

Seven ways to ward off anthracnose

Features - pests & Disease

From chemical rotation to PGRs, turf experts explain the best methods for controlling anthracnose this year.

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Anthracnose pressure is the highest in summer months, but it's not uncommon to begin seeing the disease in the spring. September also has become a month ripe for potential outbreaks.

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After escaping the hot, humid summer of 2016, some superintendents might be thinking about one of its most irritating consequences, anthracnose, and what steps they can take to rid themselves of this troublesome disease.

Anthracnose pressure is largely determined by temperature, says Dr. Bruce Clarke, extension specialist of turfgrass pathology in Rutgers University's Department of Plant Biology and Pathology. "The vast majority of the anthracnose we see would be during

the heat of the summer,” he says. “So, basically, we would see this on the courses if we get a really hot year.”

Temperatures remained high through the fall months, says Joseph W. Rimelspach, program specialist in Ohio State’s Department of Plant Pathology. He recalls some superintendents even referring to September as “the new August.”

Although anthracnose pressure is highest in the summer months, superintendents could see it popping up this spring, Rimelspach says. “Last year, due to July, August, September and October being hot and humid, that weakened plants and you could have gotten some damage or infection in those periods,” Rimelspach says. “So, if you weren’t aggressive in diagnosis and/or prevention, you could have minor infection. Or you could have had major, too, so that would have led to infection you would have to be alert to next spring because you would want to clean it up.”

Spring anthracnose cases are possible, Clarke says, citing the potential for failure to completely suppress the disease, and mentioning that cold weather isolates can appear on certain courses.



At Rutgers, Clarke and his colleagues have found that by maintaining specific cultural practices, superintendents can scout for weak areas and make early curative fungicide applications. By doing so, they can extend their application intervals and reduce their reliance on fungicides.

Here are seven keys to controlling anthracnose:

1. Properly diagnose the disease

Late in the growing season in 2016, greens were not recovering as superintendents had hoped, Rimelspach says. “If they’re weak like that, since this pathogen comes in on weakened turf, they just want to be very vigilant on watching those greens and making sure they have a good diagnosis on them, an accurate diagnosis,” he says.

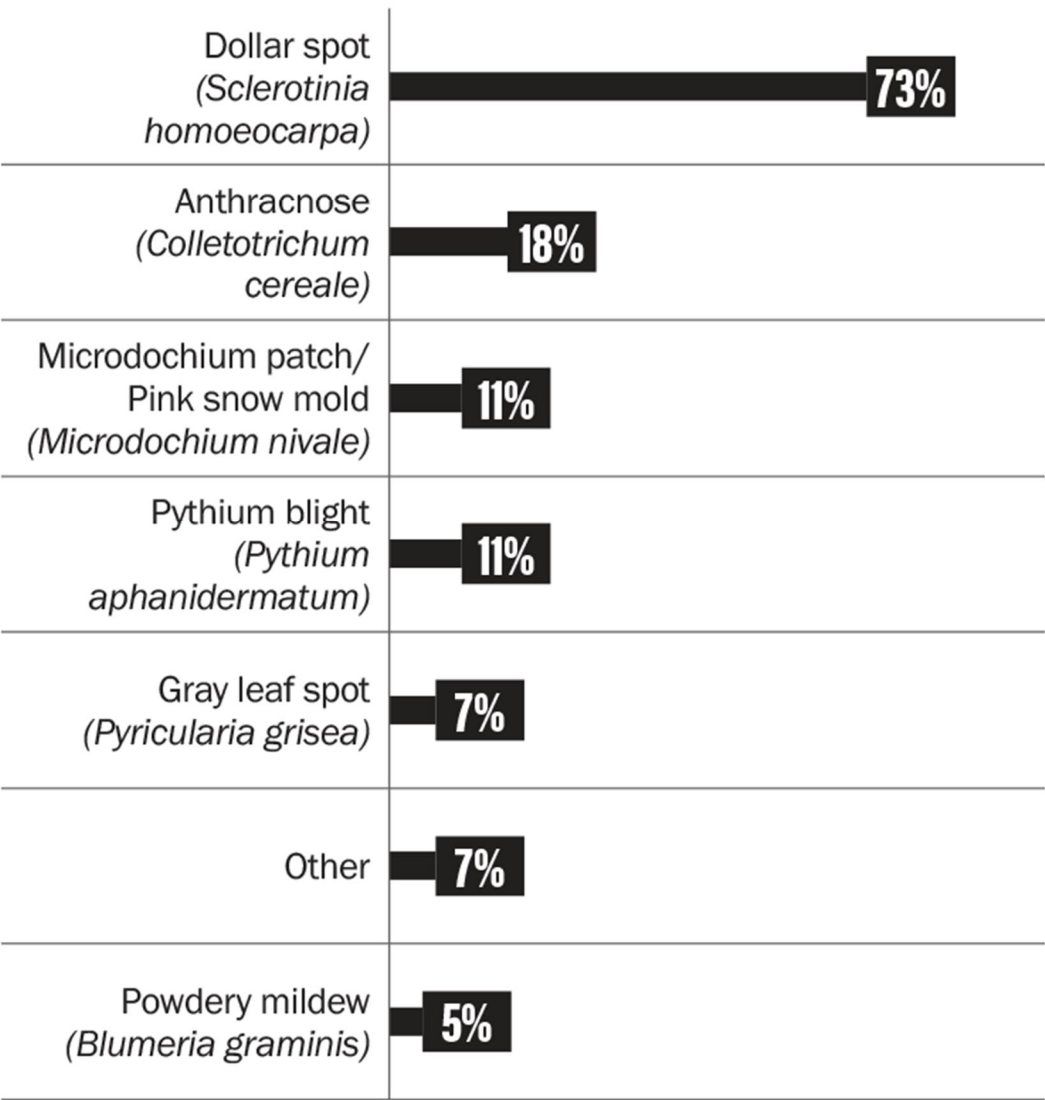
Anthracnose basal rot affects *Poa annua* more often than creeping bentgrass because it attacks the crown of the plant, Rimelspach says. Bentgrass stolons are less susceptible to severe outbreaks of anthracnose, but the risk increases under stressful conditions, such as scalping.

The means through which anthracnose can visually present itself are variable, Rimelspach says. “You could just have small, dime-sized yellowing plants, maybe some orange color when it’s more advanced,” he says. “Or it could be just a general area of *Poa annua* declining, or a patch.” If superintendents see any of these symptoms on their turf, they should check the crown to make sure it’s alive.

Rotation is the key

GCI, in partnership with AMVAC Chemical Corp., recently surveyed golf course superintendents, via the online research survey portal SurveyMonkey, about their experiences with fungicide resistance issue. While anthracnose and dollar spot were the most troublesome pathogens, superintendents indicated chemistry rotation was the key to preventing resistance issues.

Which of the following pathogens have you been experiencing resistance issues?



Editor's Note: "Other" responses included: take all patch, fairy ring, and brown patch.

Did you change your fungicide program after you noticed resistance issues?



Which of the following best describes your fungicide use philosophy?

2. Maintain adequate nitrogen fertility levels

Anthrachnose control is best achieved in an agronomic program in which nitrogen levels are where they should be, Clarke says. “Probably two-thirds of the variability in our studies was accounted for in terms of nitrogen rate and frequency, that type of thing,” he says.

In the summer, superintendents or their crew should spoon-feed about 2.4 to 3.6 pounds of nitrogen per thousand square feet, Clarke says. Additionally, in the spring, they can build up nitrogen levels through soluble applications of 0.4 to 0.8 pounds per thousand square feet.

Citing the research from Rutgers, Syngenta technical manager Dr. Mike Agnew says maintaining the right fertility levels is a major component in fighting anthracnose. “Too little nitrogen exacerbated the disease, too much nitrogen exacerbated the disease,” he says. “So there’s a fine line right in the middle where you want to keep your nutrients. You don’t want to overfertilize, you don’t want to under fertilize.”

3. Mow higher, while rolling and double-cutting to keep up green speeds

Clarke and his colleague’s research on anthracnose has found that it is brought on by low soil moisture, low fertility and low mowing heights. Discovering this, and dispelling previous notions that the disease is wound-related, has allowed superintendents to take advantage of mechanical practices such as raising mowing heights, rolling and double-cutting, he says.

Grass should be mowed no lower than 0.125 inches, although superintendents and their crews with flex units can probably use a slightly lower setting, according to Rutgers’ Department of Plant Biology and Pathology. Mowing as high as 0.140 inches will further reduce disease pressure, according to the university’s research.

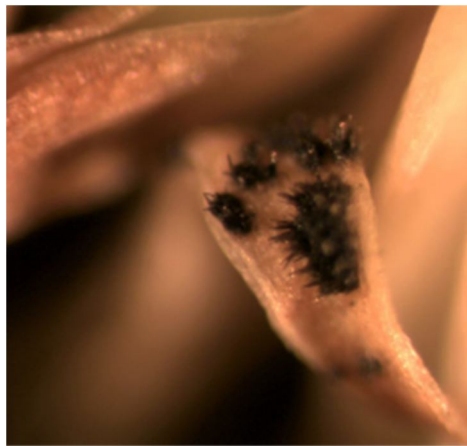
Raising mowing heights increases photosynthesis and increases the overall health of turf during stress periods, says Dr. Rob Golembiewski, green solutions specialist at Bayer. Rolling then allows superintendents to keep higher heights of cut while simultaneously reducing stress. “For some superintendents, I would go as far as to say

they can even alternate their mowing and rolling to eliminate that mowing stress every day,” he says. “Rolling across the surface is a lot less stressful than mowing on a daily basis.”

4. Topdress to improve overall plant health

Topdressing is another practice that improves turf health, filling the canopy and allowing for thicker, denser, healthier and more vigorous crowns, Clarke says. “It gives you better contact with the rooting media, and in many cases, the plants are more erect and more photosynthetically active,” he says. “It just makes for a better, healthier plant. So it’s not really an effect on the fungus so much it’s an effect on the plant.”

Superintendents who aerify in the spring and backfill the holes should continue to topdress through the growing season to maintain a full canopy of sand, Clarke says. In years when it’s particularly hot and grass is growing slowly, they won’t have to apply as much sand. In years when it’s cooler and grass is growing more, they should apply more sand.



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5. Consider applying plant growth regulators to reduce disease severity

When studying the effects of plant growth regulators on anthracnose, researchers at Rutgers found that PGRs do not enhance the disease, and furthermore, even will slightly reduce the severity of the disease in certain instances, Clarke says.

Both seedhead suppressants such as mefluidide and ethephon, and vegetative suppressants such as trinexapac-ethyl can be used as tools against anthracnose, Clarke says.

6. Use multiple fungicides to fight anthracnose

A multitude of chemistries work against anthracnose, Agnew says. Syngenta carries products that contain chlorothalonil, fludioxonil, penthiopyrad, azoxystrobin, difenoconazole and propiconazole.

Other effective chemistries include tebuconazole, thiophanate-methyl, pyraclostrobin, fluoxastrobin, triadimefon, myclobutanil, fenarimol, triticonazole, metconazole, polyoxin D, penthiopyrad and fosetyl-Aluminum, according to Ohio State's Department of Plant Pathology.



Anthracnose presents itself through various means, including small yellowing plants or some orange color when it's more advanced.

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7. Rotate between chemistries to prevent disease resistance

Rotating between different chemistries is integral to avoiding disease resistance, Clarke says. “That’s a serious problem with anthracnose, especially with certain chemistries, like the strobis or the benzimidazoles or, to a lesser extent, the DMI fungicides,” he says.

When applying fungicides, superintendents can make preventative or curative applications, Clarke says. “If you’re going to go preventatively, that’s fine,” he says. “If you’re going to go early curative, you have to be scouting, and you have to be very vigilant. You need to get this fungicide down as soon as you see any disease flare-up.”

Whether superintendents are applying fungicides preventatively or curatively will determine the intervals at which they should apply, Agnew says. “If you’re treating on a curative basis, you’re probably spraying it every seven days at the highest rates,” he says. “But you can actually control this disease very well with fungicides on a 14-day interval with moderate rates if you do it on a preventive basis and you use good cultural practices.”

Patrick Williams is a frequent GCI contributor.