

Blueberries and Huckleberries

Also applies to Bilberries

Revised 2018

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 (-17.8 to -23°C)	0 to -10°F (-17.8 to -23°C)
Relative Humidity	90-95%		
Storage Period*	1st Harvest, 12-15 days	18 months at 0°F (-17.8°C)	12 months at 0°F (-17.8°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.

Blueberries and the less common huckleberries (North America) or bilberries (Europe) are closely related fruit species with the same handling requirements. Huckleberries or bilberries are wild-collected fruit; commercial blueberries are mostly cultivated highbush and rabbiteye types with some wild-collected lowbush blueberries also marketed.

Fresh Blueberries

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 Blueberries

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 (-17.8 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.

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

Diseases and Injuries

Gray Mold Rot (Botrytis)	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. Control: Best controlled by careful handling, proper sanitation procedures, rapid cooling and refrigeration at low temperatures, and use of CO ₂ -enriched atmospheres.
Alternaria Rot	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. Control: Best controlled by careful handling, proper sanitation procedures, rapid

	cooling and refrigeration at low temperatures, and use of CO ₂ -enriched atmospheres.
Anthracnose	<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-enriched atmospheres can minimize damage.</p>
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>

WFLO is indebted to Dr. Jeff Brecht, Horticultural Sciences Department, University of Florida, for the review and revision of this topic.