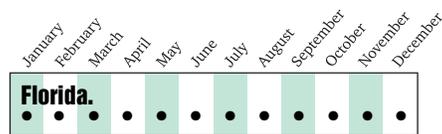
Yellowing:

Bok choy is sensitive to ethylene; exposure to the gas may cause yellowing and loss of green color. Damage from ethylene is increased if bok choy is stored in a warm area. To prevent damage from ethylene gas, keep bok choy away from ethylene-producing fruits and ripening rooms. Maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Boniatos

Availability

A major production area includes:



Variety/Type Descriptions

Boniato is a tropical sweet potato. It is an oval to elongated tuber with scruffy skin that ranges in color from reddish-brown to pink or purple. Flesh color varies from white to light yellow and exhibits a fluffier and drier texture than regular sweet potatoes. Boniato flavor is slightly sweet and chestnut-like.

Boniatos may be cooked like white or regular sweet potatoes. Also called batata dulce or Cuban sweet potato.

Ordering Specifications

Common packaging:

10- and 25-lb. bulk cartons
50-lb. bags

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose hard boniatos that are free of soft spots. Avoid moldy, bruised, or sprouting product.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Store boniatos in a well-ventilated area. Keep boniatos away from ethylene-producing fruits and ripening rooms.

Nutrition

Nutrition information for Boniatos is not available in the data bases used by PMA.



Troubleshooting

Decay; pitting; internal discoloration; hard core when boniatos are cooked:

These are indications of chill injury. To prevent chill injury, do not store boniatos below 54 degrees F/12 degrees C.

Brown flesh discoloration; off flavor when cooked:

Boniatos are sensitive to ethylene; exposure to the gas may cause flesh discoloration and off flavors. For best quality, keep boniatos away from ethylene-producing fruits and ripening rooms.

Sprouting; pithiness:

Storing boniatos at high temperatures may cause sprouting or pithy texture. To maintain quality, store boniatos at 60-65 degrees F/16-18 degrees C.

Skin discoloration; mold:

Exposing boniatos to high humidity may promote skin discoloration and mold. If boniatos must be held for longer than 7 days, reduce temperature to 55 degrees F/13 degrees C and humidity level to 85-90%.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•								•
California	•	•	•	•	•	•	•	•	•	•	•	•
Canada										•		
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Calabrese – Most predominant variety sold commercially. Light green stalks with compact bud clusters that are dark green with some purple tinge.

Ordering Specifications

Common packaging:

23-lb. cartons or crate holding bunches

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all broccoli is graded. Ungraded broccoli is called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality broccoli should have fresh-looking, light green stalks of consistent thickness. Bud clusters should be compact and dark green with some purple tinge. When pulled apart, some bud clusters may appear yellow around the edges. This does not affect product quality; it simply means that the clusters were not exposed to sunlight during growing. Avoid broccoli with open, flowering, discolored, or water-soaked bud clusters and tough, woody stems.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep broccoli away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle broccoli with care to avoid damage to bud clusters. To revive slightly wilted broccoli, apply ice directly to bunches or plunge in cold water, drain, and place in cooler.

Nutrition*

Serving Size 1 medium stalk Broccoli (148g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 55mg	2%
Total Carbohydrate 8g	3%
Dietary Fiber 5g	20%
Sugars 3g	
Protein 5g	
Vitamin A	15%
Vitamin C	220%
Calcium	6%
Iron	6%

*Based on information published by FDA.



Troubleshooting

Yellow bud clusters; loss of buds:

Broccoli is sensitive to ethylene; exposure to the gas may cause bud clusters to turn yellow or drop off. Keep broccoli away from ethylene-producing fruits and ripening rooms.

Discolored leaves; buds dropping off; softening of texture:

Holding broccoli for long periods of time may cause discoloration, loss of buds or general softening of the product. For best quality, use or display broccoli soon after receiving.



Broccoli Raab

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•	•	•	•	•	•	•	•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
New Jersey	•	•	•	•	•	•	•	•	•	•	•	•
Canada	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

This close relative to broccoli has medium to dark green leaves on slender, 6-9" stalks topped with small clusters of tiny buds and occasionally small yellow flowers. The entire plant can be eaten. The bitter, pungent flavor is prized in Italian and Chinese cuisines. Also known as rapini, rape, broccoli rabe, brocoletti di rape, brocoletto, cima di rapa, and choy sum.



Ordering Specifications

Common packaging:

20-lb. masters, bulk packed

Grades:

No U.S. grades given

Receiving and Inspecting

Select firm, freshly-colored, small-stemmed broccoli raab with relatively few buds and open flowers. Avoid wilted or yellowed leaves or stems.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: Yes

Storing tips:

Keep refrigerated and wrapped in a plastic bag for no more than five days.



Nutrition*

Serving Size 1 cup Broccoli Raab (113g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 3g	
Vitamin A	250%
Vitamin C	120%
Calcium	2%
Iron	2%

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Brussels Sprouts

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•								

Variety/Type Descriptions

Small, round heads with dark green, compact leaves. Brussels sprouts selection is based primarily on size and appearance.

Ordering Specifications

Common packaging:

25-lb. volume-fill boxes
10-lb. cartons or flats holding 16 12-oz. cello bags

Grades:

U.S. No. 1
U.S. No. 2

NOTE: Not all brussels sprouts are graded. Ungraded product is called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Choose brussels sprouts that are fresh in appearance with good green color. Texture should be firm, leaves compact, and butt ends clean. Avoid puffy, wilted, or yellow sprouts.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep brussels sprouts away from ethylene-producing fruits and ripening rooms.

Handling tips:

For best quality, brussels sprouts should be used shortly after receiving. Keep handling to a minimum to avoid bruising and decay.

Nutrition*

Serving Size 4 Brussels Sprouts (76g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 7g	2%
Dietary Fiber 3g	12%
Sugars 2g	
Protein 3g	
Vitamin A	15%
Vitamin C	110%
Calcium	4%
Iron	6%

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Troubleshooting

Yellowing:

Brussels sprouts may turn yellow if exposed to ethylene gas. To prevent yellowing, keep away from ethylene-producing fruits and ripening rooms.

Decay:

Brussels sprouts may decay if they are stored at high temperatures or in an area with low air circulation. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C and provide adequate air circulation.

Loss of color; black speckling of leaves:

This may be an indication of age. Do not hold brussels sprouts for long periods of time. For best quality, use or display soon after receiving.

Wilting:

Brussels sprouts may wilt if stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.

Cabbage

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•					•	•
New York	•	•	•	•	•	•	•	•	•	•	•	•
Texas	•	•	•	•	•	•	•	•	•	•	•	•
Canada						•	•	•	•	•	•	•

Variety/Type Descriptions

Green/Domestic – Round head, light green compact leaves.

Red – Round head with compact, purple-red leaves. Sweeter flavor than Domestic.

Savoy – Round to oblong head with loosely compact, crinkled leaves; pale green color.

Ordering Specifications

Common packaging:

- 50-lb. cartons and sacks
- 40-lb. cartons
- 1¾-bushel crates

Grades:

- U.S. No. 1
- U.S. Commercial

NOTE: Not all cabbage is graded. Ungraded cabbage is called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

- Medium
- Medium-large
- Large
- Jumbo

Receiving and Inspecting

Good quality cabbage should be well formed, fairly even colored and heavy for its size. For Green and Red Cabbage, leaves should be very compact and fairly smooth. Savoy cabbage leaves should be crinkled and less compact. Avoid discolored or wilted cabbage.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep cabbage away from ethylene-producing fruits and ripening rooms. For best quality, whole heads should be stored untrimmed with wrapper leaves intact.

Nutrition

Green Cabbage*

Serving Size 1/12 medium head
Green Cabbage (88g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	8%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	70%
Calcium	4%
Iron	2%

*Based on information published by FDA.



Green Cabbage

Red Cabbage**

Serving Size 1 cup shredded
Red Cabbage (70g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	6%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	70%
Calcium	4%
Iron	2%

Savoy Cabbage**

Serving Size 1 cup shredded Savoy
Cabbage (70g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	9%
Sugars 2g	
Protein 1g	
Vitamin A	15%
Vitamin C	35%
Calcium	2%
Iron	2%

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Troubleshooting

Yellowing; loss of leaves:

Cabbage is sensitive to ethylene; leaves may turn yellow or drop off if exposed to the gas. Keep cabbage away from ethylene-producing fruits and ripening rooms.

Wilting:

Low humidity may cause rapid wilting in cabbage. For best quality, maintain humidity level of 90-98%. Avoid over trimming which may also promote moisture loss and wilting.

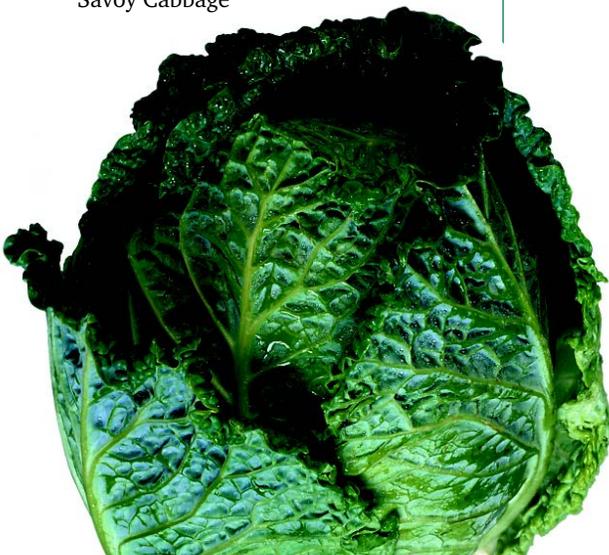
Bruising; loose leaves:

Cabbage may become bruised or lose leaves if it is handled roughly. For best quality, keep handling to a minimum. Do not drop shipping containers on the floor.

Red Cabbage



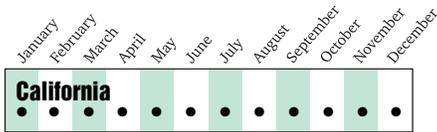
Savoy Cabbage



Cactus Leaves

Availability

A major production area includes:



Variety/Type Descriptions

Also called cactus pad or nopales. Flat, broad green pads with tiny thorns. (Thorns are usually removed before cactus leaves are marketed.) Flavor is similar to a cross between green beans and bell pepper; texture is tender. Cactus leaves may be eaten cooked or uncooked (salads, Mexican-style dishes, egg dishes, stir-frys.) Thorns or eyes must be removed before preparing cactus leaves.

Ordering Specifications

Common packaging:

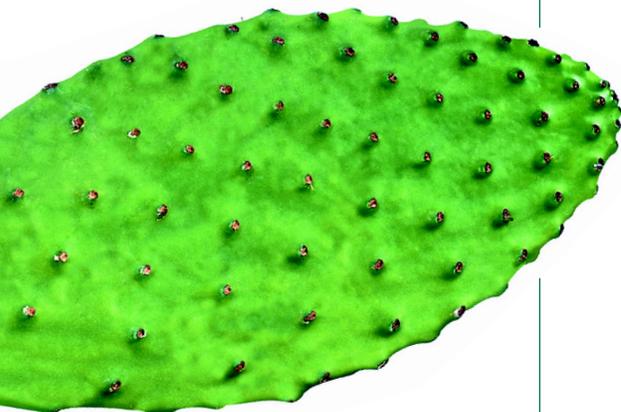
Bulk cartons
Cartons holding 12 8-oz. packages

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality cactus leaves should be green with a crisp-firm texture. Avoid pads that appear dry, limp, or soggy.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Keep refrigerated and tightly wrapped for up to one week.

Nutrition*

Serving Size 1 cup Cactus Leaf slices (118g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 3g	11%
Sugars (Not Available)	
Protein 2g	
Vitamin A	10%
Vitamin C	25%
Calcium	20%
Iron	4%

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Troubleshooting

Bronze discoloration:

This is an indication of chill injury. To prevent chill injury, do not store cactus leaves below 41 degrees F/5 degrees C.

Decayed cut stem end:

Holding cactus leaves for long periods of time may promote decay of the cut stem end, particularly for product that has been damaged during harvesting. For best quality, inspect cactus leaves carefully upon arrival for any damage and store only briefly before using or display.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Costa Rica	•	•	•	•	•	•	•	•	•	•	•	•
Dominican Republic	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Round to oblong hard-shell squash. Rind color ranges from green to beige to orange and may be striped or speckled. Bright orange flesh is sweet and fine-textured. Flesh only is edible; may be used in soups, stews, or casseroles.

Ordering Specifications

Common packaging:

35-lb. cases
50-lb. sacks

Grades:

No U.S. grades given.

Receiving and Inspecting

Calabazas should be heavy for their size; rind should appear dull and stem should be firmly attached. Avoid squash with cracked rinds or soft spots.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep calabazas away from ethylene-producing fruits and ripening rooms.

Nutrition

Nutrition information for Calabaza is not available in the data bases used by PMA.



Troubleshooting

Water-soaked spots; pitted rind; accelerated incidence of decay:

These are indications of chill injury. To prevent chill injury, do not store calabaza below 45 degrees F/7 degrees C.

Decay:

Storing calabaza in an area with high humidity over an extended period may promote decay. When storing calabaza for an extended period of time (longer than 7 days), reduce humidity level to 50-70%.



Cardoons/Cardonis

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•					•	•	•	
Arizona	•	•	•	•					•	•	•	

Variety/Type Descriptions

The stem is of a whitish hue; the leaves are very large, of a slightly grayish-green color on the upper surface, and almost white underneath. In several varieties, at the angle of each division, the leaves are armed with very finely pointed yellow or brown spines from about ¼ inch to over ½ inch long. Leaf-stalks are very fleshy. The flowers, which usually have pointed scales, resemble those of the artichoke, but are smaller.

Ordering Specifications

Common packaging:

Carton
Wirebound box

Grades:

No U.S. grades given.

Sizes:

40-45-lb box
50-lb. box
35-lb. box

Receiving and Inspecting

Look for rigid, pale-green stalks with white hearts.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-34 degrees F/0-1 degrees C
90-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure:
Yes—very low

Storing tips:

Keep damp and cool.



Nutrition*

Serving Size 1 cup chopped Cardoon (178g)

Amount Per Serving	% Daily Value
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 9g	3%
Dietary Fiber 3g	11%
Sugars 3g	
Protein 1g	
Vitamin A	4%
Vitamin C	6%
Calcium	10%
Iron	6%

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Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•						
Michigan								•	•	•	•	
Washington						•	•	•	•	•		
Wisconsin							•	•	•	•		
Canada	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Another production area is Texas.

Variety/Type Descriptions

Although there are many varieties of carrots, they are generally sold according to size. Carrots are characterized by a firm, smooth exterior, orange to orange-red color, and crunchy texture.

Ordering Specifications

Common packaging:

1-, 2-, 5-, 10-, 25-, and 50-lb. bags holding medium or jumbo carrots
5-lb. bags holding baby-cut carrots

Grades:

U.S. Extra No. 1
U.S. No. 1
U.S. No. 1 Jumbo
U.S. No. 2

Sizes:

Medium
Jumbo
Baby-cut (peeled and cut to size)

Receiving and Inspecting

Good quality carrots should be well-shaped with firm, smooth exteriors. Color should be vibrant orange to orange-red. For best quality, tops should be closely trimmed since they tend to decay rapidly. Avoid flabby, soft, or wilted carrots or product that shows any mildew, decay, growth cracks, or splits.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

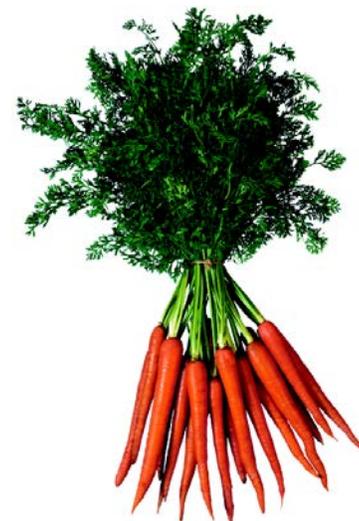
Keep carrots away from ethylene-producing fruits and ripening rooms. Carrots may also absorb odors; keep away from foods with strong odors.

Nutrition*

Serving Size 1 Carrot, 7" long,
1¼" diameter (78g)

Amount Per Serving	% Daily Value
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 40mg	2%
Total Carbohydrate 8g	3%
Dietary Fiber 2g	8%
Sugars 5g	
Protein 1g	
Vitamin A	270%
Vitamin C	10%
Calcium	2%
Iron	0%

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Troubleshooting

Bitter flavor:

Carrots may acquire a bitter flavor if exposed to ethylene gas. Store carrots away from ethylene-producing fruits and ripening rooms.

Wilting:

Carrots may wilt if stored in an area with low humidity. Bunched carrots are more perishable than topped carrots. Maintain a humidity level of 90-98% for best quality.

Decay; sprouting:

Carrots may begin to decay or sprout if stored at high temperatures. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Cracks; flabby or discolored skin:

These are indications of freeze damage. To prevent freeze damage, do not store carrots below 30 degrees F/-1 degree C.

Yellow tips; soft spots:

These are signs of age and will result in a poor-flavored product. For best quality, inspect carrots carefully upon arrival.



Cauliflower

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•								•
California	•	•	•	•	•	•	•	•	•	•	•	•
New York	•	•	•	•	•	•	•				•	•
Canada							•	•	•	•		

NOTE: Other production areas include Oregon, Michigan, and Florida.

Variety/Type Descriptions

White – Most predominant; creamy white curds with bright green jacket leaves.

Green – A hybrid of broccoli and cauliflower. Green cauliflower has the physical appearance of cauliflower and the chlorophyll (green pigment) of broccoli.

Purple – Purple cauliflower is a type of broccoli that is purple. It resembles cauliflower in overall appearance and does not require blanching. The purple head turns green when cooked.

Ordering Specifications

Common packaging:

50- to 60-lb. cartons or crates
25- to 30-lb. cartons holding trimmed, film-wrapped heads.

Grades:

U.S. No. 1
U.S. Commercial

NOTE: Not all cauliflower is graded. Ungraded cauliflower is called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

6-, 9-, 12-, and 16-count

Receiving and Inspecting

Good quality cauliflower should have creamy white, compact curds with bright green, fresh, and firmly attached jacket leaves. Some small leaves extending through curds do not affect quality. Green cauliflower should exhibit a bright lime green, compact curd. Size of head does not determine quality.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep cauliflower away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle cauliflower with care to prevent damage to curds.

Nutrition

White Cauliflower*

Serving Size 1/6 medium head
White Cauliflower (97g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 30mg	1%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	8%
Sugars 2g	
Protein 2g	
Vitamin A	0%
Vitamin C	100%
Calcium	2%
Iron	2%

*Based on information published by FDA.



White Cauliflower

Green Cauliflower**

Serving Size 1/6 medium head
Green Cauliflower (72g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	9%
Sugars (Not Available)	
Protein 2g	
Vitamin A	2%
Vitamin C	110%
Calcium	2%
Iron	2%

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Troubleshooting

Gray-brown discoloration; curd softening; water-soaked appearance:

These are indications of freeze injury. To prevent freeze injury, do not store cauliflower below 31 degrees F/-0.5 degrees C.

Yellowing or loss of leaves:

Cauliflower is sensitive to ethylene; exposure to the gas may cause leaves to turn yellow or drop off. For best quality, store cauliflower away from ethylene-producing fruits and ripening rooms.

Decay; water-soaked appearance; spotting:

Storing cauliflower at high temperatures may cause decay and spotting. For best quality, store cauliflower at 32-36 degrees F/0-2 degrees C.

Wilted leaves:

Storing cauliflower in an area with low humidity may promote wilting. For best quality, maintain humidity level of 90-98%.

Bruised heads:

Cauliflower is susceptible to bruising; handle product with care and do not drop shipping containers on the floor.

Green Cauliflower



Purple Cauliflower



Celery

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•							•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•						•	•
Michigan						•	•	•	•	•	•	

NOTE: Another major production area is Texas.

Variety/Type Descriptions

Green/Pascal – Primary variety sold commercially. Light green color with long, straight stalks and crisp texture.

Ordering Specifications

Common packaging:

50- to 60-lb. cartons or crates

Grades:

U.S. Extra No. 1

U.S. No. 1

U.S. No. 2

NOTE: Not all celery is graded.

Ungraded celery is called “unclassified.”

Differences between grades are based primarily on external appearance.

Sizes:

18-, 24-, 30-, 36-, and 48-count

Receiving and Inspecting

Good quality celery should have straight stalks with rigid ribs. Ribs should snap crisply when bent. Inside surface of ribs should be clean and smooth. Leaves should be fresh, well-colored, and show no signs of wilting.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: Ok

Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: Yes

Storing tips:

Keep celery away from ethylene-producing fruits and ripening rooms.

Celery absorbs odors from other commodities such as apples and onions and should not be stored near them.

Handling tips:

If discolored or damaged, ribs must be removed from stalk; do not pull rib out of bunch. Trace damaged rib down to the butt end and trim out with the point of a knife.

Nutrition*

Serving Size 2 medium stalks Celery (110g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 100mg	4%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	8%
Sugars 1g	
Protein 1g	
Vitamin A	2%
Vitamin C	15%
Calcium	4%
Iron	2%

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Troubleshooting

Wilting:

Celery is susceptible to rapid wilting if exposed to high temperatures and low humidity. To maintain fresh product, store at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%. Adequate air circulation is also necessary to maintain good quality celery.

Yellowing:

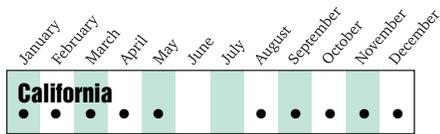
Celery is sensitive to ethylene; exposure to the gas may cause yellowing. To prevent yellowing, keep celery away from ethylene-producing fruits and ripening rooms.



Celery Root

Availability

A major production area includes:



Variety/Type Descriptions

Also called celeriac. Bulb-shaped root with rough brown skin and rootlets. Celery root texture is crisp and flavor is nutty and celery-like. Celery root may be used cooked or uncooked (soups, stews, stir-frys, salads). If used raw, celery root must be peeled first. If cooked, celery root may be cooked whole and then peeled.

Ordering Specifications

Common packaging:

25-lb. 1-1/9-bushel crates
20-lb. crates
Prepackaged containers

Grades:

No U.S. grades given.



Receiving and Inspecting

Celery root should be firm with tender flesh. Avoid product with a spongy texture.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 1 cup Celery Root (113g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 115mg	5%
Total Carbohydrate 11g	4%
Dietary Fiber 3g	11%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	15%
Calcium	6%
Iron	6%

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Troubleshooting

Water-soaked spots; softening:

These are indications of freeze injury. To prevent freeze injury, do not store celery root below 30 degrees F/-1C.

Decay:

Celery root may decay if stored in a warm area with high humidity. To maintain quality, store celery root at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%.

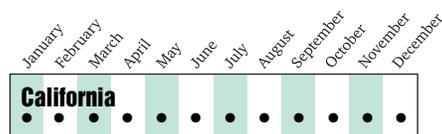
Moisture loss:

Celery root may lose moisture and shrivel if stored in an area with low humidity. To prevent moisture loss, maintain humidity level of 90-98% during storage.

Chayotes

Availability

A major production area includes:



NOTE: Other major production areas include Florida, Costa Rica, and Mexico.

Variety/Type Descriptions

Pear-shaped squash with smooth, slightly ridged or wrinkled skin and smooth white flesh. Skin color ranges from light to dark apple green. Some varieties exhibit white skin. Chayote's flavor and texture is similar to cucumber and zucchini. May be used raw or cooked. Peeling is not necessary.

Ordering Specifications

Common packaging:

20- to 50-lb. cartons and crates
16- to 20-lb. single-layer tray packs holding various counts

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality chayotes should be firm and free of blemishes. Avoid soft or spongy squash. Smaller sizes are typically more tender.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Chayote pieces (132g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	9%
Sugars (Not Available)	
Protein 1g	
Vitamin A	2%
Vitamin C	15%
Calcium	2%
Iron	2%

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Troubleshooting

Pitted skin:

This is an indication of chill injury. To prevent chill injury, do not store chayotes below 45 degrees F/7 degrees C.

Yellowing; softening:

Chayote squash is sensitive to ethylene; exposure of the gas may cause yellowing (loss of green color) and softening. To prevent ethylene damage, keep chayotes away from ethylene-producing fruits and ripening rooms.

Shriveling:

Chayotes are susceptible to moisture loss if stored in an area with low humidity. To prevent moisture loss, maintain a humidity level of 85-95% during storage.

Handle chayotes with care. Abrasion of the skin resulting from rough handling can also cause moisture loss and shriveling.

Chinese Long Beans

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Although Chinese long beans look like very long snap beans, they are actually related to black-eyed peas. Slender, long beans (up to 30 inches in length) with color ranging from light to dark green. Flavor is similar to snap beans; texture is somewhat crunchy and becomes more firm and chewy when beans are cooked. Chinese long beans are well-suited for stir-frys, braising, and stewing due to their ability to retain their firm texture.

Ordering Specifications

Common packaging:

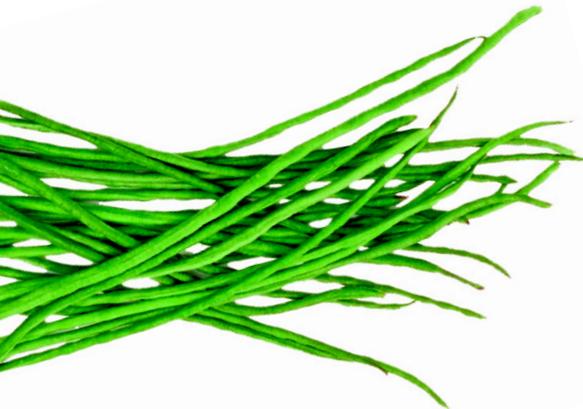
Bulk cartons or crates
Prepackaged containers

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose beans that are firm, very thin, and well colored. Avoid spongy beans.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

36-38 degrees F/2-3 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep Chinese long beans away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Chinese Long Bean (91g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 5g	18%
Sugars (Not Available)	
Protein 3g	
Vitamin A	15%
Vitamin C	30%
Calcium	4%
Iron	2%

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Troubleshooting

Russetting:

This is an indication of chill injury. To prevent chill injury, do not store Chinese long beans below 32 degrees F/ 0 degrees C.

Yellowing (loss of green color):

Chinese long beans are sensitive to ethylene and may be damaged by the gas. For best quality, keep Chinese long beans separated from ethylene-producing fruits and ripening rooms.

Corn, Sweet

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California				•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•	•				•	•
Georgia					•	•	•		•	•	•	
New York							•	•	•	•		
Mexico	•	•	•	•	•						•	•

Variety/Type Descriptions

Corn is generally sold according to color. Yellow corn is most predominant; white and bicolor (yellow and white kernels) corn is also available. Primary varieties are characterized by plump yellow or white kernels and well-colored green husks.

Ordering Specifications

Common packaging:

42-lb. crates holding 4, 4½, or 5 dozen ears

Grades:

- U.S. Fancy
- U.S. Fancy, Husked
- U.S. No. 1
- U.S. No. 1, Husked
- U.S. No. 2

Differences between grades are based primarily on external appearance.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
95% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Handling tips:

For best quality, corn should be used or displayed shortly after receiving.

Receiving and Inspecting

Good quality corn should have fresh green husks with silk ends that are free of decay or worms. Ears should be evenly covered with plump, consistently-sized kernels. Avoid corn with discolored or dry-looking husks, stem ends, or kernels.

Nutrition

Sweet Corn*

Serving Size kernels from 1 med. ear
Sweet Corn (90g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 90	
Calories from Fat 20	
Total Fat 2.5g	4%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 16g	5%
Dietary Fiber 2g	8%
Sugars 5g	
Protein 4g	
Vitamin A	2%
Vitamin C	10%
Calcium	0%
Iron	2%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Yellow Corn**

Serving Size kernels from 1 med. ear
Yellow Sweet Corn (90g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 80	
Calories from Fat 10	
Total Fat 1g	2%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 17g	6%
Dietary Fiber 2g	10%
Sugars 5g	
Protein 3g	
Vitamin A	6%
Vitamin C	10%
Calcium	0%
Iron	2%



White Corn**

Serving Size kernels from 1 ear White
Sweet Corn (73g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 60	
Calories from Fat 10	
Total Fat 1g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 14g	5%
Dietary Fiber 2g	8%
Sugars (Not Available)	
Protein 2g	
Vitamin A	0%
Vitamin C	8%
Calcium	0%
Iron	2%

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Troubleshooting

Loss of sweet flavor:

Decrease in sugar content may be an indication of age. Inspect corn carefully upon arrival for quality and use or display shortly after receiving. Storing sweet corn at high temperatures may also cause a decrease in sugar content. Store sweet corn at 32-36 degrees F/0-2 degrees C.

Cucumbers

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida	•	•	•	•	•	•	•			•	•	•
North Carolina					•	•	•	•				
Mexico	•	•	•	•	•						•	•

Variety/Type Descriptions

Green/Slicing – Major field-grown type sold commercially. Characterized by a straight, plump shape with slightly tapered ends and smooth skin with an even dark green color.

Hothouse/Greenhouse – Elongated, seedless cucumber with mild flavor. Also known as English, French, or Frame.

Ordering Specifications

Common packaging:

55-lb. 1 $\frac{1}{2}$ -bushel cartons

Grades:

Field-grown:

U.S. Fancy
U.S. Extra No. 1
U.S. No. 1
U.S. No. 1 Small
U.S. No. 1 Large
U.S. No. 2

Greenhouse:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all cucumbers are graded. Ungraded cucumbers are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

Small
Medium/Super Select
Large

Receiving and Inspecting

Good quality cucumbers should be firm, well-shaped, and have an even dark green color and uniform size. Cucumbers may be treated with an edible wax to prevent moisture loss and enhance appearance. Avoid cucumbers that are shriveled, yellow in color, or have soft spots.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

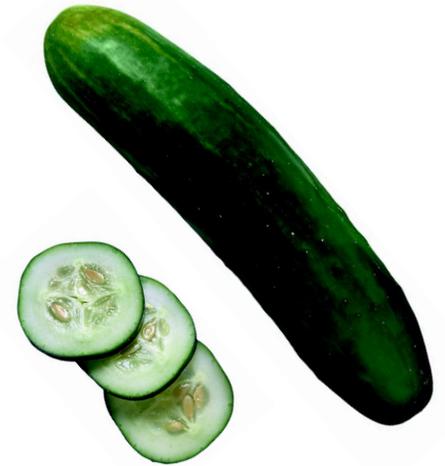
Keep cucumbers away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size $\frac{1}{3}$ medium Cucumber (99g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	4%
Sugars 2g	
Protein 1g	
Vitamin A	4%
Vitamin C	10%
Calcium	2%
Iron	2%

*Based on information published by FDA.



Troubleshooting

Pitting; water-soaked spots; decay:

These are indications of chill injury. Often times, chill injured cucumbers will decay rapidly after they are brought out of storage. To prevent chill injury, do not store cucumbers below 45 degrees F/7-10 degrees C.

Yellowing; softening:

Cucumbers are sensitive to ethylene and will turn yellow and soften if exposed to the gas. Storing cucumbers at high temperatures may also promote yellowing. For best quality, keep cucumbers away from ethylene-producing fruits and ripening rooms. Store at 45-50 degrees F/7-10 degrees C.

Shriveling:

Storing cucumbers in an area with low humidity will promote shriveling. For best quality, maintain humidity level of 85-95%.

Soft, sunken ends; loose seed cavity:

These are indications of over mature product. Be sure to inspect cucumbers carefully upon arrival.



Daikon

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Also called Japanese or Oriental radish. Long, white, carrot-shaped root with crisp texture and distinct hot radish flavor. Available topped or with green leafy tops attached. Daikon may be cooked (added to soups or stir-frys) or uncooked (as an addition to salads or relishes).

Ordering Specifications

Common packaging:

Bulk cartons or crates of various weights

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality daikon should be firm and smooth with a somewhat shiny exterior appearance. Avoid flabby or limp product.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep daikon separated from ethylene-producing fruits and ripening rooms.

Handling tips:

Daikon radishes with tops attached are more perishable than topped radishes; keep storage time to a minimum.

Nutrition*

Serving Size ¼ piece
Daikon/Oriental Radish (85g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	5%
Sugars 2g	
Protein 1g	
Vitamin A	0%
Vitamin C	30%
Calcium	2%
Iron	2%

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Troubleshooting

Loss of firm texture:

Daikon radishes may lose moisture if they are stored in an area with low humidity. For best quality, keep daikon cold and maintain a humidity level of 90-98%.

Pithy or spongy texture:

This is a sign of age. Always inspect daikon radishes carefully upon arrival; do not hold for long periods of time.

Yellowing of tops:

Daikon is sensitive to ethylene; exposure to the gas may cause yellowing of tops. To maintain good quality, keep daikon away from ethylene-producing fruits and ripening rooms.



Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•					•	•	•

Variety/Type Descriptions

The most common varieties of commercially-grown eggplants (standard and American) are large-fruited with shiny dark purple skin color. Product shape ranges from egg-shaped to globular.

NOTE: Specialty eggplants are also available. Japanese eggplant is small and slender with purple skin color. White eggplants range in size and shape from large and elongated to small and round. Italian eggplants are smaller than the more familiar deep purple, smooth skinned variety. Also known as baby eggplant, Italian eggplant has thinner skin, more delicate flesh, and a milder flavor.

Ordering Specifications

Common packaging:

33-lb. 1-1/9-bushel cartons holding 18- or 24-count

Italian eggplant: 10-lb. bulk cartons of 4/6-oz. packages

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all eggplants are graded. Ungraded product is called “unclassified.” Differences between grades are based primarily on external appearance.

Equivalents:

1-lb. fresh = 3-4 cups chopped
1-lb. fresh = 1 ¾ cups, cooked and cubed
1-lb. fresh = 1-pint frozen
1 medium eggplant = about 1 ½ pounds

Receiving and Inspecting

Look for firm eggplants that are light for their size. Skin should be even-colored and free of blemishes. Avoid eggplants with soft spots or those that are flabby or shriveled.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
90-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep eggplants away from ethylene-producing fruits and ripening rooms.

Handling tips:

Eggplants are very sensitive to bruising. Handle with care; do not drop shipping containers on the floor.

Nutrition*

Serving Size 1/5 average Eggplant (84g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	8%
Sugars 3g	
Protein 1g	
Vitamin A	2%
Vitamin C	2%
Calcium	0%
Iron	2%

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Troubleshooting

Yellowish-brown skin discoloration; increased decay:

These are indications of chill injury. To prevent chill injury, do not store eggplants below 45 degrees F/ 7 degrees C.

Browning of pulp and seeds; accelerated decay:

Eggplant is sensitive to ethylene; exposure to the gas may cause pulp and seed discoloration, decay, and loss of calyx. For best quality, keep eggplants away from ethylene-producing fruits and ripening rooms.

Shriveled or flabby skin:

Eggplants may begin to shrivel if stored in an area with low humidity. To prevent shriveling, maintain humidity level of 90-95%.

Skin or pulp decay:

Decay may result from bruising due to rough handling. Handle eggplants with care to prevent product damage; do not drop shipping containers on the floor.

Endive/Escarole

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•								•
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•					•	•	•

Variety/Type Descriptions

Endive – Also called chicory. Loose bunch of narrow leaves with very curly edges. Leaf color ranges from dark green on the outer edge to yellow-white in the center. Flavor ranges from mild at the center of bunch to slightly bitter at the outer leaves.

Escarole – Large, closely bunched heads of slightly crumpled green leaves that curve outward from the center of the head.

Ordering Specifications

Common packaging:

Cartons, crates, 1¹/₉ bushel containers, and ½ bushel containers holding primarily 12-, 18-, or 24-count

Grades:

U.S. No. 1

NOTE: Not all endive or escarole is graded. Ungraded endive/escarole is called “unclassified.”



Receiving and Inspecting

Look for endive/escarole that is fresh and crisp with well-colored leaves. Avoid wilted, flabby, dry, or yellow product, or bunches with dark butts or cracked ribs.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep endive/escarole away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup chopped
Endive/Escarole (50g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 2g	6%
Sugars 0g	
Protein 1g	
Vitamin A	20%
Vitamin C	6%
Calcium	2%
Iron	2%

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Troubleshooting

Wilting:

Endive/escarole may wilt if it is stored in an area with low humidity. To prevent wilting, store endive/escarole at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%.

Yellowing:

Endive and escarole are sensitive to ethylene; exposure to the gas may cause yellow discoloration. To prevent yellowing, keep endive and escarole away from ethylene-producing fruits and ripening rooms.

Fava Beans

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Large green pods holding pale green beans that resemble large lima beans. Fava beans must be shelled and the outer skin of each bean must be removed as well. Fava bean flavor is somewhat meaty and may exhibit a bitter aftertaste. Fava beans are generally cooked, although young beans may be served raw.

Ordering Specifications

Common packaging:

Bulk cartons

Grades:

No U.S grades given.

Receiving and Inspecting

Choose shiny, well-colored pods. Beans inside should be of uniform shape and size. Avoid beans that show signs of mold.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

For best quality, do not store fava beans longer than 7 days. Keep fava beans away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 each Fava Bean (8g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	0%
Vitamin C	4%
Calcium	0%
Iron	0%

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Troubleshooting

Shriveling; softening:

Fava bean pods may lose water and shrivel or soften if stored at high temperatures. For best quality, store fava beans at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%.

Yellowing:

Fava bean pods are sensitive to ethylene; exposure to the gas may cause yellowing. Exposure to high temperatures may also cause yellowing. For best quality, keep fava bean pods cold and separate from ethylene-producing fruits and ripening rooms.

Fiddlehead Ferns

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Maine					•	•						
Michigan					•	•						
Canada					•	•						

Variety/Type Descriptions

The eastern fiddlehead fern is the immature form of the ostrich fern. Fiddleheads are tightly coiled, bright green, sweet flavored and about 1½” – 2” in diameter. The taste is similar to asparagus, artichokes, and green beans. The western fiddlehead is the immature wood fern and more bitter with a dull green color and gelatinous texture.

Ordering Specifications

Common packaging:

5-lb. bulk packages
12 4-oz. containers
Pint clamshells

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for fiddleheads that are tightly coiled, bright green, and displaying no brown coloring or yellowing. Fresh fiddleheads should have an elastic tone.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

38-45 degrees F/3-7 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes–low

Storing tips:

Wrapped tightly, fiddlehead ferns can last for two weeks in refrigerated storage.

Nutrition*

Serving Size 4 oz. container
Fiddlehead Fern (113g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 5g	
Vitamin A	80%
Vitamin C	50%
Calcium	4%
Iron	8%

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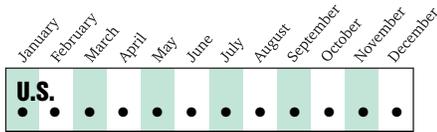
Troubleshooting

Brown coloring or yellowing:

Use fiddleheads quickly, as their freshness is short-lived. Fiddleheads freeze well if par-boiled and vacuum packed.

Fresh-cut Vegetables

Availability



Variety/Type Descriptions

Bell Peppers – sliced, diced, rings, cups

Broccoli – florets, spears, diced, shredded, coin-cut, and broccoli-type slaw made of shredded broccoli, red cabbage, and carrots

Cabbage – crinkle-cut coins, flat coins, crinkle-cut sticks, sticks, shredded, sliced, diced, whole peeled, bias-cut

Cauliflower – florets

Celery – sticks, diced, sliced, trimmed stalks

Cucumbers – sliced

Lettuce – shredded, chopped, whole trimmed heads, cored and trimmed heads

Mushrooms – sliced

Onions – sliced, diced, whole, peeled

Potatoes – sliced, diced, shredded, sticks, whole, peeled

Radishes – sliced

Spinach – stemmed and washed

Tomatoes – diced

Vegetable blends – vegetable combinations including broccoli, cauliflower, carrots, celery, snap peas

Ordering Specifications

Common packaging:

While specific packaging varies by supplier, some common types include:

Consumer packs

3-, 4-, 8-, 12- and 14-oz. bags

1-, 2-, 3- and 5-lb. bags

10-, 15-, and 20-lb. loose-fill cartons

Foodservice packs

1-, 3-, 5- and 10-lb. bags

Grades:

No mandatory U.S. grades given.

Receiving and Inspecting

Fresh-cut vegetables should be fresh and well colored. Avoid product that is discolored, wilted, or slimy. Bags or containers should be intact. Avoid punctured or ripped containers. While fresh-cut vegetables may be slightly moist, they should not be wet. Fresh-cut vegetables should arrive cold. Warm product will deteriorate rapidly and valuable shelf life may be lost.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: No

Storing tips:

Keep fresh-cut vegetables cold during storage to help maintain freshness and shelf life.

Handling tips:

Handle fresh-cut containers with care to prevent punctures or rips. Always use good rotation practices; first items in should be used or displayed first. Pay attention to expiration and “sell by” dates as well as shelf life information stamped on individual packages or shipping containers. Discard product that is past its “sell by” or expiration date.

Retailers: Follow supplier guidelines for arranging fresh-cut packages during display to maintain proper air circulation.



Nutrition

Refer to individual commodity pages for Fresh-cut Vegetable nutrition information.

Troubleshooting

Discoloration; slimy or wet product; foul odor:

These are indications of temperature abuse resulting from exposing fresh-cut vegetables to warm temperatures. To maintain quality and shelf life, fresh-cut vegetables must be kept cold at all times. Store fresh-cut vegetables at 32-36 degrees F/0-2 degrees C and maintain a humidity level of 90-98%. Storing fresh-cut vegetables in an area with low humidity or for an extended period of time may also increase brown discoloration. Keep humidity level high during storage and pay attention to supplier “sell by” or expiration dates.

Dry or chalky-looking carrots or celery:

This is an indication of dehydration. For best quality, keep product cold and store in an area with high humidity. Handle packages with care to prevent punctures or rips.

Foodservice personnel: To restore texture and appearance of fresh-cut carrots or celery, plunge in ice water and drain thoroughly before using.

Gai Choy/Chinese Mustard

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A mustard green that grows about 12” long, gai choy resembles bok choy, but has green stalks and a pungent flavor. Often called Chinese mustard, this nutritious green is sometimes referred to as chuk gai choy, bamboo mustard cabbage, Chinese mustard cabbage, Indian mustard, or leaf mustard. The leaves of some varieties of gai choy are discarded while the stems are pickled, salted, or dried.

Ordering Specifications

Common packaging:

10-lb. and 30-lb. bulk pack

Receiving and Inspecting

Choose heads with firm, light green stems, and bright green leaves. Avoid yellowing, brown spots, and wilting in the leaves and stems that are not firm or have holes in them.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-34 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: Yes

Storing tips:

Gai choy is sensitive to ethylene, so store away from ethylene-producing fruits and ripening rooms.

Handling tips:

Store unwashed gai choy in loosely wrapped plastic in the refrigerator for 3 – 5 days.

Nutrition*

Serving Size 1 cup Gai Choy/
Chinese Mustard (250g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium	(Not Available)
Total Carbohydrate 9g	3%
Dietary Fiber	(Not Available)
Sugars (Not Available)	
Protein 3g	
Vitamin A	(Not Available)
Vitamin C	(Not Available)
Calcium	(Not Available)
Iron	(Not Available)

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Troubleshooting

Loss of green color:

This is an indication of ethylene exposure. To maintain good color, keep gai choy away from ethylene-producing fruits and ripening rooms.

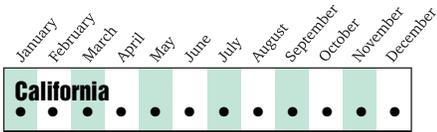
Wilting:

This is caused by lack of humidity. To maintain good quality, keep relative humidity at 90-98%.

Gai Lan/Chinese Broccoli

Availability

A major production area includes:



Variety/Type Descriptions

A member of the broccoli family, gai lan has dark green leaves and slender gray-green stalks. The entire plant, from the stems to the fully opened flowers, is edible. Gai lan is usually harvested as the first flower buds begin to open. The flavor is earthy and slightly bitter, similar to broccoli. Also known as Chinese kale, gai lon, lai lam and Kai laam.

Ordering Specifications

Common packaging:

10-lb. bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose gai lan that is firm with small stems and relatively few open flowers. Avoid brown spots, which can indicate decay.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-34 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: Yes

Storing tips:

Keep gai lan away from ethylene-producing fruits and ripening rooms.



Nutrition*

Serving Size (cups unknown) Gai Lan/
Chinese Broccoli (80g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium	(Not Available)
Total Carbohydrate 3g	1%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 2g	
Vitamin A	25%
Vitamin C	40%
Calcium	(Not Available)
Iron	(Not Available)

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Galanga Root

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
Fiji	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A rhizome of a ginger plant, galanga root has an aromatic, peppery-ginger flavor and is a key ingredient in Thai and Southeast Asian cuisine. Rhizomes can be from ½” to 2” in diameter, with light yellow skin showing pink sprouts and knobs. The flesh is pale white. There are three types of galanga root grown commercially in the world. Each varies slightly in heat and appearance. The most common one found in U.S. markets is also known as galangal, Thai ginger, galingale, and kha.



Ordering Specifications

Common packaging:

10-lb. bulk cartons
12 8-oz. packages

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose galanga root with unbroken skin and stiff, firm texture.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

48-55 degrees F/9-13 degrees C
65% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Storing tips:

If kept at consistent temperature of 48-55 degrees F/9-13 degrees C and low humidity, galanga root will keep for up to one month. Galanga root can be frozen; wrap tightly first in foil or plastic wrap.

Handling tips:

Keep dry; moisture will cause mold or sprouting.



Nutrition

Nutritional information for Galanga Root is not available in the data bases used by PMA.

Troubleshooting

Shriveling; softening:

Soft or shriveled galanga root may be caused by age or chill injury. Keep temperatures above 48 degrees F/9 degrees C and relative humidity at 65% for best quality.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Washington	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Regular – Firm, dry bulbs made up of tightly closed cloves covered with a smooth papery sheath or skin. Garlic color ranges from white to purple. Aroma and flavor ranges from mild to strong.

Elephant – Similar to regular garlic in appearance, but larger in size. Aroma and flavor is milder than regular garlic.

Ordering Specifications

Common packaging:

5-, 10-, and 30-lb. bulk cartons
Jars holding whole peeled or pureed garlic

Grades:

U.S. No. 1

NOTE: Not all garlic is graded. Ungraded garlic is called “unclassified.”

Sizes:

Giant
Jumbo
Extra Jumbo
Super Jumbo
Colossal
Super Colossal



Receiving and Inspecting

Good quality garlic should consist of firm, plump bulbs with tightly closed cloves. Outside sheath or skin should be tight and unbroken. Avoid shriveled, soft, sprouting, or moldy bulbs.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Maintain adequate air circulation during storage. For extended storage (longer than 7 days), reduce humidity to 65-75%.

Nutrition*

Serving Size 1 clove Garlic (4g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	0%
Vitamin C	2%
Calcium	0%
Iron	0%

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Troubleshooting

Molding; sprouting; root growth:

Exposing garlic to high temperatures and high humidity may promote molding, sprouting, or root growth. For short-term storage of 7 days or less, garlic may be held at 32-36 degrees F/0-2 degrees C with a humidity of 90-98%. If garlic must be held for a longer period of time, reduce humidity to 65-75%. Maintaining adequate air circulation will also help prevent molding, sprouting, and root growth.



Ginger Root

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Gnarled light brown tuber with golden to white flesh and sweet-peppery flavor.

Ordering Specifications

Common packaging:

- 5-lb. bulk cartons and bags
- 10- and 30-lb. bulk cartons
- 12 3-oz. prepackaged bags

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality ginger root should exhibit firm, well-shaped roots with fairly smooth, light brown skin and golden to white interior. Choose roots with minimal knots for best quality. Avoid shriveled or soft gingerroot.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 2 slices Ginger Root (4g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	0%

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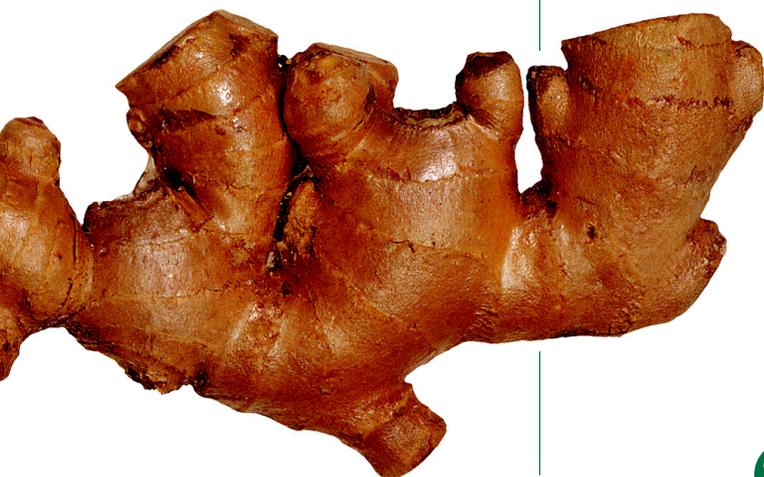
Troubleshooting

Shriveling; softening; moisture on skin:

These are indications of chill injury. To prevent chill injury, do not store ginger root below 55 degrees F/13 degrees C.

Mold; sprouting:

Storing ginger root at high temperatures or in high humidity may promote molding or sprouting. For best quality, maintain storage conditions of 60-65 degrees F/16-18 degrees C and a humidity level of 85-95%.



Gobo Root/Burdock Cabbage

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
China	•	•	•	•	•	•	•	•	•	•	•	•
Japan	•	•	•	•	•	•	•	•	•	•	•	•
Taiwan	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A hairy taproot of the burdock plant which can grow up to 4 feet in length, but rarely more than 2" in diameter. Similar to salsify in appearance, gobo root has white flesh and a crisp texture, with a flavor close to artichokes or salsify.

Ordering Specifications

Common packaging:

- 5-lb. bulk pack
- 22-lb. bulk pack

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose firm roots that are approximately 1" in diameter and 18"-3' long. Gobo root is commonly sold mud-crusted to protect the roots from discoloration.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

38-40 degrees F/3-4 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Storing tips:

Scrub gobo root and place in acidulated water to prevent discoloring.

Handling tips:

Peel each piece as it is used to prevent discoloration.

Nutrition*

Serving Size 1 cup Gobo Root/
Burdock Cabbage (118g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 80	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 20g	7%
Dietary Fiber 4g	16%
Sugars (Not Available)	
Protein 2g	
Vitamin A	0%
Vitamin C	6%
Calcium	4%
Iron	6%

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Troubleshooting

Softening; rubbery texture:

Soft, rubbery, or darkened gobo root indicates decay from age or temperature abuse. For best quality, maintain a storage temperature of 38-40 degrees F/3-4 degrees C and a relative humidity level of 90-98%.

Greens, Bunched

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Beet – Thin, red stems with flat, green leaves with thin, red ribs.

Collard – Flat, green, loaf-shaped leaves.

Dandelion – Thin, white stems with narrow, dark green, ragged-edged leaves.

Mustard – Long, narrow stems with large green, curly-edged leaves.

Swiss Chard (green) – Thick, white stems; large, dark green leaves with prominent red veins.

Swiss Chard (red) – Thick red stems; large, dark green leaves with prominent red veins.

Turnip – Long, narrow green stems with flat, green, and slightly fuzzy leaves.

Ordering Specifications

Common packaging:

Bushel crates, baskets, and cartons holding 12 or 24 bunches

Grades:

Beet/Collard/Dandelion/Mustard/Turnip:
U.S. No. 1

NOTE: Not all greens are graded. Ungraded greens are called “unclassified.”

Receiving and Inspecting

Choose greens that are clean and fresh. Avoid wilted or discolored greens.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Store greens away from ethylene-producing fruits and ripening rooms. Keep away from strong drafts.

Handling tips:

Follow good rotation practices with greens; first shipments in should be displayed or used first.

Nutrition*

Beet Greens

Serving Size 1 cup Beet Greens (38g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 75mg	3%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	6%
Sugars 0g	
Protein 1g	
Vitamin A	45%
Vitamin C	20%
Calcium	4%
Iron	6%



Collard Greens

Serving Size 1 cup Collard Greens (36g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	5%
Sugars 0g	
Protein 1g	
Vitamin A	30%
Vitamin C	20%
Calcium	6%
Iron	0%

Dandelion Greens

Serving Size 1 cup Dandelion Greens (55g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 40mg	2%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	8%
Sugars 1g	
Protein 1g	
Vitamin A	150%
Vitamin C	30%
Calcium	10%
Iron	10%

Mustard Greens

Serving Size 1 cup Mustard Greens (56g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	7%
Sugars 0g	
Protein 2g	
Vitamin A	60%
Vitamin C	70%
Calcium	6%
Iron	4%

Swiss Chard

Serving Size 1 cup Swiss Chard (36g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 75mg	3%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	2%
Sugars 0g	
Protein 1g	
Vitamin A	25%
Vitamin C	20%
Calcium	2%
Iron	4%

Turnip Greens

Serving Size 1 cup Turnip Greens (55g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	7%
Sugars 1g	
Protein 1g	
Vitamin A	80%
Vitamin C	60%
Calcium	10%
Iron	4%

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Troubleshooting

Color loss:

Greens are sensitive to ethylene; exposure to the gas may cause loss of green color. For best quality, keep greens away from ethylene-producing fruits and ripening rooms.

Wilting:

Greens are susceptible to wilting if stored in an area with low humidity. Keep humidity level at 90-98% during storage for best quality.

Water-soaked spots:

This is an indication of freeze injury. To prevent freeze injury, do not store greens at 30 degrees F/-1 degree C or below. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Varieties

Beet:



Collard:



Dandelion:



Mustard:



Swiss Chard (green):



Swiss Chard (red):



Turnip:



Hearts of Palm

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida	•	•	•	•	•	•	•	•	•	•	•	•
Brazil	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Another major production area includes Costa Rica.

Variety/Type Descriptions

The inner core of the cabbage palm stem, hearts of palm are ivory-colored, with the texture of firm artichoke hearts. Stalks are about 4" long and no wider than 1 1/2". Usually found packed in water, hearts of palm are used in salads and side dishes. Fresh hearts of palm have a crunchy texture and nutty flavor.



Ordering Specifications

Common packaging:

12 14.5-oz. to 14.8-oz. packages
10-lb. bulk
8 packages (4 bases and 4 hearts) in 12-lb. carton

Receiving and Inspecting

For fresh, look for firm, smooth surfaces and a fresh scent.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

40-45 degrees F/4-7 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Handling tips:

Fresh hearts of palm are extremely perishable. Use immediately or keep in water in the refrigerator for 2-3 days.



Nutrition

Nutrition information for Hearts of Palm is not available in the data bases used by PMA.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•
Puerto Rico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Anise – Annual herb of the parsley family, cultivated chiefly for its fruits called aniseed, the flavor that resembles that of licorice. The plant, up to 2.5 feet tall, has long-stalked basal leaves and shorter-stalked stem leaves. Its small, yellowish-white flowers form loose umbels. The bulbs are edible.

Basil – Varieties include Cinnamon, Italian, Lemon, Opal, Spicy Globe, and Sweet. Slightly crinkled leaves that range from dark green to greenish-purple in color. Aromatic fragrance and sweet-pungent flavor. Good for Italian-style dishes, soups, stews, poultry, and salads.

Bay Leaves – Long, narrow, dull green leaves with pungent aroma and flavor that mellows during cooking. Good for soups and stews, stuffing, poultry, game, and fish. Bay leaves should be discarded before serving.

Chervil – Small green frilly leaves with sweet flavor similar to parsley. Good for soups and stews, vegetables, and fish.

Chives – Sturdy, bright green grass-like strands with mild onion flavor. Good for all-purpose use.

Cilantro – Also called Chinese parsley or coriander. Leaf shape and color is similar to parsley. Distinctive, pungent flavor. Good for Mexican and Chinese-style dishes.

Dill – Feathery, bright green leaves with a sweet and savory aroma and flavor. Good for fish, vegetable, and egg dishes.

Fennel – A pale-green, feathery-topped vegetable with celery-like stems and swollen bulb-like base of overlapping broad layers.

Marjoram – Member of the mint family. Tiny, bright green leaves with a mild flavor similar to oregano. Good for egg dishes, meat, seafood, poultry, and cooked vegetables.

Mint – Sweet flavor and fragrant aroma. Good with fresh fruit, desserts, or as a garnish for beverages. Mint is also used as a seasoning for lamb and other Middle Eastern-style dishes.

Oregano – Small, bright green leaves with spicy, pungent flavor. Good for Italian and Greek dishes as well as other meat, poultry, and vegetable dishes.

Parsley, Curly – Curly parsley has a sweet flavor and crunchy texture and is most often used as a garnish or chopped and used as an all-purpose seasoning.

Parsley, Italian – Flat leaves and slightly peppery, more strongly flavored leaves and stems distinguish this from curly parsley. Italian parsley is preferred in cooking.

Rosemary – Soft green, short spiky leaves with a fragrant aroma and mild, spicy flavor. Good for meat, poultry, and seafood dishes.

Sage – Gray-green, elongated leaves with a strong, musty flavor. Good for stuffing, meat, poultry, and seafood dishes.

Savory – Tiny green leaves, flavor ranges from sweet to tangy, depending on variety. Good for soups and stews, stuffing, pork, poultry, and veal dishes.

Sorrel – Pale green leaves that resemble spinach in appearance. Distinct lemony flavor. Good in sauces and soups. Leaves may also be cooked and served as a side dish or served fresh in salads.

Tarragon – Long, narrow leaves with sweet-savory aroma and flavor. Good in sauces, salads, fish, poultry, and vegetable dishes.

Thyme – Tiny round green leaves with spicy-pungent flavor. Good for stuffing, meat, poultry, and seafood dishes.



Ordering Specifications

Common packaging:

Cartons holding 6 or 12 twist-tie bunches
 ¼-, ½-, and 1-lb. film bags
 1-, 1½-, 2-, 2½-, or 3-dozen count

Grades:

No U.S. grades given. Many suppliers follow specific guidelines for maintaining overall appearance, leaf shape, and color.

Equivalents

1 tablespoon chopped fresh herb =
 1 teaspoon dried herb

Receiving and Inspecting

Good quality fresh herbs should exhibit color consistent with variety, hearty aroma, high leaf-to-stem ratio, and leaves that are firmly attached to stems. Avoid herbs with brown, black, or bruised leaves. Avoid herbs with limp leaves (except sage) or that are flowering.

Herbs, Fresh

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

All except Basil:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Basil:

45-50 degrees F/7-10 degrees C

85-95% relative humidity

Retail display tips:

Water sprinkle: Ok

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: Yes

Storing tips:

Keep fresh herbs away from ethylene-producing fruits and ripening rooms.

Handling tips:

Fresh herb leaves may bruise; handle with care.

Nutrition*

Basil

Serving Size 1 tablespoon chopped

Basil (3g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	2%
Vitamin C	0%
Calcium	0%
Iron	0%

Chives

Serving Size 1 tablespoon Chives (3g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	2%
Vitamin C	2%
Calcium	0%
Iron	0%

Cilantro

Serving Size 1 tablespoon Cilantro (1g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	2%
Vitamin C	0%
Calcium	0%
Iron	0%

Oregano

Serving Size 1 tablespoon Oregano (6g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber	(Not Available)
Sugars (Not Available)	
Protein 0g	
Vitamin A	2%
Vitamin C	4%
Calcium	2%
Iron	(Not Available)

Parsley

Serving Size 1 tablespoon chopped

Parsley (4g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	4%
Vitamin C	8%
Calcium	0%
Iron	2%

Rosemary

Serving Size 1 tablespoon Rosemary (2g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	2%
Vitamin C	0%
Calcium	0%
Iron	0%

Sage

Serving Size 1 tablespoon Sage (2g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber	(Not Available)
Sugars (Not Available)	
Protein 0g	
Vitamin A	0%
Vitamin C	(Not Available)
Calcium	2%
Iron	(Not Available)

Tarragon

Serving Size 1 tablespoon Tarragon (6g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	2%
Iron	(Not Available)

Thyme

Serving Size 1 tablespoon Thyme (2g)

Amount Per Serving	% Daily Value
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars	(Not Available)
Protein 0g	
Vitamin A	2%
Vitamin C	6%
Calcium	0%
Iron	2%

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NOTE: Nutrition information for other Fresh Herbs is not available in the data bases used by PMA.

Troubleshooting

Yellowing:

Fresh herbs are sensitive to ethylene; exposure to the gas may accelerate loss of green color, especially if herbs are also stored in a warm area. For best quality, keep fresh herbs away from ethylene-producing fruits and ripening rooms. Maintain storage temperature of 32-36 degrees F/0-2 degrees C for all herbs except basil (45-50 degrees F/7-10 degrees C).

Darkening (black color) of basil leaves:

This is an indication of chill injury. To prevent chill injury of basil, do not store below 45 degrees F/7 degrees C.



Horseradishes

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Illinois	•	•	•	•	•	•	•	•	•	•	•	•
Missouri	•	•	•	•	•	•	•	•	•	•	•	•
Oregon	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Long, narrow root (resembles a tree root) with brown wrinkled skin, white flesh, and hot, pungent flavor.

Ordering Specifications

Common packaging:

5-, 10- and 50-lb. bulk cartons

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all horseradish is graded. Ungraded horseradish is called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Look for firm, well-shaped roots. Avoid horseradish that appears soft or shriveled.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Store horseradish in a dark area away from direct light.

Nutrition*

Serving Size ½ piece Horseradish (5g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 0g	
Vitamin A	0%
Vitamin C	10%
Calcium	0%
Iron	0%

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Troubleshooting

Green discoloration:

Horseradish roots may turn green if exposed to light. For best quality, store in a dark area.

General deterioration:

Storing horseradish in an area with low humidity may promote product deterioration. For best quality, maintain storage conditions of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.

Japanese Cucumbers

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Japan	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Slender, dark-green cucumber with ridged skin. 8-14 inches long; about 1½ inches in diameter.

Ordering Specifications

Common packaging:
10-lb. and 30-lb. bulk

Receiving and Inspecting

Look for cucumbers that are firm but not hard. They should not be pliable or have soft spots or shriveled ends. Color should be solid green with no yellowing.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

52-55 degrees F/11-13 degrees C

Retail display tips:

Water sprinkle: No

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low

Sensitive to ethylene: Yes

Storing tips:

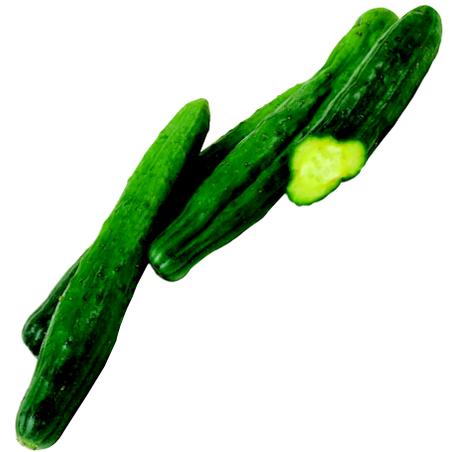
Keep in a cool place when whole. Avoid overly cold temperatures.

Nutrition*

Serving Size 1 cup Japanese Cucumber (129g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	6%
Sugars 2g	
Protein 2g	
Vitamin A	6%
Vitamin C	10%
Calcium	0%
Iron	0%

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Troubleshooting

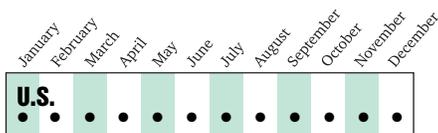
Yellowing:

Japanese cucumbers are sensitive to ethylene and will turn yellow if exposed to the gas. For best quality, keep cucumbers away from ethylene-producing fruits and ripening rooms.



Jerusalem Artichokes

Availability



NOTE: Some major production areas include California and Washington.

Variety/Type Descriptions

Small, knobby tuber with thin brown skin and white flesh (no relationship to the globe artichoke). The Jerusalem artichoke exhibits a nutty flavor; texture is crisp when raw and becomes tender when cooked. Jerusalem artichokes may be used cooked as an alternative to potatoes or water chestnuts, or uncooked (in salads or on vegetable platters). Peeling is not necessary.

Ordering Specifications

Common packaging:

Cartons holding 12-oz. or 1-lb. film bags
Bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality Jerusalem artichokes should be hard with fairly smooth skins and no soft spots. Avoid product that appears shriveled or with green-tinged skin.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Store Jerusalem artichokes in a dark area away from light.

Nutrition*

Serving Size 1 cup Jerusalem Artichoke (150g)

Amount Per Serving	% Daily Value
Calories 110	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber 2g	10%
Sugars 4g	
Protein 3g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	30%

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Troubleshooting

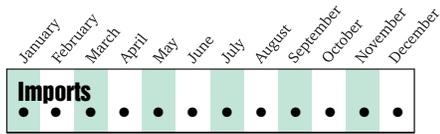
Decay; shriveling:

Storing Jerusalem artichokes in an area with low humidity may promote product decay and shriveling. Damage to the thin skin may also lead to product decay. For best quality, keep Jerusalem artichokes cold and store in an area with 90-98% humidity. Handle product with care to avoid damage to skins; do not drop shipping containers on the floor.

Green-tinged skin:

Jerusalem artichokes may develop green-tinged skin if exposed to light. For best quality, store artichokes in a dark area.

Availability



Variety/Type Descriptions

Resembles a turnip in appearance with round, slightly squat shape, light brown skin, and ivory flesh. Flavor is subtle and sweet; texture is crunchy and juicy. Jicama must be peeled before using. May be served raw or cooked. Jicama may be used as a substitute for waterchestnuts.

Ordering Specifications

Common packaging:

10- and 20-lb. bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose jicama with firm texture and smooth, unblemished skin. Avoid shriveled or moldy jicama.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size 1 cup Jicama (120g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 6g	24%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	40%
Calcium	2%
Iron	4%

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Troubleshooting

Decay; internal brown discoloration:

These are indications of chill injury. To prevent chill injury, do not store jicama below 55 degrees F/13 degrees C.

Sprouting:

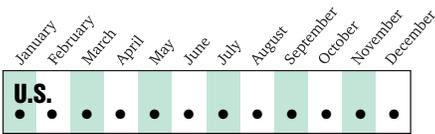
Jicama may begin to sprout if exposed to high temperatures. For best quality, maintain storage temperature of 60-65 degrees F/16-18 degrees C.

Mold:

Jicama may show signs of mold if it becomes moist during storage. To prevent molding, keep product dry and maintain a humidity level of 85-95%.

Kale

Availability



NOTE: Some major production areas include California, New Jersey, New York, South Carolina, and Virginia.

Variety/Type Descriptions

Predominant varieties include Scotch and Blue.

Scotch kale – Characterized by yellow-green leaves with curly edges and slightly wrinkled centers.

Blue kale – Characterized by blue-green leaves with curly edges and flat centers.

Flowering kale – Characterized by large, ruffle-edged leaves that range in color from cream to violet to green. Flowering kale is often used for decorative purposes such as lining salad bars.

Ordering Specifications

20-to 25-lb. crates, cartons, or bushel containers holding 24-count

Common packaging:

U.S. No. 1

U.S. Commercial

NOTE: Not all kale is graded. Ungraded kale is called “unclassified.” Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality kale should exhibit crisp, fresh leaves that are well-colored. Avoid wilted kale. NOTE: During the winter months, kale leaves may exhibit some bronzing.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep kale away from drafts to prevent dehydration.

Handling tips:

Maintain good rotation practices; first shipments in should be used or displayed first. To crisp kale before using, plunge in ice water and drain thoroughly.

Nutrition*

Serving Size 1 cup Kale (67g)

Amount Per Serving	% Daily Value
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 30mg	1%
Total Carbohydrate 7g	2%
Dietary Fiber 1g	5%
Sugars 1g	
Protein 2g	
Vitamin A	120%
Vitamin C	130%
Calcium	10%
Iron	6%

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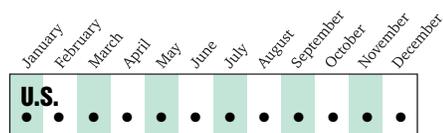


Troubleshooting

Wilting:

Kale is susceptible to wilting if it is stored in an area with low humidity or exposed to drafts. For best quality, maintain storage conditions of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%. Keep kale away from drafts.

Availability



Variety/Type Descriptions

Light green or purple, globe-shaped root with green stems and flat leaves attached. Bulb flavor is somewhat sweet and similar to a turnip. Bulb may be used cooked or uncooked. Leaves must be cooked. Flavor of leaves is similar to collard greens or kale.

Ordering Specifications

Common packaging:

Cartons holding 12, 18, or 24 bunches

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose kohlrabi with smooth bulbs that are free of cracks or visible fibers. Attached leaves should be fresh, firm, and green. Small to medium bulbs are best.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition*

Serving Size (cups unknown) Kohlrabi (70g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 3g	10%
Sugars 2g	
Protein 1g	
Vitamin A	0%
Vitamin C	70%
Calcium	2%
Iron	2%

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Troubleshooting

Shriveling; tough texture:

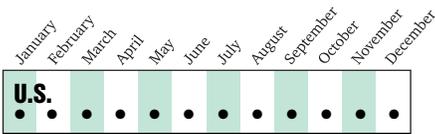
Kohlrabi may shrivel or develop a tough texture if stored in an area with low humidity. For best quality, keep kohlrabi cold and maintain a humidity level of 90-98%.

Freeze injury:

Kohlrabi is susceptible to freeze damage if stored at 30 degrees F/-1 degree C or below. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Leeks

Availability



Variety/Type Descriptions

Member of the green onion and shallot family. Characterized by a long thick stem and large, drooping tops that range in color from green to blue-green. Some specific varieties are shorter and thicker with more erect green tops. Leeks exhibit a mild onion-like flavor.

Ordering Specifications

Common packaging:

24- to 30-lb. cartons holding 12 or 24 bunches

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality leeks should have clean, blemish-free white bases with fresh green tops. Avoid leeks with bruised, ragged, or dry-looking tops and bulbed bases.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Store leeks away from foods that absorb odors. Keep away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Leeks (89g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 13g	4%
Dietary Fiber 2g	6%
Sugars 3g	
Protein 1g	
Vitamin A	2%
Vitamin C	20%
Calcium	6%
Iron	10%

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Troubleshooting

Wilting:

Leeks may wilt if they are stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.

Yellowing; rapid decay:

Storing leeks at high temperatures may cause yellowing and decay. Exposing leeks to ethylene may also cause yellowing and decay. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C. Keep leeks away from ethylene-producing fruits and ripening rooms.

Bulbed ends; woody texture:

These are indications of age. For best quality, choose smaller-size leeks with fairly straight white bases.

Lemongrass

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Asia	•	•	•	•	•	•	•	•	•	•	•	•
South America	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A perennial grass, lemongrass has a white, bulbous base with several narrow, pale yellowish-green stalks growing up from it. The stalks contain citrol, an oil found in the skin of lemons. A key ingredient in Thai and Southeast Asian cuisine, lemongrass imparts an aromatic, pungent lemon flavor to soups, teas, and sauces. Also known as citronella root. The powdered form is called sereh powder.

Ordering Specifications

Common packaging:

- 12-count zip lock bags
- 10-lb. bulk cartons
- 12 2- or 3-count bunches

Grades:

No U.S. grades given.

Receiving and Inspecting

Stalks should be firm and green. Avoid yellow or brown wilting stalks.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

38-40 degrees F/3-4 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Storing tips:

Wrap tightly in foil or plastic to prevent drying. Kept refrigerated, lemongrass will retain its freshness and pungency for up to 2 weeks. Lemongrass freezes well when wrapped tightly.

Handling tips:

Because of their fibrous texture, the tough outer leaves are removed from food prior to serving. When peeled, the tender inner leaves, which are greener, can be sliced very thin and included in stir-fries, sautéed, or baked dishes.



Nutrition*

Serving Size 1 tablespoon Lemongrass (4g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	2%

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Troubleshooting

Avoid lemongrass with any brown on its base.

Lettuce, Boston/Bibb

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•	•	•	•	•	•	•	•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•							

Variety/Type Descriptions

Also known as Butterhead, this head-type lettuce is characterized by light green, flexible leaves and a mild flavor.

Ordering Specifications

Common packaging:

22-lb. 1 1/9 bushel crates
10- to 20-lb. cartons or crates

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Heads should appear fresh with even-colored leaves that exhibit a soft, buttery texture. Avoid lettuce that appears wilted or shows signs of discoloration or decay. Avoid heads with dark butts, yellow-tipped leaves, or leaves showing cracked ribs.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep Boston/Bibb lettuce away from ethylene-producing fruits and ripening rooms.

Handling tips:

Follow good rotation practices; first shipments received should be used or displayed first.

Nutrition*

Serving Size 12 medium leaves
Lettuce, Boston/Bibb (90g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber less than 1 gram	4%
Sugars 1g	
Protein 1g	
Vitamin A	15%
Vitamin C	10%
Calcium	2%
Iron	2%

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Troubleshooting

Russet spotting on leaves:

Boston/Bibb lettuce is sensitive to ethylene; exposure to the gas may cause russet (brown) spotting of the leaves or loss of green color. To prevent russet spotting, keep lettuce away from ethylene-producing fruits and ripening rooms.

Wilting:

Wilting may occur if lettuce is stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.

Yellow leaves:

This is an indication of freeze damage. To prevent freeze damage, do not store lettuce below 31 degrees F/-0.5 degrees C.



Lettuce, Iceberg

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•	•	•	•	•	•	•	•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
Colorado						•	•	•	•			
Florida	•	•	•	•	•							•

Variety/Type Descriptions

Iceberg lettuce is characterized by compact heads, light green color, crisp texture, and delicate flavor.

Ordering Specifications

Common packaging:

20- to 50-lb. cartons

Grades:

U.S. Fancy

U.S. No. 1

U.S. No. 2

Differences between grades are based primarily on external appearance.

Sizes:

18-, 24-, and 30-count

Equivalents:

1 medium head Iceberg = 1 ½ pounds

1 medium head Iceberg = 2 ½ quarts shredded lettuce

1 medium head Iceberg = 3-4 rafts

1 medium head Iceberg = 2 ½ to 3 quarts chunked

1 medium head Iceberg = 4-6 wedges

1 medium head Iceberg = 2 ½ quarts torn pieces

Receiving and Inspecting

Heads should be springy-firm and give slightly to gentle pressure. Some browning of the core end is natural and occurs from oxidation after lettuce has been harvested and trimmed. Avoid lettuce that appears wilted, discolored, or with dried or translucent-looking outer leaves.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C

90-98% relative humidity

Retail display tips:

Water sprinkle: Ok

Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No

Sensitive to ethylene exposure: Yes

Storing tips:

Keep lettuce away from drafts to prevent dehydration. Store lettuce away from ethylene-producing fruits and ripening rooms.

Handling tips:

Follow good rotation practices; first shipments received should be used or displayed first.

Nutrition*

Serving Size 1/6 medium head Lettuce, Iceberg (87g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber less than 1 gram	4%
Sugars 2g	
Protein 1g	
Vitamin A	4%
Vitamin C	6%
Calcium	2%
Iron	2%

*Based on information published by FDA.



Troubleshooting

Wilting:

Lettuce may wilt if it is exposed to drafts or stored at warm temperatures. To prevent wilting, keep lettuce away from any drafts and store at 32-36 degrees F/0-2 degrees C.

Russet spotting:

Lettuce may exhibit russet (brown) spotting if exposed to ethylene gas. To avoid russet spotting, keep lettuce away from ethylene-producing fruits and ripening rooms.

Rapid deterioration:

Storing lettuce at high temperatures may promote rapid deterioration. Rough handling may bruise leaves, which can also promote product deterioration. For best quality, maintain proper storage temperatures and handle lettuce with care.

Dried, translucent outer leaves:

This is an indication of freeze damage. To prevent freeze damage, do not store lettuce below 31 degrees F/-0.5 degrees C.

Lettuce, Leaf

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•	•	•	•	•	•	•	•	•	•
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•							•

Variety/Type Descriptions

Loosely bunched curly leaves with crisp texture. Both green and red leaf lettuce are available. Red leaf lettuce is characterized by green leaves with red-tinted edges.

Ordering Specifications

Common packaging:

10- to 25-lb. baskets, cartons, or crates

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality leaf lettuce should be fresh, crisp, and well-colored. Avoid lettuce that appears wilted or show signs of spotting or decay. Avoid leaf lettuce with yellow leaves or with leaves showing cracked ribs.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep leaf lettuce away from ethylene-producing fruits and ripening rooms.

Handling tips:

Follow good rotation practices; first shipments received should be used or displayed first.

Nutrition*

Serving Size 1 cup Lettuce, Leaf (57g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	5%
Sugars 1g	
Protein 1g	
Vitamin A	25%
Vitamin C	6%
Calcium	2%
Iron	0%

*Based on information published by FDA.



Troubleshooting

Russet spotting:

Leaf lettuce may exhibit russet (brown) spotting if exposed to ethylene. To prevent russet spotting, keep lettuce away from ethylene-producing fruits and ripening rooms.

Deterioration:

Storing leaf lettuce at high temperatures may promote rapid deterioration. Rough handling of the product may also promote deterioration of bruised leaves. To maintain quality, store lettuce at 32-36 degrees F/0-2 degrees C and always handle with care.

Wilting:

Storing leaf lettuce in an area with low humidity may promote wilting. For best quality, maintain a humidity level of 90-98%.

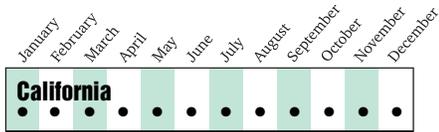
Dried translucent leaves:

This is an indication of freeze damage. To prevent freeze damage, do not store lettuce below 31 degrees F/-0.5 degrees C.

Lettuce, Romaine

Availability

A major production area includes:



Variety/Type Descriptions

Head-type lettuce consisting of long, loaf-shaped, narrow leaves. Leaf color ranges from dark green outer leaves to greenish-yellow inner leaves. Very crisp texture.

Ordering Specifications

Common packaging:

22- to 40-lb. crates, cartons, 2/3 cartons, and bushel cartons holding 24-count.

Grades:

U.S. No. 1

NOTE: Not all romaine is graded. Ungraded romaine is called "unclassified."

Receiving and Inspecting

Good quality romaine should be fresh, crisp, and well-colored. Avoid romaine that appears wilted or has damaged leaves.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep romaine away from drafts to prevent dehydration. Store away from ethylene-producing fruits and ripening rooms.

Handling tips:

Follow good rotation practices; first shipments received should be displayed or used first. Because of its shape, romaine can be easily damaged; always handle with care. To crisp romaine before using, plunge in ice water and drain thoroughly.

Nutrition*

Serving Size 1 cup Lettuce, Romaine (56g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	4%
Sugars 0g	
Protein 1g	
Vitamin A	30%
Vitamin C	20%
Calcium	2%
Iron	4%

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Troubleshooting

Russet spotting:

Russet (brown) spotting may occur if romaine is exposed to ethylene gas. To prevent russet spotting, keep romaine away from ethylene-producing fruits and ripening rooms.

Wilting:

Exposure to strong drafts or low humidity may cause dehydration and wilting. Keep romaine away from drafts such as those caused by cooler fans. Maintain a humidity level of 90-98%.

Decay:

Rough handling of romaine may promote bruising and decay. Handle romaine with care; do not drop shipping containers on the floor.

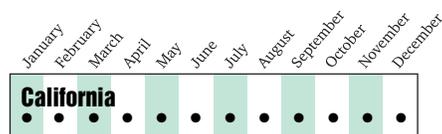
Dried translucent leaves:

This is an indication of freeze damage. To prevent freeze damage, do not store romaine lettuce below 31 degrees F/-0.5 degrees C.

Lettuce and Greens, Baby/Specialty

Availability

A major production area includes:



Variety/Type Descriptions

Lettuce:

Bronze leaf – Dark bronze ruffled leaves.

Canasta – Blistered pale green leaves with vibrant rose-colored mottling.

Cocarde – Arrowhead-shaped, lobed leaves; bronze color.

Green Leaf – Long, curly, dark green leaves.

Green Oak – Deeply lobed, lime green leaves.

Green Romaine – Crisp sweet leaves with crunchy midribs.

Little Gem – Green leaves; appearance similar to a cross between romaine and butter lettuce.

Lolla Rossa – Small round leaves with ruffled edges; leaf color is red with frosty green interior. Texture is soft.

Manoa – Ruffled, bright yellow-green leaves with crunchy, sweet flavor.

Red Butter – Boston-type lettuce with bright red color.

Red Iceberg – Round flat leaves with red to burgundy color and somewhat leathery texture.

Red Leaf – Long curly leaves with red or bronze tips.

Red Oak Leaf – Narrow lobed leaves resembling an oak leaf; dark red color.

Red Perella – Crisp leaves with delicate flavor.

Red Romaine – Oval-shaped leaves with crunchy midribs; color ranges from green to bronze to deep red.

Ruby Red Leaf – Puckered leaves; bright, cherry red color with some green at the base of the leaves.

Sangria – Boston-type lettuce leaves with red to pinkish blush.

Tango – Deeply cut leaves resemble a cross between endive and green leaf lettuce; leaves are dark green.

Greens:

Arugula – Smooth, small notched leaves with dark green color. Arugula exhibits a delicate, peppery flavor.

Frisee – Feathery leaves that are pencil-thin and somewhat scraggly. Frisee is ivory-yellow in color.

Mache – Small round leaves; deep shiny green color. Leaf size ranges from 2 to 4 inches long and 3/4 inch wide. Mache flavor is mild and nutty; texture is delicate.

Mizuna – Notched, feathery leaves.

Red Mustard – Dark purple-red leaves with light green undersides. Red mustard flavor is spicy and somewhat hot.

Tatsoi – Thick, dark green, and spoon-shaped leaves with white midribs. Tatsoi flavor is similar to spicy cabbage.

Ordering Specifications

Common packaging:

Cartons holding 24 to 30 heads/bunches.

Grades:

No U.S. grades given.

Receiving and Inspecting

Baby lettuce and greens should be clean and fresh with well-colored leaves. Avoid product that appears wilted, discolored, or decayed.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep baby lettuce and greens away from ethylene-producing fruits and ripening rooms. Store away from strong drafts.

Handling tips:

Baby lettuce and greens should only be lightly sprinkled to help maintain freshness. Excessive water sprinkling may promote breakdown of delicate leaves. Follow good rotation practices; first shipments in should be used or displayed first.

Lettuce and Greens, Baby/Specialty

Nutrition*

Arugula

Serving Size 1 cup Arugula (20g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 1g	
Vitamin A	10%
Vitamin C	6%
Calcium	4%
Iron	2%

Manoa

Serving Size 1 cup Manoa (56g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	3%
Sugars (Not Available)	
Protein 1g	
Vitamin A	15%
Vitamin C	15%
Calcium	2%
Iron	2%

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NOTE: Nutrition information for other Specialty Lettuce/Greens is not available in the data bases used by PMA.

Troubleshooting

Russet/brown spotting:

Baby lettuce and greens are sensitive to ethylene; exposure to the gas may cause russet or brown spotting. To prevent damage from ethylene, keep baby lettuce and greens away from ethylene-producing fruits and ripening rooms.

Wilting:

Baby lettuce and greens are susceptible to wilting if stored in an area with low humidity. Storing lettuce and greens in an area with high air circulation or strong drafts may also promote wilting. For best quality, keep lettuce and greens cold, maintain a humidity level of 90-98%, and keep away from drafts.

Leaf breakdown; deterioration:

Storing baby lettuce and greens in a warm area may promote product deterioration. Rough handling and excessive water sprinkling may also contribute to leaf breakdown. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C. Handle lettuce and greens with care and water sprinkle lightly.

Yellow or dried out, translucent leaves:

This is an indication of freeze damage. To prevent freeze damage, do not store baby lettuce and greens below 31 degrees F/-0.5 degree C.



Lo Bok

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Lo Bok is also known as the Chinese radish. They are a carrot-shaped vegetable whose texture is similar to the Japanese daikon. Some varieties have a greenish tinge to the crown. Flavors vary: spring and summer radishes are hotter and have a less strong taste; fall and winter radishes are milder in heat but deeper flavor.

Ordering Specifications

Common packaging:

10- and 25-lb. bulk cartons or crates

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose firm, smooth roots with a shiny exterior appearance. Avoid roots with a dull exterior appearance or those that appear flabby or limp.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition

Nutrition information for Lo Bok is not available in the data bases used by PMA.



Troubleshooting

Flabby texture; flavor loss:

Lo bok is susceptible to losing moisture, which may cause a loss of firm texture and flavor. For best quality, keep lo bok cold and maintain a humidity level of 90-98% during storage. Do not store lo bok for extended periods of time; use or display soon after receiving.

Freeze injury:

Lo bok is susceptible to freeze injury if stored below 30 degrees F/-1 degree C. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•					•	•	•	•	•
China	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

The underwater root of the water lily or lotus plant, lotus root can be up to 4 feet long and looks like a solid-link chain in 8" lengths, each link about 3" wide. Also called ling gaw, lotus root has reddish-brown skin over white flesh. Flavor is like fresh coconut and jicama; texture is crisp. When cut crosswise, root shows a symmetrical pattern of holes. Also known as hasu no, leen ngua, and bhain.

Ordering Specifications

Common packaging:

Loose pack in 44-lb. boxes (from China), primarily, and 10-lb. boxes
Loose pack in 55- to 62-lb. boxes (from California)

Receiving and Inspecting

Look for firm roots with consistent color. Avoid rubbery roots or ones with soft spots.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

Keep refrigerated at 32-34 degrees F/
0-1 degree C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Storing tips:

Fresh lotus root will last in the refrigerator for several days. Towards the end of the fresh season (March from California) shelf-life shortens to only a few days. Keep refrigerated at 32-34 degrees F/ 0-1 degrees C.

Nutrition*

Serving Size 1 cup Lotus/Lily Root (85g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 35mg	1%
Total Carbohydrate 15g	5%
Dietary Fiber 4g	16%
Sugars 0g	
Protein 2g	
Vitamin A	0%
Vitamin C	60%
Calcium	4%
Iron	6%

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Troubleshooting

Darkening skin:

Dark spots on skin, darker overall color, and mold may indicate decay caused from age or from inconsistent temperature during storage.

Malangas

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Florida	•	•	•	•	•	•	•	•	•	•	•	•
Costa Rica	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Curved or club-shaped tuber with thin, shaggy brown skin and creamy, yellow or pinkish-colored flesh. Malanga flavor is nutty and potato-like. Must be peeled and cooked; may be used as a potato substitute.

The most common variety is white or malanga blanca. A less common variety is pink (malanga lila) and yellow (malanga amarilla). All are based on flesh color.

Ordering Specifications

Common packaging:

Bulk cartons or crates
Plastic woven or burlap sacks

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose hard tubers with light-colored skins. Avoid moldy, soft, or shriveled product.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Nutrition

Nutrition information for Malangas is not available in the data bases used by PMA.



Troubleshooting

Water soaked or soft spots; accelerated decay:

These are indications of chill injury. To prevent chill injury, do not store malanga below 45 degrees F/7 degrees C.

Decay:

Malanga may show signs of decay if stored in a warm area with high humidity. For best quality, store malanga at 45-50 degrees F/7-10 degrees C with a humidity level of 85-95%.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Illinois	•	•	•	•	•	•	•	•	•	•	•	•
Pennsylvania	•	•	•	•	•	•	•	•	•	•	•	•
Canada	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Agaricus (White) – The most widely available variety. Ranges in size from small to jumbo and in color from creamy white to light brown. Exhibits a mild, woody flavor when raw; flavor intensifies when cooked. Mature agaricus (open veils and darker caps) exhibit a richer flavor. May be used raw or cooked.

Chanterelle – Trumpet-like shape with golden to yellow-orange color and rich, meaty, and slightly almond-like flavor. Chanterelle mushrooms should be cooked.

Crimini (Italian Brown) – Similar in appearance to Agaricus. Naturally dark cap ranges in color from light tan to brown. Flavor is deeper, denser, and more earthy than Agaricus. May be used raw or cooked.

Enoki – Fragile, flower-like mushroom that grows in clusters. Characterized by long, slender stems and tiny creamy white caps. Enoki mushrooms exhibit a mild flavor and slightly crunchy texture. Enoki mushrooms are best when served raw.

Morel – Thick, short stem with sponge-like cap. Morels exhibit a dark brown color and rich, meaty flavor. Morels should be cooked.

Oyster – Short-stemmed with large fluted cap that ranges in color from brown to gray. Oyster mushrooms exhibit a mild flavor when cooked. Texture is delicate and velvety. May be used raw or cooked.

Porcini – Thick beige stem with large white to red-brown cap and nutty flavor. Porcini mushrooms should be cooked.

Portabella – Large, heartier version of the Agaricus and Crimini with meat-like flavor and substantial texture. Portabellas are generally cooked.

Shiitake (Oak, Chinese or Black Forest) – Broad, umbrella-shaped caps with wide open veils and tan gills. Shiitakes exhibit a rich, woody flavor; texture becomes meaty when cooked. Shiitakes are best when cooked.

Woodear – Brown mushroom with floppy cap and short stem. Mild yet rich flavor. Woodears are best when cooked.

Ordering Specifications

Common packaging:

Agaricus/Crimini: 5- and 10-lb. containers

Enoki: Cases holding 12 to 24 bags (3- to 5-oz. each)

Shiitake: 3- and 5-lb. containers

Portabella: 5-lb. containers

Oyster: 3-, 4-, and 5-lb. containers

Grades:

U.S. No. 1

U.S. No. 2

NOTE: Not all mushrooms are graded. Ungraded mushrooms are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

(Agaricus/White):

Small – up to 1¼”

Medium – 1¼” to 1¾”

Large – 1¾” and over

Counts per pound:

(Agaricus/White):

Small – approximately 89

Medium – approximately 43

Large – approximately 23



Equivalents

1 pound white mushrooms = 6 cups raw sliced

1 pound white mushrooms = 3¾ cups raw chopped

1 pound white mushrooms = 2½ cups cooked sliced

1 pound white mushrooms = 2 cups cooked diced

Receiving and Inspecting

Mushrooms should have a fresh, well-shaped appearance, firm texture, and be free of spots. Size and color do not affect quality. Open veils are not a sign of poor quality. Open veils on certain varieties such as Agaricus simply indicate a more mature mushroom with a richer and deeper taste. Avoid mushrooms that show signs of deterioration, mold, or that appear slimy.

Mushrooms

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Store mushrooms in original containers; do not store in plastic bags. Keep fresh mushrooms away from foods with strong odors.

Handling tips:

Handle fresh mushrooms with care to avoid bruising.

Nutrition

Agaricus*

Serving Size 5 medium Mushroom,
Agaricus (84g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	4%
Sugars 0g	
Protein 3g	
Vitamin A	0%
Vitamin C	2%
Calcium	0%
Iron	2%

*Based on information published by FDA.

Crimini**

Serving Size 1 each Mushroom,
Crimini (14g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	0%

Enoki**

Serving Size 1 each Mushroom,
Enoki (3g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	0%

Oyster**

Serving Size 1 each Mushroom,
Oyster (15g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 1g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	2%

Portabella**

Serving Size (cups unknown)
Mushroom, Portabella (84g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	5%
Sugars 2g	
Protein 2g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	2%

Shiitake**

Serving Size (cups unknown)
Mushroom, Shiitake (84g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 5g	2%
Dietary Fiber less than 1 gram	4%
Sugars 1g	
Protein 2g	
Vitamin A	0%
Vitamin C	4%
Calcium	0%
Iron	8%

Woodear**

Serving Size (cups unknown)
Mushroom, Woodear (84g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber less than 1 gram	4%
Sugars 1g	
Protein 2g	
Vitamin A	0%
Vitamin C	4%
Calcium	0%
Iron	6%

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Troubleshooting

Dark spotting; slimy texture:

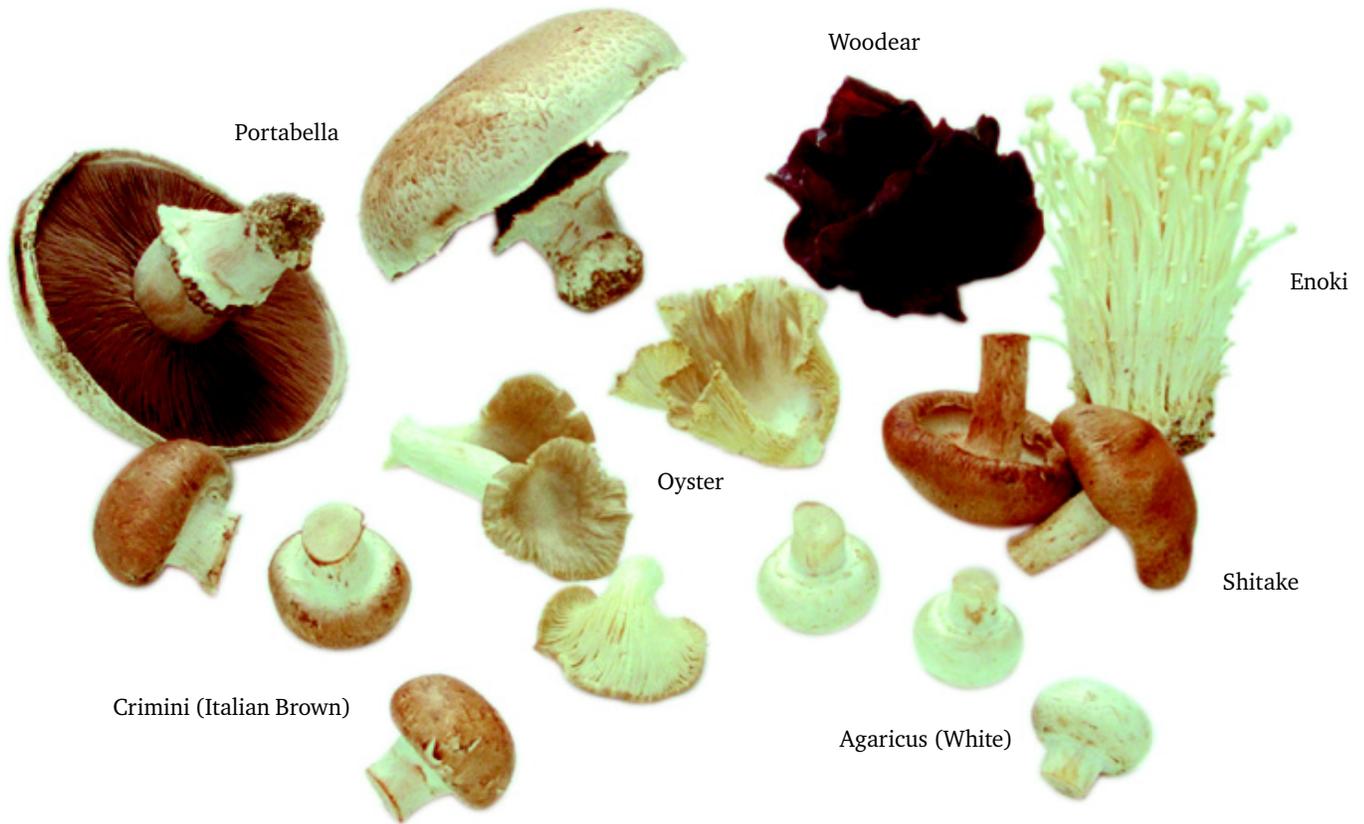
These are all indications of improper storage conditions. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C. Do not sprinkle mushrooms with water or place in plastic bags.

Dehydration; general deterioration:

Fresh mushrooms may exhibit dehydration or general deterioration if they are stored in an area with low humidity. For best quality, maintain humidity level of 90-98%.

Bruising:

Rough handling may cause bruising of mushrooms. Keep handling to a minimum. Do not stack heavy produce on top of fresh mushrooms.



Napa/Pe-Tsai

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
Arizona	•	•	•									•
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•						•
New York	•	•	•	•	•	•	•	•	•	•	•	•
Texas	•	•	•	•	•	•						
Canada	•	•	•	•	•	•						•

Variety/Type Descriptions

Also called Chinese cabbage. Oblong head with tightly packed, pale green to white crinkled leaves. Napa's mild flavor is similar to a cross between cabbage, iceberg lettuce, and celery. Texture is tender-crisp. Napa may be used cooked or uncooked.

Ordering Specifications

Common packaging:

Bulk cartons and crates of various weights.

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality napa should exhibit well-shaped heads with fresh-looking leaves, be fairly even-colored, and heavy for its size. Avoid wilted or discolored product.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep napa away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup chopped
Napa/Pe-Tsai (76g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 2g	9%
Sugars (Not Available)	
Protein 1g	
Vitamin A	20%
Vitamin C	35%
Calcium	6%
Iron	2%

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Troubleshooting

Water-soaked or soft spots:

These are indications of freeze damage. To prevent freeze damage, do not store napa below 31 degrees F/-0.5 degrees C.

Wilting:

Napa is susceptible to moisture loss if stored in an area with low humidity. For best quality, keep napa cold and maintain a humidity level of 90-98%. Keep napa away from strong drafts.

Yellowing; separation of leaves:

Napa is sensitive to ethylene and may be damaged by the gas. To maintain good quality, keep napa away from ethylene-producing fruits and ripening rooms.

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Some major production areas include California, Florida, and Mexico.

Variety/Type Descriptions

Slightly curved, carrot-shaped pod with shallow ridges and fuzzy, green exterior. Pods range in size from 2-7 inches.

Ordering Specifications

Common packaging:

Bushel baskets, crates, cartons, and hampers of various weights

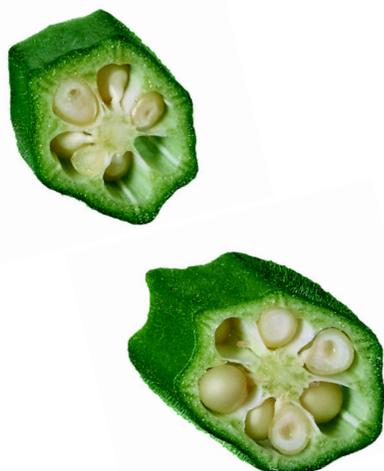
Grades:

U.S. No. 1

NOTE: Not all okra is graded. Ungraded okra is called “unclassified.”

Receiving and Inspecting

Good quality okra pods should be clean, fresh-looking, tender, and well-shaped. Avoid misshapen or decayed pods.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes

Storing tips:

Okra is very perishable; use or display soon after receiving. Keep okra away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle okra with care to avoid bruising.

Nutrition*

Serving Size 1 cup Okra (100g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 35	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 3g	13%
Sugars 2g	
Protein 2g	
Vitamin A	15%
Vitamin C	35%
Calcium	8%
Iron	4%

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Troubleshooting

Pitting; discoloration; water-soaked spots; decay:

These are indications of chill injury. To prevent chill injury, do not store okra below 45 degrees F/7 degrees C.

Yellow discoloration; tough texture; rapid decay:

Storing okra at high temperatures may cause rapid deterioration and discoloration. For best quality, maintain short-term storage temperature of 45-50 degrees F/7-10 degrees C. Use or display okra soon after receiving.

Shriveling:

Exposing okra to low humidity will cause product shriveling. For best quality, maintain humidity level of 85-95%.

Black discoloration:

Okra is very susceptible to bruising and will turn black. For best quality, keep handling to a minimum; do not drop shipping containers on the floor.

Yellowing; loss of green color:

Okra is sensitive to ethylene; exposure to the gas may cause yellowing and loss of green color. Keep okra away from ethylene-producing fruits and ripening rooms.

Onions, Dry

Availability

Some major production areas include:

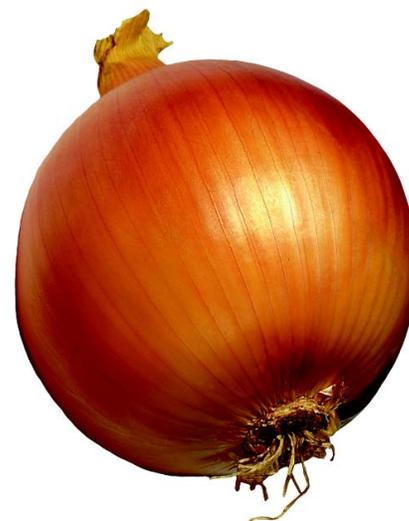
	January	February	March	April	May	June	July	August	September	October	November	December
Arizona					•	•						
California	•	•	•	•	•	•	•	•	•	•	•	•
Colorado	•	•	•	•			•	•	•	•	•	•
Georgia			•	•	•							
Hawaii	•	•	•	•	•	•	•	•	•	•	•	•
Idaho/Eastern Oregon	•	•	•	•				•	•	•	•	•
Illinois	•	•	•						•	•	•	•
Indiana									•	•	•	•
Iowa	•	•	•						•	•	•	•
Michigan									•	•	•	•
Minnesota												
Nevada	•	•	•						•	•	•	•
New Mexico						•	•	•	•	•	•	•
New York	•	•	•	•	•			•	•	•	•	•
Ohio	•	•	•	•				•	•	•	•	•
Oregon	•	•	•	•				•	•	•	•	•
Texas		•	•	•	•	•	•					
Utah	•	•	•					•	•	•	•	•
Washington	•	•	•	•	•	•	•	•	•	•	•	•
Wisconsin												•

Variety/Type Description

Dry onions are typically divided into two categories:

Storage – Generally available August – March. Characterized by multiple layers of thick, dark skin, intense flavor, and higher percentage of solids. Storage onions may be red, white, or yellow in color.

Spring/Summer – Generally available April – August. Characterized by thin, light-colored skin and a sweet, mild flavor due to a higher water and sugar content. Because of their thin skins, spring/summer onions are more susceptible to bruising. Spring/summer onions may be red, white, or yellow in color.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

For extended storage, hold dry onions at 32-36 degrees F/0-2 degrees C. Maintain good air ventilation during storage; keep onions out of direct sunlight. Store dry onions away from foods that absorb odors.

Handling tips:

Handle onions with care to prevent bruising or decay. Spring/summer onions are especially susceptible to bruising due to high water and sugar content.

Ordering Specifications

Common packaging:

40- and 50-lb. cartons
5-, 10-, 25-, and 50-lb. bags

Grades:

U.S. No. 1
U.S. Combination
U.S. No. 2

NOTE: Not all onions are graded. Ungraded onions are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

Colossal
Jumbo
Large
Medium
Pre-pack
Small
Creamer/boiler

Receiving and Inspecting

Good quality dry onions should be firm and hard with short, tight necks and dry papery skins. Slightly loose outer skin is common and should not affect quality. Avoid onions that show mold, decay, or blemishes.



Nutrition

Onion*

Serving Size 1 medium whole Onion (148g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 14g	5%
Dietary Fiber 3g	12%
Sugars 9g	
Protein 2g	
Vitamin A	0%
Vitamin C	20%
Calcium	4%
Iron	2%

*Based on information published by FDA.

Red Onion**

Serving Size 1 medium whole Onion, Red (110g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 9g	3%
Dietary Fiber 2g	8%
Sugars 7g	
Protein 1g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	2%

White Onion**

Serving Size 1 medium whole Onion, White (110g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 9g	3%
Dietary Fiber 2g	8%
Sugars 7g	
Protein 1g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	2%

Yellow Onion**

Serving Size 1 medium whole Onion, Yellow (110g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 9g	3%
Dietary Fiber 2g	8%
Sugars 7g	
Protein 1g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	2%

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Troubleshooting

Sprouting; decay; mold:

Dry onions may show signs of sprouting, decay, or mold if they are stored at high temperatures or high humidity. To maintain quality, keep short-term storage temperature of 60-65 degrees F/ 16-18 degrees C and a humidity level of 85-95%. Be sure onions are stored in a well-ventilated area. For extended storage (longer than 7 days), hold onions at 32-36 degrees F/0-2 degrees C and 60-65% relative humidity.

Water-soaked spots:

This is an indication of freeze damage. To prevent freezing injury, do not store dry onions below 30 degrees F/-1 degree C.

Green spots:

Dry onions may develop green spots if they are exposed to sunlight. For best quality, keep onions in a dark area out of sunlight.

Bruising:

Rough handling may cause bruising, especially with spring/summer onions. To prevent bruising, keep handling to a minimum; do not drop shipping containers on the floor.



Onions, Green

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
New Jersey						•	•	•	•	•	•	
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Green onions are harvested while bulbs are small and white and tops are green. They are generally not sold by variety.

Ordering Specifications

Common packaging:

10- to 30-lb. cartons holding 12, 24, 35, or 48 bunches

Iceless green onions: 2 x 24 bunches, 4 x 12 bunches, 4 x 2 lb. loose, 48-count bunch liner

Grades:

U.S. No. 1
U.S. No. 2

NOTE: Not all green onions are graded. Ungraded green onions are called "unclassified." Differences between grades are based primarily on external appearance.



Receiving and Inspecting

Look for green onions that are crisp with fresh, tender green tops and slightly bulbous white ends. Avoid onions with discolored, decaying, or wilted tops.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep green onions separated from foods that absorb odors. Green onions are very perishable; do not store for long periods of time. Keep green onions separated from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size ¼ cup chopped Onion, Green (25g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	4%
Sugars 1g	
Protein 0g	
Vitamin A	2%
Vitamin C	8%
Calcium	2%
Iron	0%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Yellow or decayed tops:

Storing green onions at high temperatures may cause tops to decay or turn yellow. Exposure to ethylene gas may also cause yellowing and decay. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C; do not store green onions near ethylene-producing fruits or ripening rooms.

General deterioration:

Green onions are very perishable; do not store for long periods of time.

Parsley Root

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•				•	•	•	•	•
Texas	•	•	•	•				•	•	•	•	•

Variety/Type Descriptions

Resembles a small parsnip with feathery, green leaves.

Ordering Specifications

Common packaging:

Bulk
12-count



Receiving and Inspecting

Look for firm, creamy-beige roots topped with leaves of fresh, green appearance. Avoid product that is yellowing or wilting.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: Yes—very low
Sensitive to ethylene exposure: Yes—low

Storing tips:

Keep refrigerated.



Nutrition*

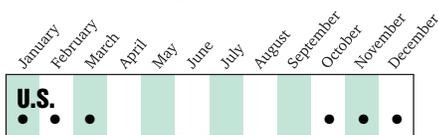
Serving Size 1 cup Parsley Root (129g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 5	
Total Fat 1g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 105mg	4%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	6%
Sugars 0g	
Protein 3g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	0%

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Parsnips

Availability



Variety/Type Descriptions

White, smooth-skinned root with carrot-like shape; ranges in length from 5-10 inches. Parsnips are generally available trimmed.

Ordering Specifications

Common packaging:

25-lb. ½-bushel cartons or crates
12-lb. cartons holding 12 1-lb. bags
20-lb. sacks

Grades:

U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.

NOTE: Not all parsnips are graded. Ungraded parsnips are called “unclassified.”

Receiving and Inspecting

Choose parsnips that are clean, firm, and have smooth white skins. Parsnip tops should be well trimmed. Avoid misshapen parsnips or those that exhibit growth cracks, bruises, cuts, or discoloration.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

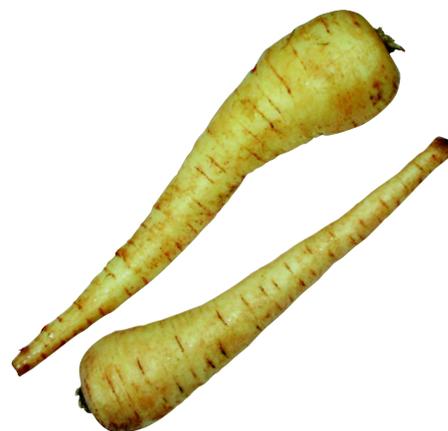
Keep parsnips away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Parsnips (133g)

Amount Per Serving	% Daily Value
Calories 100	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 24g	8%
Dietary Fiber 7g	26%
Sugars 6g	
Protein 2g	
Vitamin A	0%
Vitamin C	40%
Calcium	4%
Iron	4%

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Troubleshooting

Decay; brown discoloration:

Parsnips may discolor and begin to decay if they are stored in warm areas. For best quality, store parsnips at 32-36 degrees F/0-2 degrees C.

Loss of weight or crisp texture; color loss:

Parsnips may become limp, lose weight, or lose color if they are stored in an area with low humidity. For best quality, maintain humidity level of 90-98% during storage.

Bitter flavor:

Parsnips may develop a bitter flavor if exposed to ethylene gas. For best quality, keep parsnips away from ethylene-producing fruits and ripening rooms.

Peas, Snap/Snow

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Guatemala	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include New York, Oregon, and Wisconsin.

Variety/Type Descriptions

Snow – Most commonly available fresh pea. Flat green pods with small, immature peas inside. Pods are edible and may be eaten fresh or cooked. Destringing pods is not necessary.

Green – Large, bright green pods that bulge away from round, mature peas inside. Only peas are edible. Fresh green peas must be cooked.

Snap – Similar in appearance to green peas, but slightly smaller in size. Pods are edible but should be destripped. Snap peas may be eaten fresh or cooked.

Ordering Specifications

Common packaging:

30-lb. crates, bushel crates, and 1-1/9-bushel crates

10-lb. cartons

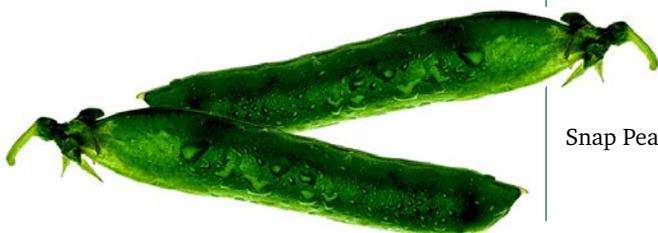
Grades:

U.S. No. 1

U.S. Fancy

Differences between grades are based primarily on external appearance.

NOTE: Not all peas are graded. Ungraded peas are called “unclassified.”



Snap Pea

Receiving and Inspecting

Pods of all types should exhibit good green coloring with a soft, velvety touch. Green peas should have well-filled pods with large, round peas inside. Snap and snow peas should exhibit firm pods. Snap peas may be slightly darker and smaller than snow peas.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep peas away from ethylene-producing fruits and ripening rooms.

Nutrition*

Green Peas

Serving Size 1 cup Peas, Green (145g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 120	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 7g	30%
Sugars 8g	
Protein 8g	
Vitamin A	20%
Vitamin C	100%
Calcium	4%
Iron	10%



Snow Pea

Snow Peas

Serving Size 1 cup Peas, Snow (63g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	7%
Sugars 3g	
Protein 2g	
Vitamin A	2%
Vitamin C	60%
Calcium	2%
Iron	8%

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Troubleshooting

Shriveling; wilting:

Peas may shrivel or wilt if stored in an area with low humidity. For best quality, maintain a humidity level of 90-98%.

Loss of flavor:

Storing peas at high temperatures may cause a decrease in sugar content and loss of flavor. To prevent loss of flavor, store peas at 32-36 degrees F/0-2 degrees C.

NOTE: Shelled peas are more perishable than peas in pods.

Yellowing:

Exposure to ethylene gas may cause peas to lose their green color. To prevent yellowing, keep peas away from ethylene-producing fruits and ripening rooms.

Peppers, Chili

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Many varieties of chili peppers are available for commercial use. These include:

Anaheim – Long, green tapered pods. Flavor ranges from mildly pungent to hot, depending on the growing region. May be used whole, stuffed with cheese or meat, or chopped up and used in salsas, salad dressings, and tomato-based dishes.

Banana – Sweet and mild, these peppers are long, yellow, and juicy. Sometimes called yellow wax peppers, banana peppers should not be confused with Hungarian wax peppers, a hotter chili.

Cherry Hot Pepper – Round pepper with scarlet to deep red color. Medium-sweet flavor with heat level ranging from mild to medium. These peppers are often pickled. May also be used fresh in salads, salsas, and cooked dishes.

Cubanelle – Sweet and mild, these peppers look like elongated bell peppers. Usually pale to medium yellow, Cubanelles are harvested before they are fully ripe and red.

Fresno (red and green) – Small, gradually tapering pod with medium-thick flesh. These peppers are very hot. Red peppers may be sweeter in flavor than green. Fresh Fresno chilies may be chopped and used in cooked and uncooked dishes.

Habanero (red, green, and orange) – Small pepper that ranges in shape from that of a bell pepper to teardrop-shaped. These peppers are extremely hot and should be used sparingly. May be used in hot Mexican and Sichuan Chinese dishes.

Hungarian Wax – A large yellow chili, 3-5" long and up to 1½" wide, these peppers are mild to medium-hot. Similar in appearance to, but hotter than banana chilies.

Jalapeno – Small, pointed pepper that ranges in color from bright green to greenish-black. These peppers are extremely hot and should be used sparingly. May be chopped and used in cooked or uncooked dishes.

Pasilla – These peppers are the dried form of chilaca chilies; although fresh chilacas are also sometimes called pasillas. They are 5-6" long and 1-1½" wide. Rich flavored and medium hot, it is traditional in mole sauce. Pasillas (dried) are dark raisin brown. Fresh, ripe pasillas are dark brown.

Poblano – May also be mistakenly called Pasilla in some markets. Elongated bell pepper shape with pointed end; dark green, shiny color. These peppers exhibit a mild to medium-hot flavor and may be used whole for stuffing.

Serrano (green and red) – Small, tapering pepper; very hot; may be used in sauces, relishes, and Mexican-style dishes.

Yellow – There are many varieties of yellow chili peppers. These peppers vary in degree of hotness, depending on specific variety. May be chopped and used fresh in cooked and uncooked dishes.

Other varieties include Jalapeno Staffin, Red Cayenne, Red Hot, and Thai.

Ordering Specifications

Common packaging:
8- to 10-lb. bulk cartons
Prepackaged containers

Grades:
No U.S. grades given.



Receiving and Inspecting

Generally speaking, chili peppers should be smooth, shiny, well colored, and firm. Avoid peppers that appear shriveled or decayed. Dry lines or striations across the skin indicate a hotter pepper. These lines are not an indication of poor quality.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity
Pasilla: 55-60 degrees F/
13-16 degrees C

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep chili peppers away from ethylene-producing fruits, ripening rooms, and strong drafts.

Nutrition*

Banana

Serving Size 1 each Pepper, Banana (46g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber 2g	6%
Sugars (Not Available)	
Protein 1g	
Vitamin A	4%
Vitamin C	60%
Calcium	0%
Iron	2%

Hungarian

Serving Size 1 each Pepper, Hungarian (27g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 2g	1%
Dietary Fiber (Not Available)	
Sugars (Not Available)	
Protein 0g	
Vitamin A	0%
Vitamin C	40%
Calcium	0%
Iron	0%

Jalapeno

Serving Size 1 each Pepper, Jalapeno (14g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	0%
Vitamin C	10%
Calcium	0%
Iron	0%

Serrano

Serving Size 1 each Pepper, Serrano (6g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 0	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars (Not Available)	
Protein 0g	
Vitamin A	2%
Vitamin C	4%
Calcium	0%
Iron	0%

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Troubleshooting

Discoloration:

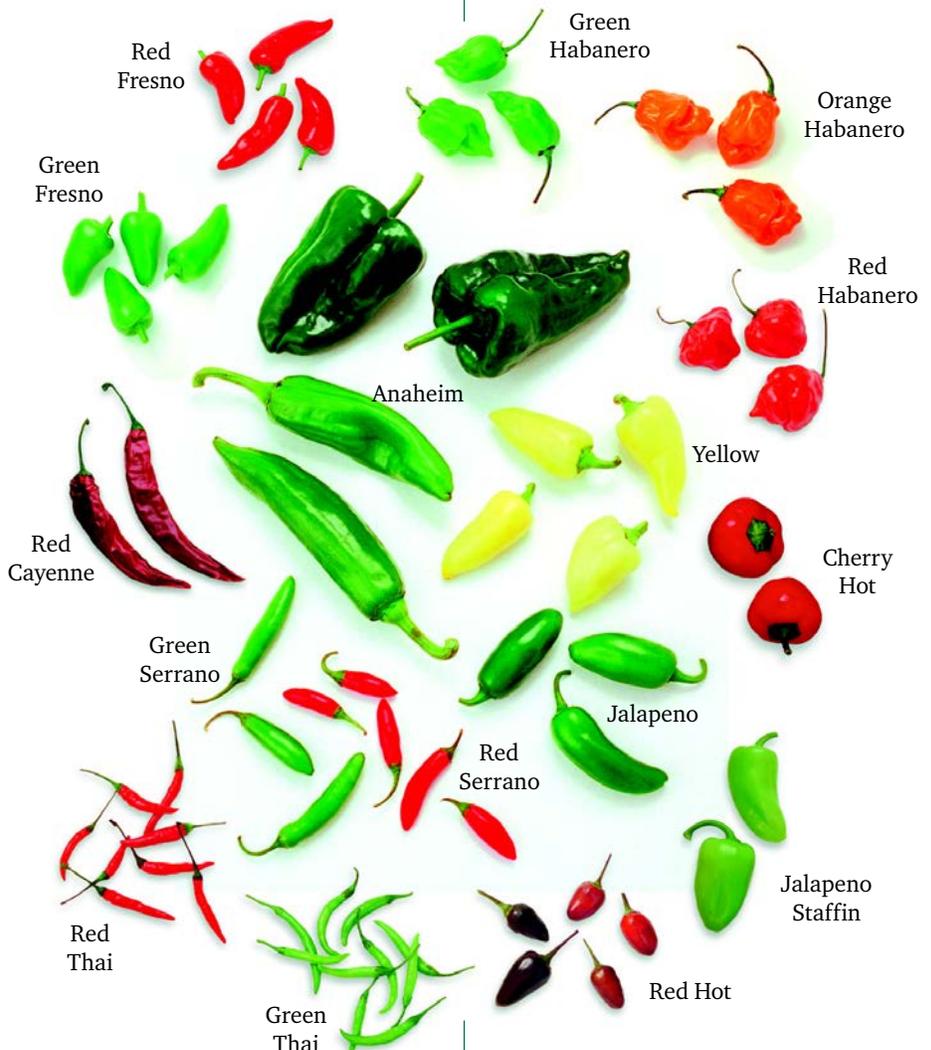
Chili peppers are sensitive to ethylene; exposure to the gas will cause a color change in the peppers. For best quality, store chili peppers away from ethylene-producing fruits and ripening rooms.

Pitting; accelerated decay:

These are indications of chill injury. To prevent chill injury, most chilies should not be stored below 45 degrees F/ 7 degrees C.

Shriveling:

Chili peppers may shrivel if exposed to strong drafts. For best quality, store peppers away from areas with drafts or high air circulation.



Peppers, Sweet

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California					•	•	•	•	•	•	•	
Florida	•	•	•	•	•	•				•	•	•
Georgia										•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Sweet peppers, also called bell peppers, are generally sold by color. All sweet peppers are green at the immature state. As the peppers mature, they turn color. The most predominant color for a mature sweet pepper is red, although other colors available include gold, purple, orange, and brown. All sweet peppers are characterized by their bright skin color and fairly sweet flavor. Because the sugar content increases as a sweet pepper matures, colored peppers tend to be sweeter than green peppers.

Ordering Specifications

Common packaging:

15- to 35-lb. bushel cartons or crates

Grades:

U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all sweet peppers are graded. Ungraded peppers are called “unclassified.” Differences between grades are based primarily on external appearance.



Sizes:

Small
Medium
Large
Extra Large/Jumbo

Receiving and Inspecting

Good quality sweet peppers should be firm, fresh-looking, and brightly colored. Avoid peppers that appear shriveled, dull-looking, or pitted.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Nutrition

Bell Pepper*

Serving Size 1 medium Pepper, Bell (148g)

Amount Per Serving	% Daily Value
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 2g	8%
Sugars 4g	
Protein 1g	
Vitamin A	8%
Vitamin C	190%
Calcium	2%
Iron	2%

*Based on information published by FDA.



Red Pepper**

Serving Size 1 medium Pepper, Red (119g)

Amount Per Serving	% Daily Value
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 2g	10%
Sugars 3g	
Protein 1g	
Vitamin A	140%
Vitamin C	380%
Calcium	2%
Iron	4%

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Troubleshooting

Pitting; decay; darkening of seeds:

These are indications of chill injury. To prevent chill injury, do not store sweet peppers below 42 degrees F/ 6 degrees C.

Bruising:

Mechanical damage caused by rough handling can result in bruised product. For best quality, handle sweet peppers with care; do not drop shipping containers on the floor.

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
Russet	•	•	•	•	•	•	•	•	•	•	•	•
Round Red	•	•	•	•	•	•	•	•	•	•	•	•
Round White	•	•	•	•	•	•	•	•	•	•	•	•
Long White		•	•	•	•	•	•					
Yellow Flesh						•	•	•	•			

NOTE: Some major production areas include California, Colorado, Idaho, Maine, North Dakota, Oregon, Washington, and Wisconsin.

Variety/Type Descriptions

Russet – Most widely used variety. Oblong shape with netted brown skin and white flesh. Good choice for baking, roasting, mashing, and frying.

Long White – Oval shape with thin, light tan skin and firm, waxy texture. Good choice for boiling, salads, stews, soups, and roasting.

Round Red – Round shape with smooth, light red skin, creamy white flesh, and firm, waxy texture. Good choice for potato salads, roasting, boiling, and frying.

Round White – Round shape with smooth, light tan skin and waxy texture. Good choice for salads, roasting, mashing, and steaming.

Yellow Flesh – Round to oval shape with buttery flavor. Good choice for baking, mashing, and roasting.

NOTE: Specialty types are also available in more limited supplies. One type is blue/purple potatoes which range in color from dark blue or lavender to white and have a nutty flavor. These potatoes are best prepared in the microwave to preserve the color.

Ordering Specifications

Common packaging:

100-lb. sacks
50-lb. cartons or sacks
5- and 10-lb. bags

Grades:

U.S. Extra No. 1
U.S. No. 1
U.S. Commercial
U.S. No. 2

NOTE: Not all potatoes are graded. Ungraded potatoes are called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

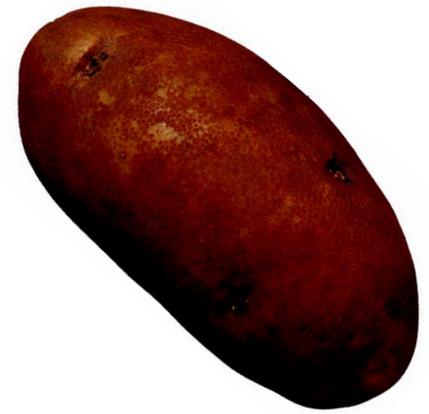
A – 1 $\frac{7}{8}$ inch and larger
(40% of size A potatoes are over 2 $\frac{1}{2}$ inches or 6 ounces)
B – 1 $\frac{1}{2}$ – 2 $\frac{1}{4}$ inches
(may be called new potatoes)
Baby – 1 $\frac{1}{2}$ inch and smaller (usually packed in pint baskets or tubs)
Consumer Packs – 1 $\frac{7}{8}$ inches or 4-ounce minimum (packed in bags)

Carton Counts (based on 50-pound carton):

Count	# of potatoes in carton	Average weight of potato
50	49-52	16.0 oz.
60	58-60	13.0 oz.
70	66-72	11.5 oz.
80	78-82	10.0 oz.
90	90-95	9.0 oz.
100	100-105	8.0 oz.
110	108-115	7.3 oz.
120	118-130	6.5 oz.

Receiving and Inspecting

All potato varieties should be uniformly sized, fairly clean, firm, and smooth. Avoid potatoes with wrinkled skins, soft dark spots, cut surfaces, or green appearance.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Store potatoes in a dark, well-ventilated area. Keep away from ethylene-producing fruits and ripening rooms.

Potatoes

Nutrition*

Serving Size 1 medium Potato (148g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 4g	16%
Sugars 2g	
Protein 3g	
Vitamin A	0%
Vitamin C	40%
Calcium	2%
Iron	8%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.

Troubleshooting

Shriveling; sprouting; decay:

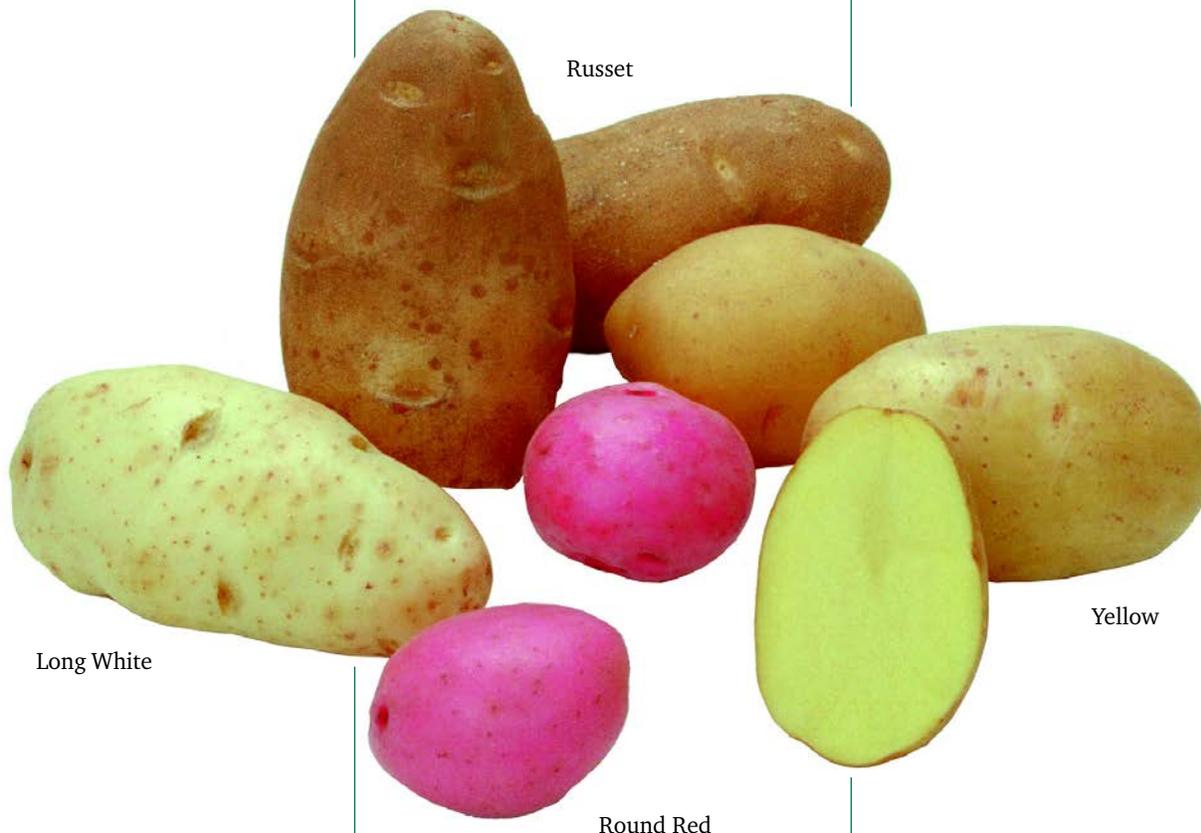
Potatoes may begin to decay, shrivel, or sprout if they are stored at high temperatures. Low air circulation can also promote decay. Store potatoes at 60-65 degrees F/16-18 degrees C; maintain adequate air circulation. For long-term storage (beyond 7 days), hold potatoes at 45-50 degrees F/7-10 degrees C.

Sweet flavor; flesh darkens when cooked:

These are indications of chill injury. (Cold temperatures cause potato starch to convert to sugar which results in a sweet flavor.) To prevent chill injury, do not store potatoes below 42 degrees F/6 degrees C.

Green-tinged skin:

Potatoes may turn green if they are exposed to light. Store potatoes in a dark area for best quality.



Russet

Long White

Yellow

Round Red

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California								•	•	•		
Illinois								•	•	•		
Maryland								•	•			
Michigan								•	•	•		
Missouri								•	•			
Pennsylvania								•	•	•		
Tennessee								•	•	•		
Texas								•	•			

Variety/Type Descriptions

Depending on variety, pumpkins range in shape and size from tiny and squat to large and round. Weights range from less than 1 lb. to 25 lbs. each. Although most pumpkins are used for decorative purposes, the pulp may be cooked like hard-shell squash and used for pies.

Ordering Specifications

Common packaging:

25-lb. ½-bushel cartons or crates
50-lb. cartons, crates or sacks
Bulk bins

Grades:

U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Choose clean, well-shaped pumpkins with no cracks in the rind. Avoid pumpkins with soft spots or decay.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep pumpkins away from ethylene-producing fruits and ripening rooms. For long-term storage (more than 7 days), reduce humidity level to 65-70%. Maintain adequate air circulation during storage.

Nutrition*

Serving Size 1 cup Pumpkin cubes (116g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber less than 1 gram	2%
Sugars 5g	
Protein 1g	
Vitamin A	35%
Vitamin C	15%
Calcium	2%
Iron	6%

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Troubleshooting

Decay:

Pumpkins are susceptible to chill injury and will decay if stored at low temperatures. Often the decay will not be apparent until after pumpkins are removed from storage. To prevent chill injury, do not store pumpkins below 50 degrees F/10 degrees C. High humidity may also promote decay. For short-term storage of 7 days or less, store pumpkins at 60-65 degrees F/16-18 degrees C with a humidity level of 85-95%. For longer storage, reduce humidity level to 65-70%.

Weight loss; pulp deterioration:

Storing pumpkins in an area with very low humidity may cause weight loss or pulp deterioration. For best quality, keep humidity level at 65-70% for long-term storage and 85-95% for short-term storage.

Flesh softening:

Pumpkins are sensitive to ethylene; exposure to the gas may cause softening of the flesh. For best quality, keep pumpkins away from ethylene-producing fruits and ripening rooms.

Radicchio

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Compact head consisting of maroon-red leaves. Radicchio shape is similar to that of a Brussels sprout. Leaves turn from bright green to deep maroon-red as the radicchio plant matures and growing temperatures become colder. Radicchio flavor is distinct and slightly bittersweet. May be used raw in salads.

Ordering Specifications

Common packaging:

7-lb. cartons or lugs

Grades:

No U.S. grades given.

Receiving and Inspecting

Choose radicchio with well-shaped heads and compact leaves. Leaves should be dark maroon-red with white veins.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98 % relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep radicchio away from ethylene-producing fruits and ripening rooms. Store radicchio in a dark area away from light.

Nutrition*

Serving Size 10 Radicchio leaves (80g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber less than 1 gram	3%
Sugars (Not Available)	
Protein 1g	
Vitamin A	0%
Vitamin C	10%
Calcium	2%
Iron	2%

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Troubleshooting

Loss of maroon-red color:

Radicchio may lose its color if exposed to sunlight. For best quality, store radicchio in a dark area away from direct sunlight.

Loss of leaves; decrease in color intensity:

Exposure to ethylene may cause radicchio leaves to fall off and lose their intense maroon color. To maintain good quality, keep radicchio away from ethylene-producing fruits and ripening rooms.

Water-soaked appearance; sloughing off of the outer leaf tissue:

These are indications of freeze injury. To prevent freeze injury, do not store radicchio below 31 degrees F/ -0.5 degrees C.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•						•	•
Imports	•	•	•	•	•						•	•

Variety/Type Descriptions

Red Globe – Most predominant type sold commercially. Round shape, bright red color with crisp white flesh.

Black – These radishes resemble turnips in shape and texture of flesh. The flavor is pungent, slightly turnip-like. Black skin covers crisp white flesh. Also called winter radish.

Daikon – See individual commodity.

White – Round shape, white color with crisp white flesh.

Ordering Specifications

Common packaging:

15- to 35-lb. cartons or crates holding 24 or 48 bunches
 25- to 40-lb. bulk bags (topped)
 Cartons holding 6-oz., 8-oz., 1-lb., and 5-lb. bags (topped)
 10-lb. bulk packages

Grades:

U.S. No. 1
 U.S. Commercial

NOTE: Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality radishes should be bright in color with firm, well-formed roots and crisp, white flesh. Attached tops should be green and fresh. Avoid radishes that appear dry, wilted, spongy, rough-skinned, or with external damage.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
 90-98% relative humidity

Retail display tips:

Water sprinkle: No
 Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
 Sensitive to ethylene: Yes

Storing tips:

Store radishes away from ethylene-producing fruits and ripening rooms. Bunched radishes are more perishable because the green tops tend to break down faster than the actual root.

Nutrition*

Serving Size 7 Radishes (85g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Sugars 2g	
Protein 1g	
Vitamin A	0%
Vitamin C	30%
Calcium	2%
Iron	0%

*Based on information published by FDA.



Troubleshooting

Top or root growth; softening:

Storing radishes at high temperatures may promote top or root growth and softening. For best quality, store radishes at 32-36 degrees F/0-2 degrees C with a humidity level of 90-98%.

Pithy or spongy texture:

This is an indication of age. Always inspect radishes carefully upon arrival to ensure good quality product. Do not hold radishes for long periods of time.

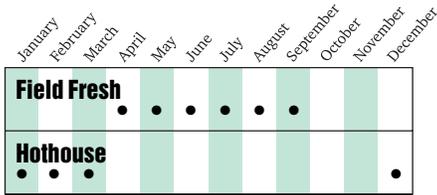
Yellowing tops:

Exposure to ethylene may promote yellowing of green tops. To prevent yellowing, keep bunched radishes away from ethylene-producing fruits and ripening rooms.



Rhubarb

Availability



NOTE: Some major production areas include Washington, Oregon, Michigan, and California.

Variety/Type Descriptions

Field Fresh Rhubarb (field grown) – Long, straight, smooth stalks; dark red to greenish-red in color. When cooked, cherry rhubarb exhibits a slightly stringy but tender texture and tart flavor. Only rhubarb stalks are edible; remove and discard leaves before using. Cherry rhubarb must be cooked and is most often used like a fruit in pies, preserves, and sauces.

Hothouse Rhubarb (greenhouse grown) – Long, straight, smooth stalks; bright red to pink color with satin-like sheen. Flavor of strawberry rhubarb is milder than cherry rhubarb. When cooked, strawberry rhubarb exhibits a tender texture and is not stringy. Only the stalks are edible; remove and discard leaves before using. Strawberry rhubarb must be cooked and is most often used like a fruit in pies, preserves, and sauces.

Ordering Specifications

Common packaging:

Bulk cartons holding bunched or loose rhubarb
Film bags

Grades:

Field grown:
U.S. Fancy
U.S. No. 1
U.S. No. 2

NOTE: Not all field grown rhubarb is graded. Ungraded rhubarb is called “unclassified.”

Receiving and Inspecting

Rhubarb stalks should be straight, firm, and smooth. Avoid limp or discolored rhubarb. Hothouse rhubarb will have a yellow leaf tip. Field fresh leaf tip is green.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Maintain adequate air circulation during storage.

Handling tips:

Do not trim rhubarb during storage or display. Trimming may cause product to lose moisture and become limp.

Nutrition*

Serving Size ½ cup diced Rhubarb (61g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	4%
Sugars 2g	
Protein 1g	
Vitamin A	2%
Vitamin C	8%
Calcium	6%
Iron	0%

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Troubleshooting

Mold:

Rhubarb may become moldy if it is stored in a warm area with low air circulation. For best quality, store rhubarb at 32-36 degrees F/0-2 degrees C and maintain adequate air circulation.

Loss of firm texture:

Rhubarb may become limp if it is stored in an area with low humidity. To maintain quality, keep rhubarb cold and store in an area with 90-98% humidity. To revive slightly limp rhubarb, plunge stalks in ice water until they become rigid. Drain thoroughly and refrigerate. Do not trim rhubarb; trimming may promote moisture loss.

Water-soaked or soft spots:

These are indications of freeze damage. To prevent freeze damage, do not store rhubarb below 28 degrees F/-2 degrees C.

Rutabagas

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Canada	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include: California, Georgia, Michigan, New Jersey, Oregon, South Carolina, and Mexico.

Variety/Type Descriptions

Round to top-shaped root vegetable with creamy white to pinkish-red skin and white flesh.

Ordering Specifications

Common packaging:

50-lb. bushel cartons or bags
25-lb. ½-bushel cartons or bags

Grades:

U.S. No. 1
U.S. No. 2

Receiving and Inspecting

Choose rutabagas that are clean, well shaped, heavy for their size, and fairly smooth. Avoid product that shows signs of shriveling, flabbiness, or growth cracks.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes-low

Storing tips:

Keep rutabagas away from ethylene-producing fruits and ripening rooms. Maintain adequate air circulation during storage.

Nutrition*

Serving Size ½ cup Rutabaga cubes (70g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Sugars 4g	
Protein 1g	
Vitamin A	8%
Vitamin C	30%
Calcium	4%
Iron	2%

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Troubleshooting

Shriveling; loss of color:

Rutabagas may shrivel and lose color if stored in an area with low humidity. For best quality, maintain storage conditions of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.

Decay:

Rutabagas may show signs of decay if they are stored in a warm area. Rough handling may also bruise the vegetable, which may promote decay. For best quality, keep product cold and handle with care. Do not drop shipping containers on the floor.

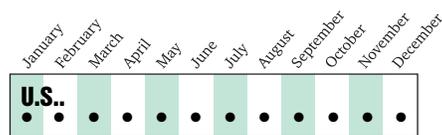
Water-soaked spots; light brown discoloration of flesh:

These are signs of severe freeze damage. For best quality, do not store rutabagas below 30 degrees F/-1 degree C.



Salad Mixes

Availability



Variety/Type Descriptions

Coleslaw – Combination of shredded green and red cabbage and shredded carrots.

European-style mixes – Various combinations of chopped iceberg, romaine, endive, escarole, radicchio, butter, and leaf lettuce.

Iceberg lettuce mixes – Chopped iceberg lettuce combined with shredded carrots and red cabbage. Other salad mixes may include a combination of iceberg lettuce, romaine, shredded carrots, and shredded red cabbage.

Mesclun mixes – Combination of a variety of specialty/baby lettuces and greens such as red or green oak leaf, red or green leaf, red or green romaine, little gem, lollo rossa, tango, mache, frisee, mizuna, and radicchio.

Salad kits – Various combinations of chopped lettuce and greens along with prepackaged dressing and croutons.

Ordering Specifications

Common packaging:

20-lb. cartons holding consumer packs including 5-, 6-, 8-, 10- and 14-oz. bags
 20-lb. cartons holding foodservice packs including 1-, 2-, 3- and 5-lb. bags
 3-lb. cartons holding bulk product

Grades:

No U.S. grades given.

Receiving and Inspecting

Salad mixes should appear fresh and well colored. Avoid product that is discolored, wilted, or slimy. Bags should be intact with no punctures or rips. Salad mixes should arrive cold. Warm product will deteriorate rapidly and valuable shelf life may be lost. Bulk mixes should be moist but not wet.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
 90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
 Packaged salad mixes – No
 Bulk mesclun mixes – Light mist
 Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
 Sensitive to ethylene exposure: Yes

Storing tips:

Salad mixes must be kept cold during storage to maintain quality and shelf life. Follow good rotation practices; first shipments in should be used or displayed first. Pay attention to “sell by” and expiration dates as well as shelf life information stamped on individual bags or cartons; use or display product accordingly. Discard any product that is past its “sell by” or expiration date.

Handling tips:

Handle individual bags with care to avoid puncture or rips. Retailers: Bulk salad mix displays may be lightly misted; avoid excessive water sprinkling. Follow supplier guidelines for arranging salad mix packages during display to maintain adequate air circulation.

Nutrition*

Serving Size 1 cup Mixed Salad Greens (55g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	5%
Sugars 0g	
Protein 1g	
Vitamin A	30%
Vitamin C	15%
Calcium	4%
Iron	4%

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Troubleshooting

Discoloration; slimy appearance; foul odor:

These are indications of temperature abuse. For best quality, salad mixes must be kept cold during storage. Maintain storage temperature of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%. Salad mixes may also appear discolored due to oxidation. To prevent oxidation, handle bags with care to avoid rips or punctures that allow air to seep in.

Foodservice personnel: If bags are only partially used, be sure to squeeze out any air before resealing the bags to prevent possible oxidation.

Breakdown of lettuce leaves:

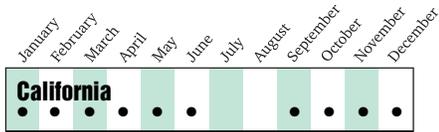
Excessive water sprinkling of bulk displays may cause a general deterioration of the delicate leaves. Mist bulk displays lightly to maintain freshness but avoid excessive water sprinkling.

Yellowing:

Salad mixes are sensitive to ethylene; exposure to the gas may cause yellowing, especially if mixes are stored at room temperature. For best quality, keep salad mixes away from ethylene-producing fruits and ripening rooms. Maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Availability

A major production area includes:



Variety/Type Descriptions

Also called oyster plant. There are two types of salsify:

Black – Stick-like root with brown-black skin and cream-colored flesh. Black salsify is fleshier than white salsify and easier to peel.

White – Irregular parsnip-shaped root with pale, tan-colored skin and off-white flesh. Skin is covered with tiny rootlets.

Both types exhibit a mild flavor that is similar to oysters and artichoke hearts; texture is crisp and carrot-like. Salsify requires cooking (steamed or braised and added to soups and stews). Only the flesh is edible.

Ordering Specifications

Common packaging:

Bulk cartons
Cartons holding 4-lb. film bags

Grades:

No U.S. Grades given.

Receiving and Inspecting

Choose firm, medium-sized roots. Avoid flabby or soft product. White salsify may be sold in bunches with tops attached.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Refrigerate unwashed in plastic bag for up to one week. Freezing is not recommended. Maintain high humidity to keep salsify from drying out.

Nutrition*

Serving Size 1/2 cup slices Salsify (67g)

Amount Per Serving	% Daily Value
Calories 50	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 12g	4%
Dietary Fiber 2g	9%
Sugars 2g	
Protein 2g	
Vitamin A	0%
Vitamin C	8%
Calcium	4%
Iron	2%

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Troubleshooting

Shriveling:

Salsify may become dehydrated and shriveled if stored in an area with low humidity. For best quality, keep salsify cold and maintain humidity level of 90-98%.

Water-soaked or soft spots:

These are indications of freeze damage. To prevent freeze damage, do not store salsify below 30 degrees F/-1 degree C.

Shallots

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
New Jersey		•	•	•	•	•	•	•	•	•		
New York			•	•	•	•	•	•	•	•		
France	•	•	•	•	•	•	•	•	•	•	•	•
Holland	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Small, onion-like bulb consisting of a cluster of cloves covered with a golden to reddish-brown papery outer skin. Golden-pink flesh is milder and slightly sweeter than that of an onion.

Ordering Specifications

Common packaging:

5-lb. bulk bags
10- and 40-lb. bulk cartons
Cartons holding 3-oz. mesh bags

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality shallots should have uniform shapes, firm texture, and be free of blemishes. Avoid shallots that appear soft, shriveled, or moldy.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

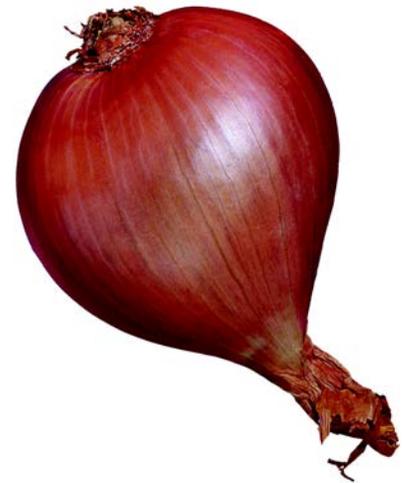
Maintain good air ventilation during storage.

Nutrition*

Serving Size 3 tablespoons chopped
Shallots (30g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 0g	0%
Sugars 1g	
Protein 1g	
Vitamin A	8%
Vitamin C	4%
Calcium	2%
Iron	2%

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Troubleshooting

Decay; mold:

Shallots may begin to decay or show signs of mold if they are stored in an area with high humidity or low air circulation. For best quality, keep shallots cold (32-36 degrees F/0-2 degrees C) during storage. Maintain adequate air circulation during storage as well.

Water-soaked appearance; softening of texture:

These are indications of freeze injury. To prevent freeze injury, do not store shallots below 31 degrees F/-0.5 degrees C.

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Colorado						•	•	•	•	•	•	
Texas	•	•	•	•								•

Variety/Type Descriptions

Savoy (Curly Leaf) – Preferred type for fresh applications. Characterized by dark green, crinkled leaves.

Flat Leaf – Dark green, slightly crinkled leaves. Used primarily for processing.

Ordering Specifications

Common packaging:

Cartons and wire-bound crates holding 24 bunches
 Cartons holding 10-oz. and 2 ½-lb. cell bags

Grades:

Spinach leaves:
 U.S. Extra No. 1
 U.S. No. 1
 U.S. Commercial

Bunches Spinach:

U.S. No. 1
 U.S. No. 2

NOTE: Differences between grades are based primarily on external appearance.

Receiving and Inspecting

Good quality spinach should have clean, fresh, and fairly crisp leaves with good green coloring. Avoid wilted spinach or spinach with long stems.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
 90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
 Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
 Sensitive to ethylene exposure: Yes

Storing tips:

Store fresh spinach away from ethylene-producing fruits and ripening rooms.

Nutrition*

Spinach

Serving Size 1 cup chopped Spinach (30g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 25mg	1%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	3%
Sugars 0g	
Protein 1g	
Vitamin A	40%
Vitamin C	15%
Calcium	2%
Iron	4%



Savoy Spinach

Serving Size 1 cup Spinach, Savoy (70g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 4g	1%
Dietary Fiber 2g	9%
Sugars 2g	
Protein 1g	
Vitamin A	15%
Vitamin C	35%
Calcium	2%
Iron	2%

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Troubleshooting

Rapid deterioration:

Spinach is very perishable and will quickly deteriorate if exposed to high temperatures. For best quality, store at 32-36 degrees F/0-2 degrees C.

Wilting:

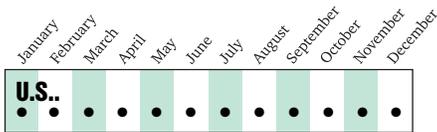
Spinach may begin to wilt if stored in an area with low humidity. For best quality, keep spinach cold and maintain a humidity level of 90-98% during storage.

Yellowing:

Exposure to ethylene may accelerate loss of green color of spinach leaves. To prevent yellowing, keep spinach away from ethylene-producing fruits and ripening rooms.

Sprouts

Availability



Variety/Type Descriptions

Alfalfa – Delicate white sprouts with tiny green tops. Nut-like flavor and crisp texture.

Daikon Radish – Bright green tops; hot flavor.

Mung Bean – Thick, ivory-colored sprouts with golden-yellow ends; crunchy texture.

Onion – Delicate sprout with onion flavor.

Pumpkin – Sprouts generally come from hulled pumpkin seeds.

Soybean – Larger than mung bean sprouts with a stronger flavor.

Spicy – Resemble alfalfa sprouts in appearance, but slightly larger. Crisp texture and spicy flavor.

Stir-fry – Combination of sprouted azuki, lentil, and mung beans.

Sunflower – Sprouted from sunflower seeds. Flavor is similar to alfalfa sprouts; crunchy texture.

Ordering Specifications

Common packaging:

Cartons holding 9 to 12 individual containers weighing 4- to 6-oz. each.
1- to 5-lb. bags
Bulk boxes of various weights

Grades:

No U.S. grades given.

Receiving and Inspecting

All sprouts should be brightly colored with a fresh appearance and crisp texture. Avoid sprouts that are slimy, decayed, or discolored.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep sprouts away from drafts. Store away from ethylene-producing fruits and ripening rooms.

Nutrition*

Serving Size 1 cup Sprouts, Alfalfa (33g)

Amount Per Serving	% Daily Value
Calories 10	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	3%
Sugars 0g	
Protein 1g	
Vitamin A	2%
Vitamin C	4%
Calcium	2%
Iron	2%

Serving Size 1 cup Sprouts, Radish (38g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 10	
Total Fat 1g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 1g	0%
Dietary Fiber less than 1 gram	4%
Sugars (Not Available)	
Protein 1g	
Vitamin A	2%
Vitamin C	20%
Calcium	2%
Iron	2%



Serving Size 1 cup Sprouts, Mung Bean (104g)

Amount Per Serving	% Daily Value
Calories 30	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Sugars 2g	
Protein 3g	
Vitamin A	0%
Vitamin C	25%
Calcium	2%
Iron	6%

Serving Size 1 cup Sprouts, Soybean (70g)

Amount Per Serving	% Daily Value
Calories 90	
Calories from Fat 40	
Total Fat 4.5g	7%
Saturated Fat 0.5g	3%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber less than 1 gram	3%
Sugars 2g	
Protein 9g	
Vitamin A	0%
Vitamin C	20%
Calcium	4%
Iron	8%

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Troubleshooting

Dried out sprouts:

Sprouts are susceptible to dehydration. For best quality, maintain a humidity level of 90-98% and do not expose sprouts to drafts.

Rotting; slimy appearance:

Sprouts may begin to rot or develop a slimy appearance if they are stored at high temperatures. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

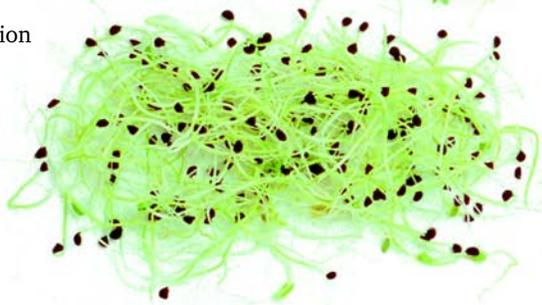
Alfalfa



Daikon Radish



Onion



Spicy

Mung Bean



Squash, Hard-Shell

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California				•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•				•	•	•
Michigan	•	•	•	•	•	•	•				•	•
New Jersey	•	•	•	•	•	•						•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include Arizona, Colorado, Oregon, and New Zealand.

Variety/Type Descriptions

Hard-shell squash types are generally larger than soft shell types. They have hard, inedible rinds. The flesh only is edible and must be cooked. Major types include:

Acorn – Acorn-shaped with deep furrows. Green to yellow-gold hard rind, and yellow flesh with slightly sweet flavor and somewhat dry consistency.

Banana – Large, cylindrical-shaped squash with pointed ends. Hard, creamy yellow to pale orange rind.

Buttercup – Flat, round squash with turban-shaped top. Hard rind is dark green with some gray flecks or stripes. Orange flesh is slightly sweet with a somewhat dry consistency.

Butternut – Large squash with an elongated, bell shape. Hard, tan-colored rind and yellow-orange flesh.

Delicata – Cylindrical squash with longitudinal grooves, delicata is sweet, buttery, and mellow. Usually 6-8" in length and 3" in diameter, delicata has a light yellow skin with dark green striations. Also called sweet potato squash and bohemian squash.

Golden Nugget Squash – Small, round, hard-shelled squash with an orange colored shell that has ridges. Flesh is bright orange. Vegetable

resembles a tiny pumpkin. Some varieties may have a greenish-grey crust near stem end. May have a green circle around the stem end.

Hubbard – Large round squash with tapered ends. Hard rind color may vary from orange to golden to green to blue-gray.

Kaboucha – Includes many varieties, some of the most common being delicata, hoku, Tokyo, Ibisu or ebisu, orange, and red kuri. Kaboucha are generally dark green with paler uneven stripes. Flesh is pale orange, smooth, and sweet. Pumpkin-shaped in varying sizes, the most common are 2-3 pounds. Also called Japanese pumpkin.

Spaghetti – Large, oblong-shaped squash with yellow, semi-hard rind. Stringy yellow flesh separates into spaghetti-like strands after it is cooked.

Turban – Vivid orange rind striped with cream, green, or white, and a turban shape distinguish these squashes. Turban squashes are 2-15" in diameter; rind is bumpy, flavor bland. Often used for decoration or soup tureen.

Ordering Specifications

Common packaging:

35- to 50-lb. bushel containers, cartons, and crates
20-lb. and 25-lb. bulk boxes
Bulk bins

Grades:

U.S. No. 1
U.S. No. 2

Differences between grades are based primarily on external appearance.



Turban

Receiving and Inspecting

Look for squash that is heavy for its size, has a hard rind, and intact skin with no bruises, cuts, or dents. (Spaghetti squash rind is semi-hard.) All rind colors should have a dull appearance and be consistent with the specific squash type. Avoid hard-shell squash that is light in weight or has a shiny, tender rind.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity
Delicata: 50 degrees F/10 degrees C
Golden Nugget: 50-55 degrees F/10-13 degrees C (dry)
Kaboucha: 50-55 degrees F/10-13 degrees C

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep hard-shell squash away from ethylene-producing fruits and ripening rooms.

Squash, Hard-Shell

Nutrition*

Acorn

Serving Size 1 cup Squash, Acorn cubes (140g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 15g	5%
Dietary Fiber 2g	8%
Sugars 3g	
Protein 1g	
Vitamin A	10%
Vitamin C	25%
Calcium	4%
Iron	6%

Banana

Serving Size 1 cup Squash, Banana (113g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 9g	3%
Dietary Fiber 1g	5%
Sugars 4g	
Protein 1g	
Vitamin A	90%
Vitamin C	20%
Calcium	2%
Iron	2%

Butternut

Serving Size 1 cup Squash, Butternut cubes (140g)

Amount Per Serving	% Daily Value
Calories 60	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 16g	5%
Dietary Fiber 5g	19%
Sugars 4g	
Protein 1g	
Vitamin A	220%
Vitamin C	50%
Calcium	6%
Iron	6%

Hubbard

Serving Size 1 cup Squash, Hubbard cubes (116g)

Amount Per Serving	% Daily Value
Calories 45	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 10g	3%
Dietary Fiber 3g	14%
Sugars 3g	
Protein 2g	
Vitamin A	130%
Vitamin C	20%
Calcium	2%
Iron	2%

Spaghetti

Serving Size 1 cup Squash, Spaghetti cubes (101g)

Amount Per Serving	% Daily Value
Calories 30	
Calories from Fat 5	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 7g	2%
Dietary Fiber 2g	6%
Sugars (Not Available)	
Protein 1g	
Vitamin A	2%
Vitamin C	4%
Calcium	2%
Iron	2%

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Troubleshooting

Decay:

Rapid decay may be an indication of chill injury. Oftentimes, hard-shell squash will not exhibit any signs of decay until after it has been removed from storage. To prevent chill injury, do not store hard-shell squash below 50 degrees F/10 degrees C. Storing hard-shell squash in an area with high humidity for longer than 7 days may also cause decay. For long-term storage, maintain humidity level of 65-70%.

Discoloration of rind:

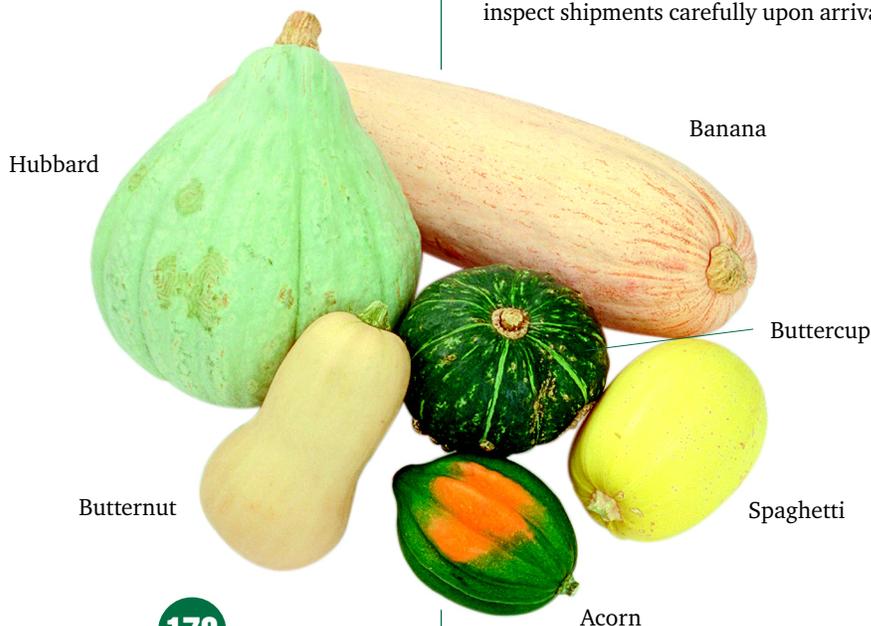
Hard-shell squash is sensitive to ethylene; exposure to the gas may cause green rinds to turn yellow. For best quality, do not store hard-shell squash near ethylene-producing fruits or ripening rooms.

Excess weight loss; flesh deterioration:

Storing hard-shell squash in an area with extremely low humidity may cause weight loss and internal deterioration. For best quality, maintain a humidity level of 85-95% for 7 days or less. For longer storage, reduce humidity level to 65-70%.

Shiny, tender rind:

This is an indication of immature squash. To ensure best quality, always inspect shipments carefully upon arrival.



Squash, Soft-Shell

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
California, Colorado (Scallopini)				•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•			•	•	•	•
Dominican Republic	•	•	•	•	•	•	•	•	•	•	•	•
Honduras	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Crookneck – Cylindrical shape with bulb end, creamy yellow rind, white flesh, and seeds. May be used raw or cooked.

Opo squash – A long, thin, light green soft shell squash that originates from tropical Southeast Asia. Flesh is similar to a zucchini; flavor is mild. Also known as pul qua, long melon, and bottle gourd.

Pattypan – Round, squat shape with scalloped edges. Light green or yellow color with white flesh and seeds. Completely edible either raw or cooked.

Scallopini – A cross between pattypan squash and zucchini, it is shaped like a top with emerald green skin. Skin has no bitterness; the flesh is sweet and smooth.

Straightneck – Cylindrical shape, creamy yellow rind, white flesh, and seeds. Completely edible either raw or cooked.

Zucchini – Cylindrical shape, dark green shiny rind with some light speckling, white flesh, and seeds. Completely edible either raw or cooked.

Ordering Specifications

Common packaging:

10- to 42-lb. bushel containers, crates, and lugs

Grades:

U.S. No. 1
U.S. No. 2

NOTE: Not all soft-shell squash is graded. Ungraded soft-shell squash is called “unclassified.” Differences between grades are based primarily on external appearance.

Sizes:

Crookneck/Straightneck/Zucchini:

Small
Medium
Large

Pattypan:

Small
Medium
Large
Jumbo

Receiving and Inspecting

Soft-shell squash should be firm with shiny, tender rinds. Shape and rind color should be consistent with type. Avoid squash that shows signs of injury, pitting, or dull rind. Generally speaking, smaller sizes are more tender and flavorful.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

45-50 degrees F/7-10 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep soft-shell squash away from ethylene-producing fruits and ripening rooms.

Opo squash, kept refrigerated, will last one week.



Squash, Soft-Shell

Nutrition

Squash, Summer*

Serving Size 1 medium Squash, Summer (196g)

Amount Per Serving	% Daily Value
Calories 40	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 8g	3%
Dietary Fiber 4g	16%
Sugars 4g	
Protein 2g	
Vitamin A	10%
Vitamin C	60%
Calcium	4%
Iron	4%

*Based on information published by FDA.

Crookneck**

Serving Size 1 cup sliced Squash, Crookneck (130g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	10%
Sugars 3g	
Protein 1g	
Vitamin A	8%
Vitamin C	20%
Calcium	2%
Iron	4%

Opo**

Serving Size 1 cup Squash, Opo (129g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 2g	
Vitamin A	0%
Vitamin C	25%
Calcium	4%
Iron	0%

Straightneck**

Serving Size 1 cup Squash, Straightneck (130g)

Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 5g	2%
Dietary Fiber 2g	10%
Sugars 3g	
Protein 1g	
Vitamin A	8%
Vitamin C	20%
Calcium	2%
Iron	4%

Zucchini**

Serving Size ½ medium Squash, Zucchini (98g)

Amount Per Serving	% Daily Value
Calories 15	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	5%
Sugars 2g	
Protein 1g	
Vitamin A	6%
Vitamin C	15%
Calcium	2%
Iron	2%

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Troubleshooting

Pitted rind:

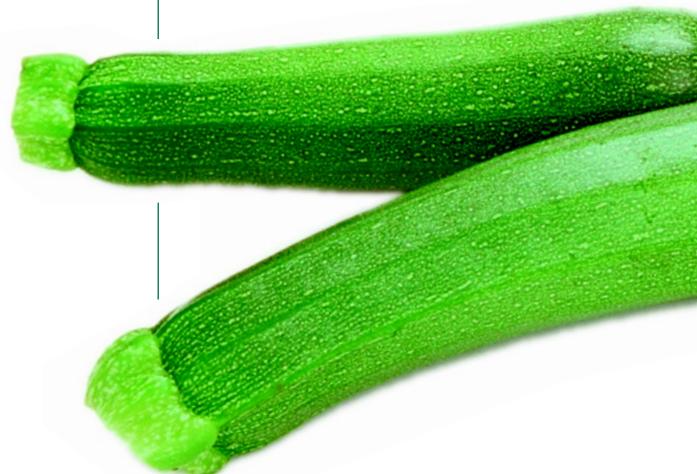
Soft-shell squash is very susceptible to chill injury. To prevent chill injury, do not store squash below 45 degrees F/7 degrees C. Do not display soft-shell squash on ice.

Dull rind; dried or discolored stem end:

These are indications of age. For best quality, always inspect shipments carefully upon arrival. Do not hold soft-shell squash for long periods of time.

Yellowing:

Exposure to ethylene may accelerate loss of green color. To prevent yellowing, keep soft-shell squash away from ethylene-producing fruits and ripening rooms.



Sweet Potatoes

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Louisiana	•	•	•	•	•	•	•	•	•	•	•	•
North Carolina	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include Texas and Mississippi.

Variety/Type Descriptions

Varieties include beauregard, garnet, hernandez, and jewel. The sweet potato is a root vegetable with an oblong to elongated shape. The smooth skin may vary in color from pale yellow to deep purple to vivid orange, depending on the particular variety. Flesh color ranges from light yellow to pink, red, or orange.

Flesh consistency ranges: firm and somewhat dry for light-colored sweet potatoes; soft and moist for orange-colored sweet potatoes. Orange sweet potatoes tend to have a sweeter flavor than lighter-colored sweet potatoes.

Ordering Specifications

Common packaging:

10-, 20-, and 40-lb. cartons and crates
3- and 5-lb. bags

Grades:

U.S. Extra No. 1
U.S. No. 1
U.S. No. 1 Medium
U.S. Commercial
U.S. No. 2

NOTE: Not all sweet potatoes are graded. Ungraded sweet potatoes are called "unclassified." Differences between grades are based primarily on external appearance. Individual states may set their own grades.

Equivalents

3 medium sweet potatoes = 1 pound

Receiving and Inspecting

Good quality sweet potatoes should be firm and well-shaped with clean, smooth skins. Avoid sweet potatoes with bruises, soft spots, or signs of decay.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Store sweet potatoes in a well-ventilated area. Cured sweet potatoes (held in controlled storage after harvesting to improve shelf life) may be stored for longer periods of time than uncured sweet potatoes. Keep sweet potatoes away from ethylene-producing fruits and ripening rooms.

Handling tips:

Handle sweet potatoes with care to prevent bruising or damage. Do not drop shipping containers on the floor.

Nutrition*

Serving Size 1 medium, 5" long,
2" diameter Sweet Potato (130g)

Amount Per Serving	% Daily Value
Calories 140	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 45mg	2%
Total Carbohydrate 32g	11%
Dietary Fiber 4g	16%
Sugars 7g	
Protein 2g	
Vitamin A	440%
Vitamin C	30%
Calcium	2%
Iron	4%

*These values are based on the proposal published by FDA in the Federal Register of March 20, 2002. While PMA believes that use of these data should not result in FDA regulatory action, such a result can never be assured. Consultation with Company counsel is suggested before the data is used in conjunction with the marketing of specific products.



Troubleshooting

Decay; pitting; internal discoloration; hard core when potato is cooked:

These are indications of chill injury. To prevent chill injury, do not store sweet potatoes below 54 degrees F/12 degrees C.

Brown flesh discoloration; off flavor when cooked:

Sweet potatoes are sensitive to ethylene; exposure to the gas may cause discoloration and off flavors when the product is cooked. For best quality, keep sweet potatoes away from ethylene-producing fruits and ripening rooms.

Sprouting; pithiness:

Storing sweet potatoes at high temperatures may cause sprouting or a pithy texture. For best quality, store sweet potatoes at 60-65 degrees F/16-18 degrees C.

Skin discoloration; mold:

Exposing sweet potatoes to high humidity may promote skin discoloration and mold. For long-term storage beyond 7 days, maintain humidity levels of 85-90% at 55 degrees F/13 degrees C.

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Imports	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Some major production areas include California, Hawaii, Brazil, China, Columbia, and Dominican Republic.

Variety/Type Descriptions

Barrel-shaped root; size similar to rutabaga or turnip. Brown, shaggy skin with ring patterns and some rootlets. Smooth flesh ranges in color from white to creamy to slightly gray. Flesh may exhibit some dark speckling. Flavor and texture is similar to potatoes and waterchestnuts. Taro root must be peeled and cooked (baked, boiled, steamed, or stir-fried).

Ordering Specifications

Common packaging:

Bulk cartons
Burlap sacks
Prepackaged containers

Grades:

No U.S. grades given.



Receiving and Inspecting

Good quality taro root should be firm, dry, and plump. Avoid product with cuts, mold, or soft spots.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Maintain good air circulation during storage.

Nutrition*

Serving Size 1 cup Taro Root slices (104g)

<u>Amount Per Serving</u>	<u>% Daily Value</u>
Calories 120	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 28g	9%
Dietary Fiber 4g	17%
Sugars 1g	
Protein 2g	
Vitamin A	0%
Vitamin C	8%
Calcium	4%
Iron	4%

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Troubleshooting

Decay:

Cuts or other physical damage may promote product decay. To prevent decay, order taro roots that have been cured after harvest to promote healing of wounds caused by harvesting.

Water-soaked or soft spots; increased decay:

These are indications of chill injury. To prevent chill injury, do not store taro roots below 50 degrees F/10 degrees C.

Turnips

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Canada	•	•	•	•	•	•	•	•	•	•	•	•

NOTE: Other major production areas include: California, Michigan, New Jersey, Oregon, South Carolina, and Mexico.

Variety/Type Descriptions

Round to top-shaped root vegetable with creamy white to pinkish-red skin and white flesh. Turnips are available as bunched, short-trimmed, or topped. Turnips may be used cooked in stews or uncooked (sliced or cubed and added to salads).

Ordering Specifications

Common packaging:

50-lb. bushel cartons or bags
25-lb. ½-bushel cartons or bags

Grades:

U.S. No. 1
U.S. No. 2

Receiving and Inspecting

Choose turnips that are clean, well shaped, heavy for their size, and fairly smooth. Avoid product that shows signs of shriveling, flabbiness, or growth cracks. Bunched turnips should exhibit fresh tops with no signs of decay, discoloration, or wilting.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes—low

Storing tips:

Keep turnips away from ethylene-producing fruits and ripening rooms. Maintain adequate air circulation during storage.

Nutrition*

Serving Size ½ cup Turnip cubes (65g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 45mg	2%
Total Carbohydrate 4g	1%
Dietary Fiber 1g	5%
Sugars 2g	
Protein 1g	
Vitamin A	0%
Vitamin C	25%
Calcium	2%
Iron	2%

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Troubleshooting

Shriveling; loss of color:

Turnips may shrivel and lose color if stored in an area with low humidity. For best quality, maintain storage conditions of 32-36 degrees F/0-2 degrees C and a humidity level of 90-98%.

Decay:

Turnips may show signs of decay if they are stored in a warm area. Rough handling may also bruise the vegetable, which may promote decay. For best quality, keep product cold and handle with care. Do not drop shipping containers on the floor.

Water-soaked spots; light brown discoloration of flesh:

These are signs of severe freeze damage. For best quality, do not store turnips below 30 degrees F/-1 degree C.

Waterchestnuts

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Asia	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Small brown, bulb-shaped roots with white flesh. Flavor of raw waterchestnuts is similar to a cross between tart apple and jicama; flavor of cooked product is nutty. Waterchestnut texture is crisp. Waterchestnuts must be scrubbed well and peeled before using. May be used raw or cooked.

Ordering Specifications

Common packaging:

Bulk cartons
Film bags
Prepackaged containers

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality waterchestnuts should be very hard. Some external dirt is acceptable. Avoid soft or shriveled waterchestnuts.



Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

To help maintain moisture and reduce water loss, place waterchestnuts in vented plastic bags during storage.

Nutrition

Nutrition information for Waterchestnuts is not available in the data bases used by PMA.



Troubleshooting

Shriveled or dried out bulbs:

Waterchestnuts may lose moisture and dry out if they are stored in an area with low humidity. For best quality, keep waterchestnuts cold and maintain a humidity level of 90-98%. To help reduce water loss, place waterchestnuts in vented plastic bags during storage.

Mold:

Waterchestnuts may become moldy if stored in a warm area. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C.

Watercress

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Florida	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

Dark green, heart-shaped leaves clustered on long thin stalks. Spicy flavor and soft to slightly crunchy texture. Watercress may be used raw in salads or sandwiches or as a garnish.

Ordering Specifications

Common packaging:

Cartons holding 12 or 24 bunches

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality watercress should be fresh-looking and well-colored. Avoid watercress that appears wilted, bruised, or yellowed.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

32-36 degrees F/0-2 degrees C
90-98% humidity

Retail display tips:

Water sprinkle: Ok
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: Yes

Storing tips:

Keep watercress away from ethylene-producing fruits or ripening rooms.

Nutrition*

Serving Size 1 cup chopped Watercress (34g)

Amount Per Serving	% Daily Value
Calories 5	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 1g	
Vitamin A	30%
Vitamin C	25%
Calcium	4%
Iron	0%

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Troubleshooting

Wilting:

Watercress is susceptible to wilting due to moisture loss. To prevent wilting, keep watercress cold and maintain a humidity level of 90-98%.

Yellowing; slimy texture:

Watercress is very perishable and can be damaged from temperature abuse and rough handling. For best quality, maintain storage temperature of 32-36 degrees F/0-2 degrees C and keep handling to a minimum.

Winter Melons (Dong Qua)

Availability

Some major production areas include:

	January	February	March	April	May	June	July	August	September	October	November	December
California	•	•	•	•	•	•	•	•	•	•	•	•
Mexico	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

A large, frost-green muskmelon native to tropical areas of Asia, winter melon has a bitter cucumber flavor and a smooth green rind. Grown on vines, it varies in sizes and even shapes. Most found in the market are round and less than 10 lbs. The flesh is cream colored with a slightly fibrous texture. Also called a wax gourd or ash gourd, winter melons have large cavities full of seeds.



Ordering Specifications

Common packaging:

40-lb. bulk

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for consistent color on skin, with even texture and “dusting.” The melon should be firm and heavy for size.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

55 degrees F/12 degrees C
Low relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: No

Storing tips:

Winter melon may last several months if kept in a cool, dry, dark area. After cutting, wrap in plastic wrap and keep refrigerated.



Nutrition

Nutrition information for Winter Melons is not available in the data bases used by PMA.

Yu Choy/Flowering Cabbage

Availability

	January	February	March	April	May	June	July	August	September	October	November	December
U.S.	•	•	•	•	•	•	•	•	•	•	•	•
Asia.	•	•	•	•	•	•	•	•	•	•	•	•

Variety/Type Descriptions

This member of the Asian cabbage family is similar in appearance to broccoli raab. Rounded leaves are dark green on long, slender stalks. The entire plant, including the small yellow flowers, is edible. Flavor is tangy and slightly bitter. Also known as yu choy sum, yu choy sin, yow choy, and Chinese cabbage.

Ordering Specifications

Common packaging:

10-lb. bulk packs

Grades:

No U.S. grades given.

Receiving and Inspecting

Look for firm stalks and dark leaves. Avoid bunches with brown spots or rubbery stalks.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

34-36 degrees F/1-2 degrees C
90-98% relative humidity

Retail display tips:

Water sprinkle: Ok
Top ice: Ok

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene: Yes

Storing tips:

Store unwashed yu choy wrapped loosely in plastic in refrigerator for up to one week.

Handling tips:

Thoroughly wash yu choy to remove any grit.



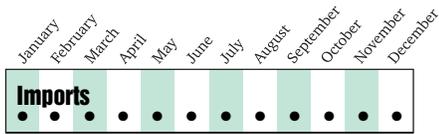
Nutrition*

Serving Size 1 cup Yu Choy (85g)

Amount Per Serving	% Daily Value
Calories 20	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat	(Not Available)
Cholesterol	(Not Available)
Sodium	(Not Available)
Total Carbohydrate 3g	1%
Dietary Fiber	(Not Available)
Sugars	(Not Available)
Protein 2g	
Vitamin A	(Not Available)
Vitamin C	(Not Available)
Calcium	(Not Available)
Iron	(Not Available)

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Availability



NOTE: Some major production areas include Mexico, the Caribbean, Central America, and South America.

Variety/Type Descriptions

Also called cassava. Thick elongated root with woody pinkish-brown skin and dense white flesh. RAW YUCA CONTAINS CYANIDE AND MUST BE COOKED BEFORE EATING. Yuca exhibits a creamy texture and mild flavor when cooked. Peeled and cooked, it may be added to soups, stews, sauces, or used as a potato substitute.

Ordering Specifications

Common packaging:

10-, 25- and 50-lb. bulk cartons

Grades:

No U.S. grades given.

Receiving and Inspecting

Good quality yuca roots should be free of cracks and exhibit white flesh. Avoid roots with yellow flesh.

Storing and Handling

Temperature/humidity recommendation for short-term storage of 7 days or less:

60-65 degrees F/16-18 degrees C
85-95% relative humidity

Retail display tips:

Water sprinkle: No
Top ice: No

Ethylene production/sensitivities:

Produces ethylene: No
Sensitive to ethylene exposure: No

Storing tips:

Keep yuca in a well-ventilated area.

Nutrition*

Serving Size ½ cup Yuca (103g)

Amount Per Serving	% Daily Value
Calories 160	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	1%
Total Carbohydrate 39g	13%
Dietary Fiber 2g	7%
Sugars 1g	
Protein 1g	
Vitamin A	0%
Vitamin C	35%
Calcium	2%
Iron	2%

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Troubleshooting

Cracked skin; yellow flesh:

These are signs of age. Always inspect yuca immediately after receiving. For best quality, do not hold roots for long periods; use or display quickly.

Gray discoloration; internal streaking:

These are indications of chill injury. To prevent chill injury, do not store yuca below 41 degrees F/5 degrees C.



Fruit



Commodity	Sensitive to ethylene exposure	Produces ethylene	Ripens after harvest	Water sprinkle okay	Top ice okay	Page number for additional information
Apples	X	X				5
Apricots	X	X	X			7
Asian Pears	X	X	X			8
Atemoyas	X	X	X			9
Avocados	X	X	X			10
Bananas	X	X	X			12
Bananas, specialty	X	X	X			13
Berries, specialty		X				14
Blackberries		X				15
Blood Oranges	X	X				16
Blueberries		X				17
Breadfruit	X	X	X			18
Cantaloupe	X	X	X		X	19
Carambolas/Star Fruit		X				20
Cherimoyas	X	X	X			21
Cherries, Sweet		X				22
Coconuts						23
Cranberries						24
Currants	X	X				25
Dates						26
Dried Fruits						27
Feijoas						29
Figs		X				30
Fresh-cut Fruits						31
Gooseberries	X	X				32
Grapefruit	X	X				33
Grapes	X	X				35
Guavas	X	X	X			37
Honeydew Melons	X	X				38
Horned Melons	X	X				39
Kiwifruit	X	X	X			40
Kumquats						41
Lemons	X	X				42
Limequats	X	X				43

Appendix

Fruit



Commodity	Sensitive to ethylene exposure	Produces ethylene	Ripens after harvest	Water sprinkle okay	Top ice okay	Page number for additional information
Limes	X	X				44
Longans and Lychees		X				45
Loquats		X				46
Mamey Sapotes	X	X				47
Mandarins/Tangerines/ Tangelos/Tangors	X	X				48
Mangoes	X	X				50
Melogolds	X	X				51
Melons	X	X				52
Nectarines	X	X	X			54
Nuts						56
Oranges	X	X				59
Oroblancos	X	X				61
Papayas	X	X	X			62
Passion Fruit	X	X	X			63
Peaches	X	X	X			64
Pears	X	X	X			66
Pepino Melons		X				68
Persimmons	X	X				69
Pineapples		X				70
Plantains	X	X	X			71
Plums	X	X	X			72
Pomegranates						74
Prickly Pears						75
Pummelos	X	X				76
Quinces	X	X				77
Raspberries		X				78
Strawberries		X				79
Tamarillos		X				80
Tamarinds						81
Tomatillos						82
Tomatoes	X	X	X			83
Watermelons	X					85
White Sapotes	X	X				86

Vegetables



Commodity	Sensitive to ethylene exposure	Produces ethylene	Ripens after harvest	Water sprinkle okay	Top ice okay	Page number for additional information
Artichokes				X	X	87
Asparagus	X			X		88
Australian Blue Squash						89
Baby Vegetables	X see page reference for details			X see page reference for details	X see page reference for details	90
Bamboo Shoots						91
Beans, snap	X					92
Beets				X	X	93
Belgian Endive	X			X		94
Bitter Melons	X	X				95
Black-eyed Peas						96
Bok Choy	X			X		97
Boniatos	X					98
Broccoli	X			X	X	99
Broccoli Raab	X			X	X	100
Brussels Sprouts	X			X	X	101
Cabbage	X			X	X	102
Cactus Leaves						104
Calabazas	X					105
Cardoons/ Cardonis	X					106
Carrots	X			X	X	107
Cauliflower	X					108
Celery	X			X	X	110
Celery Root						111
Chayotes	X					112
Chinese Long Beans	X					113
Corn, sweet				X	X	114
Cucumbers	X	X				115
Daikon	X					116
Eggplants	X					117
Endive/ Escarole	X			X	X	118
Fava Beans	X					119

Vegetables



Commodity	Sensitive to ethylene exposure	Produces ethylene	Ripens after harvest	Water sprinkle okay	Top ice okay	Page number for additional information
Fiddlehead Ferns	X			X	X	120
Fresh-cut Vegetables						121
Gai Choy/Chinese Mustard	X			X	X	122
Gai Lan/Chinese Broccoli	X			X	X	123
Galanga Root						124
Garlic						125
Ginger Root						126
Gobo Root/ Burdock Cabbage						127
Greens, bunched	X			X		128
Hearts of Palm						130
Herbs, fresh	X			X		131
Horseradishes						134
Japanese Cucumbers	X	X				135
Jerusalem Artichokes						136
Jicamas						137
Kale	X			X		138
Kohlrabi				X	X	139
Leeks	X			X	X	140
Lemongrass				X		141
Lettuce, Boston/Bibb	X			X		142
Lettuce, Iceberg	X			X		143
Lettuce, Leaf	X			X		144
Lettuce, Romaine	X			X		145
Lettuce and Greens, Baby/Specialty	X			X		146
Lo Bok						148
Lotus/Lily Root						149
Malangas	X					150
Mushrooms						151
Napa	X			X		154
Okra	X	X				155
Onions, Dry						156
Onions, Green	X			X		158

Vegetables



Commodity	Sensitive to ethylene exposure	Produces ethylene	Ripens after harvest	Water sprinkle okay	Top ice okay	Page number for additional information
Parsley Root	X	X				159
Parsnips	X					160
Peas, Snap/Snow	X					161
Peppers, Chili	X					162
Peppers, Sweet						164
Potatoes	X					165
Pumpkins	X					167
Radicchio	X			X		168
Radishes	X					169
Rhubarb						170
Rutabagas	X			X		171
Salad Mixes	X see page reference for details			X see page reference for details		172
Salsify						173
Shallots	X			X		174
Spinach	X			X		175
Sprouts	X					176
Squash, Hard-Shell	X					178
Squash, Soft-Shell	X					180
Sweet Potatoes	X					182
Taro Root						183
Turnips	X					184
Waterchestnuts						185
Watercress	X			X		186
Winter Melons (Dong Qua)						187
Yu Choy/ Flowering Cabbage	X			X	X	188
Yucas						189

PMA has also created an eye-catching, quick-reference poster and pocket guide that includes optimal storage temperatures, relative humidity levels, and information on ethylene-producing and ethylene-sensitive commodities. To obtain a copy, please see the enclosed order form.

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Instructions for Fresh Produce Manual on CD

This CD contains PDF (Portable Document Format) files of each commodity found in the November 2002 edition of PMA's *Fresh Produce Manual*.

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You Will Need Adobe Acrobat:

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If you already have Adobe Acrobat Reader, simply place the CD in your CD-Rom drive and close it. The program should launch automatically in about 20 seconds, and open to the Introduction page of Fresh Produce Manual on CD with a list of bookmarks on the left.

How to Select a Commodity:

The commodities are separated into two sections: a Fruit Section and a Vegetable Section. In each of these sections, there are PDF files named by the individual commodity. For instance, in the Fruit Section, you'll find information on watermelons, in the Vegetable Section, you'll find information on artichokes.

To select a commodity, click on the "+" sign to the left of the fruit or vegetable sections so it becomes a "-" sign, and then click on the fruit or vegetable of your choice. If the sign is already a "-" sign, just click on the fruit or vegetable of your choice.

Another way to select a commodity is to scroll through the pages using the page down or page up

keys on your keyboard. You have to select a folder or a commodity, or click somewhere on the page, to activate the page down and page up keys.

How to Change the Viewable Size of the Page

To change the viewable size of the page, go to the View menu option and select Zoom In to increase the size of the page, select Zoom Out to decrease the size of the page, and select Zoom To to select a specific magnification percent.

Another way to increase the size of the page is to select the "+" icon on your tool bar and click anywhere on the page. **Remember** to select the hand icon on the tool bar when you have finished increasing the page size.

How to Print One or More Pages

To print one page, click on the page you want to print, go to the File menu option, select Print, select Current Page, and click OK. If you know the page number(s) you want to print, go to the File menu option, select Print, select Pages From, enter the page range you want to print, and click OK. **NOTE:** If you don't select Current Page or Pages From and enter a range, the entire document will print.

How to Navigate Through the Document

To navigate through the document, scroll by selecting any bookmark on the left of the page or just click on a page and 1) use the up and down cursor keys on the keyboard, 2) use the right and left arrows on the tool bar, 3) use the page buttons on the bottom of the window, or 4) use the Page Up and Page Down keys on the keyboard.

Another way to navigate through the document is to select the Document menu option, select Go To Page, enter the page number you want, and click OK.

How to Search for a Commodity or Variety

To search for a commodity, scroll through the bookmarks on the left of the page and select the commodity of your choice. You can scroll by selecting any bookmark on the left of the page and using your up and down cursor keys, or the right and left arrows on your tool bar, or the page buttons on the bottom of the window, to navigate through the document.

To search for a commodity or a variety, select the Index bookmark on the left of the page, find the commodity or variety in the index, and note the page number. Then go to the Document menu option, select Go To Page, type the page number you want and select OK.

Another way to search for a commodity or a variety is go to the Edit menu option, select Find, type the text you are searching for and select Find. You can also use the binoculars icon on the tool bar to find an item.

How to Show or Hide the Bookmarks

To show or hide the bookmarks on the left of the page, go to the Window menu option and select the Hide Bookmarks option to hide the bookmarks, or select the Show Bookmarks option to show the bookmarks.

Another way to show or hide the bookmarks is to select the bookmark icon on the tool bar.

How to Show the Document on the Full Screen

To show the document on the full screen, go to the View menu option and select Full Screen. To show the menu bar again, press the Esc key once.

Troubleshooting

The entire document printed when I clicked on the page I wanted to print. You must select Current Page or Pages From and enter a page range to print a specific page.

The screen sometimes jumps to another screen when scrolling. Try changing the view method. Single Page view scrolls page by page. Continuous view scrolls with no page jumps. To change the view, go to the View menu option and select Continuous or Single Page.

Nothing happens when I use the Page Up and Page Down keys on the keyboard. You must click on a page in the document or select a bookmark on the left to activate the Page Up and Page Down keys.

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