

Spring Dead Spot

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Introduction

Spring dead spot (SDS) is generally considered to be the most significant disease of bermudagrass, but it can also appear on other warm-season grasses such as zoysiagrass and buffalograss. Spring dead spot disease can appear each year on home lawns, athletic fields, golf courses, and sod farms. However, it tends to be more prevalent on intensively managed bermudagrass. Low cutting height, soil compaction, high or low soil pH, over-fertilization, and thatch accumulation may contribute to the onset of the disease. This disease typically becomes evident at spring greenup during March or April in Arkansas. Multiple fungal species can cause spring dead spot, but the two primary species that cause the disease in Arkansas are *Ophiosphaerella herpotricha* and *O. korrae*.

Symptoms

The diseased area appears in the spring as well-defined, dead, circular patches that can range in size from a few inches to more than 3 feet in diameter (Figure 1). Symptoms may sometimes be confused with winter-kill and injury from soil insects such as white grubs. Although spring dead spot symptoms may occur on bermudagrass lawns of all ages, they typically appear three to four years after the turf has been established. This disease primarily affects the roots. Death of the plants is believed to occur following normal low winter temperatures in conjunction with infection from the previous fall. The

roots and stolons of diseased plants develop a dark brown to black-colored rot (Figure 2). Leaves become bleached, gray and straw-colored. The dead, sunken patches often get larger year after year. Diseased areas may not fill in with bermudagrass until July or August. Bermudagrass

Figure 1. Sunken patches of spring dead spot in a lawn.



Figure 2. Black roots and stolons of infected bermudagrass.



Figure 3. Summer recovery is slow from spring dead spot.



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recovery is slow, but regrowth may mask disease symptoms by mid to late summer (Figure 3). Weeds will often colonize the affected areas and slow recovery of the turfgrass. Additionally, application of certain preemergence herbicides in the spring may also slow recovery. The preemergence herbicide Ronstar (oxadiazon) is recommended for fastest bermudagrass recovery from spring dead spot damage.

Disease Cycle

The fungi that cause SDS usually begin to colonize the roots, stolons, rhizomes and crowns of bermudagrass in the late summer or fall and again in the spring when soil temperatures range from 55°-70°F. Even though root and crown infections occur in the fall, foliar symptoms do not typically appear until green-up in March and April of the following year. The fungus can over-summer as mycelium in infected roots and stolons of the turf. Excessive nitrogen fertilization during the late summer months tends to enhance symptom development during the following spring season.

Management

Proper plant nutrition and thatch management play a pivotal role in disease management. Homeowners should maintain a balanced soil nutrition. A regular soil test should be done to monitor potash and other elemental levels. Acidic soils tend to reduce the severity of the disease; however, this is not always the case. If soil pH is high (> 7.0), ammonium sulfate can be used to lower soil pH in a range of 6.0 to 6.8. If soil pH is low (< 6.0), calcium nitrate can be applied to raise soil pH. Excessive applications of quick-release nitrogen fertilizers should not be made in the summer following an outbreak of the disease. However, quick-release nitrogen applications at 1 lb N/1000 sq.ft. made in the late spring can hasten turfgrass recovery from spring dead spot damage. Fertilizing and irrigating too much can lead to thatch buildup, which favors disease activity. Management of thatch by verticutting and core aerification should be integral parts of the disease control/prevention program. Additionally, a practice called fraze mowing has been shown to decrease spring dead spot severity.

There appears to be a close correlation between cold hardiness of bermudagrass varieties and disease susceptibility. When establishing a lawn, homeowners should consider growing cold tolerant varieties (Table 1).

Bermudagrass varieties show substantial difference in their resistance to the disease. However, the most resistant varieties can still get the disease but not as severely as the most susceptible varieties.

Table 1: Relative tolerance of bermudagrass cultivars to spring dead spot.

RELATIVE TOLERANCE	CULTIVARS
Most	Astro and Tahoma 31
Moderate	Celebration Hybrid, Monaco, Tifway
Least	Riviera, Sun Queen, TifTuf, Latitude 36

Removal of affected patches followed by resodding or plugging can be useful if there are only a few small diseased areas within the lawn. Fungicides containing isofetamid, mefentrifluconazole, penthiopyrad, or pydiflumetofen are effective against spring dead spot. Although fungicides provide the most effective suppression of spring dead spot, emphasis should also be placed on the cultural control aspects of proper fertility, irrigation and thatch management instead of relying exclusively on fungicides for disease management. For maximum effectiveness, fungicides should be applied 1-2 times in the fall when soil temperatures from 0-4 inches are 55-67°F. All fungicides should also be immediately irrigated in with 1/8" of water for optimal disease suppression. Homeowners should consider using a professional service to apply these materials appropriately.

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