



Melon

Honeydew

Recommendations for Maintaining Postharvest Quality

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Introduction

Honeydew melon belongs to the *Cucumis melo L. Inodorus* group which includes crenshaw, casaba and other mixed melons.

Maturity Indices

Honeydews are harvested by maturity and not by size. Maturity is difficult to judge because no clear abscission (slip, separation) from the vine occurs. Maturity classes are grouped predominantly by changes in 'ground color' from greenish to cream with yellow accents.

Commercial Maturity Classes:

1. **Mature, Unripe.** Ground color white with greenish accents, no characteristic aroma, peel fuzzy/hairy and not waxy. California Grade Standards establish a minimum legal harvest index of 10% soluble solids (10° Brix)
 2. **Mature, Ripening.** Ground color white with slightly discernible green tint, slightly waxy peel, blossom-end firm and unyielding, no or slight aroma. Preferred commercial maturity class.
 3. **Ripe.** Ground color creamy white with yellow accents, clearly waxy peel, characteristic aroma noticeable, blossom-end yields slightly to press
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Quality Indices

Well-shaped nearly spherical and uniform in appearance. Absence of scars or surface defects, no evidence of bruising, appears heavy for size, surface waxy and not fuzzy.

U.S. grades are No. 1, Commercial and No. 2. Distinction among grades is based predominantly on external appearances. Sizing is based on count per 13.6 kg (30 lb.) container, most typically 4 or 5, and occasionally 6 melons per carton. High quality appearance is protected, in part, by packing with a partition to protect melons from bruising, compression and scuffing.

Optimum Temperature

7° - 10°C (45°- 50°F) Storage life is typically 12-15 days at 7°C(45°F) with up to 21 days attainable.

Source authorities vary in the reported optimum storage and shipping temperatures for honeydew melons. Most recommendations use 7°C (45°F) and 85-90% R.H. as the optimum handling conditions. In general, if melons are ripe or pretreated with ethylene at 100 ppm for 24 hr, trade recommendations for short-term storage and shipping are often range from 2.5 - 5°C (36.5 - 41°F). Extended holding at these temperatures will induce chilling injury, rapidly evident after transfer to typical retail display temperature

Optimum Relative Humidity

85-90 % ; High relative humidity is essential to prevent desiccation and loss of glossiness. Extended periods of higher humidity or condensation may encourage the growth of surface molds.

Rates of Respiration

Temperature	0°C (32°F)	5°C (41°F)	10°C (50°F)	15°C (59°F)	20°C (68°F)	25°C (77°F)
ml CO ₂ /kg·h	NR	3 - 5	7 - 9	12 - 16	20 - 27	20 - 35

To calculate heat production multiply ml CO₂/kg·hr by 440 to get Btu/ton/ day or by 122 to get kcal/metric ton/day.

NR- not recommended due to chilling injury.

Rates of Ethylene Production

Maturity	Class	$\mu\text{l} / \text{kg}\cdot\text{hr}$ at 20°C (68°F)
Intact fruit	1	.5-1.0
	2	1.0-7.5
	3	7.5-10
Fresh-cut	2	14-17 at 5°C(41°F)
	3	21-25 at 5°C(41°F)

Responses to Ethylene

Exposure to 100-150ppm ethylene for 18-24 hr @ 20°C (68°F) has been used to ripen physiologically mature honeydew melons. Immature fruit will not soften and develop characteristic sensory quality even with C₂H₄ treatment. Ripening with C₂H₄ is no longer a common practice for the California honeydew industry.

Responses to Controlled Atmospheres(CA)

Controlled atmosphere storage or shipping offer only moderate benefits for honeydew melons under most conditions. With extended transit times (1-28 days), naturally ripening melons are reported to benefit from delayed ripening, reduced respiration and inhibition of molds and decay. Consensus conditions of 3% O₂ and 10% CO₂ at 7°C have been demonstrated. Elevated CO₂ at 10-20 % is tolerated but will cause effervescence in the fruit flesh. This carbonated flavor is lost on transfer to air.

Low O₂ (<1%) or high CO₂ (> 20%) will cause impaired ripening, off-flavors and odors, and other defects.

Physiological Disorders

Chilling injury typically occurs after storage at temperatures < 7°C (45°F) for several days. Sensitivity to chilling injury decreases as melon maturity and ripeness increases. Symptoms of chilling injury include pitting, reddish-tan discoloration's, failure to ripen, off-flavors and increased surface decay.

Pathological Disorders

Disease is generally not an important source of postharvest loss in comparison with physical injury due to bruising and chilling injury. Commonly, decay or surface molds are caused by the fungal pathogens *Cladosporium*, *Geotrichum*, *Rhizopus*, *Alternaria*, and occasionally *Mucor* and *Fusarium*.

Special Considerations

Rapid forced-air cooling soon after harvest is strongly recommended, particularly if harvest pulp temperatures exceed 27°C (80°F). The precooling endpoint will depend on the desired intransit ripening, transit time, and trailer refrigeration capacities.

Fresh-cut honeydew melons rapidly absorb odors.

The optimum temperature and handling conditions for honeydew melons are essentially applicable to crenshaw and Persian melons. The anticipated keeping period, however, is shorter and generally does not exceed 14 days. Casaba, Juan Canary, and Santa Claus melons retain best quality at the high end of the storage temperature range, 10°C (50°F), for up to 21 days.



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