



Blossom End Rot

Introduction

Blossom end rot is a physiological disorder that is caused by a lack of calcium uptake from the soil and transfer into the fruits during dry weather. The problem is costly to many tomato growers and disappointing to home gardeners. Peppers can also be affected. The disorder, however, is less common on peppers. Research in Florida indicates that excessive magnesium, potassium, sodium, or ammonium salts, or a deficiency of soluble calcium salts, causes a decrease in calcium uptake thus favoring development of the disorder. Rapid early growth accentuates the problem because it tends to increase the calcium requirement per unit of time.



Figure 1: Symptom development from the blossom end of the fruit. (provided by the Plant Disease Diagnostic Clinic, Cornell University)

Symptoms

The first symptom of a rot is a water-soaked area near the blossom end of the fruit (Fig. 1). The lesion soon darkens and enlarges in a constantly widening circle

until the fruit begins to ripen. The decaying spot may be merely a speck or it may involve half or even more of the tomato (Fig. 2). Secondary fungi may inhabit the black area. Although a sudden lack of water is the principal cause of blossom end rot, excessive soil moisture early in the season may smother the root hairs and cause blossom end rot to occur during sudden hot weather. It may be more serious on the windward than on the leeward side of a field and more common on the first fruits to turn red.



Figure 2: Varying degrees of damage seen on tomato fruits. (provided by the Plant Disease Diagnostic Clinic, Cornell University)

Management Strategies

Since blossom end rot is so closely related to adequacy of the water supply, an important control is to regulate the moisture supply in the soil. The land should allow good drainage during a wet period. If drought occurs, cultivation should be very shallow to reduce the water loss and irrigation should be used. Hoeing or cultivating should be performed no closer than one foot from the plants to reduce root pruning.

Appropriate amounts of fertilizer high in superphosphate and low in nitrogen should be used (1-3-1 ratio). Although it may be difficult to find a general garden fertilizer with this ratio, we found three brands of fertilizer spikes available in a 1:3:1 ratio (see list at right). Additional products may also be available, but please ask at your local garden center or farm supply store. Fertilizer spikes may be used around individual plants at planting time. Keep in mind that regular soil testing may also be helpful as you may obtain a recommendation more specific to your individual site.

In the greenhouse, transplants should not be grown too quickly nor should the plant be too old and subjected to severe hardening before transplanting. A steady growth rate as a seedling and as a field plant will discourage much of this trouble.

If the irrigation of any kind is available, it should be used during periods of hot, drying winds. Start to irrigate at the beginning of the dry spell. Mulching, which serves to maintain an even level of soil moisture, should be practiced where feasible. Mulch with black plastic or grass clippings to reduce moisture loss and to control weeds. (Do not use grass clippings from lawns treated with herbicides.) Tomatoes and peppers planted unusually early, while the soil is still cold, are likely to have the first fruits affected by blossom end rot. Consequently, a delay in planting until the soils warm up may help to reduce the problem.

The tomato varieties Jet Star, Burpee VF, Better Boy, Early Girl, Flora-Dade, Floramerica and Walter seem to have some tolerance.

Winchester Gardens:

Vegetable Fertilizer Spikes (5-15-5) or Tomato Fertilizer Spikes (8-24-8). <http://wgardens.com/products/category/53-fertilizers.aspx>

Ferry Morse:

Vegetable Fertilizer Spikes (8-24-8). Various distributors

Jobe's:

Tomato Fertilizer Spikes (8-24-8). Various distributors

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READ THE LABEL BEFORE APPLYING ANY PESTICIDE! Changes in pesticide regulations occur constantly. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office.

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