

Blueberries and Huckleberries

Revised 2008

Thermal Properties

	Blueberries	
	English	Metric
Moisture, %	84.61	--
Protein, %	0.67	--
Fat, %	0.38	--
Carbohydrate, %	14.13	--
Fiber, %	2.70	--
Ash, %	0.21	--
Specific Heat Above Freezing	0.91 Btu/lb*°F	3.83 kJ/(kg*K)
Specific Heat Below Freezing	0.49 Btu/lb*°F	2.06 kJ/(kg*K)
Latent Heat of Fusion	122 Btu/lb	283 kJ/(kg*K)

Storage Conditions

	Fresh	Frozen	
		Sealed Bulk Packages	Plastic Overlap, Not Sealed
Temperature	31 to 32°F (-0.6 to 0°C)	0 to -10°F (-18 to -23°C)	0 to -10°F (-18 to -23°C)
Relative Humidity	90-95%		
Storage Period*	1st Harvest, 12-15 days	18 months at 0°F (-18°C)	12 months at 0°F (-18°C)
	Late Harvest, 7-10 days	24 months at -10°F (-23°C)	18 months at -10°F (-23°C)
Highest Freezing Point	29.7°F (-1.1°C)		

* See below on the Rabbiteye variety.

Fresh Berries

For an acceptable shelf life after storage, blueberries must be hand-harvested and stored at temperatures between 31 and 35°F (-0.6 to 1.7°C). First pickings of certain hand-harvested cultivars, if rapidly cooled immediately after harvest, can be cold-stored up to 15 days. Carbon dioxide atmospheres of 10 to 15% can prolong the shelf life of most berries in cold storage. Machine harvesting has increased for blueberries destined for processing. Mechanically-harvested berries should not be cold-stored for more than a few days, because such berries deteriorate rapidly after removal from storage. Injuries caused by the harvesting machines predispose the blueberries to excessive softening and decay.

Frozen Berries

Blueberries are quick frozen at -25 to -40°F (-32 to -40°C) and usually packaged in 20-pound (9.1 kg) or 30-pound (13.6 kg) containers which are sealed with special care to eliminate air contact with the fruit. The frozen berries are subsequently stored at 0 to -10°F (-18 to -23°C). Many handlers try for no more than a 12-month storage period of frozen blueberries for economic reasons, since the price can fluctuate from year to year.

The **Rabbiteye** blueberry cultivar has increased greatly in plantings in the Southern and Southeastern United States (Texas extending to Georgia). The Rabbiteye blueberries have good keeping quality, as they have a stem scar that helps keep them relatively decay-free. The Rabbiteye cultivar reportedly could develop a tougher skin texture in frozen storage if held 6 to 8 months.

Diseases and Injuries

<p>Gray Mold Rot (Botrytis)</p>	<p>Occurs during marketing, affecting any part of the berry, eventually causing soft water decay. A grayish-brown sporulating mold is diagnostic for this disease which can also spread by nesting.</p> <p>Control: Best controlled by careful handling, proper sanitation procedures, rapid cooling and refrigeration at low temperatures, and use of CO2 enriched atmospheres.</p>
<p>Alternaria Rot</p>	<p>Occurs during marketing principally affecting the stem end of the berry. The aerial mold is olive-green to dark olivaceous and produces a semi-firm decay. Characteristically the disease affects only individual berries and rarely nests.</p> <p>Control: Best controlled by careful handling, proper sanitation procedures, rapid cooling and refrigeration at low temperatures, and use of CO2 enriched atmospheres.</p>
<p>Anthraco</p>	<p>Principally a field disease but does occur during marketing. Causes a fairly firm rot and some shriveling of the affected areas. Characteristically produces glistening salmon to orange colored spore masses on severely rotted berries.</p> <p>Control: Limited warehouse control, although careful handling, proper sanitation procedures, rapid cooling and refrigeration at low temperatures, and use of CO2</p>

	enriched atmospheres can minimize damage.
Miscellaneous Rots	<p>A small number of minor decays occur, chief of which are Rhizopus, Pestalotia, Aspergillus, Phomopsis, Yeast and Blossom-end rots.</p> <p>Control: Currently all postharvest diseases are best controlled by careful handling, proper sanitation procedures, rapid cooling and refrigeration at low temperatures, and use of CO2 enriched atmospheres.</p>

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