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BLOSSOM-END ROT OF TOMATOES

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Complete control of this common physiological disorder of tomatoes cannot as yet be achieved, but a number of measures can be employed to reduce its incidence.

DURING the summer months many tomato specimens are received showing symptoms of blossom-end rot. Many growers attribute this trouble to parasitic organisms and are anxious to prevent it spreading to the rest of their crop. However as blossom-end rot is not a parasitic disease, it cannot be controlled by fungicidal or bactericidal sprays.

Symptoms

The first evidence of this disorder is a green water-soaked spot at the blossom-end of the fruit. The affected area becomes brown and may enlarge until nearly half the fruit is damaged. With time, the dead tissue shrinks and becomes dark, leathery and flat or depressed. Often the lesion is surrounded by an irregular yellowish margin.

Frequently the area becomes covered with a black velvety fungal growth and tends to be soft and rotten when pressed. Some growers believe these fungi to be the cause of blossom-end rot, but in fact these organisms are non-parasitic and are only growing on the dead tissue.

Fruit can be affected at any stage of development, but this disorder usually appears on immature green fruit.

Cause

The exact cause of blossom-end rot is not clearly known. Over the years much work has been done throughout the world in an attempt to unravel the factors responsible for this disease. It has been known for many years that unfavourable
soil moisture conditions are involved. Restriction of water availability to the plant and to the fruit can be brought about by such things as low soil moisture content, irregularity of water supply, restricted root growth, damaged roots and high amounts of soluble salts in the soil solution.

Also known is the fact that excessive foliage, exposure to hot dry winds and any other factor encouraging high water loss from the leaves through transpiration can lead to increased incidence of blossom-end rot.

More recently it has been found that water relations and water stress are not the only possible causes of this disorder. It has been discovered that certain factors causing temporary calcium deficiency in the fruit may also be involved in this condition. It is thought that this deficiency is influenced by growth rate and lack of equilibrium between water uptake and transpiration (Westerhout, J., 1962). An unbalanced soil nutrient solution may also be a cause for this calcium deficiency. The use of calcium sprays to overcome this deficiency has been tried with some success under certain circumstances. However, under our environmental conditions, no practical recommendations can as yet be made for the use of this type of spray.

Control

Although no measure for complete control of this disease can be given, the following recommendations should help to reduce its incidence.

- Increase water-holding capacity of the soil by the incorporation of humus-forming materials.
- Avoid underwatering, overwatering and irregular applications of water.
- Encourage adequate root growth by the use of balanced fertilisers containing nitrogen, potassium and phosphorus.
- Prevent root damage caused by insects, eelworms or other parasitic organisms.
- Avoid excessive application of inorganic fertilisers.
- Discourage heavy foliage growth by using only the smallest necessary amounts of nitrogenous manures such as poultry manure, blood and bone, sulphate of ammonia, etc.
- Try to prevent exposure to hot dry winds by the use of wind breaks where practical.
- During heat wave conditions endeavour to keep the soil moisture content and the atmospheric humidity up by the regular use of sprinklers.
- Encourage even growth by the use of balanced fertilisers applied in small amounts regularly rather than heavy application infrequently.

Reference