UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer and Environmental Sciences

report on
PLANT
DISEASE

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DEPARTMENT OF CROP SCIENCES
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STAGONOSPORA LEAF SPOT OR BLOTCH OF FORAGE GRASSES

A wide variety of leaf spots and blotches on forage and ornamental grasses are caused by a number of species of the fungus *Stagonospora*. Orchardgrass, smooth bromegrass, reed canarygrass and timothy are attacked during periods of cool, damp weather from the early spring until late fall. Other forage, ornamental, and weed grasses affected by species of *Stagonospora* are listed in Table 1.

When Stagonospora leaf spot or blotch is prevalent, the infected leaves turn brown, wither, and die. The lower 30 to 40 percent of a severely damaged plant is often completely defoliated. Uncut plants are usually affected to a greater extent.

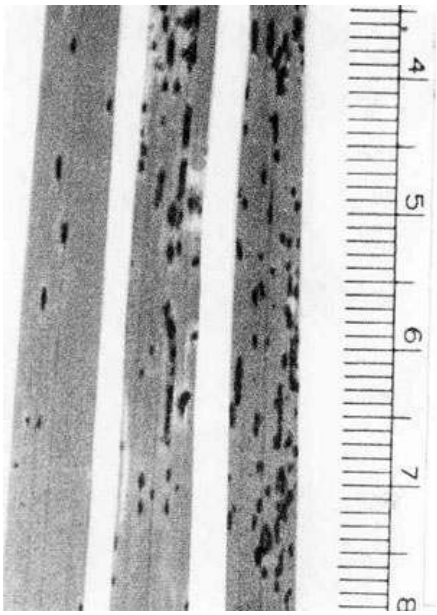

Figure 1. Stagonospora leaf spot on orchardgrass.

SYMPTOMS

Small, slightly elongate-to-elliptical spots or lesions form on the leaves, leaf sheaths, and culms early in the growing season. The lesions may be dark purple, purplish black, purplish brown, dark brown, or gray to tan, often with tan to straw-colored centers (Figure 1). Several lesions may later merge, causing the leaves to wither and die prematurely from the tip downward. In other cases, long brown streaks develop along the leaf margins. Pycnidia (fungal fruiting bodies), speck-sized and golden-brown to black, form in the dead or older affected leaves, culms, and glumes. However, the pycnidia do not always occur within the visible lesions (Figure 2).

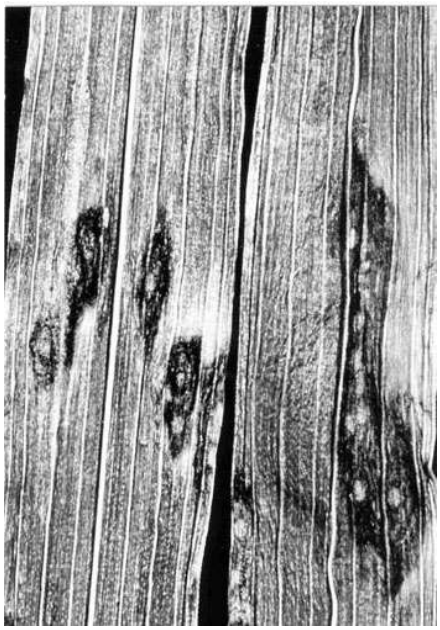

Figure 2. Extreme closeup of Stagonospora leaf spot on smooth bromegrass.

Stagonospora leaf spots are often confused with those produced by species of the fungus *Septoria.* The fungal spores (conidia) must be examined microscopically to distinguish between the two pathogens. *Septoria* conidia are needle-shaped and, as a rule, are at least 10 times as long as they are wide. By contrast, *Stagonospora* conidia are broader or more cylindrical and are usually less than 10 times as long as they are wide (Figure 3).

For further information contact Dean K. Malvick, Extension Specialist, Department of Crop Sciences, University of Illinois at Urbana-Champaign.

Disease Cycle

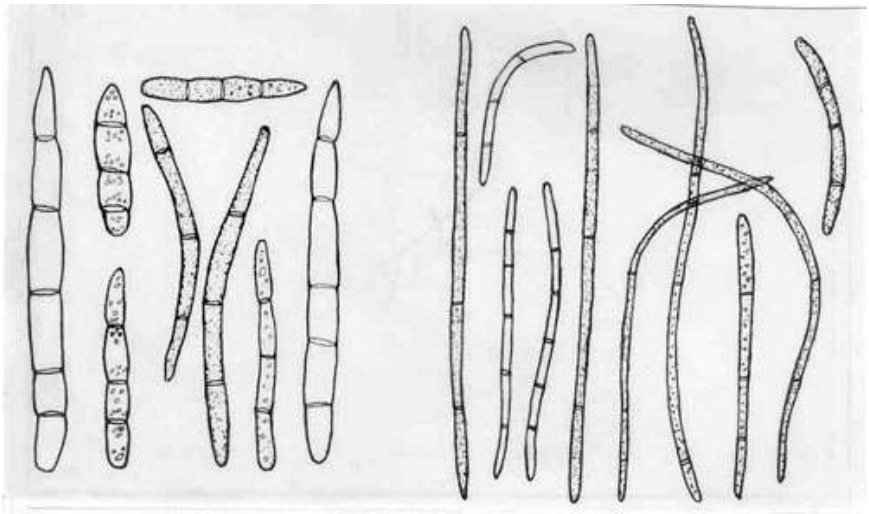

Figure 3. Left, typical spores (conidia) of Stagonospora species; right, typical conidia of Septoria species.

The *Stagonospora* fungi overwinter as pycnidia embedded in dead leaf or culm tissue. The fungi resume growth during cool, spring weather when the moisture conditions are damp to wet. The conidia exude from the pycnidia in yellow or hyaline tendrils and act as primary inoculum. The conidia are carried by air currents or splashing raindrops to nearby plants or adjacent fields. Under optimum conditions of continuous or abundant moisture and temperatures of 68° to 77°F (20° to 25°C), the conidia germinate and infect new host tissue, producing another "crop" of conidia within 72 hours. In cool, damp weather these cycles continue throughout the summer until late fall, reaching a peak just before or during heading time. Periods of dry weather or high temperatures check conidial germination and infection, thus halting disease development.

CONTROL

1. Where possible, sow only certified, disease-free seed of improved, well-adapted varieties.

2. Avoid:

    a. Excessive rates of fertilizers high in quickly available nitrogen.

    b. Pure, dense stands of a single grass variety. Where possible, seed a mixture of forages.

    c. Leaving a heavy mat of hay on the grass during damp weather.

3. Rotate with non-grass crops where practical. Rotation helps prevent disease buildups.

4. Follow recommended mowing and grazing practices.

5. Keep down weed grasses by cultural or chemical means.

6. Consider a careful, controlled burning of dead grass in the early spring, which may be warranted if pastures are severely affected. This practice destroys organic matter, but kills the leaf-blighting fungi and bacteria in the overwintering leaves and crop refuse.

Resistant varieties of orchardgrass and possibly of reed canarygrass may become available in the future.

Table 1. Cultivated forage, ornamental, and weed grasses susceptible to species of Stagonospora

Alkali sacaton

Annual or Italian ryegrass

Barley (Mouse, Squirrel-tail, and other species)

Bentgrasses (Creeping and Oregon)

Big blue-stem

Bluegrasses (Bog, Canada, Canby, Kentucky, Roughstalk, Sandberg, Slender, Texas, and Wheeler)

Bluejoint

Bottlebrush

Bromegrasses (Canada, Fringe, Japanese, Mountain, Smooth, and other species)

Canarygrasses (California and Reed)

Cheatgrass

Common reed

Common timothy

Cordgrasses (Prairie and Salt meadow)

False medic

False wheatgrass

Fescues (Idaho, Meadow, Red, Sheep, and other species)

Foxtail, short-awn

Hairgrasses (Annual, Mountain, Slender, and Tufted)

Indian grass

Little blue-stem

Mannagrasses (American, Fowl, Tall, and other species)

Muhlenbergia species

Needlegrasses (Columbia, Green, Lemon, Letterman, Needle-and-thread, Porcupine, Sleepy grass, and Western)

Northern reedgrass

Oatgrass (Tall and Timber)

Oniongrasses (Alaska, Common, and other species)

Orchardgrass

Panicum species

Prairie dropseed

Prairie sandreed

Puccinellia species

Purpletop

Quackgrass

Rescuegrass

Ricegrasses (Indian and other species)

Rottboellia (Manisuris) species

Sand blue-stem

Scolochloa festucacea

Side-oats grama

Spike redtop

Squirreltail

Trisetums (Nodding, Spike, and other species)

Wheatgrasses (Bluebunch, Crested, Slender, Fairway crested, Intermediate, Slender, Western, and other species)

Wild oats

Wild-ryes (American dunegrass, Beardless, Blue, Canada, Dahurian, Russian, Siberian, Virginia, and other species)

Woodreeds (Drooping and Stout)