


# Tropical Fruits




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<http://simonnewsdatastar.ifas.ufl.edu/images/tro1/523.JPG>

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# Tropical Fruits Include

- Acerola  [http://www.lookfeelproducts.com/shop/images/snorin/sn\\_acerola.jpg](http://www.lookfeelproducts.com/shop/images/snorin/sn_acerola.jpg)
- Banana  <http://www.vlaki.com/images/banana.jpg>
- Breadfruit  <http://www.orecity.k12.or.us/classlink/dunn/travel/trip7macnut/breadfruit.jpg>



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# Tropical Fruits Include


- Carambola 
- Durian  <http://www.timwu.org/durian.JPG>
- Guava  <http://www.tcsiam.com/tcsiam/images/Guava%20big.jpg>



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# Tropical Fruits Include

- Jackfruit 
- Mango  <http://www.globalgourmet.com/food/kgk/2004/0904/mango.jpg>
- Mangosteen  [http://www.alternative-health-supplements.com/images/mangosteen\\_fruit\\_juice.jpg](http://www.alternative-health-supplements.com/images/mangosteen_fruit_juice.jpg)



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# Tropical Fruits Include


- Papaya 
- Passion fruit  <http://www.wegmans.com/kitchen/ingredients/produce/fruit/images/passionfruit.jpg>



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# Tropical Fruits Include

- Pineapple  [http://www.museums.org.za/bio/images/enb7/enb07470x\\_pineapple.jpg](http://www.museums.org.za/bio/images/enb7/enb07470x_pineapple.jpg)
- Prickly pear  <http://ronsllog.typepad.com/photos/genl/pricklypear2.jpg>
- Rambutan  <http://jonathanyee.com/kahaku/rambutan.jpg>



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## Tropical Fruits Include

- Sapodilla
- Soursop
- Sweetsop





<http://toptropicals.com/pics/garden/2004/9/9919s.jpg>


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Class	(mg CO <sub>2</sub> /kg-hr) at 5 °C (41 °F)	Commodities
Very Low	< 5	Dates, dried fruits and vegetables, nuts
Low	5 - 10	Apple, beet, celery, citrus fruits, cranberry, garlic, grape, honeydew melon, kiwifruit, onion, papaya, persimmon, pineapple, potato (mature), sweet potato, watermelon
Moderate	10 - 20	Apricot, banana, blueberry, cabbage, cantaloupe, carrot (topped), celeriac, cherry, cucumber, fig, gooseberry, lettuce (head), mango, nectarine, olive, peach, pear, plum, potato (immature), radish (topped), summer squash, tomato
High	20 - 40	Avocado, blackberry, carrot (with tops), cauliflower, leeks, lettuce (leaf), lima bean, radish (with tops), raspberry
Very High	40 - 60	Artichoke, bean sprouts, broccoli, Brussels sprouts, cut flowers, endive, green onions, kale, okra, snap bean, watercress, cherimoya, passion fruit
Extremely High	> 60	Asparagus, mushroom, parsley, peas, spinach, sweet corn

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## Ripening Patterns


- Climacteric:
  - Banana, Breadfruit, Carambola, Guava, Jackfruit, Mango, Papaya, Passion fruit, Rambutan, Sapodilla, Sapote
- Non-climacteric:
  - Caramola, Pineapple



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## Compositional Characteristics


- In the tropics, these fruit are an important source of nutrients
- Starch:** Bananas and Breadfruit
- Vitamin C (ascorbic acid):**
  - Acerola has the highest levels of any know fruit (1000-3300 mg/100g fresh wt)
  - Guava, Papaya, and passion fruit are also good sources
- Vitamin A:**
  - Mango and Papaya are good sources



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## Compositional Characteristics


- Niacin and Thiamin:**
  - Breadfruit have high amounts
- Minerals** (esp. potassium and iron) are usually high in most tropical fruits
- Many tropical fruits have large seeds and inedible skins or rinds
  - Less edible portions (e.g. 25 to >40% inedible) compared to most temperate-zone fruits (~2 to 15%)



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## Maturity & Quality Standards

- Includes:
  - Internal quality** attributes (sugars, acids, ratio, etc.)
    - Banana: Pulp/peel ratio
  - Exterior attributes** (color, shape, size, freedom from defects, etc.)
    - Banana: Fullness of fingers (disappearance of angularity)
  - Days after fruit set** (banana)



[http://postharvest.ucdavis.edu/Produce/ProduceFacts/Fruit/Banana\\_maturity/stages.jpg](http://postharvest.ucdavis.edu/Produce/ProduceFacts/Fruit/Banana_maturity/stages.jpg)

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## Optimum Temp & RH

- Chilling injury limits the ability to store or market these fruit over long distances




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Commodity	Optimum Temperature (in °F & °C)		Opt. RH
Atemoya	55°F	13°C	85-90% RH
Banana	56-58°F	13-14°C	90-95% RH
Black sapote	55-60°F	13-16°C	85-90% RH
Breadfruit	55-60°F	13-16°C	85-90% RH
Cherimoya	55°F	13°C	85-90% RH
Durian	39-43°F	4-6°C	85-90% RH
Jaboticaba	55-60°F	13-16°C	90-95% RH
Jackfruit	55°F	13°C	85-90% RH
Longan	35°F	2°C	90-95% RH
Lychee	35°F	2°C	90-95% RH
Mamey	55-60°F	13-16°C	90-95% RH
Mango	55°F	13°C	85-90% RH
Mangosteen	55°F	13°C	85-90% RH
Passion Fruit	45-50°F	7-10°C	95% RH
Papaya	45-55°F	7-13°C	85-90% RH
Pineapple	45-55°F	7-13°C	85-95% RH
Rambutan	54°F	12°C	90-95% RH
Sapodilla	61-68°F	16-20°C	85-90% RH
Soursop	55°F	13°C	85-90% RH

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## Shelf Life



Atemoya	4-6 weeks
Banana	1-4 weeks
Black sapote	2-3 weeks
Breadfruit	2-6 weeks
Durian	6-8 weeks
Jaboticaba	2-3 days
Jackfruit	2-6 weeks
Longan	3-5 weeks
Mamey	2-6 weeks
Mango	2-3 weeks
Mangosteen	2-4 weeks
Papaya	1-3 weeks
Passion Fruit	3-5 weeks
Rambutan	1-3 weeks
Sapodilla	2-3 weeks
Soursop	1-2 weeks

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## MA or CA



- 2-5% O<sub>2</sub> and 5-10% CO<sub>2</sub> (MA or CA) or hypobaric storage can:
  - Reduce respiration and ethylene production
  - Reduce sensitivity to ethylene
  - Delay ripening
  - And extend the storage life of tropical fruits by 25 to 100%

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## MA or CA



- Banana:**
  - 2-5% O<sub>2</sub> and 2-5% CO<sub>2</sub>
- Papaya:**
  - 3 to 5% O<sub>2</sub> and 5-8% CO<sub>2</sub>
- Pineapple:**
  - 3 to 5% O<sub>2</sub> and 5-8% CO<sub>2</sub>

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## Chilling Injury

- Common symptoms include surface pitting, discoloration, inhibited or uneven ripening, development of poor or off-flavors, increased decay
- CI of pineapples was called **endogenous brown spot (EBS)**:
  - Associated with cool and overcast preharvest conditions

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## Decay Control

- **Anthracnose** is a key pathogen for tropical fruits
  - Latent infections occur in immature fruit
- Other important diseases include:
  - Black rot (*Ceratocystis paradoxa*) of banana
  - Black rot (*Thielaviopsis paradoxa*) of pineapple
  - Brown rot (*Penicillium* & *Fusarium*) of pineapple
  - *Diplodia* stem-end rot on Mango



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## Quarantine Treatments

- Fruit grown in tropical areas often must receive a **quarantine treatment** to kill or sterilize invasive insects for importing countries
  - See links for more information on quarantine issues



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