Stop Brown Ring Patch Early

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Brown ring patch was first discovered in the United States when it appeared in eastern Washington state in 2003. Frank Wong, a plant pathologist and the specialist in cooperative extension at the University of California, Riverside, says it was “pure dumb luck” that he came across it when he did. Since then, he has been a principal researcher on the fungal disease and has helped come up with some effective controls.

“It belongs to the Rhizoctonia class of plant pathogens,” Wong says of the Waitea circinata variety circinata, explaining that this is the fungus’ sexual or teleomorphic name, and it will need to be given a Rhizoctonia name at a later date. It is related to diseases such as brown patch and yellow patch. “It probably has been around a long time,” he notes, but only in recent years has it become a problem, which could be because it is taking advantage of turfgrass management changes, climate change or both.

As the disease began to show up in turfgrass in the West, it was first thought to be brown patch or yellow patch, but Karla de la Cerda, Wong’s lab technician, found through molecular fingerprinting that it was the same fungus that had been identified as causing brown ring patch in creeping bentgrass in Japan. Wong says it shows up first as yellow rings or as a series of merging rings in the grass, but exhibits a slight greening effect on the inside of the rings. It can be identified with certainty only through lab analysis and may simply be aesthetically displeasing at first. However, it can progress to the stage where it reduces stand density.

Photo by Larry Stowell, Pace Turf, www.paceturf.org.

Brown ring patchshows up asyellowish shapes inthe turfgrass, but itcan be controlledwith chemicals andcultural methods.	The disease was first discovered in the United States in 2003,but already has wide distribution.

Wong says the disease principally affects Poa annua and Poa trivialis, and it now occurs in cooler and temperate climates where a lot of Poa is grown. So far, it is missing in the Southeast and Texas/Arizona. It likes warm weather more than yellow patch, and where a yellow patch-looking outbreak occurs and the temperature is over 65 degrees, the culprit is most likely to be brown ring patch.

“It’s an easy disease to spot,” Wong says, and if caught early it won’t become a serious problem. Brown ring patch seems to attack closely mowed turfgrass, and if it’s not treated early it can cause spongy patches or sunken brown rings. The fungus lives in the thatch, and removing excess thatch is a recommended cultural management practice.

Another recommended cultural management practice is good fertility management. Unlike brown patch, which can be worse in high-fertility situations, brown ring patch occurs primarily in low-fertility situations. Wong says that work done by Dr. Larry Stowell of the PACE Turfgrass Research Institute, a frequent partner with his research program, suggests that turf does best when soil nitrates are in the 6 to 20 PPM range. Wong has found that locations with severe brown ring patch tend to have soil nitrates less than 4 PPM.

He recommends that a good soil fertility program be maintained on areas that are chronically affected by brown ring patch. Research by Stowell also indicates that the disease is more severe in dry soils, suggesting that plants under drought stress are more susceptible. Correcting any of the above conditions is important in preventing and controlling the disease, with uniform moisture application being a key. It is crucial that the correct balance be struck between lush turf and stressed turf.

“It seems there are two general groups of fungicides that are working against this disease,” Wong adds, referring to his own tests. There are quick-acting chemicals that are efficacious, but don’t last long, and there are slow-acting chemicals whose effects linger.

The quick-acting group that he has tested and found efficacious includes azoxystrobin and propiconazole (Headway) and polyoxin-D (Endorse). The former is a liquid, the latter a wettable powder that is also sprayed on. Wong recommends that materials be applied as soon as yellow rings are noticed in the spring and the organism is identified. The rings should start to disappear in a week or so, but may return 21 to 28 days later.

The relatively slow-acting group includes flutolanil (ProStar), triticonazole (Trinity or Triton) or metconazole (Tourney). Applications of these may take two weeks before rings begin to disappear, but control lasts more than 28 days. Possibly the best control program is an early application of Endorse or

Headway, followed with ProStar, Triton, Trinity or Tourney a week or two later, Wong says.

Wong notes that he has also tested fungicides such as fludioxonil (Medallion), azoxystrobin (Heritage) and propiconazole (Banner MAXX), and found them to work fairly well. However, these chemicals may need two or more applications before there is complete control, Wong says. Another strategy is tank-mixing fungicides. For example, Endorse mixed with Banner MAXX provided much better control than Endorse used alone. This is a disease that has come on the scene so quickly that information about it is still being developed.

The disease is most prevalent in the spring and early summer, and that is the time to focus on managing it. The critical elements, however, are maintaining adequate fertility and irrigation, as well as to identify and treat the fungus early. Be sure to knock it out when it appears, Wong says. He is also looking at other possible cultural controls, but by not stressing out plants excessively, and then quickly treating with fungicides if necessary, a turfgrass manager can definitely maintain turf that is free of brown ring patch.

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