FS 139
March 1968

Blossom-End Rot of Tomatoes

Prepared by ANDREW A. DUNCAN, *Extension Vegetable Production Specialist,* and
IAIN C. MACSWAN, *Extension Plant Pathologist*
Oregon State University, Corvallis

It is common for home gardeners in all parts of Oregon to become alarmed about blossom-end rot of tomatoes and peppers during the period when the fruits are enlarging. This is a physiological disease which results from imbalances in water and plant nutrients. It is not caused by fungus or bacteria and does not spread from plant to plant. There are no varieties adapted to Oregon which 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, black spot at the blossom end of the tomato fruit, the end opposite to 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

Deficiency of calcium in the plant and moisture stress are the fundamental causes of blossom-end rot. Calcium uptake by the plant may be inadequate because: (1) There is insufficient calcium in the soil, (2) excess nitrogen, magnesium, potassium, or sodium has been applied as fertilizer, (3) very wet or very dry soil conditions interfere with the uptake of calcium, or (4) combinations of these causes occur.

Another important factor to consider is the rate of plant growth. The calcium and water requirements of tomatoes increase as the weather warms up and the rate of growth 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 five pounds of pulverized limestone to 100 square feet every three years. The lime should be mixed 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 sufficient to keep the tomato plants normally green and vigorous but not luxuriant. About 1½ pounds of 10-20-10 to 100 square feet mixed into the top soil just before planting is usually enough. The complete fertilizer should be especially high in phosphate.

3. Make sure the tomatoes are not planted in an area where drainage is poor. 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 it is required to maintain green color and moderate growth. Use calcium nitrate or ammonium sulfate at the rate of ¼ pound to 100 square feet.

3. Water judiciously so that the soil to a depth of 2 feet is never too wet or too dry. 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

This is one of a series of *Fact Sheets* reporting Cooperative Extension work in agriculture and home economics, Gene M. Lear, director. Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914. Oregon State University, Oregon counties, and U. S. Department of Agriculture cooperating.

with a trowel to a depth of one foot to be certain enough water was applied. The soil in the root zone should never become so dry that it will not form a ball easily.

4. Restrict all cultivations to the top inch or two to avoid damage to the roots, or use a mulch to eliminate cultivation altogether.

In an Emergency

If the controls described above have not been followed and the symptoms of blossom-end rot are detected, spray the leaves and fruits thoroughly with two level tablespoonfuls of calcium chloride in one gallon of water. Apply two more sprays at one-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.