

## Key points

- Summer patch prefers hot, wet soils. Weather conditions will exacerbate activity.
- Spring is the best time to begin preventative applications for summer patch.
- Summer patch is found anywhere annual bluegrass or Kentucky bluegrass grows, but is severe on putting greens because the damage is more obvious.
- Good agronomic practices can assist in summer patch damaged turf recovery.
- Once spotted, it is suggested to raise mowing heights and water deeply and infrequently, which encourages root growth.

# Summertime blues

**If your springtime preventative measures failed, there are ways to successfully control summer patch outbreaks.** By Rob Thomas

**T**hough the name implies troubles during warmer weather, summer patch is a disease that is best fought in the spring. If prevention fails and it rears its ugly head, however, there are ways to not end up on the losing side of this battle.

According to Nathaniel Mitkowski, associate professor in the department of Plant Sciences & Entomology at the University of Rhode Island, summer patch is caused by *Magnaporthe poae* and has been observed in the United States since the 1960's, but the pathogen wasn't actually named until 1989 by Peter Landschoot and Noel Jackson at the

University of Rhode Island.

While Mitkowski says summer patch is very difficult to diagnose until it is causing significant harm, Turf Diagnostic's Jennifer McMorrow says the disease is difficult to spot, unfortunately.

"It is difficult to identify summer patch disease visually, but look for yellow, somewhat circular patches with a 'shepherd's crook' bent look at the tip of the leaf tissue," McMorrow says. "Summer patch may eventually coalesce and appear to snake through a green. Summer patch can easily be confused with *Poa annua* that is yellow from poor

environmental conditions or yellowing from growth regulators."

Beware: Once spotted, summer patch is well on its way to destruction.

"If you are diagnosing it in the field from visual symptoms, substantial damage has already been done," Mitkowski warned. "The pathogen attacks plant roots and moves relatively slowly, gaining speed as soil temperatures rise above 65-70 F. Because it is attacking roots, foliar symptoms may not be observed until the plants go into collapse. At this point, the damage is already done.

"Superintendents who have had the dis-





Mitkowski: "I often examine many samples during May, looking to see if the pathogen is present and trying to gauge its activity and spread."

ease in the past will generally go about treating it preventatively, but an early diagnosis requires laboratory analysis," he adds. "I often examine many samples during May, looking to see if the pathogen is present and trying to gauge its activity and spread."

Dr. Frank Wong, green solu-

Summer patch can be very difficult to diagnose, he reiterated, and the disease being present doesn't necessarily mean it's the cause of the turf trouble.

"It's very frustrating for superintendents," Wong says. "They can send in a [turf] sample and there's a high probability of

For example, Wong says to consider two courses that may both be 20 percent infected. The one with a low height of cut and minimal irrigation can see more symptoms than the other with a higher height of cut and more water used. Avoiding fast-and-firm conditions is important in minimizing damage and encouraging recovery.

Dr. Jill Calabro, regional field development manager and plant pathologist for Valent Professional Products, echoed Wong's suggestion to focus on plant health – raise mowing heights and water deeply and infrequently, which encourages root growth – once summer patch has been spotted. She doesn't paint a pretty picture of the turf bouncing back in season, though.

"You can't reverse the damage," Calabro says. "Once it's done, the damage is done."

Calabro recommends investing in soil tests once or twice a year. An early test will provide a starting base, while assessing again later in the season will bookend the battle and provide valuable information for future seasons.

"They're inexpensive, but can tell you so much about what's

going on," she says. "And most university labs will provide recommendations with the test results."

If you seek help from a lab, Wong says it's "buyer beware" with the information you get back.

"Diagnostic labs can vary in quality," he warns. "At the bare minimum, they should be able to identify if you have the pathogen. The good labs can help you put two and two together."

Stressing that avoiding summer patch requires regular treatments throughout the season. Lane Tredway, technical manager for Syngenta for the southeastern United States, leaves room for hope if the disease shows up. "It's not too late, but very difficult to manage summer patch on a curative basis," he says. "A preventative strategy is absolutely necessary."

McMorrow receives samples of summer patch from any places that *Poa annua* is grown – mostly in the northern and western states and sometimes in the transition zone.

The disease is driven by heat and high soil water content, Mitkowski says. If these two factors are present, summer patch can

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– Nathaniel Mitkowski, University of Rhode Island

tions specialist for Bayer's professional turf and ornamentals business, says golf courses are at risk of summer patch when soil pH is higher than 7.5, with the highest risk coming when levels reach 8-8.5. He recommends maintaining a range of 6-6.5, which admittedly is easier said than done.

While a preventative practice of DMI or strobilurin – targeting the crown and upper root area – every 28 days offers the most "bang for the buck," according to Wong, if pH gets too high, a shot of ammonium sulfate may lower the levels.

finding summer patch. [But] it's not always the presence of the pathogen that's causing the primary damage."

Once another disease has been ruled out, Wong suggests putting a curative application down, which can arrest the pathogen and stop the spread of summer patch. Note, it's not back to business as usual, however.

"You still have to use good agronomic practices to allow for recovery," Wong says. "It's unrealistic to spray the fungicide and then go back to the same agronomic practices and expect recovery."



## When to watch for summer patch

Spring is the best time to begin preventative applications for summer patch

"I find that summer patch can become active even when soil temperatures hover around 55 degrees Fahrenheit," says Turf Diagnostic's Jennifer McMorrow. "This is much earlier than we used to treat for summer patch. Ten to 15 years ago, it was common to treat for summer patch in June, July and August. However, most of my samples with active summer patch were coming in to the lab in May and September. We were missing the beginning and the end of the window. Superintendents in California may even have a larger window than these five months."

Referring to spring core aeration as "absolutely vital," Dr. Frank Wong, green solutions specialist for Bayer's professional turf and ornamentals business, says the battle is maintaining the root once soil temperatures reach the high 70s or low 80s – a time when the roots stop growing. "You're behind the eight ball if you have shallow root growth in the summer," he says.

Once a summer patch outbreak is under control, it would be nice to know there's something that can be done late in the season to get a jump start on the next season. According to McMorrow, she is unaware of that magic bullet, but all hope isn't lost.

"I have not found a fall application of fungicide to be helpful in deterring the disease the next year," she says. "However, this is assuming that the plants going into the winter months are not infected with summer patch. In addition, many of the systemic fungicides we use for snow mold control will also clean up summer patch in the fall as long as the fungicide is watered in and has upward mobility."

Prevention is paramount, but superintendents need to look at the bigger picture when ensuring their course does not fall victim to summer patch.

"Preventative fungicide applications are critical to keeping this disease in check, however, manipulation of the turfgrass environment will provide the best results in minimizing disease pressure," says Nathaniel Mitkowski, University of Rhode Island associate professor, plant sciences and entomology. "Summer patch prefers hot, wet soils.

Improving drainage, increasing air movement and increasing soil oxygen can all slow disease activity. Anything that can increase rooting depth will also slow summer patch damage.

"In addition, keeping a lookout for other diseases that may also kill plant roots and exacerbate summer patch symptoms is also important," he adds. "Cool-season root pythium is very common on annual bluegrass and often results in an early season root rot. If this disease is controlled early, plant roots will have a better ability to resist summer patch. Nematodes can also cause shallow rooting and reducing their populations will improve plant rooting.

No matter what you do, starting early and focusing on root health can significantly improve your chances of withstanding a summer patch infection."



be very aggressive.

"The most aggressive cases of the disease I have seen usually come from an area that covers Illinois to southern New England, with the Midwest having particularly severe problems with the disease over the past few years," he says. "As with any disease, weather conditions can exacerbate activity. The Midwest has seen some very hot, very wet summers recently and this will increase disease incidence and aggressiveness."

On the course, specifically, Mitkowski says summer patch can be found anywhere annual bluegrass or Kentucky bluegrass grow, but is most severe on putting greens because the damage it causes is more obvious.

"There are a variety of reasons for this, but specifically, any blemish at putting green height is more noticeable than on higher heights, and the diversity of grasses on Northern putting greens is low (creeping bentgrass and annual bluegrass) compared to a wide variety of grasses on other surfaces that may have moderate to complete resistance," he says. "If a putting green is a 50/50 annual bluegrass/creeping bentgrass mix, 50 percent of the green is susceptible to the disease." GCI

*Rob Thomas is a Cleveland-based freelance writer and frequent GCI contributor.*

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