

## RED THREAD AND PINK PATCH DISEASES OF TURFGRASSES



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Red thread is a common disease of turfgrasses in Maryland, and is generally among the first diseases to appear in early spring. Development of the disease is favored by cool (65 - 70°F), wet weather in the spring and autumn; it may also occur during warm or very cool to cold weather in the presence of plenty of surface moisture or at snow melt in February and March. Red thread also occasionally occurs during prolonged overcast and drizzling rainy weather in the summer and may become widespread among some turfgrass species (especially creeping red fescue) during mild winters.

Red thread is caused by the fungus *Laetisaria fuciformis*, and may be associated with *Limonomyces roseipellis*, which causes pink patch. Pink patch is less common and rarely occurs in the absence of red thread. Both pathogens have the same hosts and produce similar symptoms.

Red thread has become more common and widespread in recent years, and is considered to be a disease of significant economic importance. Perennial ryegrass and the fine leaf fescues (i.e., hard, sheep, Chewings and particularly creeping red fescue) are perhaps the most susceptible turfgrass species to red thread and pink patch. Red thread and pink patch also attack bentgrasses, Kentucky bluegrass (especially common-types) and tall fescue. Neither pathogen is likely to kill turf, but they are disfiguring. Furthermore, the red thread fungus can severely blight foliage, reduce stand density and promote weed encroachment.



Pink and/or reddish mycelial growth and cotton candy flocks of the red thread fungus in the turfgrass canopy are easy to recognize.

The symptoms and signs of red thread are distinctive. In the presence of morning dew or water from rain, a corral pink or reddish layer of gelatinous fungal growth (mycelium) can easily be seen on leaves and sheaths. Upon closer inspection, the green leaves of invaded plants develop a water-soaked appearance. When leaves dry, the fungal mycelium becomes pale pink in color and can be seen on the straw-brown or tan tissues of dead leaves and sheaths.

Pink, cotton candy-like flocks of mycelium may develop on infected leaves. During the late stages of leaf blighting, bright red, hard and brittle strands of fungal mycelium ('red threads' or sclerotia) may be seen extending from leaf surfaces, particularly leaf tips.

These ‘red threads’ fall into the thatch and serve as resting structures for the fungus, which survive long periods that are unfavorable for growth of the pathogen. Once favorable conditions for disease activity recur, these sclerotia germinate and produce mycelium, which again initiates the disease cycle.

The fungal mycelium primarily enters plants through open stomates. From a distance, affected turf has a straw-brown, tan or pinkish-tan color that appears in circular or irregularly shaped patches 2 inches to 3 feet in diameter.

Pink patch symptoms are usually less conspicuous than those of red thread. The pink patch fungus does not produce ‘red threads’ or ‘cottony flocks’, and the mycelium generally appears as a faint pink color on diseased leaves.

**KEY POINTS**

**Red thread and pink patch diseases affect many grasses, particularly fine leaf fescues and perennial ryegrass.**

**Cool wet weather in spring and fall are the most common periods of infestation**

**Red thread can reduce turf density and lead to invasion by crabgrass and other weeds.**

**A timely application of nitrogen fertilizer can reduce the severity of these diseases.**

Affected patches of turf can range one to six inches or more in diameter and usually develop a straw brown or pale pink color. The pink patch fungus penetrates leaf tissues directly rather than entering plants through stomates. Pink patch seldom develops in the absence of red thread.

Red thread and pink patch generally are more injurious to poorly nourished turfs. Under ideal environmental conditions, however, these pathogens can severely blight properly fertilized (i.e., autumn applied nitrogen) turf. Indeed, red thread is quite common on perennial ryegrass fairway and lawn grasses maintained with adequate levels of nitrogen fertilizer by professionals. Assuming turf is not overstimulated by spring applied nitrogen, these diseases can be suppressed by an application of 0.5 to 1.0 lb N/1000ft<sup>2</sup> using a readily available, water soluble nitrogen source. Application of nitrogen during periods too cool for turf growth will not aid in reducing disease severity. This is because nitrogen reduces the injurious effects of the disease by stimulating plant growth and vigor. Evidently, the fertilized plants are able to replace damaged tissues more rapidly than the pathogens can inflict injury. Excessive usage of nitrogen fertilizer in spring, however, may enhance other turf diseases, and reduce the environmental stress tolerance of plants during summer.

Employment of a complete nitrogen + phosphorus + potassium fertility program and the planting of environmentally adapted, disease resistant cultivars are the best approaches to the control of turf diseases. Despite hard work and use of proper cultural practices, red thread and pink patch may cause a drastic reduction in stand density, which often encourages weed encroachment. In fact, the use of fungicides to control red thread in the spring has been shown to reduce crabgrass infestations.

There are several fungicides available that will effectively control red thread. It is likely that pink patch can be controlled with the same fungicides recommended below for red thread. In most home lawn situations, a single application of a fungicide should provide sufficient disease control. Under more intense cultural systems such as golf courses, fungicides may require reapplication on 10 to 14 day intervals on an as needed basis.

**Some Effective Fungicides\***

Bayleton	Compass	Headway
Banner MAXX	Curalan	Heritage
Chipco 26GT**	Daconil Ultrex**	Insignia

\*See TT-38 “Maryland Turfgrass Disease Control Recommendations” for more information about fungicides and application rates.

\*\*These fungicides are no longer labeled for use on homelawns.