



The leaf spots are tan to gray, often depressed at the center, with irregular purple to brown edges. Tiny lesions enlarge rapidly into round, then oval spots, and later elongate across the entire leaf blade.

# Gray Leaf Spot

## Causal Agent

- *Pyricularia grisea*, also known as *Magnaporthe grisea*

## Disease Common Names

- Gray leaf spot

## Background Information

Gray leaf spot can be an important foliar turfgrass disease and this pathogen can also devastate crops of rice. Severe outbreaks of this disease can kill entire turf stands within a few weeks. This disease poses a concern for athletic fields and golf course fairways. However, gray leaf spot is not currently a major concern in Ontario.

## Conducive Environment

Gray leaf spot is more prevalent when temperatures and humidity are high. The pathogen causing this disease requires a minimum of 14 hours of leaf wetness to initiate infection. Other factors including soil compaction, drought stress, and high nitrogen levels may predispose areas to gray leaf spot. When conditions are favourable, this disease can develop rapidly and expand into large, necrotic areas. The optimal temperature for the development of this disease is between 27 and 32°C. As the lesions mature and expand, conidia are produced which can be moved via rain, wind, equipment, and humans to other areas. This disease usually subsides in late October, or after heavy frosts.

## Susceptible Hosts

This disease is most serious in newly established turf, especially in areas that are shaded, have restricted airflow, or are cut at a higher mowing height. Historically, this disease only affected St. Augustine grass but it has lately become a serious problem in cool-season turfgrasses such as perennial ryegrass and tall fescue.

## Appearance

At first, the symptoms associated with gray leaf spot can resemble heat stress or drought. In the early stages of disease development, small, water-soaked lesions appear which later turn brown or gray in colour. Mature lesions may have a yellow halo around them. Over time, these lesions may merge together, resulting in complete blighting of the individual leaf blades and causing the entire plant to die. Blighted leaves may twist at the leaf tips into a “fishhook” shape, which is a characteristic of this disease and differentiates gray leaf spot from *Pythium* foliar blight and brown patch. Blighted leaf blades may appear gray and have a fuzzy or dusty texture due to the rapid production of conidia.

## Symptoms

- Small, water-soaked lesions turn **gray or brown**
- Mature lesions may have a **yellow halo** around the edge
- Dying leaves develop a twist at the leaf tip which resembles a **fishhook**
- Affected blades may become completely blighted
- Infected patches may remain small in size or rapidly expand into large, irregularly shaped areas





High incidence of gray leaf spot disease (many infected leaves) can lead to off-colour turf or diffusely blighted areas.

# Gray Leaf Spot

## Management Strategies

### Cultural Management

Practices that reduce the duration of leaf wetness are recommended for managing gray leaf spot. Water deeply but infrequently, preferably in the early morning. Pruning or removing trees and shrubs can increase sun exposure and improve airflow, thereby minimizing leaf wetness.

Avoid excessive nitrogen fertilization during mid to late summer, which causes lush plant growth that is very susceptible to infection by fungal pathogens. In locations where gray leaf spot is a reoccurring problem, replace susceptible hosts with more resistant grass species such as bluegrass or bentgrass.

### Chemical Management

For a complete list of pesticides for gray leaf spot, please refer to OMAFRA Publication 384: Protection Guide for Turfgrasses.

<http://www.omafra.gov.on.ca/english/crops/pub384/pub384.pdf>

Be sure to follow all integrated pest management guidelines as well as local, provincial, and federal laws when using pesticides. Note that curative fungicides are usually not effective in managing gray leaf spot, as this disease can cause serious damage quickly and can be difficult to diagnose in a timely manner. For the best results, preventative fungicides should be applied following the directions on the label.

### Other Controls & Considerations

To adequately manage this disease, one should utilize an integrated approach that requires a combination of cultural and chemical management methods. This disease is extremely difficult to manage once it becomes established in an area. If the development of this disease is in advanced stages by the time fungicide applications begin, it is highly unlikely that the symptoms will be reduced.

Some strains of *P. grisea* have developed resistance to some classes of fungicides. Therefore, following a reliable resistance-management strategy (i.e., rotating between different classes of fungicides) is highly recommended.

The incorporation of biological controls such as the bacterium *Bacillus lentimorbus* may help manage gray leaf spot. However, further studies focusing on practicality and efficacy of biocontrols are needed.

## Management Summary

- Avoid practices that increase leaf wetness duration
- Do not irrigate later in the early evening
- Increase sun exposure and air circulation whenever possible
- Keep nitrogen fertility low during mid to late summer
- Reseed with resistant grass species

