TOMATO FRUIT ROT

A MAJOR PROBLEM IN SUMMER CROP

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Occurrence

Tomato fruit rot is a problem of summer grown tomatoes in plains of Khyber Pakhtunkhwa and is the 2nd most important disease in the region. It is rarely observed on winter tomatoes. Disease incidence can be up to 100% in Peshawar.

Cause and disease symptoms

Tomato fruit rot caused by *Alternaria alternata* f.sp. *lycopersici*. The disease is characterized by obvious lesions which appear on the surface of ripe fruit. Lesions are light to dark brown and vary from small flecks affecting only the epidermal tissue to large, more or less circular, sunken lesions with decay extending into the carpel wall and often into the seed locule (Fig 1). During warm, humid weather the causal fungus may sporulate to form black, velvet like layer on the surface of the sunken lesions. Spores seldom form on the shallow surface lesions, which are of no consequence when fruit is graded after harvest because fruit affected by surface lesions are not included in total percent of molded fruit.

Fig 1: Alternaria Fruit Rot

Disease cycle

The fungus lives and multiplies on dead organic matter whenever moisture is present and it can also be found on dead and senescing leaves in tomato fields before fruit ripens. Fruit rot of tomato appears sporadically in the field after rain or dew. Free water must be present three to five hours before fungus spores germinate; infection by direct penetration of the epidermis follows soon thereafter. Thus dews of even short duration provide conditions favorable for disease establishment. However, rainfall usually is far more conducive to tomato fruit rot than are dews: total destruction of a tomato crop may occur within four to five days following a period of rain and high humidity. In the absence of rain, fruits protected by a leaf canopy seldom develop Alternaria fruit rot because dew is deposited only on fruit surfaces fully exposed to the sky.

Management

1. Because dew formation and rain are difficult to predict and maximum benefits from fungicide applications can be obtained if initial treatments are made five to six weeks before anticipated harvest, followed by one or two additional treatments. If two treatments are used, the second application should be made in 18 to 20 days. Use 14-day intervals between applications if three treatments are to be made. Among fungicides found to be effective for the control of tomato fruit rot are Difolatan, Mancozeb (Dithane M-45 or Manzate 200), Bravo, and Dyrene. These should be used in accordance with label instructions.

2. Cultural practices that encourage dense leaf canopies and selection of varieties that develop and retain a heavy canopy aid in preventing tomato fruit rot by protecting fruit from dew.

3. Harvest dates are extremely important because the longer fruit remains in the field after ripening, the more likely to become infected. Although delays are usually beyond control of the grower, harvest as soon after ripening as possible and first in areas of the field where fruit is most exposed, is good practice.

4. Tomatoes planted for late harvest are most vulnerable to severe losses from Alternaria fruit rot.

5. Select seeds of those varieties which are resistant to Alternaria fruit rot.