Martin-Gatton
College of Agriculture, Food and Environment
Cooperative Extension Service

Plant Pathology Fact Sheet **PPFS-VG-38**

Tomato "Blight"
Leaf Diseases that Cause Blighting in Home Gardens

Author: *Carrie Spry*

Project Collaborators: *Carrie Spry, Ray Tackett, Colby Guffey, Chelsey Anderson, April Wilhoit, Adam Leonberger, Jay Hettmansperger, Phillip Konopka, Nikki Rhein, Beth Wilson, Kara Back, Faye Kuosman, Martin Polo*

Research Collaborators: *Ed Dixon, Kim Leonberger, Rachel Rudolph, Alainey Robinson, Misbah Munir, Nicole Gauthier*

Importance

Tomato leaf diseases are common in Kentucky home gardens. As the weather becomes warm and wet in early summer, disease pressure increases, often resulting in fungal leaf infections. Tomato "blight" diseases can reduce yield and eventually kill plants, particularly when summers are rainy.

"Blight" usually refers to symptoms of rapid death. Typically, "blight" is used to describe diseases that kill leaves so quickly that they remain attached to plants. Some diseases have blight in their name, while other blight-causing diseases do not. Disease names may not always accurately describe symptoms.

Symptoms of Tomato "Blight"

The most common leaf diseases begin as small spots that become brown and necrotic. As long as leaf wetness or high relative humidity (greater than 70%) are present, spots continue to expand and spread, resulting in leaf death (blighting) and complete loss of leaves (defoliation). Leaf diseases often begin in the lower plant canopy, spreading from the bottom of the plant and moving upward (Figure 1). Severe leaf loss can add significant stress to plants. Weakened plants often have smaller and fewer fruits, sun scalded fruits, or poorly ripened fruits, leaving many homeowners disappointed.

Tomato Leaf Diseases

Early blight, Septoria leaf spot, and target spot are the three most common fungal leaf diseases found in Kentucky tomatoes. They can appear as early as June if conditions are favorable (long periods of leaf wetness and temperatures approaching 80°F), but they are most common in July and August.

Figure 1. Tomato leaf diseases, such as early blight, target spot, and Septoria leaf spot, can cause nearly identical blight symptoms.

Early Blight

Early blight (*Alternaria linariae*) begins as small, brown-black, circular to elliptical-shaped spots (lesions) on older foliage, especially on leaves that are close to the ground. Concentric rings within the spots give them a target-like appearance (FIGURE 2). Lesions enlarge rapidly, and as individual spots reach veins, they become angular, coalescing to produce irregular blotches. Leaf tissue surrounding the spots becomes yellow (chlorotic). Affected leaves wither and die and can hang onto the plant, giving them a blighted appearance. Fruit may become infected with disease at any stage of development. Like leaf spots, fruit lesions have a target-like appearance.

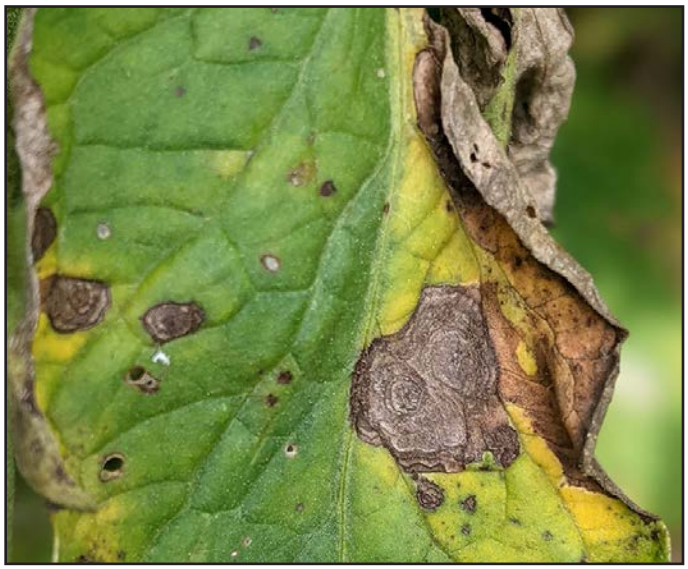

FIGURE 2. EARLY BLIGHT LEAF LESION ON TOMATO.

Septoria Leaf Spot

Septoria leaf spot (*Septoria lycopersici*) begins as circular to semi-circular spots with tan-to-gray centers and dark margins (FIGURE 3). Yellow halos can develop. Spots are first observed on lower foliage, and disease spreads upward. Spots are often numerous and scattered across entire leaves. Lesions typically remain small but coalesce causing browning (blighting) followed by defoliation. Spots can also appear on stems. Centers of leaf and stem lesions become dotted with black, spore-producing structures (pycnidia). Fruit do not become infected with Septoria leaf spot.

FIGURE 3. CHARACTERISTIC LEAF SPOT SYMPTOMS OF SEPTORIA LEAF SPOT.

Target Spot

Target spot (*Corynespora cassiicola*) begins as pinpoint-sized, dark brown spots. As lesions enlarge, centers become light brown to gray with dark outer concentric rings that give a target-like appearance (Figure 4). Spots are typically round, and yellow halos form around spots. These leaf lesions can develop quickly, coalescing and causing blighting beginning in the lower canopy. Blighting is often followed by leaf drop. Stems and fruit can also become infected, with symptoms similar to leaf spots. The target spot pathogen has a wide host range, including cucurbits and beans/legumes. Target spot looks similar to early blight, and it can be difficult to tell them apart.

FIGURE 4. TARGET SPOT LEAF LESIONS.

General Disease Causes & Management / Control Options

Gardeners may easily confuse the three diseases, particularly when two or more diseases are present at the same time. Fortunately, disease management options are the same regardless of the disease. The recommendations presented in Table 1 can be followed for all three of these foliar diseases.

Table 1. Cultural practices that influence disease development and their role in disease management.

Cultural Practice	Management
Cultivar Selection	Plant tomato cultivars with tolerance or resistance to leaf diseases. Generally, cherry or grape types and hybrids tend to be more tolerant than slicer or heirloom cultivars. Several cultivars are available with resistance to early blight; resistance to Septoria leaf spot is also available but less common. Disease resistance is usually referenced on seed packets and plant labels.
Location & Spacing	Maintaining good air circulation and air flow around the plants allows foliage to dry out quicker, which can lessen disease chances. Choose a planting site in full sun. Stake plants to keep them off the ground and remove the lower leaves that would still touch the ground. Consider the size of plants at maturity when planting and provide sufficient spacing.
Crop Rotation	Do not plant tomatoes in the same growing site 2 years in a row. In the case of early blight, also avoid planting potato, eggplant, or peppers during the 2-year crop rotation, as they are also hosts.
Watering & Irrigation	Avoid use of overhead irrigation or watering practices that get leaves wet. Consistently wet foliage increases disease pressure. Avoid watering in the evening so that the foliage can dry sufficiently before nightfall.
Mulching	Use mulch under plants to reduce contact between foliage and soil, as well as rain splash of fungal spores and contaminated soil onto plant surfaces. Be sure to use a quality mulch and apply less than 2 inches worth to avoid other unwanted issues.
Sanitation	Follow good sanitation practices to lessen the amount of overwintering inoculum (e.g., fungal spores) for the following season.
	Clean equipment and tools after use; discard anything that cannot be cleaned (e.g., stakes, string)
	Remove / bury all plant debris at the end of the season. Do not compost diseased plants.
	Never leave clippings or debris in or near fields.
Weed Management	Manage weeds that may serve as secondary hosts for pathogens. Weeds can also reduce air circulation and result in increased humidity within plantings, thus promoting disease development.

Variety Choices for Disease Resistance

In a 14-county trial (2022 and 2023) to evaluate leaf diseases, 10 popular cultivars were evaluated for leaf disease severity. Plants were rated on a weekly basis for disease severity, beginning 4 weeks after planting and continuing until plants succumbed to disease, or the growing season ended. No fungicides were used. Fruit production was not evaluated in this trial.

Results suggested that cultivars Brandywine, Early Girl, and Yellow Pear were the least susceptible to disease, while Sweet 100, Mt. Magic, and Better Boy were the most susceptible to leaf blight diseases. Table 2 presents the disease risk for each cultivar based on trial results.

Table 2. Disease risk by cultivar based on combined data from 2022 and 2023 research trials.

Cultivar	Disease Risk
Brandywine	**Low Disease**
Early Girl	**Low Disease**
Yellow Pear	**Low-Moderate Disease**
Chefs Choice	**Moderate Disease**
Big Boy	**Moderate Disease**
BetterBush	**Moderate-High Disease**
Celebrity	**Moderate-High Disease**
Sweet 100	**High Disease**
Mt. Magic	**High Disease**
Better boy	**High Disease**

Fungicides

Cultural practices are critical for managing tomato leaf diseases. They should be a part of every disease management program, whether fungicides are used or not. When disease is severe or continues to be problematic each year, fungicides should be considered.

Fungicides are most effective when used preventatively or at the first indication of disease. Fungicides can slow disease progression but will not "cure" plants. Approved fungicides will list tomato on the label. Not all fungicides are effective against all diseases; check labels for which diseases are controlled. Fungicides are often effective for 7 to 10 days; reapply according to the label to continue providing disease protection. Always be sure to check the label for the spray harvest interval, the time between spraying and when you can harvest fruits. Contact a local Extension office for current fungicide recommendations.

Additional Resources

Additional information can be found on the UK Plant Pathology Extension Publications webpage https://plantpathology.ca.uky.edu/extension/publications

- Early Blight & Septoria Leaf Spot of Tomato (PPFS-VG-26)
- Tomato & Pepper IPM Guide for Small Acreage & Backyard Production (PPFS-VG-21)
- Homeowner's Guide to Fungicides (PPFS-GEN-07)
- Cleaning & Disinfecting Hand Tools & Planting Supplies (PPFS-GEN-17)

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Editor: Cheryl Kaiser, Plant Pathology Extension Support
Photos: University of Kentucky—Carrie Spry (1 & 3) and Kim Leonberger (2 & 4)