



DISEASES OF WARM SEASON TURF

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Managers of southern turf not only fight diseases of six different warm season turf species, but also diseases of overseeded cool season turf species.

Although most southern turf diseases are caused by fungi, agents such as bacteria, viruses, and nematodes, can cause serious problems to certain grasses.

Southern turf managers can't depend solely on fungicides for disease control. Good variety selection, proper fertilization, and appropriate cultural practices are very important in disease control.

No amount of fungicide will compensate for poor fertility and

cultural practices.

Brown patch

Brown patch is the most common turf diseases occurring in the Southeast. Although St. Augustine and zoysiagrass are the most susceptible species, even the more tolerant centipedegrass, bermudagrass and ryegrass are frequently damaged by this fungus.

Brown patch is favored by warm, moist weather combined with cool nighttime temperatures. Therefore, in certain areas of the South, brown patch can and does occur any month of the year.

In the upper regions of the South,

the most favorable conditions for brown patch development occur from late April through mid-October.

Symptoms of brown patch on warm season grasses are different than the symptoms of the disease on cool season turf. Even though the grass is usually killed in a circular pattern, many times the smoke ring is not seen on southern turf.

Under certain conditions the fungus may cause a gradual thinning of the turf over a rather large area instead of killing in a circular pattern.

There are several factors that tend to make the grass more susceptible to brown patch. One is the excessive ap-

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A developed case of fairy ring on centipede grass.



Rust on zoysiagrass.



Melting out on common bermudagrass.

plication of nitrogen fertilizer. The resulting lush growth is readily attacked.

Another is watering late in the afternoon and allowing the grass to remain wet for long periods of time. Excessive accumulation of thatch also creates a favorable environment for development of brown patch and many other diseases.

Fungicides are best used on a preventative schedule. Once symptoms develop, control can be difficult.

Dollar spot

Dollar spot is common on many species of grasses, including bermudagrass, zoysiagrass, and annual and perennial bluegrasses.

Symptoms of dollar spot are different on certain warm season grasses than those noted on cool season grasses.

On finer textured grasses, such as bermudagrass and zoysiagrass, the disease kills grass in small patches two to three inches in diameter. Under severe conditions, these patches may coalesce so that the turf has a mottled appearance. Blades of grass at the outer edges of the infected area develop tan spots with reddish brown margins.

On coarser warm season grasses, turf is killed in larger patches ranging up to a foot in diameter.

Dollar spot is prevalent during periods of mild weather during the spring and fall.

Unlike brown patch, dollar spot is retarded by high levels of nitrogen. Still, turf managers should consider the impact of high nitrogen on brown patch and other diseases.

Watering should be performed only in the early morning so the foliage can dry quickly. Fungicides can be used to help bring the disease under control once it gets established.

Leaf spots

A number of fungi cause leaf spots on many southern grasses. Regardless of the causal agent, leaf spots and their control on southern grasses are similar.

Helminthosporium leaf spots (*Bipolaris* spp.)—Bermudagrass and ryegrass are most severely affected by helminthosporium infections, although the fungus can survive on centipedegrass and St. Augustine.

Infection can occur over a wide range of temperature, but usually is more severe at 70 to 95 degrees F. Milder temperatures in the spring and fall are more favorable for infection.

Helminthosporium causes small, dark-colored spots or flecks on the leaves and sheaths. Leaf spots are usually more numerous near the collar of the leaf blades. Severely affected leaves wither and die and the turf frequently becomes brown and thin.

Symptoms on overseeded ryegrass are altogether different. Although leaf spots may occur, this same helminthosporium can cause severe

crown rot. This causes a yellowing and discoloration of the grass and a general thinning of the turf.

Fertilize with adequate levels of nitrogen and potassium if helminthosporium diseases become a problem. With careful management, apply fungicides recommended for helminthosporium blight control.

Gray leaf spots—St. Augustine is the primary host for gray leaf spot. The disease occurs throughout the lower South during warm, humid weather.

Spots on the leaf blades are the most visible, but sheath and stem lesions also occur. Leaf spots begin as olive green to brown, water-soaked spots as small as a pinhead. These enlarge rapidly and form a circular to elongate lesion that is brown to ash colored with purple margins.

The disease occurs during moderate to warm weather accompanied by high relative humidity. Severity of the disease is enhanced by applications of nitrogen fertilizer. It is more a problem in shaded areas where the grass remains wet from dew.

Treatment with a fungicide may become necessary if the disease outbreak is severe and accompanied by prolonged periods of wet favorable weather.

The fungicides chlorothalonil, mancozeb, and cycloheximide plus thiram have been found to be effective in controlling gray leaf spot.

Rust

Rust or *Puccinia* species infect a number of grasses grown in the South, including ryegrass, zoysiagrass, bluegrass, fescue, bermudagrass, and St. Augustine.

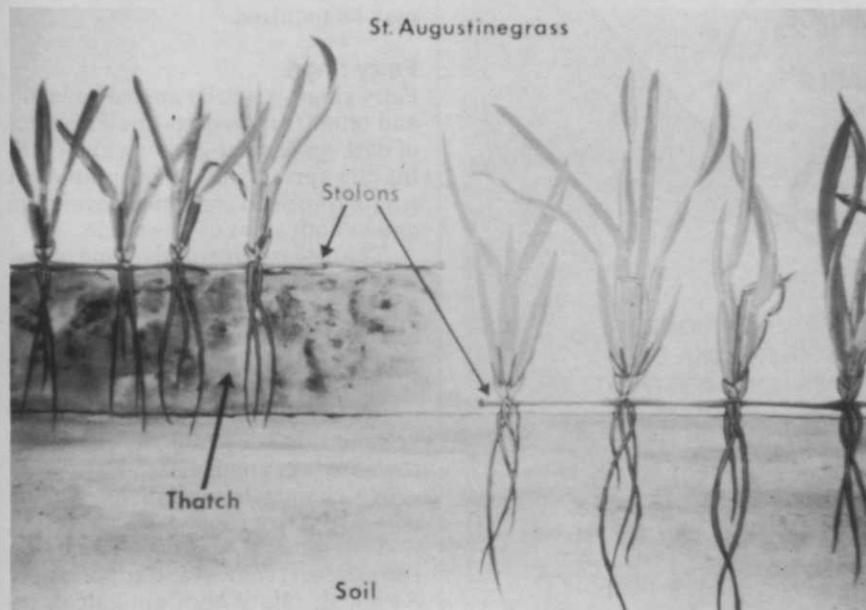
Zoysiagrass and bluegrass are the most often infected grasses.

Susceptibility depends on the variety. Fungus infection is favored by minimum and maximum temperatures of 50 to 70 degrees F. respectively. For this reason, the disease does not usually cause severe damage over an extended period. It is likely to be more severe in shaded areas during rainy, humid weather. Affected turf will appear unthrifty and begin to thin.

The disease is characterized by the presence of pustules on the leaf blades. These pustules range from bright orange to cinnamon-brown in color depending upon the species of fungus present.

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Thatch on St. Augustine grass.

Certain varieties of ryegrass are extremely susceptible to rust, and sometimes severe damage can occur. Zoysiagrass, especially Meyer and Emerald, are most severely infected by rust.

Fertilize to stimulate grass growth, mow on a four- to five-day schedule, and catch clippings. If necessary, a fungicide may be applied to help reduce the amount of disease present.

Triadimefon, chlorothalonil, mancozeb, and cycloheximide are effective in controlling rust.

Spring dead spot

Spring dead spot is a serious disease of bermudagrass in certain parts of the upper Sunbelt. It is found generally on bermudagrass or zoysiagrass under high maintenance.

Damage to the turf apparently occurs during the dormant season. When greenup occurs in the spring, areas a few inches to several feet in diameter appear where the sod is completely dead.

Spring dead spot's causal agent has not been identified. The only control procedures recommended are good cultural practices and limiting the use of nitrogen fertilizer, especially late in the growing season.

Research has shown that fungicides can limit the damage. However, at the present time only Benomyl and PCNB are labeled, and these may be limited uses in certain states.

St. Augustine decline

St. Augustine decline (SAD) is caused by a virus. The symptoms are a mosaic-type chlorosis of the leaf blades that resemble nutrient deficiency or mite feeding. Evidently there are several strains of the virus since there is a great range in damage to St. Augustine.

To this point, the disease has only

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been recorded in Arkansas, Texas, Louisiana, and Mississippi. No chemicals are available for the control of SAD.

Several varieties of St. Augustine, however, are resistant to the virus. These can be planted in areas where the disease is a potential problem.

Floratam was the first variety released with resistance to SAD. It is also resistant to chinch bugs. It has poor cold tolerance and should be used only in the lower South.

Seville is resistant to SAD and is more shade tolerant than common St. Augustine. Raleigh has both SAD resistance and good winter hardiness.

Downy mildew

Downy mildew of St. Augustine was first described on common St. Augustine in Texas in 1969. Since then the disease has spread and has been identified in Arkansas, Louisiana, and Mississippi.

Downy mildew appears as white, raised, linear streaks that develop parallel to the mid-veins of the leaf. Streaks appear in the spring and remain throughout the summer, giving the leaves a yellow appearance with some death toward the tips.

Severe disease occurs in grass grown in flood plains or poorly drained areas.

The white-streak symptom is easily confused with the virus disease, St. Augustine decline. However, the virus symptoms are more yellow in color and more mottled than striped.

Downy mildew has been difficult to control with most common turf fungicides. Good drainage is recommended for cultural control.

Pythium blight

Pythium blight can be a devastating disease on overseeded ryegrasses. Bermudagrass and other warm season grasses can be affected to a lesser degree.

An abundance of moisture is required for pythium blight development. In addition, the disease is favored by warm temperatures.

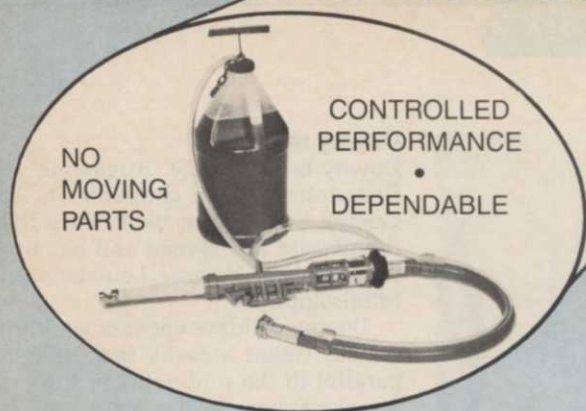
Affected grass is killed rapidly in spots 2-4 inches in diameter. These spots may develop into streaks so that large areas of turf are damaged.

During early stages of development, the affected grass appears wilted and greasy. At times the affected turf spots may have a cottony appearance due to the abundant growth of the fungus. For this reason, the disease is frequently referred to as cottony blight.

Certain species of pythium can also cause root rot on turfgrasses. Due to the restricted root function, the plants become chlorotic and the turf begins to thin.

On overseeded grasses the disease can be limited by using treated seed and delaying the overseeding until as late as possible during the fall. Water as little as possible during periods of favorable activity. The perennial ryegrasses are not as susceptible as annual. Under severe disease pressure, chemical control

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may be required.

Fairy rings

Fairy rings generally appear in lawns and other turf areas as circles or arcs of dark green, fast-growing grass during the spring and early summer. A ring of thin dead grass may develop on one or both sides of this circle.

The disease is caused by one of several soil-inhabiting fungi that commonly produce mushrooms. Mushrooms that sometimes appear in the ring are the fruiting bodies of these fungi. Stimulation of the grass is due to the release of nutrients from the organic breakdown of the thatch by the growing fungus.

No chemicals are labeled for the control of fairy ring.

Two general approaches may be considered: removal and suppression. Although relatively impractical, removal of infected soil and grass to a depth of 12 inches or more in a band several feet on each side of the infected area and replacement with clean soil is one solution.

Another approach is to suppress the disease. For low maintenance grass areas, increase the water and fertilization program to stimulate the declining grass inside the ring. Symptoms of fairy ring can be masked by pumping large quantities of water into this area.

Slime molds

Slime molds are a group of organisms that cover above-ground plant parts with a dusty gray-black or dirty yellow mass.

When you look closely at this growth, you see small round balls scattered over the plant. If you rub these between your fingers, a sooty powder emerges. This consists of spores of the fungus.

Slime molds normally live in soil where they feed on decaying organic matter. When the mold is ready to reproduce, it grows up on to the grass blades so that the spores may be spread greater distances.

Slime molds do not feed on living plants. They only use them to assist in the distribution of spores during reproduction.

Slime molds occur during wet weather throughout the spring, summer and fall. They disappear rapidly as soon as it becomes dry. Chemical control is usually not necessary.

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