

Cherimoya

Robert E. Paull and Nancy Jung Chen
Department of Tropical Plant and Soil Sciences,
University of Hawaii at Manoa, Honolulu, HI

Scientific Name and Introduction: Cherimoya (*Annona cherimola* Mill.) is a heart-shaped fruit having few seeds and a smooth skin that does not break apart during ripening. Cherimoya are grown in Florida, California, and Hawaii.

Quality Characteristics and Criteria: Fruit size, shape and skin color along with the absence of defects and decay. Fruit are very susceptible to mechanical injury. Sugar levels can vary from 14 to 18%, with moderate acid levels.

Horticultural Maturity Indices: Mature fruit are firm and become very soft during ripening. Skin changes color from dark to light green or greenish-yellow and is associated with increased surface smoothness. Fruit are harvested when mature and allowed to ripen during marketing.

Grades, Sizes and Packaging: There are no U.S. or international standards. Single-layer pack in fiberboard carton with foam sleeve or paper wrapping to avoid bruising. Carton size 4 and 8 kg (9 to 18 lb) with 12 to 24 count. Fruit weight from 250 to 600 g (9 to 21 oz).

Pre-cooling Conditions: Pre-cool as soon as possible after harvest to about 12 °C to 15 °C (54 to 59 °F), room-cooling or forced-air most often used.

Optimum Storage Conditions: Store at 10 to 13 °C (50 to 55 °F) with 90 to 95% RH for 2 to 3 weeks. If held at 20 °C (68 °F), fruit last 3 to 4 days (Kader and Arpaia, 1999). Storage is limited by skin darkening, desiccation and disease due to chilling injury. Ripe, soft fruit should be held at 0 to 5 °C (32 to 41 °F).

Controlled Atmospheres (CA) Consideration: Fruit held in 5% O₂ for 30 days at 10 °C (50 °F) ripened in 11 days after removal to air storage at 20 °C (68 °F), versus 3 days for fruit held in 20% O₂ (Palma et al., 1993a). Addition of CO₂ at 3% or 6% can also extend storage-life beyond that of storage in air (Alique and Oliveria, 1994). However, not all results have been positive, and there may be varietal differences (Moreno and Dela Plaza, 1983). O₂ levels < 1% can lead to off-flavor.

Retail Outlet Display Considerations: Display at room temperature (approximately 20 to 23 °C; 68 to 73 °F) if not ripe. Do not use misting or ice.

Chilling Sensitivity: Fruit are chilling sensitive, especially below 10 °C (50 °F); the extent of injury depends upon duration. Symptoms include skin darkening and a failure to fully soften and to develop full flavor.

Ethylene Production and Sensitivity: Cherimoya, which are a climacteric fruit, have high rates of ethylene production of 100 to 300 μL kg⁻¹ h⁻¹ at 20 °C (68 °F) (Palma et al., 1993b). Exposure to ethylene at 100 μL L⁻¹ for 24 h leads to rapid ripening of mature green fruit.

Respiration Rates:

Temperature	mg CO ₂ kg ⁻¹ h ⁻¹
10 °C	47 to 190
15 °C	84 to 280

20 °C

138 to 460

To get $\text{mL kg}^{-1} \text{h}^{-1}$, divide the $\text{mg kg}^{-1} \text{h}^{-1}$ rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply $\text{mg kg}^{-1} \text{h}^{-1}$ by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day.

Physiological Disorders: Chilling injury is the major postharvest disorder in which the skin darkens and flesh fails to soften and can be “mealy” with poor flavor (Palma et al., 1993b). The degree of injury depends upon variety and ripeness stage. Mechanical injury is a major problem during handling that leads to unsightly black blemishes that can be sunken. Splitting can occur during ripening and provide sites for decay. Early season fruit that frequently develop higher sugar levels are more susceptible to this splitting.

Postharvest Pathology: Anthracnose (*Colletotrichum gloeosporioides*) appears as dark lesions and may produce pink spore masses under high RH condition. Black canker (*Phomopsis anonacearum*) appears as purple spots that becomes hard and cracked while Botryodiplodia rot (*Botryodiplodia theobroma*) first appear as purple, later black spots and the flesh becomes brown and corky. These are preharvest diseases that require good orchard sanitation. Careful handling and sanitation with cooling, along with fungicides, if approved, can minimize the problems.

Quarantine Issues: Cherimoya are a fruit fly host. Other quarantine pests include a seed borer and scales. Heat treatments and irradiation are potential treatments.

Suitability as Fresh-cut Product: The fruit is sold as a fresh-cut product, although the shelf-life is unknown. Ripe pieces can be held at 0 to 1 °C (32 to 34 °F).

Special Considerations: None.

References:

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