



AVRDC - The World Vegetable Center

Fact Sheet

Tomato Diseases

Anthracnose

Colletotrichum coccodes and other *Colletotrichum* species

Found worldwide



Symptoms

Symptoms appear on ripe fruit, often where the fruit is touching crop debris or soil. Small circular depressions appear and enlarge up to 12 mm in diameter. The center of the lesion usually becomes tan in color and is dotted with many dark-colored fruiting bodies of the fungus that form concentric rings in the lesion. Salmon-colored spores may appear on the surface of the lesion. At later stages, lesions may merge to affect large portions of the fruit or they may crack to allow secondary organisms to invade the fruit and cause soft rot. Green fruit may also be infected but symptoms will not appear until the fruit ripens. Such an infection is called latent.

Foliage symptoms are rare and characterized as small, circular brown lesions surrounded by yellow halos.

Infection of roots is characterized by brown and decayed internal tissue with many small black dots (fungal fruiting structures) below the surface of the roots. Root growth slow down, leading to yellowing and stunting of the entire plant.

Conditions for Disease Development

The pathogens persist on alternate hosts, crop debris, and some weeds. Alternate hosts include other

How to Identify Anthracnose



Symptoms appear on ripe fruit. Look for small circular depressions (top photo). Salmon-colored lesions may appear on the surface of the lesion (left photo). Lesions may crack, allowing secondary diseases to invade the fruit (right photo).

solanaceous crops (potato, pepper and eggplant), cucurbits, and soybean. The fungus is also seed-borne.

The fungus spores are usually dispersed by splashing rain. Wetness is required for infection. The longer the period of fruit surface wetness, the greater the anthracnose severity. The optimum temperature for fruit infection is 20–24 °C with fruit wetness, although infection may occur from 10–30 °C.

Fruit that are at or near the soil surface are most likely to become infected. Infection by the fungus may arise from wounds caused by windblown soil, especially where tomatoes are cultivated in light sandy soils.

Overhead irrigation will favor development of anthracnose because of increased relative humidity and increased duration of leaf wetness. High anthracnose severity is frequently associated with severe early blight (*Alternaria solani*) development.

Control

Select seed from anthracnose-free fruit or treat seeds with a fungicide. Hot water treatment is recommended to destroy seed-borne fungi. Soak seed at 50 °C for 25 minutes. Following treatment, plunge the hot seeds into cold water, dry on paper, and dust with thiram. Freshly harvested seed withstands heat treatment better than one- or two-year-old seed.

Use healthy transplants. Sanitize flats if reusing them for transplant production. Broad-spectrum fumigants can be applied to soil in seedbeds to control the pathogens.

Rotate with nonhost crops and avoid potato, soybean, pepper, eggplant, and cucurbits. Avoid damaging tomato roots when cultivating. Stake plants to improve air circulation and to reduce leaf and fruit wetness. Mulch to reduce soil splash onto fruit and lower leaves. Minimize or avoid overhead irrigation to reduce periods of wetness on tomato fruit. Harvest fruit promptly since anthracnose develops more readily as the fruit ages. Allow infested crop debris to decompose completely before planting again. Weed regularly.

Apply protectant fungicides to plants starting when the first fruit are set. This will prevent or minimize the occurrence of latent infections. Resistant varieties are available.

For more information on the production of tomato and other vegetables, go to <www.avrdc.org>.