

Blossom-end Rot of Tomatoes

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It's common for home gardeners in all parts of Oregon to become alarmed about blossom-end rot of tomatoes during the period when the fruits are enlarging. This is a physiological disease resulting from imbalances in water and plant nutrients. It is not caused by fungi or bacteria and does not spread from plant to plant. There are no varieties adapted to Oregon that are highly resistant to this disorder. The control lies in understanding the causes, and then applying the necessary gardening skills to prevent the disease.

Description

Blossom-end rot shows up as a large, gray to black spot at the blossom end of the tomato fruit, the end opposite the stem. It affects green as well as ripe fruits.

The first evidence of the injury is a brown discoloration at the blossom end. The spots may enlarge until they cover one-third to one-half of the surface. The tomato tissue beneath the spots becomes shrunken, and the surface of the spot becomes flattened or concave. The skin may be black and leathery.

Causes

The fundamental causes of blossom-end rot are deficiency of calcium in the plant and moisture stress. Calcium uptake by the plant may be inadequate for any of the following reasons:

- There is insufficient calcium in the soil.
- Excess nitrogen, magnesium, potassium, or sodium has been applied as fertilizer.
- Very wet or very dry conditions interfere with the uptake of calcium.
- There is a combination of these causes.

Another important factor to consider is the rate of plant growth. Tomatoes'



calcium and water requirements increase as the weather warms up and the growth rate increases.

Controls

One or all of the following practices should provide relief from blossom-end rot.

Before planting

1. Use pulverized limestone to adjust the pH of the soil to 6.8 to 7.2. Most garden soils benefit from the application of at least 5 pounds of pulverized limestone to 100 square feet every 3 years. Mix the lime thoroughly throughout the top 8 to 12 inches of soil. Lime is best applied in the fall.
2. Use only moderate amounts of additional fertilizer materials—enough to keep the tomato plants normally green and vigorous but not luxuriant. About 1½ pounds of 10-20-10 per 100 square feet mixed into the topsoil just before planting usually is enough. The complete fertilizer should be especially high in phosphate.
3. Make sure you plant your tomatoes in an area with good drainage. Where water accumulates, roots are killed or rendered inactive.
4. Provide for adequate irrigation.

After planting

1. Mulch the plants with black plastic or loose organic materials.
2. Fertilize with a nitrogen sidedressing only if necessary to maintain green color and moderate growth. Use calcium nitrate or ammonium sulfate at the rate of ¼ pound per 100 square feet.
3. Water judiciously so the soil is never too wet or too dry, to a depth of 2 feet. In order to avoid moisture stress, apply enough water to wet all the soil in the root zone every 7 to 10 days. About 24 hours after watering, dig a small hole with a trowel to a depth of 1 foot to be certain enough water was applied. The soil in the root zone should always be moist enough to form a ball easily.
4. Restrict all cultivation to the top inch or two to avoid damage to the roots, or use a mulch to eliminate cultivation altogether.

In an emergency

If you have not followed the controls described above, and you detect the symptoms of blossom-end rot, spray the leaves and fruits thoroughly with 2 level tablespoons of calcium chloride in 1 gallon of water. Apply 2 more sprays at 1-week intervals. At the same time, correct the soil moisture problems; while irrigating, be careful not to wash the calcium spray residues off the plants.

Note: Control of blossom-end rot of peppers is the same as for tomatoes.

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