



LITTLE NAME, BIG PROBLEM

ACROSS THE TRANSITION ZONE AND INTO THE SOUTH, MINI RING CAN PRESENT TURF PROS WITH A PROBLEM BEFORE EVER SHOWING SYMPTOMS.

If your turf knowledge stretches about as shallow as a standard cup, you might think the term mini ring sounds innocuous and almost sweet. A mini ring might be some sort of decoration, maybe, or an area reserved for special guests.

It is neither of those things, of course. No, mini ring is a vicious and lasting fungal disease that seldom says so much as hello before digging deep into warm-season greens and covering them with splotches and bumps through the fall and winter right into early spring. You might know it by its more sinister name: leaf and sheath blight.

Particularly prominent in the Transition Zone and, rather specifically, all around Florida, mini

ring tends to most often affect Bermudagrass greens and can show up on other warm-season grasses, including paspalum, centipede and St. Augustine, according to Dr. Emma Lookabaugh, technical specialist for BASF in Raleigh, North Carolina. Ultradwarf varieties of Bermudagrass and turf with poor fertility are especially susceptible.

“Early symptoms include bronze patches from a few inches to over a foot in diameter,” says Lookabaugh, who has worked extensively over the last couple years with Dr. Bruce Martin, Professor Emeritus, Turfgrass Pathology, Clemson University. “It’s been described as causing irregular, frog-eyed patches that have scalloped edges, so they’re not perfect circles. There are no distinct spots

or lesions on the leaf blade like we can see with other Rhizoctonia diseases. Lower leaves can appear bleached or blighted and in extreme cases patches can cover entire areas of the green. It can be a pretty severe disease when conditions are right.”

What makes mini ring so vexing for superintendents and researchers is that while they have pinpointed the optimal temperature at which the pathogen grows — 83 to 97 degrees Fahrenheit — the pathogen might not even be active anymore by the time symptoms start to show. Low fertility, extreme growth regulation, and mechanical damage like aeration and verticutting can all stress the turf and spark symptom expressions.

“All that stresses turf out,”

Lookabaugh says, “especially if you’re using some of the more aggressive aeration practices and pushing them later into the season, like July. If turf is already suffering from drought stress or low fertility, these practices can lead to more pronounced symptom expression.”

The big question, Lookabaugh says, is how can superintendents and agronomy directors predict when mini ring will occur on their greens? They need to act proactively, not curatively, and they need a focused fertility and irrigation plan.

“It’s definitely not easy,” she says. “Mini ring in particular is a disease that can catch superintendents off guard because they’re not planning for it. It sneaks up on you because the

pathogen is active in the summer, well before you see symptom expression. Courses with a history of mini ring on their greens should definitely be more proactive and stay on top of their preventative fungicide applications throughout the summer.

“A lot of times we’re not doing a ton of applications on warm-season turf in the middle of summer, it’s more on an as-needed basis, but if you have a history of mini ring, you do need to be on a more strict fungicide program throughout the summer and you may need to tighten your spray intervals.”

Working with research conducted by Martin, Lookabaugh recommends switching your nitrogen source to urea when mini ring fungi are active — if you can spoon-feed 0.1 to 0.3 pounds of nitrogen per week, you may see reduced mini ring symptom expression — while avoiding ammonium sulfate as your nitrogen source. “Just making the switch in your nitrogen sources can go a long way,” she says. “Combining that with good preventative fungicides is the ideal program for dealing with this disease.” Taking soil samples and providing adequate and balanced fertility based on those soil sample results can also help reduce disease pressure.

And while mini ring does differ significantly from fairy ring, application programs for the two diseases can work in concert. Lookabaugh and the rest of her team at BASF recommends a 14- to 21-day spray program to combat mini ring and, “if you’re already on a preventative fairy ring program, you are likely getting some double duty out of those applications depending on your fungicide selection.” July and August applications can jump-start preventative programs for take-all root rot. “If you are using a



Mini ring or fairy ring?

IS THAT SPLOTCH on your greens mini ring or fairy ring? While the two turf diseases share part of their names and are both caused by fungal pathogens, they are very different.

“They don’t overlap in terms of species,” says Dr. Emma Lookabaugh, technical specialist for BASF, whose research has focused on the diseases. “There are multiple fungal species that are associated with fairy ring but with mini ring, we are primarily dealing with *Waitea circinata* (also known as *Rhizoctonia zeae* and *Chrysorhiza zeae*). Both diseases cause rings on putting greens but the symptoms are slightly different.

“With fairy ring, you have three types of symptoms — necrotic rings caused by hydrophobic soil conditions, dark green arcs or rings and then rings of puffballs or mushrooms, whereas with mini ring, the rings tend to be more diffuse and smaller. ... Fairy ring fungi colonize thatch and organic matter in soil profile. Those dark green rings are the result of microbial degradation and the release of nitrogen into the soil. These nutrients can stimulate turf in the rings to grow faster than the surrounding turf. Fairy ring fungi cause these symptoms indirectly and do not actively attack the turf. With mini ring, the pathogen actively infects leaves, sheaths and roots. It is a good distinction to make, because it reinforces the emphasis on robust agronomic practices that not only improve overall turf quality but also help to reduce these pathogen populations in thatch and soil layers. Usually, fairy ring fungi become active earlier in the spring and then mini ring activity picks up in the summer. Even though the seasons do overlap fairy ring and mini are distinct issues on Bermudagrass and warm-season putting greens.”

robust fungicide program, mini ring protection is likely already built in. You may only need to add a few extra applications to bolster your summer rotation.” Lookabaugh says BASF recommends rotating Lexicon® Intrinsic® brand fungicide with Maxtima® fungicide or Navicon® Intrinsic brand fungicide with Xzemplar® fungicide to control mini ring.

Lookabaugh also recommends the use of soil wetting agents every two weeks, a practice that helps manage localized dry spots and improve turf quality around stressful conditions like drought and high foot traffic. Regular use of wetting agents can also boost existing fungicide application by helping drive the fungicide deep-

er to the crown and root zone, where many soil-borne pathogens are most active.

“There is a lot we don’t understand about this disease, from basic epidemiology questions to effective fungicide rotations,” Lookabaugh says. “We also need more research on the impact of not only other nitrogen sources but other nutrients in general and their effects on disease development and severity, because we have seen that fertility has such a big impact on this disease. We don’t understand all the subtleties there. It’s becoming more and more of a problem, so you are starting to see more efficacy trials go out at universities, we’re starting to do more work as well.

“We have a ton to learn. Eventually, we’ll understand it better.” ■

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