



Wax Apple: Postharvest Quality-Maintenance Guidelines

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Wax apple is the main species in this Southeast Asian genus consumed fresh. It is known as mountain apple in Hawai'i. Other species with similar fruits are *S. aqueum*, rose water apple, *S. aimini*, java plum, *S. jambos*, rose apple, and *S. malaccense*, Malay apple. The spice clove is *S. aromaticum*. The fruit is broad, bell shaped, sometimes oval, 5 to 6 cm long (2 to 2.5 in) and 4 to 5 cm wide (1.5 to 2 in), with one to four seeds. The skin can be green to light red to dark red and has a wax-like high-gloss sheen. The low-acid flesh is white and juicy (Nakasone and Paull 1998).



Wax apple, *Syzygium samarangense*
[Blume] Merrill & L. M. Perry

ally marketed in single-layer fiberboard cartons of 2.25 kg (5 lb) with padding, sometimes in trays.

Pre-Cooling Conditions

Room-cooling is normally used, due to the risk of excessive moisture loss with forced-air cooling.

Optimum Storage Conditions

Storage at 2 to 10°C (36 to 50°F) is recommended. However, chilling injury is a problem at these temperatures. A conservative recommendation would be 12 to 14°C (54 to 57°F) with 90 to 95% RH, which should result in

a shelf-life of 10 to 14 days.

Quality Characteristics and Criteria

Skin color; waxy; glossy appearance; large size with small seed; crunchy, watery, sweet taste; and subtle flavor.

Horticultural Maturity Indices

Harvest when blossom-end is fully expanded and skin shows desired market color. Green-skinned varieties are harvested when they reach full size.

Grades, Sizes, and Packaging

There are no U.S. or international standards. Fruit are generally graded by size and color. They are gener-

Controlled Atmospheres (CA) Consideration

No CA studies have been reported. MAP in sealed polyethylene film bags reduces chilling injury and decay (Horng and Peng 1983). Waxing is less effective, partly due to RH control.

Retail Outlet Display Considerations

Display in over-wrapped tray or closed polystyrene clamshell containers with no perforations at 10°C (50°F). Do not mist.



Wax apple on display

Chilling Sensitivity

Wax apples show pitting and skin scald after 4 days at 2°C (36°F), while slight injury occurs after 4 days at 10°C (50°F) (Horng and Peng 1983).

Ethylene Production and Sensitivity

Wax apple produces very low ethylene. It is a non-climacteric fruit (Akamine and Goo 1979). There are no reported responses to ethylene, but ethylene treatment may lead to premature senescence.

Respiration Rates

See Table 1. Respiration declines after harvest (Liao et al. 1983). To get mL kg⁻¹ h⁻¹, divide the mg kg⁻¹ 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 mg kg⁻¹ 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, mechanical injury, and water loss are the three major disorders. Chilling injury symptoms are pitting and scalding of the skin, while mechanical injury (impact and abrasion) leads to development of sunken areas and some darkening of affected flesh. Though fruit have a bright, waxy coating, water loss is rapid, leading to shriveling on the skin and loss of crisp texture. At 2% moisture loss, fruit become slightly shriveled, and at 6% fruit are shrunken and lose turgidity (Horng and Peng 1983).

Table 1. Respiration Rates

Temperature	mg CO ₂ kg ⁻¹ h ⁻¹
10°C	4 to 5
20°C	8 to 11

Postharvest Pathology

There are no published reports found; may show anthracnose.

Quarantine Issues

This is a fruit fly host; irradiation at 300 Grays may have potential for disinfestation.

Suitability as Fresh-Cut Product

Often available as a fresh-cut product in Southeast Asian markets in trays with over-wrap. Some potential as a fresh-cut product.

Special Considerations

None.

An earlier version of this article was originally published at the USDA website: www.ba.ars.usda.gov/hb66/contents.html

References

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