



Spring Dead Spot

Spring dead spot is a destructive disease of common bermudagrass and bermudagrass hybrids. The disease occurs on stands of all ages but is most common 3-4 years after the turf has been established. Three different root-rotting fungi, called *Ophiosphaerella herpotricha*, *O. korrae*, and *O. narmari*, are responsible for the disease and all three pathogens occur in Kansas. However, *O. herpotricha* appears to be the most common cause of the disease in our region. Spring dead spot also infrequently occurs on buffalograss. Cool-season grasses such as ryegrass, bentgrass, and tall fescue are not susceptible to the disease. However, *O. korrae* causes a late spring and fall patch disease of Kentucky bluegrass called necrotic ringspot.

Symptoms: The disease results in the formation of circular or arc-shaped patches of dead turf in early spring as bermudagrass breaks winter dormancy (Figure 1). The dead patches, which are slightly depressed and straw-colored, may range in size from several inches to several feet in diameter. The patches normally are randomly distributed throughout the lawn. Roots and stolons of affected plants are dark brown to black and are severely rotted (Figure 2). It may be necessary to dig up a piece of sod near the margin of the dead area and wash it in water to observe this symptom. During the summer, broadleaf weeds and other weedy grasses invade and colonize the bare soil, resulting in a clumpy or patchy appearance to the lawn. Bermudagrass slowly colonizes the bare areas, and by late summer there may be little or no evidence of the disease. Dead patches reappear the following spring in the same locations. Over a number of years, the patches can become quite large, coalesce, and develop arc-like patterns in the lawn. After 7 to 10 years, disease severity may begin to decrease to the point where the disease no longer appears in the lawn.

Conditions: Spring dead spot fungi colonize roots, stolons, and crowns of bermudagrass plants in late summer or fall. Roots infected with the fungus turn dark brown to black as a



Figure 1: Spring dead spot symptoms.
By N. Tisserat



Figure 2. Root colonization of bermudagrass by fungi that cause spring dead spot. A healthy bermudagrass root system is on the left. By N. Tisserat

result of extensive fungal growth in and on the roots. Although most fungal colonization occurs in autumn, foliar symptoms do not develop until late spring. During winter dormancy, infected bermudagrass roots or crowns are either killed directly by the fungus or are predisposed to desiccation or cold temperature injury. Root colonization by the pathogen decreases the cold hardiness of the bermudagrass. The disease tends to be more severe on high maintenance bermudagrass lawns. Excessive nitrogen fertilization during the summer months enhances symptom development the following spring.

Cultural Control:

Cultural methods may limit the severity of spring dead spot.

- *Maintain a vigorous but not excessively lush turf.
- *Lawns should be dethatched yearly when the bermudagrass is actively growing to promote good rooting.
- *Core aeration may also reduce spring dead spot severity.
- *Avoid excessive nitrogen fertilization. Application of excessive amounts of nitrogen (more than 4-5 lb active nitrogen/1000 sq ft/year) will increase disease severity.
- * Avoid heavy applications of fast-release nitrogen fertilizers during the summer following a severe outbreak of the disease.
- *Nitrogen applications should not be made after early August because this will increase turfgrass susceptibility to cold temperature injury.
- *Avoid high pH (>7). Application of ammonium sulfate helps reduce the pH.
- *Maintaining adequate potassium has been shown to help improve winterhardiness and reduce disease damage.

Cultivar susceptibility:

Bermudagrass cultivars vary markedly in susceptibility to spring dead spot. None are immune to the disease, but several seeded and vegetatively propagated cultivars exhibit reduced patch sizes and faster summer recovery than susceptible varieties. Not all bermudagrasses offer the desired qualities for all sites (tee, fairway, lawn, green) so be sure to define your quality expectations along with disease considerations.

Don't forget about winter hardiness. Kansas is at the northern end of the range where bermudagrass can be grown. Luckily, winter hardiness is usually correlated with reduced susceptibility to spring dead spot so we don't have to choose one factor over another.

Vegetative cultivars with reduced susceptibility and which have performed well in our Kansas climate include Midiron, Midlawn, and Patriot. For seeded varieties, Yukon and Riviera have reduced susceptibility and perform well in our climate.

Cultivars which are most **susceptible** to spring dead spot caused by *O. herpotricha* include: Arizona, common bermudagrass, Cheyenne, Jackpot, NuMex Sahara, Oasis, Poco Verde, Primavera, Princess 77, Sonesta, Tifton 10, Tifway 419, Tifgreen 328, Tropica, Vamont and Sunturf. These cultivars are not recommended for our climate, either.

Chemical control:

Several fungicides, including fenarimol (Rubigan), propiconazole (Banner), myclobutanil (Eagle), and azoxystrobin (Heritage), are labeled for control of spring dead spot, usually calling for 1 or 2 applications in the fall. However, disease suppression with these fungicides has been erratic in Kansas trials. September applications of these fungicides have, in some years, reduced disease severity and enhanced recovery of the turf in the spring, but they did not completely control spot development. Therefore, fungicide applications are not currently recommended for control of spring dead spot in our state. Recent work in North Carolina has shown some consistent disease reductions with fenarimol, but those tests were likely with the fungus *O. korrae* which is not the most common spring dead spot fungus in Kansas. Furthermore, climatic differences can lead to significant differences in disease pressure.

For further reading on spring dead spot:

<http://www.apsnet.org/online/feature/deadspot/>

Cultivar information:

Martin, Dennis. Feb 1 2005. Resistant Cultivars are bermuda's best battle vs. spring dead spot. TurfGrass Trends

Original article by Ned Tisserat, 2002. Updated Kennelly 2008.