

Turnips

Revised 2018

Thermal Properties

	Turnips		Turnip Greens	
	English	Metric	English	Metric
Moisture, %	91.87	--	89.67	--
Protein, %	0.90	--	1.50	--
Fat, %	0.10	--	0.30	--
Carbohydrate, %	6.43	--	7.13	--
Fiber, %	1.80	--	3.20	--
Ash, %	0.70	--	1.40	--
Specific Heat Above Freezing	4.00 Btu/lb*°F	0.96 kJ/(kg*K)	4.01 Btu/lb*°F	0.96 kJ/(kg*K)
Specific Heat Below Freezing	1.88 Btu/lb*°F	0.45 kJ/(kg*K)	1.74 Btu/lb*°F	0.42 kJ/(kg*K)
Latent Heat of Fusion	307 Btu/lb	132 kJ/kg	304 Btu/lb	131 kJ/kg

Storage Conditions

Temperature	32°F (0°C)
Relative Humidity	95 to 99%
Storage Period	4 to 5 months
Highest Freezing Point	30.1°F (-1.05°C)

Topped turnips in good condition can be expected to keep 4 to 5 months at 32°F (0°C) with the relative humidity (RH) maintained at 95% or above. Shriveling may cause serious deterioration if RH is not kept at a high level. At temperatures of 40°F (4.4°C) and above, decay will develop much more rapidly than at 32°F (0°C). Turnips are usually room cooled, but if water is used for cooling, a temperature differential of 18°F (10°C) or more should be avoided to prevent cracking.

Injured or bruised turnips should not be stored. Turnips are usually stored in slatted crates or bins that allow good air circulation. Packaging turnips in perforated plastic bags aids in keeping the RH high around the roots during marketing and largely eliminates any shriveling. Peeled turnips can be kept in perforated polyethylene film for 2 to 3 weeks.

Turnips are sometimes waxed with a water-miscible, carnauba-based wax to give a glossy appearance, intensify the purple color of the roots, and to aid in reducing moisture loss during marketing. However, waxing is not recommended before long-term storage.

Turnips

Sprouting of turnips in storage can be controlled by pre-harvest spray with maleic hydrazide and strict adherence to 32°F (0°C) storage.

Freezing injury in turnips is evidenced as internal and external water soaking. After frozen turnips are thawed, they become soft and flabby and may show surface pitting. Injured tissue appears tan or gray and may have a fermented odor.

Roots with boron deficiency may have brown spots, cracks and water-soaked appearance. Proper fertilization is the only cure. Over-mature turnips also can develop growth cracks.

Turnip greens are usually stored for only short periods, generally between 10 and 14 days. They should be stored at 32°F (0°C) with crushed ice or protective plastic liners in the packages to reduce water loss.

Diseases and Injuries

Alternaria Root Rot	<p>Circular, dark-brown and firm. Frequently have concentric rings of light and dark-brown tissue. Not moist or ill-smelling.</p> <p>Control: Clean and treated seed. Handle carefully in the field. Cull out injured, bruised and decayed turnips before storage. No warehouse controls.</p>
Bacterial Soft Rot	<p>First seen as water soaked or greasy spots on leaves. Often follows bruises, cracks or other injuries on roots. In later stages, infected areas turn brown to black, often with a foul odor. Disease spreads rapidly in warm, humid weather.</p> <p>Control: Early harvest. Care in handling to avoid cuts, bruises and other injuries. Store at 32°F (0°C), not above 35°F (2.2°C) and avoid freezing temperatures. Aeration to increase drying of infected areas may partially prevent spread of decay. Especially bad on young turnips which have not been topped.</p>
Black Rot	<p>A field disease characterized by darkening of vascular elements forming a black network on leaves. Yellowing and brown-black spots may occur at margins of leaves during early stages. Bacterial soft rot may rapidly invade infected tissue.</p> <p>Control: Store at 32°F (0°C) because black rot does not spread or develop appreciably in storage under refrigeration.</p>
Downy Mildew	<p>The fungus invades the root via the crown, especially when leaves are severely mildewed. First, brown mottling or streaks extend from crown to root, and eventually most of the center of the root will be black.</p> <p>Control: Any leaf with mildew should be trimmed before packing. Storage at 32°F (0°C) will retard spreading of the disease.</p>
Gray Mold (Botrytis) Rot	<p>A moist, firm rot that is initially white and fluffy, becoming brown or gray. Usually develops at injured areas. Grows slowly even at 32°F (0°C).</p> <p>Control: Avoid injuries because <i>Botrytis</i> is typically a wound parasite. No warehouse controls.</p>

Rhizoctonia Rot	<p>Circular to oval lesions extending inward to the center of the root in a conical shape. Affected tissues are grayish brown to light brown, watery and spongy; adjacent purple tissue is bleached and appears pinkish red.</p> <p>Control: Effectively controlled by keeping turnips at 32°F (0°C) to 34°F (1.1°C).</p>
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