



MINOR LEAF SPOT AND BLIGHT DISEASES OF TURFGRASSES

There are several common but generally minor leaf spot and blight diseases of turfgrasses caused by fungi. The most important are members of the fungus genera *Ascochyta*, *Septoria*, and *Leptosphaerulina*. In general, these fungi rarely cause severe damage, but can occasionally cause concern.

ASCOCHYTA LEAF BLIGHT OR SPOT

Ascochyta leaf blight or spot of turfgrasses is caused by more than 20 different species of fungi which can cause damage to Kentucky bluegrass, bentgrasses, Italian and perennial ryegrasses, fescues (red, meadow, sheep, and tall), redbtop, and many other forage, weed, and wild grasses (Table 1). The *Ascochyta* fungi attack grasses during much of the growing season when humidity and atmospheric moisture are high or when irrigations and mowing are frequent. The *Ascochyta* fungi seldom cause extensive damage.



Figure 1. *Ascochyta* leaf blight of *Poa pratensis* (courtesy R.W. Smiley).

Symptoms

Small to large turfgrass areas may appear uniformly blighted, or localized pockets of infection may result in a patchy appearance with healthy and diseased leaves growing interspersed. Individual grass blades usually start dying back from the tip, often progressing downward, sometimes into the leaf sheath (Figure 3). The minute, individual leaf spots are purplish to chocolate brown. The lesions may later enlarge and merge with their centers fading to tan and finally straw colored as the girdled leaf dies. Speck-sized, yellow-brown, rust brown, brick red, or black fungus fruiting bodies (pycnidia) form in the bleached areas of dead leaves. The symptoms of *Ascochyta* leaf blight may closely resemble that of *Septoria* leaf spot or tip blight and *leptosphaerulina* leaf blight (both following).

Disease Cycle

Ascochyta fungi overseason in debris or in older leaf lesions as mycelia or pycnidia. During wet weather, 2-celled microscopic spores called conidia (Figure 2), formed within the pycnidia, ooze out in tremendous numbers in slimy tendrils. Infection occurs after the conidia are transported to healthy leaves by splashing or flowing water, air currents, or people (foot traffic and all types of turfgrass equipment). A wet leaf surface is necessary for infection. *Ascochyta* fungi usually invade grass leaves soon after mowing and

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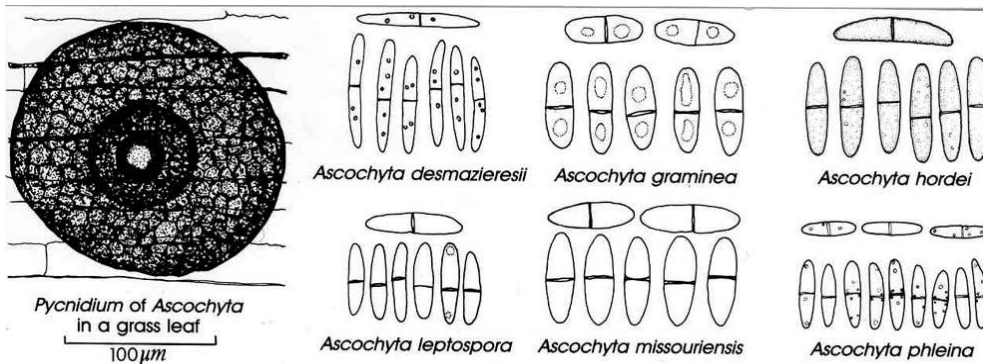


Figure 2. Left, pycnidium of *Ascochyta* embedded in a grass leaf; right, spores of six species of *Ascochyta* as seen under a high-power microscope (drawing L. Gray).

later grow downward from the moist, freshly cut end of a leaf blade toward the leaf base. The pycnidia form after the leaf dies. *Ascochyta* leaf blight or spot occurs throughout the growing season. Periods of damp weather or frequent irrigations favor the disease during the summer months. Frequent mowing favors the disease by creating potential infection sites.

SEPTORIA LEAF SPOT OR TIP BLIGHT

Septoria leaf spot, sometimes called tip blight, is caused by about 15 species of the fungus *Septoria*. This is a minor disease that infects many turfgrasses including bentgrasses, bluegrasses, fescues, ryegrasses, redtop, and bermudagrass (Table 2). Septoria leaf spot most commonly occurs during cool, wet weather in the autumn, late winter, or early spring. The disease is rare in warm to hot weather.

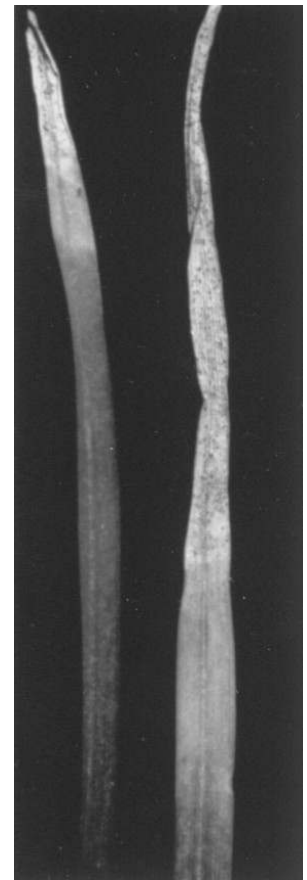


Figure 3. *Ascochyta* leaf blight. Note the speck-sized dark pycnidia of the *Ascochyta* fungus in blighted portions (courtesy R.W. Smiley).



Figure 4. *Septoria* leaf spot or tip blight on six Kentucky bluegrass leaves (courtesy R.W. Smiley).

Symptoms

The overall appearance of diseased turf often resembles damage caused by a dull mower, scorch, or dollar spot. The grass blades are often a pale yellow from the tip downward (Figure 4). The small individual lesions, which may be scattered near the leaf tips, are gray to gray-green or brown before fading to yellow or light straw color. On perennial ryegrass, however, the lesions are yellowish green, later turning a dark chocolate brown. The lesions enlarge, merge, become bleached, and typically girdle the leaf blades causing the tips to become straw-colored and mottled. Such leaves commonly defoliate prematurely, thinning the turf (Figure 5). All *Septoria* fungi produce speck-sized, light brown to black fruiting bodies (pycnidia) in the dead areas of older lesions (Figure 4). They are easily seen with a magnifying lens and help to distinguish *Septoria* from dollar spot, injury from a dull mower, drought, or winter injury.

Disease Cycle

The *Septoria* fungi survive unfavorable cold and hot periods as pycnidia and mycelia in infected grass debris produced in the previous season. During cool, wet conditions in spring, autumn, or late winter, large numbers of needlelike, microscopic spores (conidia) are formed within the pycnidia (Figure 6) and released. The conidia are splashed and washed or transported on shoes and all types of turfgrass equipment to healthy leaves. Here the spores germinate in a film of water and infection occurs, often in a freshly cut leaf tip. The cycle can be repeated every 7 to 14 days as long as the weather remains moist and cool (60° to 75°F or 16° to 24°C).



Figure 5. *Septoria* leaf spot damage on *Poa pratensis* (courtesy R.S. Byther).

LEPTOSPHERULINA LEAF BLIGHT

Leptosphaerulina leaf blight, caused by *Septosphaerulina australis* and possibly one or more other species, is a minor, warm to hot muggy weather disease in Illinois. Susceptible turfgrasses include creeping bentgrass (*Agrostis palustris*), Kentucky bluegrass (*Poa pratensis*), and perennial ryegrass (*Lolium perenne*). The disease is easily confused with *Ascochyta* leaf blight and *Septoria* leaf spot as well as with dollar spot and *Pythium* blight. Disease outbreaks are most common during warm, humid weather when the turfgrasses are stressed by close mowing, drought, applications of preemergence annual grass herbicides, and excessive rates of nitrogen fertilizer, or on newly laid sod that lacks good root contact with the underlying soil.

Symptoms

Large turf areas may become uniformly blighted or appear patchy with individual leaves dying back from the tip (Figure 7). Uniform yellow or brown lesions may extend down to the leaf sheath. Water-soaked lesions, which quickly fade to a bleached white, may also occur on the leaf blades.

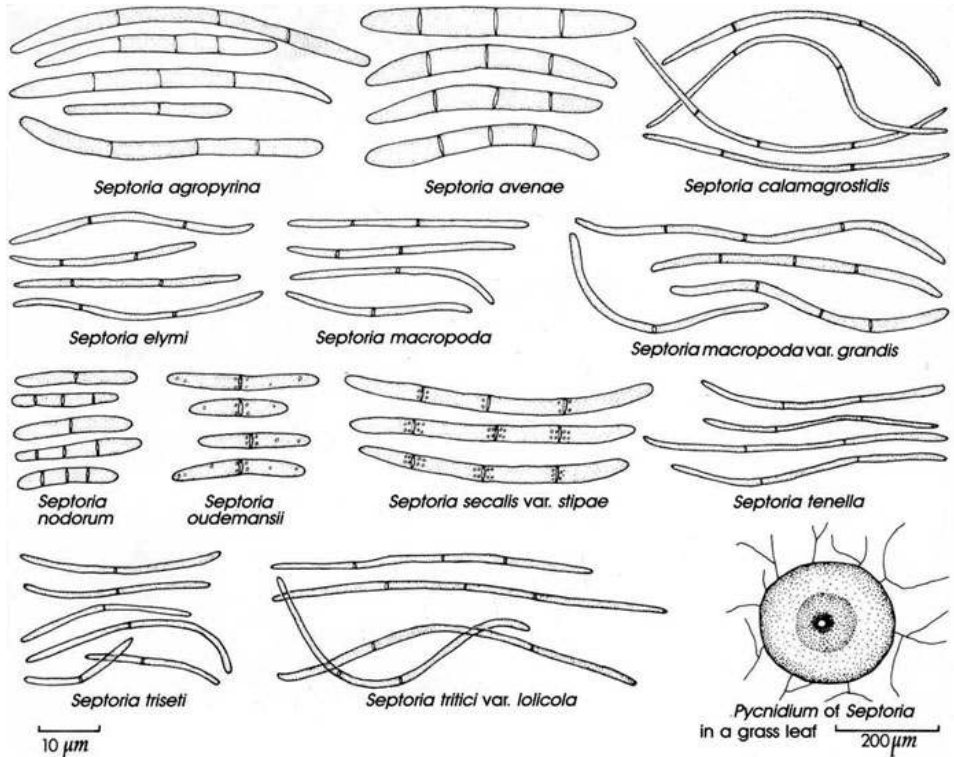


Figure 6. Twelve species of *Septoria* that cause turfgrass diseases. The spores are elongated or needlelike. A pycnidium of *Septoria* embedded in a grass leaf is to the lower right (drawing by L. Gray).

Such lesions closely resemble the damage due to high temperatures, frost, or a dull mower. Tiny, pale brown fungus fruiting bodies (perithecia), which closely resemble the pycnidia of *Ascochyta* and *Septoria*, form in the dead tissues of older lesions.

Disease Cycle

The weakly pathogenic *Leptosphaerulina* fungus (or fungi) overseason as perithecia and mycelia in dead grass tissue. The perithecia produce club-shaped asci, each of which contains 8 muriform ascospores which have both cross and longitudinal walls (Figure 8). The microscopic ascospores are produced and released in warm, wet weather and are blown, splashed, and transported on shoes and turfgrass equipment to healthy leaves. The spores germinate and penetrate the leaf blades in a film of moisture.

Control

These three diseases are usually easily controlled by adhering to the following cultural practices. No fungicide applications are normally needed.

1. Provide good surface and subsurface drainage when establishing a new turf area. Test the soil reaction (pH) and follow the recommendations in the soil report. A pH between 6 and 7 is best for all turfgrasses grown in the Midwest.
2. Grow locally adapted, disease-resistant grasses in blends or mixtures. Check with University of Illinois Extension Turfgrass specialists or Extension adviser for suggested grass species and cultivars to grow and for available disease resistance in turfgrass cultivars.



Figure 8. Spores of *leptosphaerulina australis* as seen under a high-power microscope (courtesy R.W. Smiley).

3. Purchase only top-quality, certified sod, sprigs, plugs, or pathogen-free seed from a reputable dealer. Plant at suggested rates in a fertile, well-prepared seedbed.
4. Fertilize according to local recommendations and soil tests. Recommendations will vary with the grasses grown and their use. Adequate to high levels of phosphorus and potassium (potash) may help to suppress disease development. Do not apply fertilizer during periods of drought or high temperature. Turfgrass fertilizer recommendations can be obtained from University of Illinois turfgrass specialists or your nearest Extension adviser.

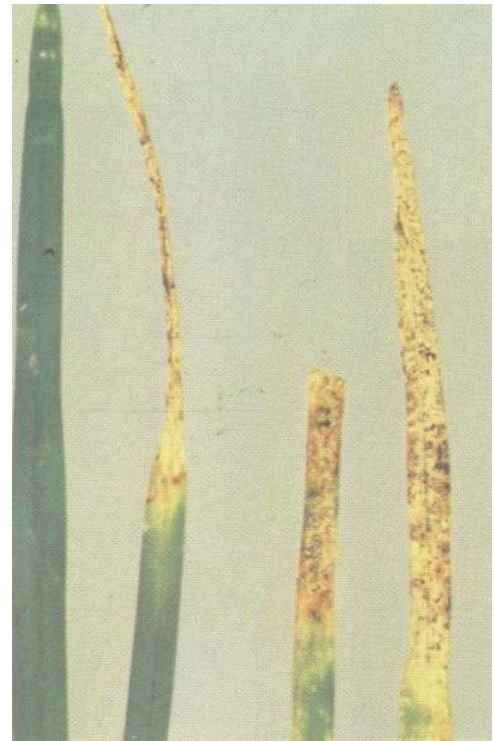


Figure 7. *Perithecia* of *leptosphaerulina australis* in blighted leaves of *Poa pratensis* (courtesy R.W. Smiley).

5. Mow frequently at the height recommended for the area, season, and grasses grown (1 1/2 to 2 1/2 inches for lawn-type grasses and 1/4 inch or slightly less for fine bentgrass turf). Remove no more than one-third of the leaf height at one cutting. Keep the mower blades sharp. Do not mow when the grass is wet.
6. Water established turf thoroughly during droughts. Moisten the soil to a depth of at least 6 inches at each irrigation. Repeat every 7 to 10 days if the weather remains dry. Water as infrequently as possible to allow gaseous exchange between soil and atmospheric air. Avoid light sprinklings, especially in late afternoon or evening.
7. Increase light penetration and air movement to the turfgrass area and speed drying of the grass surface by selectively pruning or removing dense trees, shrubs, and hedges bordering the turf area.
8. Remove excess thatch in early spring or fall when it accumulates to 1/2 inch for high-cut grasses and 1/8 to 1/4 inch for fine turf. Use a vertical mower, power rake, or similar dethatching equipment. These machines may be rented at most large garden supply or tool rental stores.
9. Core heavily compacted areas one or more times each year, using a hand aerifier or power machine. Eliminate foot and vehicular traffic by putting in walks, fences, shrubbery, patios, parking areas, and so on.
10. Follow suggested insect and weed control programs for the area and grasses being grown. Follow recommendations of University of Illinois Extension Entomologists and Turfgrass specialists. Insects commonly transmit disease-causing fungi or provide entry wounds for them, while weeds may harbor pathogenic fungi.
11. Kentucky bluegrass cultivars reported as having good resistance to one or more species of *Septoria* include 'Adelphi', 'Cheri', 'Fylking', 'Geronimo', 'Majestic', 'Nugget', 'Parade', "Sydsport", and 'Touchdown'; 'Newport', 'Park', and 'Trenton' are reported as having intermediate resistance; 'Common' and 'Delta' are rated as susceptible; and 'Merion' as very susceptible. No information about cultivar resistance is available for *Ascochyta* and *Leptosphaerulina* leaf blights.
12. Avoid applying herbicides or installing new sod before or during hot, humid weather.

The cultural practices outlined above (1-12) should keep these three diseases well under control. If not, the fungicides suggested for controlling "Helminthosporium" diseases and dollar spot should be at least partially effective when properly applied just before infections take place. Suggested fungicides for turfgrasses are given in Homeowner's Guide to Pest Management, and Illinois Commercial Landscape and Turfgrass Pest Management Handbook. These publications are available at your nearest Extension office or the Office of Information Technology and Communication Services, Ag Services, P345, 1917 South Wright St., Champaign, IL 61820 (1-800-345-6087).

Table 1. Principal Species of *Ascochyta* that attack Turfgrasses grown in Illinois, their principal hosts, and the symptoms produced^a

<i>Ascochyta</i> species	Grasses infected (genus)	Color of pycnidia	Leaf spot symptoms
<i>agrostis</i>	Bentgrasses (<i>Agrostis</i>)	Rust brown	Inconspicuous or pale yellow
<i>Anthoxanthi</i>	Ryegrasses (<i>Lolium</i>)	Yellow-brown	Elongate to streaks; pale brown with indistinct margins.
<i>Desmazieresii</i>	Ryegrasses (<i>Lolium</i>)	Yellow-brown	Elliptical to irregular, up to 6 millimeters; reddish brown with brick red margins.
<i>festuca-erecta</i>	Fescues (<i>Festuca</i>) and ryegrasses (<i>Lolium</i>)	Rust brown	Inconspicuous; dark reddish to rust brown or gray tip blight.
<i>graminea</i>	Bermudagrass (<i>Cynodon</i>)	Dark brown	Inconspicuous.
<i>hordei</i>	Bluegrasses (<i>Poa</i>) and fescues (<i>Festuca</i>)	Yellow-brown	Round or oval, 4 to 10 millimeters; buff to whitish yellow with reddish brown margins.
<i>hordeicola</i>	Bluegrasses (<i>Poa</i>)	Yellow-brown	Round, 2 to 10 millimeters; wine red to tan with purplish or brown margins.
<i>leptospora</i>	Bentgrasses (<i>Agrostis</i>), bluegrasses (<i>Poa</i>), fescues (<i>Festuca</i>), and ryegrasses (<i>Lolium</i>)	Yellow to brick red to black	Inconspicuous, round to elliptical; various shades of tan, often with brick red to wine red margins.
<i>missouriensis</i>	Ryegrasses (<i>Lolium</i>)	Yellow-brown to black	Pale gray to pale yellow, with or without distinct margins.
<i>phleina</i>	Bluegrasses (<i>Poa</i>) and fescues (<i>Festuca</i>)	Yellow-brown	Round; tawny.
<i>rhodesii</i>	Ryegrasses (<i>Lolium</i>)	Dark brown to black	Inconspicuous or irregular; pale straw yellow.

^a Adapted from Compendium of Turfgrass Diseases, by R.W. Smiley, published by the American Phytopathological Society, St. Paul, MN.

Table 2. Principal species of *Septoria* that attack turfgrasses grown in Illinois, their principal hosts, and color of pycnidia

Septoria species	Grasses infected (genus)	Color of pycnidia
<i>calamagrostidis</i>	Bentgrasses (<i>Agrostis</i>)	Dark brown to black
<i>cynodontis</i>	Bermudagrass (<i>Cynodon</i>)	Black
<i>loligena</i>	Ryegrasses (<i>Lolium</i>)	Golden brown to brown
<i>macropoda</i>	Bluegrasses (<i>Poa</i>)	Brown
<i>macropoda</i> var. <i>grandis</i>	Bluegrasses (<i>Poa</i>)	Brown
<i>macropoda</i> var. <i>septulata</i>	Bluegrasses (<i>Poa</i>)	Dark brown
<i>nodorum</i>	Bluegrasses (<i>Poa</i>) and fescues (<i>Festuca</i>)	Dark brown to black
<i>oudemansii</i>	Bluegrasses (<i>Poa</i>)	Yellow-brown
<i>secalis</i> var. <i>stipae</i>	Bentgrasses (<i>Agrostis</i>)	Brown-black
<i>tenella</i>	Fescues (<i>Festuca</i>)	Black-brown
<i>triseti</i>	Bentgrasses (<i>Agrostis</i>) and redtop (<i>Agrostis</i>)	Black-brown
<i>tritici</i> var. <i>lolicola</i>	Ryegrasses (<i>Lolium</i>)	Pale to amber brown