

Control of Spring Dead Spot and Bermudagrass Decline

Spring dead spot (SDS) is a damaging, often persistent disease of bermudagrass lawns, tees, and greens. Although this disease is most common in the northern half of Alabama where bermudagrass adaptation may be marginal, damage may be seen statewide after an unusually cold, harsh winter. A similar patch disease occurs on zoysiagrass. Bermudagrass decline occurs statewide on golf course greens and tees.

Development of both diseases is closely tied to turf management practices. SDS occurs most often on intensively managed 3- to 6-year-old turfs. Excessive nitrogen fertilization, potash deficiency, sharp increases in soil pH, and thatch accumulation increase turf susceptibility to attack by the causal fungus of SDS. Low maintenance bermudagrass lawns usually have little trouble with SDS. SDS is found on all bermudagrasses but is most damaging on the newer hybrid varieties. Exceptionally low mowing heights, poor drainage, thatch accumulation, and high soil organic matter content have been linked with the occurrence of bermudagrass decline on greens and tees.

The causal fungus of SDS and bermudagrass decline in Alabama is *Gaeumannomyces graminis* var. *graminis*. Related fungi, *Leptosphaeria korrae* and *Ophiosphaerella herpotricha*, have been shown to cause SDS in other sections of the United States.

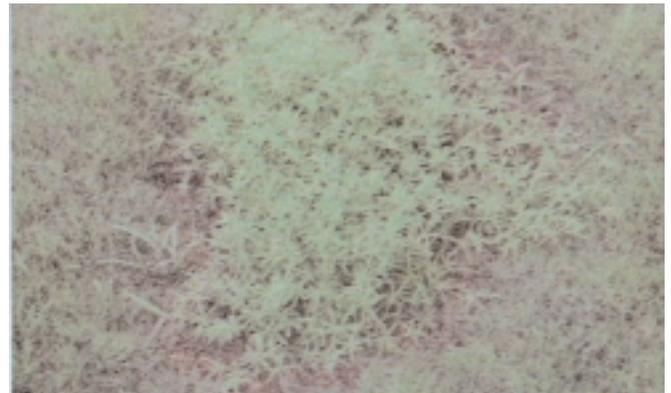
Symptoms

On SDS-damaged turf, arc-shaped to circular patches of bleached, dead turf, which range from a few inches to several feet in diameter, appear as the bermudagrass greens up in early spring. A ring or "frog-eye" pattern may be seen as the bermudagrass reestablishment starts on turfs that have in previous years suffered considerable SDS damage. Patches of diseased turf often appear in the same areas year after year.

Bermudagrass decline first appears during the summer as irregular patches of yellowed (chlorotic) turf ranging up to several feet in diameter. Extensive stand thinning often develops as the leaves (oldest first) on diseased stolons yellow, then wither and die. Patches of bare ground may



Numerous circular patches of bleached turf are typical symptoms of spring dead spot on bermudagrass turf.



Weeds often invade damaged areas and delay the recovery of diseased turf.



Bermudagrass decline on (Tifgreen) bermudagrass green. (Courtesy Monica Elliott, University of Florida.)

be seen on badly damaged greens. Symptoms rarely occur on the higher cut turf along the collar of a green.

Roots on stolons collected from SDS and bermudagrass decline-damaged turf are withered, dark brown to black in color, and brittle. Few thick, white, healthy roots are seen on diseased bermudagrass stolons.

Recovery of SDS-damaged turf is often slow. The unsightly patches become less noticeable 2 to 3 months after spring green-up. In drier, cooler areas, the circular patches of dead turf may persist from year to year. Competition of weeds or overseeded grasses will slow the recovery of SDS-damaged turfs. On turfs damaged by bermudagrass decline, some improvement in turf quality may be seen in the fall or early spring, but symptoms rarely disappear.

Control

Management practices play a pivotal role in the development of SDS and bermudagrass decline. Management practices that promote root growth should help reduce the risk of disease outbreaks and speed recovery of damaged turf.

Nitrogen source has a significant impact on the predisposition of bermudagrass to SDS and bermudagrass decline. Disease development on zoysiagrass may also be influenced by nitrogen source. Nitrate nitrogen sources (ammonium nitrate or calcium nitrate) have been shown to increase the severity of SDS and related diseases on warm- and cool-season turfgrasses and wheat. Acidifying nitrogen sources (ammonium sulfate or ammonium chloride) have been shown to reduce SDS severity, delay the appearance of symptoms, and promote the recovery of diseased turf. Acidifying nitrogen sources are the preferred nitrogen sources for intensively managed, high-risk bermudagrass and zoysiagrass turfs.

To further reduce the risk of disease, fertilize with nitrogen lightly but frequently to maintain moderate turf growth throughout the growing season. Continued use of slow-release forms of organic or inorganic fertilizers may also reduce the risk of SDS and similar patch diseases. After September 1, avoid applying high rates of any fertilizer containing a fast-release form of nitrogen, such as ammonium nitrate, ammonium sulfate, and similar nitrogen fertilizers. Fall fertilization with fast-release forms of nitrogen has been shown to increase SDS severity on bermudagrass previously damaged by this disease.

Apply nitrogen and potash (potassium) in a 1:1 to 2:1 ratio. Make a fall application of potash at a rate of 2 pounds of murate of potash (K_2O) per 1,000 square feet of turf on greens, tees, and other intensively managed turfs. Use the chloride (murate of potash) rather than the sulfate form of potassi-

um, particularly on turfs previously damaged by SDS or bermudagrass decline. Maintain phosphorus levels according to soil test recommendations.

A near neutral to slightly alkaline soil pH has been linked to the increased severity of patch-type diseases on bentgrass and wheat and may increase severity of SDS on bermudagrass. Maintain soil pH at 5.8 to 6.2. Before liming, verticut or aerify bermudagrass or zoysiagrass. Rather than applying high rates of lime every few years, lime lightly each year to maintain a recommended soil pH on high risk turfs. Use acid-forming fertilizers on sites with near neutral to alkaline (7.0+) pH. Apply iron, manganese, and other micronutrients monthly, and apply gypsum periodically on SDS and bermudagrass decline-damaged turfs.

Yearly core aeration will stimulate rooting and may help suppress disease development. Maintaining recommended mowing heights will also promote root growth and reduce symptom severity. See Extension publication ANR-239, "Lawn Maintenance in Alabama," for more information on maintaining and fertilizing bermudagrass and zoysiagrass lawns.

If possible, raise the mowing height on SDS-damaged lawns and fairways. Higher cutting height will reduce stress on the turf and will enhance carbohydrate reserves and insulate vulnerable stolons and rhizomes from low temperature injury.

Fungicides give the best control of SDS when used in combination with recommended maintenance practices. Consider preventive fungicide treatments on greens, tees, and other highly visible, intensively managed turfs. On fairways and most lawns, spot treat only SDS-damaged areas with a recommended fungicide. In areas targeted for fall treatment, prepare a map of SDS or bermudagrass decline damage after you first see symptoms in the previous spring. Recommended fungicides are listed in Table 1 and in Extension publication ANR-500-B, *Alabama Pest Management Handbook—Volume 2*.

Table 1. Fungicides Registered for Controlling SDS and Bermudagrass Decline

Fungicide	Rate Per 1,000 Square Feet	Comments
Spring Dead Spot		
azoxystrobin Heritage 50W	0.4 oz.	Apply once or twice in fall or when conditions favor disease. Apply at 28-day intervals. DO NOT make more than six applications per year or a total of 3.7 ounces per 1,000 square feet per year.
fenarimol Rubigan A.S.	4 to 6 fl. oz.	Make one application at 4.0 fluid ounces per 1,000 square feet in September or October or apply 6.0 fluid ounces per 1,000 square feet in November. Use enough water to ensure even coverage of treated area. Will suppress the establishment of annual bluegrass and other overseeded grasses. Apply one month before or after overseeding.
myclobutanil Eagle WSP Eagle 40W	1.2 oz. 1.2 oz.	Starting in August, make one or two applications in 2 to 3 gallons of spray volume per 1,000 square feet of treated area at monthly intervals.
Immunox Lawn Disease Control	10.7 fl. oz.	Make one application in August and a second application approximately one month later. One 32 fluid ounce container with a hose-on sprayer will treat 3,000 square feet of lawn.
propiconazole Banner Maxx	4 fl. oz.	Make one to three applications at 30-day intervals beginning in August.
trifloxystrobin Compass 50W	0.1 to 0.15 oz. 0.2 to 0.25 oz.	Apply every 2 weeks when conditions favor disease. Apply at 3-week intervals as needed.
Bermudagrass Decline		
triademefon Bayleton T/O	2 oz.	Preventative: Apply 2 to 4 weeks before symptoms usually appear. Repeat applications at 21- to 28-day intervals. Thoroughly water treated area immediately after each application.
	4 oz.	Curative: When symptoms of disease appear, make one to two applications at 14- to 21-day intervals; then make applications of the preventative rate of 2 ounces per 1,000 square feet on a 21- to 28-day schedule. Thoroughly water treated area immediately after each application.



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Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used **only** to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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