

Fig: Recommendations for Maintaining Postharvest Quality



Carlos H. Crisosto, Elizabeth J. Mitcham and Adel A. Kader <http://postharvest.ucdavis.edu/PFfruits/Fig/>
Department of Plant Sciences, University of California, Davis, CA 95616

MATURITY & QUALITY

Maturity Indices

Fresh market figs must be harvested when almost fully ripe to be of good eating quality. Skin color and flesh firmness are dependable maturity and ripeness indices 'Black Mission' figs should be light to dark purple rather than black and should yield to slight pressure. 'Calimyrna' figs should be yellowish-white to light yellow and firm.

Quality Indices

Fresh figs' skin color and flesh firmness are related to their quality and postharvest-life. Flavor is influenced by stage of ripeness and overripe figs can become undesirable due to fermentative products. Other quality indices include absence of defects (such as bird-peck, sunburn, scab, skin break, and stem shrivel), insects, and decay.

TEMPERATURE & CONTROLLED ATMOSPHERE (CA)

Optimum Temperature

-1°C to 0°C (30°F to 32°F)

Expedited forced-air cooling to 0°C (32°F) is strongly recommended.

Optimum Relative Humidity 90-95%

Rates of Respiration Production

Temperature		ml CO ₂ / kg·hr
°C	°F	
0	32	2-4
5	41	5-8
10	50	9-12
20	68	20-3

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.

Rates of Ethylene Production

Temperature	0°C(32°F)	5°C(41°F)	10°C(50°F)	20°C(68°F)
ul C ₂ H ₄ /kg·hr	0.4-0.8	0.8-1.5	1.5-3.0	4.0-6.0

Responses to Ethylene

Figs are slightly sensitive to ethylene action on stimulating softening and decay severity, especially if kept at 5°C (41°F) or higher temperatures.

Responses to Controlled Atmospheres (CA)

CA combinations of 5-10% oxygen and 15-20% carbon dioxide are effective in decay control, firmness retention, and reduction of respiration and ethylene production rates. Postharvest-life at optimum temperature and relative humidity depends upon cultivar and ripeness stage at harvest and ranges from 1 to 2 weeks in air and from 3 to 4 weeks in CA for California-grown 'Black Mission' and 'Calimyrna' figs.

DISORDERS

Physiological & Physical Disorders

CA-related disorders. Extended storage in CA can result in loss of characteristic flavor. Figs exposed to less than 2% oxygen and/or more than 25% carbon dioxide develop off-flavors due to fermentative metabolism.

Pathological Disorders

Alternaria rot. Caused by *Alternaria tenuis*, appears as small, round, brown- to-black spots over the fruit surface. Any cracks on the skin make the fruit more susceptible to the rot.

Black mold rot. Caused by *Aspergillus niger*, appears as dark or yellowish spots in the flesh with no external symptoms. At advanced stages the skin and flesh turn slightly pink color and white mycelia with black spore masses follow.

Endosepsis (soft rot). Caused by *Fusarium moniliformis*, appears in the cavity of the fig making the pulp soft, watery and brown with sometimes an offensive odor.

Souring. Caused by various yeasts and bacteria, is a preharvest problem resulting from yeasts and bacteria carried into the figs by insects, especially vinegar flies, resulting in smells of alcohol or acetic acid.

Control of Postharvest Diseases

- Control of orchard insects to reduce fruit damage and transmission of fungi.
- Effective control of preharvest diseases.
- Strict sanitation of picking and transporting containers.
- Careful handling to minimize abrasions, cracks, and other physical damage.
- Do not pick figs for fresh market from the ground.
- Prompt cooling to 0°C (32°F) and maintaining the cold chain all the way to the consumer.

Source: Perishables Handling #95, August 1998