

Buckeye Rot of Tomato

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Buckeye rot of tomato is caused by the fungus *Phytophthora parasitica*. The disease can result in large losses in the yield of harvestable fruit. The fungus also causes a fruit rot of pepper and eggplant.

Symptoms

The first symptom on the fruit is a grayish green or brown watersoaked spot that develops where the fruit touches the soil. Lesions that enlarge on the surface of infected fruit have a characteristic pattern of alternating light and dark brown concentric rings that resemble the markings on a buckeye (Fig. 1). Buckeye rot lesions have a smooth surface and lack a sharply defined margin. These features distinguish the disease from late blight (caused by *Phytophthora infestans*), which is characterized by lesions with a rough surface and a definite margin. In contrast with Pythium rot, which results in a

soft, watery rot of the fruit, tomatoes with buckeye rot initially remain firm. Buckeye rot lesions may, however, be invaded by soft rot bacteria in the later stages of disease development.

Phytophthora parasitica can also cause damping-off of seedlings, stem cankers near the soil line, or leaf blight, but these symptoms are not as common as the fruit rot.

Disease Cycle

Phytophthora parasitica is soil-borne and primarily infects fruit lying on or near moist soil. Large amounts of rainfall or frequent irrigation may result in the sudden appearance of buckeye rot. Saturation of the soil stimulates the release of zoospores (motile fungal spores) from sporangia in the soil. Buckeye rot can be severe in fields or gardens where irrigation systems supply water for long periods of time.

Control

Cultural Control

- Grow tomatoes on raised beds in well drained soil.
- Stake and/or mulch plants to prevent fruit from contacting the soil.
- Avoid frequent irrigations that keep the ground wet.

Chemical Control

- In commercial fields, fungicides containing mefenoxam (e.g. Ridomil Gold/Bravo, Ridomil Gold, Ultra Flourish) can be applied as a soil surface application under the vines 4-8 weeks before harvest. Alternatively, mefenoxam fungicides (e.g. Ridomil Gold/Bravo, Ridomil Gold/Copper) can be applied as a foliar spray beginning when crown fruit are $\frac{1}{3}$ their final size.



Figure 1. Fruit lesions with concentric ring pattern typical of buckeye rot. (Photo by P. Warren)

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- In home gardens, maneb (e.g. Maneb) can be used to prevent various fruit rots, including buckeye rot. Follow label harvest restrictions. Refer to the current *Virginia Commercial Vegetable Production Recommendations* (VCE Publication 456-420) or the *Pest Management Guide for Home Grounds and Animals* (VCE Publication 456-018) for details on fungicide control.

Resistance

- No cultivars with resistance to buckeye rot are available.

Refer to the current *Virginia Pest Management Guide for Home Grounds and Animals* (VCE Publication 456-018), <http://www.ext.vt.edu/pubs/pmg/>, for details on the proper use of pesticides.

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