



# Identification and Control of Spring Dead Spot in Georgia

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Spring dead spot (SDS) is a persistent and destructive disease of bermudagrass (*Cynodon* sp.) in Georgia. The disease can be problematic on lawns, landscapes, golf courses (bermudagrass greens, tees and fairways) and sports fields. The disease is particularly prevalent and damaging in north Georgia, especially in the Piedmont region. However, SDS can be observed throughout the state after harsh winters and in areas where bermudagrass has been exposed to freezing temperatures for extended periods of time. The disease has also been observed in zoysiagrass, although less frequently.

## Causal Agent And Disease Cycle

*Ophiosphaerella korrae*, *O. narmari* and *O. herpotricha* are the causal agents of SDS. *O. korrae* is the most common pathogen in the southeastern United States, while *O. herpotricha* and *O. narmari* are more common in the western United States. *Gaeumannomyces graminis* var. *graminis* is also suspected to be associated with SDS in the southeastern United States. These fungi are active in the fall and spring when cool, moist conditions exist. They do not kill bermudagrass directly; instead, they make turfgrass more susceptible to cold and freezing injury by feeding on roots, rhizomes and stolons. Spore production is thought to be rare for *O. herpotricha* but more common for *O. korrae*; therefore, spread of these fungi primarily occurs through movement of infected plants or infested soil by equipment, people, animals and running water. Infection of the turfgrass begins when soil temperatures are less than 70 °F. Typically, in Georgia, infection of susceptible grasses begins in late September or early October and will continue as long as soil temperatures are above 50° F. Fungal growth and plant infection can resume at these temperatures in early spring, coinciding with bermudagrass transitioning from winter dormancy (also referred to as “green up”).

## Symptoms

As turfgrass “greens up,” well-defined circular patches of dead, bleached-out grass are noticeable in affected areas (Figure 1). Non-infected bermudagrass resumes growth, accentuating the infected areas. Roots, rhizomes and stolons are sparse and dark-colored (necrotic) (Figure 2). Leaves become bleached, gray and straw-colored. Recovery from the disease is slow. Because the turfgrass in affected patches is dead, the primary means of recovery occurs by spread of stolons into the patch. Because recovery is dependent on lateral infill of surrounding bermudagrass, symptoms can remain visible well into the growing season. If not managed properly, these patches may reappear in the same location the following spring along with weed species that may invade the voids (Figure 3). Patches can get larger year after year.





**Figure 1.** Spring dead spot symptoms. Multiple circular patches of dead, bleached grass are evident in the spring. Grass at the center of the patches is completely deteriorated and usually colonized by weeds. Sharp edges between dead and healthy grass are observed once turfgrass greens up in spring. (Photos Alfredo Martinez)



**Figure 2.** Dark brown to black roots and rhizomes of SDS-affected bermudagrass (top). Compare with healthy rhizomes and roots (bottom). (Photo Alfredo Martinez)



**Figure 3.** Weeds often fill the voids caused by SDS patches. (Photo Alfredo Martinez)

## Disease Management

### Cultivar Selection and Cultural Practices

The primary cultivars grown and used in Georgia (e.g., Tifway, TifSport, Tifton 10, Celebration, etc.) have shown susceptibility to SDS. However, SDS tolerance has been enhanced through breeding. Most “tolerant” cultivars (e.g., Patriot) may still get the disease but not as severely. In general, cultivars with more cold tolerance have less SDS than non-cold tolerant bermudagrasses. On sites where SDS has been a chronic problem, conversion to a tolerant cultivar is an option for disease management.



Complete control of SDS in a single growing season is uncommon. It typically takes two to four years of proper cultural management and fungicide applications before acceptable control can be achieved. This has led to SDS becoming one of the more difficult diseases for growers to manage on an annual basis.

Cultural practices that improve the cold-hardiness of bermudagrass can be particularly effective for managing SDS. Proper use of nitrogen fertilizers is important because high nitrogen levels can reduce the winter hardiness of bermudagrass. It is recommended that no more than 0.5 pound of nitrogen per 1,000 ft<sup>2</sup> be applied after mid-September. Potassium applications in the fall (September or October) that total 1 pound of K<sub>2</sub>O per 1,000 ft<sup>2</sup> can be helpful in improving the winter hardiness of bermudagrass and thus reduce SDS severity. Potassium applications should be applied based on soil test results.

A neutral to slightly alkaline soil pH has been linked to increased SDS severity. Maintain soil pH at 5.8 to 6.2. Use acid-forming fertilizers on sites with near neutral to alkaline pH. Apply iron, manganese and other micronutrients based on soil test results.

Any soil condition that reduces bermudagrass root growth such as compaction, excessive thatch (greater than 0.5 in) and poor drainage can also increase the severity of SDS. Core aeration and other practices that reduce soil compaction and encourage the production of new roots can be helpful in managing this disease.

## **Chemical Control**

Timing, selection and application of fungicides are important for preventative management of SDS. Research has shown that one application of fungicide in the fall when soil temperatures are between 60° and 80° F provides the best control of SDS. When disease pressure is high, growers may want to make two applications. If a second application is necessary, it should be made four to six weeks after the first application when soil temperatures remain between 60° and 80° F (for complete meteorological information, see [www.georgiaweather.net](http://www.georgiaweather.net)). For improved results, it is recommended that fungicides be applied at high spray volumes (greater than 5 gal per 1,000 ft<sup>2</sup>) and/or immediately watered-in.

There have been mixed results from turfgrass managers around the state regarding chemical control of SDS. Those who have seen good results say they spray preventative fungicides that target SDS each year and have been doing so for several years. Therefore, it is important to keep in mind that controlling SDS takes time and usually cannot be obtained in a single season.

A complete list of fungicides, formulations and product updates for SDS can be found in the annual *Georgia Pest Management Handbook* ([www.ent.uga.edu/pmh/](http://www.ent.uga.edu/pmh/)) and the *Turfgrass Pest Control Recommendations for Professionals* ([www.georgiaturf.com](http://www.georgiaturf.com)). Some fungicide options are exclusively for golf course settings. Always check fungicide labels for specific instructions, restrictions, special rates, recommendations, follow-up applications and proper handling.

## **Summary**

Spring dead spot continues to be a major problem for turfgrass managers in Georgia. It is one of the more difficult diseases to manage because acceptable control is usually not attained in a single season. Soil conditioning and proper nitrogen and potassium fertilization are important cultural practices that can help reduce SDS. If acceptable control is not achieved with cultural practices, one or two fungicide applications in the fall may be necessary.

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