

Tomato Blossom-end Rot

Prepared by
Camille Goodwin, MG 2008

Texas AgriLife Extension Service
Galveston County Office
Dickinson, TX 77539



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FIG. 1

Type Problem: Plant Disorder

[Plant pathologists usually group causes of plant health problems or diseases into two categories. Some diseases in plants are caused by non-living factors including environmental stress or improper cultural practices. This category of diseases is referred to by a variety of names. The term 'Plant Disorder' is utilized herein. Other equivalent terms and references include 'abiotic diseases,' 'physiological disorders,' 'non-parasitic diseases,' 'non-infectious diseases,' and 'non-pathogenic diseases.'

Other plant diseases are caused by a living pathogen (or more than one pathogen including fungi, bacteria, viruses, and nematodes). This category of diseases is referred to by a variety of names including 'biotic diseases,' 'parasitic diseases,' 'pathogenic diseases,' and 'infectious diseases.'



FIG. 2

Period of Primary Occurrence

- Especially prevalent when plants have been provided adequate and consistent soil moisture, and are rapidly growing, succulent plants, and then are suddenly exposed to a period of drought
- Can occur anytime, but is most common when fruit is $\frac{1}{3}$ to $\frac{1}{2}$ normal size



FIG. 3

Other Plants Affected

- Peppers are commonly affected
- Other fruits including eggplant, squash, and melons may also be affected

Description / Symptoms

- Initial symptoms include brown discoloration(s) on the blossom end of the fruit (Fig. 3)
- The discolored spot or spots enlarges as fruit matures (Fig. 4)
- Discolored area becomes somewhat sunken/flattened and leathery with age
- In severe cases, blossom-end rot can completely cover the lower half of the fruit, becoming flat or even concave (Fig. 1 & 2)
- Secondary fungi or bacteria eventually invade the tissue, resulting in a black or watery appearance



FIG. 4

- Occurs on both green and ripe fruit
- Blossom-end rot does not spread from one plant to another but it can develop in plants grown under the same conditions
- Blossom end rot usually causes the fruit to ripen prematurely
- If only a small area of fruit is affected, the tomato can be harvested and used (just cut off the affected end)
- Severely affected fruits are generally inedible or unfit for use

Causes

- Disease is dependent upon a number of environmental conditions, especially those that affect the supply of water and calcium to the developing fruits
- Blossom-end rot is caused by a physiological disorder associated with inconsistent watering and a calcium deficiency in developing fruit
- Calcium deficiency in plants may result from insufficient calcium in the soil or the inability of plants to absorb enough calcium or both factors. Calcium deficiency is a common problem in many regions of Texas and the USA but is rarely a problem in soils in the Galveston County area. The majority of Galveston County soils have high to very high levels of calcium, a pH 7.0 or higher and do not require liming

Best Management Practices (BMP)

- Blossom-end rot is caused by a physiological disorder associated with inconsistent watering (through rainfall and/or irrigation) and a calcium deficiency in developing fruit
- Blossom-end rot is best controlled by following recommended cultural practices including
 - Maintaining uniform and adequate soil moisture during periods of low soil moisture
 - Mulching plants to help maintain adequate and consistent soil moisture
 - Avoiding injury to roots by restricting cultivation
 - Avoiding high levels of nitrogen; moderate amounts of nitrogen should be used to keep tomato plants green and vigorous, but not too lush; excessive levels of nitrogen can also reduce availability of calcium
 - Planting in soil with good drainage
 - Removing damaged fruit when symptoms are first observed may promote subsequent sound development of remaining fruit on a plant
- The most important factor under Galveston County growing conditions is to make sure adequate water is provided to plants during periods of low or no rainfall. The Master Gardener Hot Line rarely receives calls regarding blossom end rot on tomatoes during periods of ample rainfall. Calls typically start about 7 – 10 days after the start of a dry spell

Cautions

- Gardeners are commonly advised that “Light applications of fertilizers high in superphosphate will aid in reducing blossom end rot.” While this recommendation is applicable for many areas of Texas and the USA, gardeners in Galveston County should not add high amounts of superphosphate (such as 0-20-0 or 12-24-12) as most of our soils have high to very high amounts of phosphorus. Excessive levels of phosphorus may impede uptake of calcium and other soil nutrients
- Obtain a soil fertility analysis to determine phosphorus before applying high amounts of phosphorus

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Use pesticides only according to the directions on the label. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. If the information does not agree with current labeling, follow the label instructions. The label is the law.

Always remember to read and heed six of the most important words on the label: “KEEP OUT OF REACH OF CHILDREN”

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**Texas AgriLife Extension Service • Galveston County Office • 5115 Highway 3 • Dickinson, TX 77539
281-534-3413 • <http://aggie-horticulture.tamu.edu/galveston>**