

# Disease updates



## Report

### First report of curvularia blight of zoysiagrass caused by *Curvularia lunata* in the U.S.

J.A. Roberts and L.P. Tredway, Ph.D.

Symptoms of an unknown foliar blight have been observed in zoysiagrass (*Zoysia matrella*, *Z. japonica* and hybrids) landscapes in North Carolina since 2002. Disease activity is most common during spring and summer when temperatures are between 70 F and 86 F (21 C and 30 C). Affected leaves initially exhibit small, chocolate brown spots, followed by dieback of leaves from the tips, and eventually blighting of entire tillers. Symptoms appear in small, irregular patches as large as 6 inches (15 centimeters) in diameter, but numerous patches may coalesce to have an impact on large sections of turf. Infected turf appears tan or brown from a distance, but often turns black during periods of wet or humid weather.

Microscopic analysis revealed profuse sporulation of *Curvularia* species on the surface of symptomatic leaves. We obtained 28 fungal isolates from six locations. Examination of conidia produced in culture revealed 21 isolates of *Curvularia*, two isolates of *Drechslera*, one isolate of *Nigrospora* and four unidentified sterile fungi. *Curvularia* isolates were identified to species on the basis of morphological characteristics (1) and DNA testing. All unknown isolates produced conidia that were characteristic of *Curvularia lunata*. The pathogenicity of *C. lunata* isolates was tested on zoysiagrass cultivars El Toro (*Z. japonica*) and Emerald (*Z. japonica* × *matrella*).

Cores (4.5 inches [11.4 centimeters] in diameter) of established zoysiagrass were potted in calcined clay (Turface Allsport) and transferred to a greenhouse where the average temperature was



Numerous patches of zoysiagrass affected by curvularia blight may coalesce to have an impact on large sections of turf. Photos by L. Tredway

79 F (26 C). Five isolates were selected to represent the geographic range of curvularia blight in North Carolina, and conidia were cultured under continuous fluorescent illumination. Each isolate was inoculated to one pot of each zoysiagrass variety. Inoculated pots were placed in a sealed, non-transparent plastic container for 48 hours at 82 F (28 C) to encourage infection and then transferred back to the greenhouse bench. Pathogenicity tests were repeated four times over time.

Isolates ZFB3 and ZFB28 were most virulent with initial symptoms of foliar dieback appearing within one week after inoculation. Continued disease progress resulted in necrosis of the entire



In wet or humid weather, turf infected by *Curvularia* often appears black.

plant. Other isolates induced symptoms within two to three weeks after inoculation; however, disease severity was lower than that induced by ZFB3 and ZFB28 throughout each experiment. Cultivars Emerald and El Toro were equally susceptible to infection by *C. lunata*.

To our knowledge, this is the first report of curvularia blight of zoysiagrass in the United States. This disease was previously described in Brazil and in Japan, where it is commonly referred

to as “dog footprint.”

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Spring dead spot symptoms appear at the end of March on a bermudagrass green in Mississippi. Photos by D. Perry

## Report

### First report of *Ophiosphaerella herpotricha* causing spring dead spot of bermudagrass in Mississippi

D.H. Perry; M. Tomaso-Peterson, Ph.D.; and R. Baird, Ph.D.

Spring dead spot is the most destructive disease of bermudagrass (*Cynodon dactylon* (L.) Pers.). Symptoms of spring dead spot appear in the spring when bermudagrass transitions out of winter dormancy. These symptoms include depressed, straw-colored patches that range from several inches to 39 inches (1 meter) in diame-

ter. Infected roots and rhizomes are black, brittle and necrotic. The disease is caused by three species of fungi: *Ophiosphaerella herpotricha* (Fr:Fr) J. Walker; *O. korrae* (J. Walker & A.M. Smith) Shoemaker & C.E. Babcock; or *O. narmari* (J. Walker & A.M. Smith) Wetzels, Hubert & Tisserat. However, *O. korrae* is the most prevalent causal organism of spring dead spot in the southeastern U.S. and was the only species reported in Mississippi (1).



In April 2006, root samples were collected from a bermudagrass putting green in Booneville, Miss., with a high level of spring dead spot incidence and severity. Symptomatic roots were collected, and hyphae growing from the roots were cultured. Four of the unknown Booneville isolates were not identified, but DNA testing confirmed one of the unknown isolates as *O. herpotricha*.

Sahara bermudagrass (four weeks old in 3.8- x 20-centimeter Cone-tainers containing a sand and soil mixture) was inoculated with the Booneville *O. herpotricha* isolate and the *O. herpotricha* control. The inoculated bermudagrass plants were incubated for four weeks in the greenhouse. A control consisting of noninfested sterile oats was included. Following incubation, black, necrotic roots were observed on the plants inoculated with both *O. herpotricha* isolates. No symptoms were observed on roots of noninfested plants. *Ophiophaerella herpotricha* was re-isolated from roots of symptomatic plants inoculated with both *O. herpotricha* isolates and confirmed by DNA testing.

The identification of *O. herpotricha* as a causal organism of spring dead spot in Mississippi clarifies the involvement of multiple causal agents in this state and broadens the geographic distribution of this root-rot species.



A Sahara bermudagrass plug shows root damage following inoculation by *Ophiophaerella herpotricha*.

Source: Adapted from *Plant Disease*, March 2008, 92(3):482 (DOI: 10.1094/PDIS-92-3-0482A).

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Report

### First report of leaf smut on fescue (*Festuca rubra*) caused by *Urocystis agropyri* in interior Alaska

J.H. McBeath, Ph.D.; M. Cheng, Ph.D.; and P.A. Gay, Ph.D.

In June and early July 2003 and in July 2007, a smut disease was found on fescue (*Festuca rubra* L.) at the Fairbanks Golf and Country Club and vicinities in interior Alaska. Diseased plants were pale green to slightly yellow and stunted. The lesions were long, narrow, yellowish green streaks parallel to the veins of leaves and sheaths. At a later stage, sori (fungal reproductive structures) developed under the epidermis and the leaves and sheaths turned silvery gray. Rupture of the epidermis resulted in the release of masses of black spores that covered the leaves, especially along and within infected sheaths. Microscopic obser-

vation showed spore balls consisting of one to four dark reddish brown teliospores surrounded by small, hyaline to light brown sterile cells. The spore balls were globose to elongate and 16 to 32 micrometers x 18 to 38 micrometers. The teliospores were globose, dark reddish brown and 7.5 to 20 micrometers in diameter.

There is some dispute among researchers as to whether *Urocystis agropyri* or *U. ulei* occurs on *Festuca* species, including *F. rubra*. On the basis of host symptoms and morphology of spores, the smut we found on *F. rubra* in Alaska fits better with published descriptions of *U. agropyri* (Preuss) Schrot; however, it likely is not conspecific with flag smut of wheat.

We used DNA testing to verify identification



of the organism. The organism is genetically very similar to both *U. ranunculi* and *U. colchici*. When more genetic information is published about *Urocystis* species, we will be able to identify the organism more accurately.

To our knowledge, this is the first report of *U. agropyri* from turfgrass in Alaska.

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Report

### First report of dollar spot of buffalograss in Oklahoma

S.M. Marek, Ph.D.; I.R. Moncrief; and N.R. Walker, Ph.D.

Buffalograss (*Buchloe dactyloides* (Nutt.) Engelm.) is a perennial, warm-season grass native to the central plains of North America and a dominant plant over much of the shortgrass prairie ecosystem. Its prostrate growth habit and excellent drought tolerance make it a commercially promising turfgrass species, and numerous turf-type cultivars have been released.

In spring 2007, the southern plains states experienced prolonged periods of excessive precipitation during which numerous buffalograss swards throughout north-central Oklahoma exhibited symptoms of dollar spot. A fungus morphologically identical to *Sclerotinia homoeocarpa* Bennett was consistently isolated from diseased buffalograss leaves collected from three locations in Oklahoma, two from Payne County and one from Logan County.

Thirty-day-old seedlings of *B. dactyloides* (the cultivars Cody and Topgun) and *Agrostis stolonifera* (SR 1020) were inoculated by placing potato dextrose agar plugs, colonized by mycelia of each *S. homoeocarpa* isolate, onto the seedlings' leaves. Sterile potato dextrose agar plugs were placed on plants as controls. Leaf lesions developed after four days only on inoculated plants, and *S. homoeocarpa* was re-isolated from lesions. DNA testing of the isolates confirmed that the pathogen was *S. homoeocarpa*.

To our knowledge, this is the first report of dollar spot on a native, warm-season grass in the U.S., and the disease appears to be endemic to buffalograss in Oklahoma and Kansas (N.A. Tisserat, personal communication).

GCM

Source: Adapted from *Plant Disease*, August 2008, 92(8):1249 (DOI:10.1094/PDIS-92-8-1249B).

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Dollar spot has been found on buffalograss in north-central Oklahoma. Photo by S. Marek