

## Four things to control diseases in cool-season turfgrass

**Support the turf system:  
mow, mulch, fertilize, and  
use fungicides when all  
else fails!**

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■ Plant diseases need a host, a pathogen, and an environment that supports their growth.

Environment is the key factor. Initial disease outbreaks and, often, their severity depend on temperature, moisture and



The plot on the left received no nitrogen. Notice severe dollar spot. The plot on right received 4 pounds of nitrogen/1000 sq. ft. during the season.



Mowing wet turf infected with brown patch caused the disease to spread along the mower's path.

humidity.

- An irrigation schedule that produces alternate wetting and drying of thatch stimulates the *Helminthosporium*-type fungi that cause leaf spot and melting-out.

- Close mowing, especially during summer, creates plant stress by depleting carbohydrate reserves, which play a key role in the plant's ability to defend against and tolerate disease.

- Extensive use of landscape trees and shrubs in turf areas reduces air movement, which increases humidity and extends dew periods that favor pythium blight and brown patch.

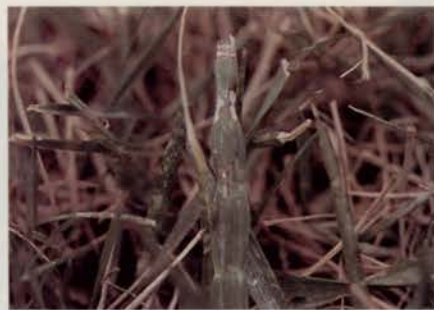
**Fertilize properly**—Kentucky bluegrass, the dominant cool-season turf in the temperate regions of North America, generally needs 2 to 4 lbs. of N/1000 sq. ft./season. Applications made in the late summer, fall and during dormancy are important when treating dollar spot, melting-out, summer patch and necrotic ring spot.

Studies at Michigan State University showed that applying 1 lb. of N per 1000 sq. ft. during each active growing month helped promote recovery of turf affected by necrotic ring spot or summer patch. Slow release nitrogen fertilizers and certain bioorganic fertilizers reduced necrotic ring spot intensity and helped promote recovery.

Probably the most critical fertilizer application is in the fall when shoot growth has stopped but roots are still actively growing.

**Mow properly**—Most cool-season turfgrasses do not like being mowed too short during the active growing season. The leaves generate energy needed for growth, reproduction and survival. Turfs mowed at 1 inch are more stressed and are more prone to disease than those mowed at 2.5 to 3 inches. Temperature is a key factor in turf pathogen activity, and the temperature is higher in a turf cut at 1 inch than in one cut at 3 inches. The taller turf has more biomass, is less dense, has better wear tolerance and has better recuperative capacity, all of which reduce its vulnerability to pathogens.

**Mulch**—Mulching recycles nutrients



A dull blade causes wounds that provide an entrance for pathogens.

and does not increase disease activity. Two key components to consider when mulching clippings are more frequent mowing and a mulching mower that chops the clippings into smaller pieces. Properly mulched clippings are used as nutrients by microorganisms that are antagonistic to pathogens. Long clippings can serve as a food base for pathogens and help pathogen mycelia move from plant to plant.

**Use fungicides**—Sometimes, no matter how hard a turf manager tries to follow good cultural practices, diseases still cause injury. Fungicides play a critical role in disease management.

Although turf managers have more than 30 different fungicides and fungicide combinations to choose from, no single fungicide product controls all major turf diseases. Products range from contact fungicides with 7- to 14-day residual activities to localized systemics and systemics that provide protection for 21 to 28 days.

In developing a fungicide program, consider which diseases present the greatest threat, which respond best to preventive treatment and which can be controlled by curative application. Some turf diseases are difficult to control once they are active. To defend against this, inspect the turf area regularly so you can detect early disease activity and make an immediate application.

—The author is an extension plant pathologist for the University of Nebraska-Lincoln.

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## Preventive and curative fungicide programs for cool-season turf diseases

Disease	Type of program	First application	Products available
Leaf spot/ melting out	P	May	chlorothalonil; iprodione; mancozeb; propiconazole; vinclozolin
Stripe smut	P	April or October	cyproconazole; fenarimol; flutolanil; propiconazole; thiophanate-methyl; triadimefon
Necrotic ring spot	P	When soil temperatures reach 60° at 2-inch depth	cyproconazole; fenarimol; iprodione; thiophanate-methyl
Fairy ring	P	At first symptoms of green ring	flutolanil
Dollar spot	P/C	June for ryegrass/ bentgrass	chlorothalonil; cyproconazole; iprodione; mancozeb; propiconazole; thiophanate- methyl; triadimefon; vinclozolin
Brown patch	P/C	June for ryegrass/ bentgrass	chlorothalonil; cyproconazole; flutolanil; iprodione; propiconazole; thiophanate- methyl; triadimefon; vinclozolin
Summer patch	P	When soil temperatures reach 65° F at 2-inch depth	cyproconazole; fenarimol; propiconazole; thiophanate-methyl; triadimefon
Pythium blight	P	June	chloroneb; ethazol; fosetyl-Al; metalaxyl; propamocarb
Rust	P	July	chlorothalonil; cyproconazole; mancozeb; propiconazole; triadimefon
Typhula blight	P	October/November	chlorothalonil; cyproconazole; fenarimol; flutolanil; iprodione; PCNB; propiconazole; triadimefon; vinclozolin
Fusarium patch	P	October/November	chlorothalonil; cyproconazole; fenarimol; iprodione; PCNB; propiconazole; thio- phanate-methyl; triadimefon; vinclozolin

P=Preventive C=Curative

*Presented for information purposes only; no endorsement is intended for products listed, nor criticism for products omitted. Check with local specialists for specific recommendations. Read and follow label instructions. Chart provides approximate timing guidelines. Preventive treatment should be considered for turfgrass with a history of disease and should not be considered a blanket treatment for all turf. Remember, a successful fungicide program is one that is integrated with cultural practices. Proper fertilization and mowing may reduce the dependency on fungicides for disease control.*

Source: Dr. Watkins