PURDUE UNIVERSITY

PURDUE EXTENSION

BP-107-W

Turfgrass Disease Profiles

Gray Leaf Spot

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Gray leaf spot is a foliar disease that affects perennial ryegrass and tall fescue. It is caused by a fungal pathogen (*Pyricularia grisea*) that readily infects and kills leaf blades. Leaf infections can progress into the crown area, resulting in death of individual plants. Moderate outbreaks of gray leaf spot result in clusters of thin, off-colored turf. Severe outbreaks, however, will result in the death and decay of extensive areas and ruin the entire turf stand.

The map in Figure 1 helps describe the range of the disease in the Midwest and the potential frequency for outbreaks. The purple area defines a transition zone where the disease occurs sporadically. Outbreaks are more likely to occur in the red area. Gray leaf spot has not been reported in the blue area.

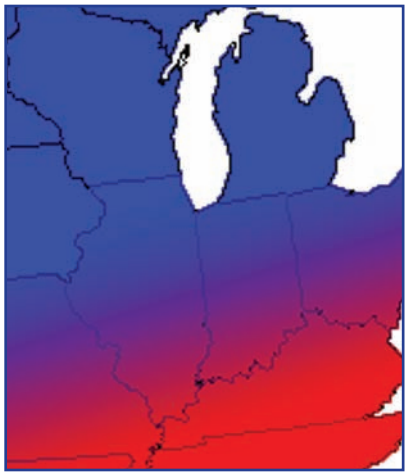

Figure 1

Disease Characteristics

From a distance, initial gray leaf spot outbreaks resemble drought stress. Affected turf often assumes a blue-gray cast and is noticeably thinned by dead and decaying leaf blades (Figure 2). Close inspection reveals blighted leaves, some with distinct lesions (Figure 3). Because the epidemic progresses so rapidly, the leaf spot symptom may be short-lived. When leaf spots are apparent, they may be confused with symptoms caused by the other leaf spot diseases, therefore, accurate identification is critical. The importance of obtaining an accurate identification as soon as possible cannot be over emphasized. The disease spreads so fast and control is so expensive that a delay in identification can be very costly.

Figure 2

If gray leaf spot is suspected, collect a cup-cutter sample and incubate it overnight in a plastic bag. A distinct gray mold will be apparent on leaves blighted by gray leaf spot (Figure 4). This mold is quite distinct from the cottony mycelium produced on leaf surfaces by other diseases including dollar spot, brown patch, and Pythium blight. For more on dollar spot, see Purdue Extension Publication BP-105-W, http://www.ces.purdue.edu/extmedia/BP/BP-105-W.pdf; for brown patch, see BP-106-W, http://www.ces.purdue.edu/extmedia/BP/BP-106-W.pdf; for Pythium blight, see BP-109-W, http://www.ces.purdue.edu/extmedia/BP/BP-109-W.pdf.

Figure 3

The gray leaf spot pathogen can survive Midwest winters in infected turf debris, but over-winter survival is extremely low. Unless turf is severely damaged by an extensive outbreak, it is unlikely that the surviving population will be large enough to threaten perennial ryegrass the following summer. More often, Midwest turf is infected by the airborne spores of the pathogen that are carried from the South with large summer

storms or hurricane remnants. Then, once established in the Midwest, the pathogen produces more spores on infected tissues and spreads the disease locally. New infections readily occur on unprotected leaf blades and result in more lesions that produce another generation of spores to continue the disease cycle.

Perennial ryegrass less than one year old and tall fescue are extremely susceptible. Under moderately favorable conditions, large stands of juvenile turf may die off in a matter of weeks. Because weather favoring pathogen activity extends into early fall, over-seeding efforts with perennial ryegrass or tall fescue may be futile if the disease is established locally. It has been reported that excess levels of nitrogen fertilizer will contribute to increased disease severity.

Figure 4

Disease Control

Resistance to Disease

Perennial ryegrass cultivars vary in their susceptibility to gray leaf spot, although none can be considered resistant. Observations in cultivar trials in experimental field plots during the summer of 2005 in West Lafayette, Indiana showed that the cultivars Linn, Premier, and Pinnacle are among the most susceptible. All tall fescue cultivars also are susceptible. The disease does not affect creeping bentgrass, annual bluegrass, and Kentucky bluegrass. Sodding or over-seeding with Kentucky bluegrass is recommended for repairing perennial ryegrass stands ruined by gray leaf spot. Tall fescue stands are best repaired through dormant seeding.

Cultural Practices that Suppress Disease

Because moisture on leaf surfaces is important throughout the disease cycle, efforts should be made to avoid practices that extend dew periods. Therefore, irrigation should not be scheduled during late afternoon or early evening, especially after outbreaks have already occurred. Other cultural practices appear to have little effect on gray leaf spot development.

Chemical Control Options

Fungicides are important for gray leaf spot control on golf courses and sports turf. The most effective fungicides are strobilurins (Heritage 50WDG®, Insignia 20WG®, and Compass 50WD®) and thiophanate-methyl (Cleary's 3336® and others). Chlorothalonil (Daconil®, Ultrex®, and others) and DMI fungicides (Banner Maxx®, Bayleton 50WDG®, Eagle 20EW®, and others) have limited efficacy but may be useful when disease pressure is low. Dicarboximides (Chipco 26GT® and others), flutolanil (Prostar®), and products used to control Pythium blight are not effective against gray leaf spot. The extent of disease pressure will greatly influence fungicide performance. If gray leaf spot outbreaks are in an advanced state by the time fungicide sprays are initiated, it is likely that levels of control will be unacceptable. Fungicide-resistant strains of the pathogen have been identified in the Midwest. Fungicide selection should be guided by a sound resistance-management strategy.

Home Lawn Help

Managing gray leaf spot in home lawns will be a challenge. Homeowners who take pride in their perennial ryegrass and tall fescue lawns should be on alert during the hot, humid days of summer and early fall, especially after experiencing the remnants of Gulf Coast hurricanes. Because symptoms of gray leaf spot resemble those of other, less destructive problems, accurate identification is important. To avoid creating ideal conditions for disease development and extensive turf damage, do not irrigate during late afternoon or early evening hours once an outbreak has been identified. Damaged perennial ryegrass lawns can be over-seeded with Kentucky bluegrass with only minor cosmetic changes to the lawn. That option will not result in a desirable effect in tall fescue lawns. Dormant-seeding tall fescue lawns is a reasonable approach for repairing damage caused by gray leaf spot.

Homeowners who are interested in the fungicide option should understand that results will often be erratic, but always expensive. For best results, contract fungicide applications with lawn care professionals.

For other Turfgrass Disease Profiles, visit www.agry.purdue.edu/turf/publicat.htm#BP.

Figures 1 and 3 by Richard Latin. Figures 2 and 4 courtesy of Philip Harmon.

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