Fusarium Wilt of Tomatoes

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Tomato plant infected with fusarium wilt Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org

Updated: May 11, 2021

Tomato plants wilting

- There can be numerous causes of tomato plant wilting, including lack of water, very hot weather, nearby walnut trees, and root-knot nematodes.
- Gardeners must be careful to distinguish between the actual wilting of green

leaves and stems and the appearance of dead leaves and stems caused by other diseases and conditions.

- The major diseases that produce wilting in tomatoes are fusarium wilt, verticillium wilt, and bacterial wilt.
- Fusarium is, by far, the most common wilt disease in Maryland.
- Symptoms include yellowing and browning of foliage stunting and wilting with some recovery at night.



Susceptible tomato on left, resitant cultivar on right

The first symptoms appear when fruit begins to mature. Lower leaves turn yellow, sometimes on one side of the plant or one side of a branch. This is followed by leaf and stem wilting. When an infected stem is scraped or split lengthwise you will see browning of the vascular tissue (the tissue closest to the "skin"). The pith (tissue in the middle of the stem) remains healthy. It is the clogging of the vascular tubes (that carry food and water in the plant) that produces the wilting and yellowing. Verticillium proceeds more slowly and the symptoms are more uniform through the plant. Bacterial wilt of tomato is a top-down wilt as opposed to fusarium and verticillium where symptoms begin at the bottom of the plant.

These wilt diseases are all soil-borne and can persist for many years in the soil even if no host plants are grown. They can also be brought into a garden on infected transplants or soil. Fusarium wilt does not spread above the ground from plant to plant. Each plant is individually infected when the organism enters the root system.



Browning of foliage on a tomato plant



An infected tomato will have brown vascular tissue

Management

The best defense is to grow or purchase resistant varieties. If you suspect a fusarium problem, only select varieties resistant to race 1 and race 2 of this disease. However, under severe disease pressure, even plants with resistance to both strains may exhibit symptoms. Rotate tomato plants to another part of the garden or grow plants in containers (keeping infected soil out). Pull up and discard infected plants immediately. If you grow your own plants be sure to sterilize all plant growing equipment and supplies with a 10% chlorine bleach solution and use sterile soil-less growing media.

There is no cure for this disease. Plants must be removed and destroyed. When planting, avoid all wet spots and build raised beds if drainage is less than ideal

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