

Tomato disorder: Physiological fruit problems

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Environmental factors can affect the look—and sometimes the flavor—of developing tomato fruits. Because these problems are not caused by disease organisms, there are no pesticide recommendations for prevention or management. For information about additional fruit problems, please refer to Extension publication *Tomato Disorder: Post-Harvest Fruit Diseases* (A3799).

Blossom end rot

What to look for: Initially, water-soaked spots appear at or near the blossom end of mature fruits. The spots enlarge rapidly and may merge to form large damaged areas. As the damaged tissue dries, the surface becomes shrunken, leathery, and dark brown to black.

The lesions provide an entry area for secondary organisms that cause soft rot and fruit decay.

In some cases, there may be no external symptoms, but the inside of the tomato may be discolored and shrunken.

Why it happens: Blossom end rot is caused by a shortage of calcium in the developing fruit. Calcium, which is carried in the water-conducting vessels, becomes deficient when water is limiting. Even slight wilting is enough to cause calcium deficiency in the fruit. When moisture is again available, the plant resumes regular growth. However, because water moves first to the areas that transpire most (the leaves), calcium levels within the fruit will continue to lag for a while.

Calcium may also become deficient following applications of nitrogen in the form of urea, animal manure, or ammonium. The plant responds with new leaf growth, using large amounts of water and nutrients; very little goes to the fruit.

What you can do: You can reduce the incidence of blossom end rot by providing timely irrigation, mulching to conserve soil moisture and avoiding excessive nitrogen fertilizer applications.

Although varieties differ in susceptibility, none currently have sufficient tolerance to provide dependable control. Pear- and plum-shaped tomato varieties are most susceptible.

Timely and repeated spraying of tomato fruit and foliage with a dilute solution of calcium chloride has been reported to prevent blossom end rot, but the benefits are often variable.



Blossom end rot

Blotchy ripening

What to look for: As the name suggests, blotchy ripening is characterized by areas of the fruit that fail to ripen properly. White or yellow blotches appear on the surface of ripening fruit while the tissue inside remains hard. The affected area is usually on the upper portion of the fruit. Symptoms are similar to those produced by tobacco mosaic virus, but with the latter you will also see mosaic discolorations on the leaves.

Why it happens: Blotchy ripening is caused by inadequate fertilizer application or low availability of nutrients. This problem is more prevalent in cool weather and is exacerbated by too much or too little water.

What you can do: Blotchy ripening is cultivar specific and appears more frequently on older cultivars.

Catfacing

What to look for: Catfacing describes the presence of deep indentations in the blossom end of the fruit. In some cases, the fruit is misshapen, becoming kidney-shaped or otherwise distorted.

Why it happens: This damage occurs when temperatures fall below 50°F during flowering and fruit set, resulting in poor pollination. In some cases, excess heat, 2,4-D herbicide injury, and erratic soil moisture can lead to catfacing. High levels of nitrogen will aggravate this disorder.

What you can do: Catfacing is cultivar specific and appears more frequently on older heirloom varieties. Large-fruited cultivars are most susceptible.

Growth cracks

What to look for: The skin on tomatoes may develop cracks that split in circles around the stem end or they may spread outward from the stem scar. Cracks typically appear as fruit matures. The earlier it happens, the deeper the cracks become.

Why it happens: Growth cracks often appear when conditions drastically change the rate of growth, such as wide fluctuations in temperature and moisture. For example, dry weather followed by heavy rains causes radial cracking in many tomato cultivars. High nitrogen and low potassium may also cause fruit cracking.

What you can do: Cultivars vary in their ability to withstand cracking depending on the strength and stretchability of the skin. Very susceptible cultivars will crack while still green; those with some resistance often don't crack until the fruit begins to turn color.

Proper plant nutrition, adequate and timely irrigation, and mulching will reduce the likelihood of growth cracks.



Catfacing



Growth cracks

Puffiness

What to look for: Fruit suffering from puffiness appear somewhat bloated and angular. Cavities inside the fruit may lack the normal “gel” and the fruit is less dense.

Why it happens: Puffiness results from incomplete pollination, fertilization, or seed development. Often this is due to cool temperatures during bloom that reduce insect activity and pollination. High nitrogen and low potassium can also lead to puffiness.

What you can do: Some tomato cultivars are more susceptible to this disorder than others.

Sunscald

What to look for: During hot, sunny weather, green tomatoes and tomatoes that are just beginning to show color (the breaker stage) may develop white or light tan discolorations where they’ve been exposed to direct sunlight.

Eventually the discolored areas become sunken and wrinkled and are often surrounded by a yellow halo. Secondary fruit rot organisms may invade damaged fruit tissue.

Why it happens: Sunscald frequently occurs on plants that have lost their lower leaves due to Septoria leaf spot and early blight.

What you can do: To prevent sunscald, practice good disease management techniques that include crop rotation, sanitation, and mulching to reduce the likelihood of defoliation by Septoria leaf spot and early blight. Also, if staking, don’t remove too much of the foliage. For more information about the diseases, see Extension publication *Tomato Disorders: Early Blight and Septoria Leaf Spot* (A2606).



Sunscald



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