

Cherries, Sweet

Revised 2008

Thermal Properties

	English	Metric
Moisture, %	80.76	--
Protein, %	1.20	--
Fat, %	0.96	--
Carbohydrate, %	16.55	--
Fiber, %	2.30	--
Ash, %	0.53	--
Specific Heat Above Freezing	0.89 Btu/lb*°F	3.73 kJ/(kg*K)
Specific Heat Below Freezing	0.51 Btu/lb*°F	2.12 kJ/(kg*K)
Latent Heat of Fusion	116 Btu/lb	270 kJ/kg

Storage Conditions

	Fresh
Temperature	30-31°F (-1 to 0.6°C)
Relative Humidity	90 to 95%
Atmosphere	3-10% Oxygen + 10-15% Carbon
Storage Period	2 weeks in air 3 weeks in poly-liners 4-6 weeks in controlled atmosphere, depending on cultivar
Highest Freezing Point	29°F (-1.7°C)

The physiological changes in sweet cherries and the decay that results in product deterioration are proportional to the amount of rough handling and total time fruit is exposed to warm temperatures. Thus, (1) cherries must be handled gently during the harvesting, handling and packing operations, and (2) fruit temperature must be reduced immediately after harvest to an ideal 30 to 32°F (-1 to 0°C) and maintained at that range (along with 90-95% humidity) during the storage and distribution steps.

Only high-quality fruit which is free of defects and decay should be selected for storage. Postharvest fungicidal sprays or dips are helpful in reducing decay during storage and marketing. Elevated CO₂ atmospheres provide a satisfactory alternative to postharvest fungicides for decay control.

Sweet cherries begin to lose their bright color after 2 weeks' storage in air. Stems dry out and darken if humidity is too low. To prevent moisture loss, field containers of cherries should be shaded from the sun and covered with a tarpaulin or other moisture barrier in the orchard and during transit to the packinghouse. Hydrocooling is often used to help with retaining stem turgidity.

Polyethylene liners in containers (modified atmosphere packaging) will extend the cold storage period by at least a week. Liners must be opened when the fruit is removed from cold storage to prevent development of off-flavors at higher temperatures due to accumulation of carbon dioxide and depletion of oxygen.

Diseases

<p>Blue Mold Rot</p>	<p>Round spots of mushy decay that can be scooped out cleanly. White tufts turning to bluish-green develop on surface. Musty odor and flavor. Control: Apply recommended fungicides. Market promptly. Cool promptly to 30°F (-1°C).</p>
<p>Brown Rot</p>	<p>Extensive firm brown, unsunken decay, turning dark in center. May be covered with dusty spores in yellowish-gray masses. Should be controlled in orchard. Control: Cool promptly to 30°F (-1°C). Apply recommended fungicides. Use of 15-20% CO₂ is also helpful.</p>
<p>Gray Mold Rot (Botrytis)</p>	<p>Light brown, fairly firm, watery decay covered with delicate dirty-white mold. On completely decayed cherries grayish-brown velvety sporulation may occur. Control: Cool promptly to 30°F (-1°C). Use 15-20% CO₂-enriched atmospheres during transport.</p>
<p>Green Mold Rot (Alternaria and Cladosporium Rots)</p>	<p>Mold growth on area is dark green below and white above. Light brown, dry, firm decay lining skin breaks. Can be removed easily from surrounding healthy tissue. Control: Cull out cherries with cracks and other skin breaks.</p>
<p>Rhizopus Rot</p>	<p>Extensive soft leaking decay with little change of color. Coarse mold growth and black spores prominent under moist conditions. Control: Prompt cooling to 30°F (-1°C).</p>

Freezing

The sweet cherries are washed, inspected and pitted. Pitting can be accomplished by punch pitting or Elliott pitting. Black cherries can be packed in a sugar medium or packed without sugar. Color deterioration has not been of concern within a non-sugar pack. Freezing is accomplished in the retail or industrial package within a blast freezer.

Sweet cherries are used to a limited extent in the bakery market. Increased usage has been the yogurt and specialty preserve market. Packaging ranges from 30 lb (13.6 kg) plastic containers, 40 lb (18.2 kg) barrier containers and 350 lb. (159 kg) S.P.-55 gal (250 L) drums.

Handling

Frozen sweet cherries are susceptible to darkening if permitted to fluctuate in temperature up to the freezing point. If thawed and refrozen, they become dark and mushy.

WFLO is indebted to Dr. Adel Kader and Dr. Carlos H. Crisosto, Department of Plant Sciences, University of California at Davis, for reviewing and revising this topic.

Reference:

USDA. 2003. Composition of foods: fruits and fruit juices – raw, processed, prepared. *USDA Agriculture Handbook* No. 8-9, (www.nal.usda.gov/fnic/foodcomp)