

Turfgrass Disease Profiles

Red Thread

Philip Harmon, Graduate Research Assistant
Richard Latin, Professor of Plant Pathology

Red thread is a foliar disease that usually occurs on taller mown turfgrasses during spring and fall. Red thread symptoms create an undesirable appearance, but crowns and roots are not infected, so plants are not killed and turf eventually will recover.

Red thread takes its name from the antler-like structures (sclerotia) produced by a fungus (*Laetisaria fuciformis*) on the tips of infected leaf blades. The red or pink sclerotia (Figures 1 and 2) are visible without magnification and are useful for identifying the disease in the field.

From a distance, red thread symptoms appear as circular patches of tan or pink turf about 4-8 inches in diameter (Figure 3). The pink color is caused by the sclerotia and/or flocks of pink mycelium on leaf blades (Figure 4). Other diseases, including dollar spot, pink snow mold, and especially pink patch, have field patterns and symptoms that resemble red thread, and are active during similar environmental conditions. However, after close inspection, red thread is easily distinguished from other diseases by the presence of the sclerotia.

Red thread most commonly affects Kentucky bluegrass, perennial ryegrass, and tall fescue. Outbreaks usually occur in low maintenance turf stands such as residential lawns, golf course roughs, and some low budget athletic fields. Red thread development is most common where turfgrass nutrition is poor and there are other factors that promote slow growing turf.

Disease development occurs over a relatively wide range of cool conditions (40-70° F), typically in the spring and fall, especially during long evening dew periods.

Although the disease is often associated with malnourished, low-quality, slow-growing turf, a rapid build-up of inoculum can result in outbreaks on well-managed turf, including golf course fairways and tee boxes.



Figure 1



Figure 2



Figure 3

- Gray Snow Mold
- Pink Snow Mold
- Leaf Spot/Melting Out
- Red Thread**
- Dollar Spot
- Brown Patch
- Gray Leaf Spot
- Anthraxnose
- Pythium Blight
- Rust Diseases
- Powdery Mildew
- Slime Mold
- Fairy Ring
- Take All Patch
- Summer Patch
- Necrotic Ring Spot
- Rhizoctonia Large Patch
- Yellow Patch



The red thread pathogen survives winter as sclerotia in the thatch and soil layers. These sclerotia are a significant source of inoculum for outbreaks in subsequent years. Maintenance practices, such as mowing, play a relatively minor role in spreading the disease to unaffected areas.

Existing patches expand in a radial pattern by mycelial growth.



Figure 4

Disease Control Options

Nonchemical Approaches

Genetic resistance to red thread infection is limited. Turfgrass varieties with different levels of red thread susceptibility are listed on the National Turfgrass Evaluation Program (NTEP) Web site: <http://www.ntep.org>.

The most important nonchemical (cultural) control option involves implementing an adequate nitrogen fertility program. This involves reviewing fall-applied nitrogen programs and considering supplemental spring-applied nitrogen on turf with a history of red thread outbreaks. A good fertility program implemented over two to three years should drastically reduce further red thread problems. Other cultural practices that promote healthy turf and vigorous growth also help suppress red thread. Outbreaks may be reduced further by avoiding irrigation practices that extend dew periods (such as watering in the late afternoon and early evening).

Chemical Control

Fungicides may be used to control red thread if outbreaks occur on high maintenance turf or high value properties. QoI class fungicides (strobilurins) are very effective, especially when applied before sclerotia form. Flutolanil (Prostar®) also is very effective. Because dollar spot and pink snow mold (*Microdochium* patch) may be active at the same time as red thread, consider tank mixing other fungicides to avoid outbreaks of diseases that are not controlled

by flutolanil or QoI products.

Repeated fungicide applications targeting red thread should be unnecessary if cultural control options are implemented. After a remedial treatment to suppress an unacceptable situation, red thread may be held in check with supplemental applications of nitrogen fertilizer (0.2

pound of N per 1,000 square feet) during spring and perhaps early summer.

Red Thread Control for Residential Lawns

Fungicides are not usually advised for red thread control on residential turf for various reasons. The disease is largely cosmetic. Unless environmental conditions that promote disease development persist for extended periods, the turf will recover — usually with no lasting effects of infection. Outbreaks usually occur in spring and early summer, about the time that the benefits of fall-applied nitrogen fertilizer run out. In lawns with a history of red thread, supplemental nitrogen fertilizer (0.2 pound of N per 1,000 square feet) in mid- to late spring should reduce disease severity and will promote more rapid turf recovery.

There are situations when fungicides for red thread control on residential turf are warranted. In those cases, effective fungicides should be applied by licensed applicators when the pathogen is active.

More Information

A good place to start a long-term plan for red thread control is Purdue Extension publication AY-22, Fertilizing Home Lawns, available at <http://www.agry.purdue.edu/turf/pubs/ay-22.pdf>.

Other turf-related publications are available on the Purdue Turfgrass Management Program Web site: <http://www.agry.purdue.edu/turf/publicat.htm>.

All photos by Philip Harmon and Richard Latin.

