



# Solution sheet

## Gray Leaf Spot

### // The Problem

Gray leaf spot is a devastating disease that emerged in the 1990's on cool-season turfgrass. It is caused by the foliar fungal pathogen *Pyricularia grisea* and is devastating on ryegrasses and can damage tall fescue. This fungal disease has had a significant impact on perennial ryegrass use, shifting golf courses towards using creeping bentgrass on fairways and other turf species in roughs. Gray leaf spot affects a wide range of species including tall fescue, St. Augustinegrass, and kikuyugrass, but strains that attack warm-season turfgrass appear to be different than those that attack perennial ryegrass and tall fescue.

### What To Look For

Overall damage by gray leaf spot can be confusing and difficult to identify. Initial damage to turf looks similar in size to dollar spot or Pythium blight, small reddish to tan circular patches. If conditions remain conducive, patches become larger and irregular in shape, similar to brown patch. Under the right conditions, entire areas may become blighted in a period of a few days. One indication of gray leaf spot activity is the selective infection of perennial ryegrass in mixed turfgrass stands. Perennial ryegrass is less likely to recover than tall fescue and seedling turf is much more susceptible.

On individual leaf blades, gray leaf spot appears as small black to brown, water-soaked lesions that eventually develop into elliptical shapes, which are often gray with purple to dark brown borders. Eventually the spots coalesce on leaves and partial to complete blighting occurs. Gray leaf spot gives blighted leaves a twisted appearance, or cause them to bend back and have a fishhook shape. Infected leaves may be covered with abundant, white-gray, powdery spore masses. At high magnification, the multi-celled spores look somewhat like bowling pins and can be easily identified from other pathogens.

Gray leaf spot is most severe under conditions of warm and humid or wet weather. Infections can occur at temperatures as low as 68°F, with ideal air temperatures ranging from 82-90°F. Disease may start in the mid-summer but can be very severe in the late summer to fall. Maximum daytime temperature + minimum relative humidity >140 may be a good indicator of gray leaf spot activity in the late summer through fall. Cold weather and frost in the fall will slow or halt disease.

### // The Solution

Cultural practices that help reduce gray leaf spot include the use of newer perennial ryegrass and tall fescue varieties that have increased gray spot resistance, regular aeration to reduce compaction, careful use of nitrogen (N) fertility in newly established turf and delaying fall seeding until the onset of cooler weather. Slow-release nitrogen sources are preferred because they usually do not increase the development of gray leaf spot. No more than 0.5 lb. N per month in the summer should be applied. Higher mowing heights may increase gray leaf spot; roughs often see more blighting than their adjacent fairways. Other stresses to avoid during periods conducive to gray leaf spot include the use of herbicides and plant growth regulators, excessive fertility or drought stress. Good air circulation is important because it can reduce the leaf wetness duration that gray leaf spot needs. At optimal air temperature (82-90°F) only 9 hours of leaf wetness is required for infection.

Fungicides are necessary in warm, humid periods with the greatest need in late summer when rapid disease development can occur. The QoI (strobilurin) and benzimidazole fungicide families have historically provided the best control, but fungicide resistance is present in some locations. Avoid curative use of QoI fungicides and tank-mix with chlorothalonil, mancozeb or DMIs to increase control. Rotate QoIs with other fungicide classes in preventive programs to delay resistance development.

Bayer solutions include Exteris® Stressgard®, Mirage® Stressgard, Tartan® Stressgard, Bayleton® FLO and Compass® 50 WG. All provide added control of other important turf diseases such as fairy ring, dollar spot, summer patch, anthracnose and brown patch, which can be active during the same time period. Exteris Stressgard, Mirage Stressgard and Tartan Stressgard contain Stressgard Formulation Technology and will help reduce summer stress on cool-season turfgrass species. Tank-mix multi-site fungicides like chlorothalonil or mancozeb to extend control, especially if QoI resistance is suspected.

# Gray Leaf Spot Solutions

Solution <sup>1</sup>	Rate (per 1,000 sq. ft.)	Application Interval
Exteris® Stressgard®	2.1 - 6.0 fl oz	14 - 28 days
Mirage® Stressgard <sup>2</sup>	1.0 - 2.0 fl oz	14 - 28 days (fairways)
Tartan® Stressgard <sup>3</sup>	1.0 - 2.0 fl oz	14 - 28 days
Bayleton® FLO <sup>4</sup>	0.5 - 1.0 fl oz	14 days (preventive)
Compass® 50 WG <sup>5</sup>	0.15 - 0.2 oz 0.25 oz	14 days 21 days
Compass 50 WG + Bayleton FLO	0.1 - 0.2 oz + 0.5 - 1.0 fl oz	14 - 21 days

<sup>1</sup>See product labels for complete use and instructions. Always read and follow label instructions carefully. <sup>2</sup>Do not exceed 6.5 fl. oz./1,000 sq. ft./year, except in New York state where the maximum of three 1.0 fl. oz. applications/year can be used. <sup>3</sup>Do not exceed 345 fl. oz./acre/year. Do not make more than 2 sequential applications for gray leaf spot control. <sup>4</sup>Do not exceed 3.8 fl. oz./1,000 sq. ft./year. For residential lawns, do not exceed 1.4 fl. oz./1,000 sq. ft. per application. <sup>5</sup>Do not exceed 34.5 oz./acre/year. Do not make more than 2 sequential applications for gray leaf spot control.



Symptoms of gray leaf spot on perennial ryegrass fairway in Oregon. (Bayer)



Gray leaf spot causing patches of blighted turf on a perennial ryegrass rough in Kansas. (Bayer)



Foliar symptoms associated with gray leaf spot: elliptical lesions and leaf twisting of dead leaf blades. (Bayer)



Spores of *Pyricularia grisea* at 200X magnification. Confirmation of gray leaf spot is best made by microscopic detection of pear-shaped conidia in suspected samples. (Dr. Larry Stowell, PACE Turf)

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