



Preparing Your Sports Pitch For A Fast & Aggressive Opponent

GRAY LEAF SPOT (GLS) *Pyricularia grisea*

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Introduction

In the world of sports, preparation is key. Whether you are a coach, groundswo-men, or a player, understanding how to tailor your pitch or field to counteract the strengths of your opponent can make all the difference. When facing a fast and aggressive opponent, such as Gray Leaf Spot fungus (GLS *Pyricularia grisea*) that has the ability to wipe out a football pitch in 3-5 day, meticulous planning, prediction tools, early identification and proactive measures are essential for maintaining a competitive edge.

Gray Leaf Spot, caused by the fungal pathogen *Pyricularia grisea* (also called *Pyricularia oryzae*, *Magnaporthe grisea* or *Magnaporthe oryzae*), can affect and St. Augustinegrass (*Stenotaphrum secundatum*) and Kikuyugrass (*Pennisetum clandestinum*) warm season grasses and is a common affliction in ryegrass (*Lolium perenne*), annual ryegrass (*Lolium multiflorum*) and tall fescue (*Festuca arundinacea*) (cool season turf) on many sports fields located in countries where temperatures can reach 20+ C and are under high humidity (a common thing on football pitches under frequent irrigation practice).

This aggressive disease, under the right conditions, can cause serious problems in a newly or well stablish pith causing a turf weakening within days. New turf is more susceptible (so if you re-seed check take those spots into account when you are trying to identify the disease) and also where your pitch receives more amount of sunlight.

However, with the right strategies in place, you can mitigate its impact and ensure your pitch remains in the best possible conditions. Let's look at this microscopic opponent in more detail.

Environmental & Management Conditions



Season: July–September (North Hemisphere), October–March (South Hemisphere)

- High humidity and temperature
- Temperature during the day > 21°C. Faster outbreak 27–32°C.
- Humidity during the night
- Prolonged leaf wetness
- High compaction, high N input

If you have dormant spores in your pitch, normally the disease will start developing during spring but might be unnoticed if environmental conditions are not constant. However, the risk will increase during summer month and also the speed of the disease cycle.

Stage of the Disease



Stage 1. The disease is present, but you can't see any visible symptoms:

Remember the spores are invisible to your eyes and could stay dormant on the soil/thatch layer. The disease might be present but it's not yet damaging tissue inside of the plant.

TIPS

Look at your historical disease outbreak records and match it with environmental conditions. A software like turfcoah, for example, could help you predict, when those conditions might happen.

If conditions are favourable and you had it before, might be a good moment to start your preventative program. For example, double check your fertility approach, your irrigation practice more in detail or plan for contact fungicide, if available.

Stage of the Disease



Stage 2. First visible sign:

If you take a close look at the turf leaves you will be able to see brown/dark spots of 1-5 mm in diameter. This symptom means the fungus is already inside of the plant. So you will need to think in controlling outside and inside of the plant. Also help your plant activating its defences, give the nutrients that could help building stronger cell walls and recover for that damage as fast as possible.

Broader visible signs:

The spots will grow in diameter (40mm) keeping a brownish/purple margin and turning yellow inside.



Dead tissue:

Leaves that had the spots now will dry out and you will find dead tissue. Young plants will look more affected than old leaves. Leaves of perennial ryegrass infected become scorched and twisted but it's not so obvious if you are constantly mowing low.

Stage of the Disease



Stage 3. Irregular patches across the pitch

You will be able to see patches in your pitch with no specific pattern or shape, with dead tissue.



IMPORTANT TIPS

Lab.

If you are not sure if you have the disease or you don't have historical data to guide you, send as soon as possible a sample to a trustful lab. Also it helps to talk to some colleagues that have similar conditions and see how they are doing. But consider the time it will take to get results back and if it is better to act and prevent anyway.

No Lab.

You can try to incubate a sample of infected plants overnight, under high humidity and warm temperatures on a seal plastic bag. Following day check for the type of mass that forms on the infected tissue. If its grey and not white, as the name of the disease, could be a good indication you have GLS.

Common misidentification with drought or heat



It can happen at early stages of the disease

Try to find any sign of spots on the leaves (more likely to be a disease rather than environment)

With pythium

It's easy to confuse it (in later stages of the disease) with pythium blight.

TIP: Gray leaf spot does not form aerial white mycelium. Check early in the morning: if you have rotten tissue and mycelium its possible you have pythium. If its dry and no visible mycelium bigger chance its GLS.

Also, with GLS if you smell the roots, you will not find any specific odour.

Basal rot anthracnose

Specially in *loium perenne* (ryegrass). Anthracnose normally occurs under low fertility inputs and starts at different temperatures (late autumn, early spring).

Key Management Recommendations

(Since it's a very fast disease, early identification is key. Benefits of an early identification- prevention- historical records with turfcoach)

1. Look closer at your turf genetics.

There are many differences in susceptibility between Perennial ryegrass cultivars, so check your pitch composition and plan your renovations, overseeding with a more tolerant cultivar. There are no completely resistant ryegrasses; however, you could reduce the risk considerably if you renew with highly tolerant cultivars and also if you can mix it with other species that are not affected, such as Kentucky bluegrass. KBG is a great alternative for replacing/repairing or overseeding areas previously affected by GLS.

2. Reduce Plant Stress.

- **Balance Fertility:** Specially N, avoid high nitrogen application rates during summer months and in forms that can flash growth quickly (fast release N). (turfcoach could help you plan fertilizer applications, rates and types depending on disease risk)
- **Balance Moisture.** Drought or overwatering could be very damaging under a GLS attack. Precision irrigation and data could really help prevent and overcome an outbreak.

Key Management Recommendations

- Balance Moisture:
 - Reduce drought. Including wetting agents in your program, especially in sand-base profiles, could help maintain moisture and distribute it more efficiently.
 - Reduce excessive leaf wetness. Cooling fans can help, and ventilation helps dry out the leaf surface.
 - Irrigate during the day so the leaf is not wet at night.

Monitor, monitor and continue monitoring!

- Decrease Soil Compaction. Back to monitoring and planning, try to decrease use or alleviate compaction when you predict there is a high risk of disease occurrence, but try not to core aerate if the disease is already there.
- Be careful with herbicides and PGRs application. If the plant is stressed, adapt your program and consider adapting, avoid imposing additional stress to the pitch.
- Collect clippings and don't raise the height of cut, maintain it lower. Clean and disinfect equipment.

Key Management Recommendations

3. Chemical Control.

This is a disease that is hard to manage only by cultural practices, if you have historical records of aggressive outbreaks fungicides are an important tool to help preventing a future attack.

Best approach is to begin applications prior the disease outbreak and continue a program adjust to environmental conditions and local regulations (that could vary between 7-28 days).

If the disease is in an advanced stage, with clear, visible damage, control will probably not be complete, and you will face some unacceptable damage. So, the best strategy is always to prevent! Remember, young seedlings are more susceptible, so planning preventative applications makes sense (normally, it's safe after the 2nd or 3rd leave and 4-5 weeks after germination).

There are records of some resistance strains of GLS, so fungicide selection should be guided. There is confirmed resistance to Qol (strobilurin) fungicides in the USA. Premixes and tank mixes are normally a good approach if you already have the disease, also for resistance management and better efficacy. Remember to alternate different modes of action and use recommended rates (chemical families, not just fungicide brands) You should be able to confirm locally what is available and legal to use.



Further Information:

For further information and as literature review, you could consult the following links:

Summary article from The Ohio State University [Gray Leaf Spot on Turfgrass | Ohioline \(osu.edu\)](https://ohioline.osu.edu/turfgrass)

Summary article from The Ohio State University [grayleafspot.pdf \(cornell.edu\)](https://www.cornell.edu/grayleafspot.pdf)

Summary article from GMA Exclusive: [A detailed look at Gray Leaf Spot: a potentially devastating turfgrass disease | Grounds Management Association \(thegma.org.uk\)](https://www.thegma.org.uk/a-detailed-look-at-gray-leaf-spot-a-potentially-devastating-turfgrass-disease)

Chemical Control of diseases from Kentucky, Rutgers and Wisconsin University [ppa1.pdf \(uky.edu\)](https://www.uky.edu/ppa1.pdf)

When looking at more tolerant cultivars. Link to [National Turfgrass Evaluation Program - WELCOME \(ntep.org\)](https://www.ntep.org/national-turfgrass-evaluation-program-welcome)