



General Leaf Diseases of Corn

KEY POINTS

- Different diseases may have similar symptoms, particularly during the early stages of disease development.
- It is not uncommon for a corn plant to have several different diseases present at the same time. Multiple diseases present on a corn plant can make disease diagnosis very difficult.

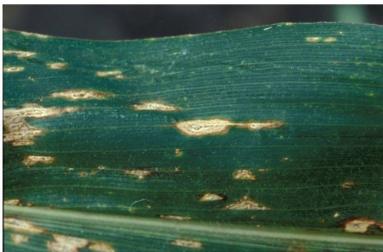


Figure 1. Anthracnose leaf blight lesions.

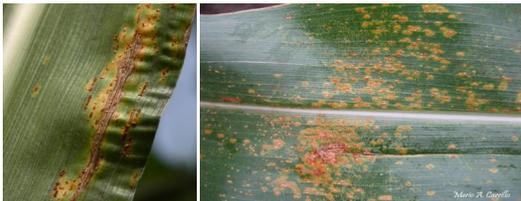


Figure 2. Comparison of common rust (left) and southern rust (right).



Figure 3. Eyespot lesions.



Figure 4. Gray leaf spot lesions.

Anthracnose Leaf Blight

Small, oval to elongated, water-soaked lesions appear on youngest leaves and turn tan to brown with yellow to reddish brown borders (Figure 1). Small, black, hair-like structures (called setae) may sometimes be seen in the middle of lesions. Lesions may coalesce, blighting the entire leaf. Heavily infected leaves wither and die. Leaf symptoms are most common on the lower leaves early in the season and on the upper leaves late in the season. The organism thrives in warm, humid weather.

The same fungal pathogen is responsible for both anthracnose leaf blight and stalk rot; however, the presence of leaf blight does not indicate that stalk rot will be a problem later in the season. The stalk rot phase is of greater concern than the leaf blight phase.

Common Rust

Small, cinnamon-brown, powdery, circular-to-elongated pustules occur on upper and lower leaf surfaces often in bands across leaves (Figure 2). In contrast, pustules of southern corn rust are orange-colored and occur primarily on the upper leaf surface. Rust pustules rupture the leaf surface (epidermis) and powdery rust spores can be rubbed off. Pustules become dark brown to black late in the growing season. The fungus is favored by moderate to cool temperatures and high humidity and does not overwinter in the Corn Belt.

Southern Rust

Small, circular, light cinnamon-brown to orange-colored pustules occur on upper surfaces, leaf sheaths, and husk leaves (Figure 2). Pustules often are very dense in areas of infected tissues. Pustules break the leaf surface (epidermis) less frequently than common rust. This organism is favored by warm, humid weather.

EyeSpot

Small, circular to oval, translucent lesions surrounded by yellow to purple margins that gives them a halo effect (Figure 3). Lesions occur on leaves (most commonly as plants approach maturity), sheaths, and husks. The disease is favored by cool, moist weather.

Gray Leaf Spot

Gray to tan, rectangular lesions on leaf, sheath, or husk tissue (Figure 4). Spots are opaque and long (up to 2 inches). Lower leaves are affected first, usually not until after silking. Lesions may have a gray, downy appearance on the underside of leaves where the fungus sporulates. The organism thrives in extended periods of warm, overcast days and high humidity. Gray leaf spot has become more prevalent with increased use of reduced tillage and continuous corn.

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Physoderma Brown Spot and Node Breakage

Small yellow spots appear first at the base of the leaf and over time turn brown in color. As infection progresses, spots can often be found occurring in bands across the leaf. Spots in the mid-rib of the leaf become reddish to brown in color and combine to form irregular blotches (Figure 5). Sheath, husk, tassel, stalk, and leaves may exhibit symptoms late in the season. Infected stalks may break at a node. This fungus is favored by warm, wet weather.



Figure 5. Physoderma brown spot on a corn leaf.

Northern Corn Leaf Blight

Long (up to 6 inches), elliptical to cigar-shaped, gray-green lesions that become tan-brown are symptomatic of infection by this fungus (Figure 6). Infection spreads starting on lower leaves and moves up the plant. Lesions may form in bands across leaves as a result of infection in the whorl. The disease is favored by high humidity and moderate temperatures.

Southern Corn Leaf Blight

Southern corn leaf blight produces small, elongated (up to 1-inch long) parallel-sided lesions that are tan with brownish borders (Figure 7). Symptoms vary considerably on different corn products, often requiring microscopic examination of the fungal structures to confirm diagnoses. This blight primarily attacks leaves, and it is favored by high humidity and warm temperatures.



Figure 6. Northern corn leaf blight lesions.



Figure 7. Southern corn leaf blight lesions.

Goss's Wilt

The bacterium that is the causal agent of this disease can cause a seedling wilt that can result in a systemic infection, and an adult-plant wilt, which is typically associated with leaf blight.

Systemically infected seedlings may wilt and die. Vascular bundles can be discolored. More common later-season infections of leaves produce dull gray-green to necrotic

lesions often with irregular margins. Small, water-soaked "freckles" appear within developing lesions (Figure 8). Bacterial droplets may ooze from infected tissues early in the morning leaving a shellac-like appearance when dried on leaf surfaces. Plant injury, such as hail or wind damage, enhances infection.

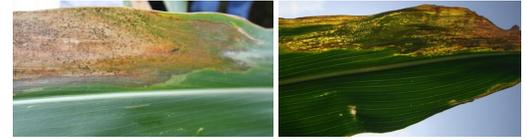


Figure 8. Goss's Wilt leaf freckles (left). Leaf freckles appear luminous when held up to block the sun (right).

Stewart's Bacterial Wilt

Symptoms of Stewart's wilt or Stewart's disease on leaves are long, green-gray, water-soaked lesions with wavy margins, accompanied by stunting and wilting which may lead to plant death at the seedling stage (Figure 9). Cavities may form in the stalk near the soil line.



Figure 9. Stewart's wilt on a corn leaf.

The more common leaf blight phase appears after tasseling. Leaves are streaked with gray-green to yellow-green lesions, each distinguished by the presence of a flea beetle feeding scar toward the base of the streak. Streaks are long and irregular, turning tan as the tissue dies. Flea beetles are the primary vector, and incidence of the disease is relative to the size of the beetle population.

Management

Timely scouting is important to help protect corn plants from diseases caused by fungal pathogens. Since much of a corn plant's energy from photosynthesis is produced by the leaves immediately surrounding the primary ear, those leaves should be protected from foliar diseases if possible. Fungicide applications made before a fungal disease spreads throughout the corn canopy may help maximize yield potential in high disease pressure environments. However, Goss's Wilt and Stewart's wilt are caused by bacteria pathogens which are not affected by fungicide applications

Fields with foliar diseases should be scouted for stalk health as the reduction in photosynthesis can predispose corn plants to stalk lodging. Identification of foliar diseases can help determine the need for future management practices such as tillage, crop rotation and the selection of disease-tolerant corn products to help reduce disease occurrence next season.

Sources: ¹ Bissonnette, S.M., Pataky, N.R., Nafziger, E.D., et al. 2010. Field crop scouting manual. X880e. University of Illinois Extension. ² Brouder, S.M., Camberato, J.J., Casteel, S.N., et al. 2014. Corn and soybean field guide, 2014 edition. ID-179. Purdue University. ³ White, D.G. 1999. Compendium of Corn Diseases, third edition. The American Phytopathological Society. ⁴ Hershman, D.E., Vincelli, P., and Kaiser, C.A. 2011. Foliar fungicide use in corn and soybean. University of Kentucky. PPFs-GEN-12. <http://plantpathology.ca.uky.edu/>. Web sources verified 06/25/18. 140706080202

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** 140706080202 062818DLB