Jackson, recent studies have shown that golf courses are typically more susceptible to patch diseases due to their intensive maintenance and heavy traffic. Unfortunately, most varieties of turfgrass can play host to any number of diseases and the environmental conditions favoring them vary by disease, he says.

In today's society, turf management practices can actually contribute to the development of fungal diseases, Jackson says. For example, close mowing, heavy fertilization and intense irrigation can encourage disease in turfgrasses. And this is the stress created by constant mowing and heavy traffic and it's no surprise that golf courses are typically more susceptible to fungal diseases than other turf areas.

Because of this tendency, golf course superintendents like Jim Richter of Crestwick Country Club in Bloomington, Ill., have turned to keep a sharp eye out for disease symptoms. Turf disease problems at this private, 18-hole facility began in 1976 when Fusarium blight attacked certain areas of the course, planted at the time in Delta and Newport common Kentucky bluegrasses. Nevertheless, Richter was able to bring this disease problem under control using applications of fungicides such as Tarsan 1991 and D-Life.

"Today, the course is still common Kentucky bluegrass, but we've been able to keep most diseases in check with the new technology and chemicals available, and by using improved varieties of bluegrass overseeded with ryegrass," Richter says.

His disease control program doesn't stop there, however. In fact, he has a relatively extensive preventive program involving the use of Subdue, Band, Chico 2009, Allett and Rugigan. More specifically, he uses Subdue, Bandol and Allett to control pythium blight; Chico 2010 for brown patch, leaf spot and dollar spot control; and Rugigan for patch disease control. In all, his fungicide budget is between $25,000 and $30,000 a year.

"This past year, we treated all our fairways with Rubigan, using it in a split application, with 3.75 fluid ounces per 1,000 square feet applied May 15 and the same rate applied May 15 for season-long control of patch diseases," Richter says, noting that he used the higher rate listed on the label because the treated areas had a previous history of patch disease infestation. As a result, he obtained excellent control of patch diseases, despite the hot, humid weather and late summer rains the area received last year.

Ordinarily, patch disease symptoms show up in Richter's region of the country near the end of July or the beginning of August. At this time, the textbook "frog-eye" pattern can be seen. This is characterized by seemingly healthy grass in the center of a full or partial ring of dead or dying grass, surrounded by more healthy grass. As the disease progresses, the rings run together until the area is mottled looking.

Many turfgrass pathologists insist that by the time patch disease symptoms appear in mid-to late summer, it is too late for curative treatment. As a result, they advise that control measures be applied early and preventively. In essence, the fungicide must be applied in early spring, before the disease has a chance to become established.

Cultural methods of prevention

In addition to implementing a fungicide program, Elanco recommends the following cultural practices to help prevent patch disease development:

• Minimize environmental stress to warm- and cool-season turf.
• Apply preventive fungicides as soon as the disease is identified. If a field test indicates that patch disease is present, you can then send the sample to a state or university extension plant pathologist for a precise lab identification. Although field tests can be used to determine if turf is infected by a patch disease (see accompanying sidebar on testing turf for patch disease) a laboratory analysis is required to determine which patch disease is actually present.

Because the symptoms of various diseases are often quite similar, laboratory diagnosis is essential to pinpoint the exact culprit. Although both Fusarium and Pythium are often confused for a fungicide that is effective against the specific disease you want to control. There is an alternative, however. A fungicide such as Rubigan A.S. provides effective preventive control wherever patch disease has been identified. Moreover, it is effective in suppressing all five patch diseases as well as other fungal diseases in turf, including anthracnose, powdery mildew, dollar spot, snow mold, copper spot, red thread and stripe smut. This makes Rubigan especially valuable when a golf course superintendent is unsure of which species or how many diseases are present.

Summer patch prevention

Charlie Gaige, superintendent at Lakeland Country Club in Brighton, Mich., began using Rubigan last year to control summer patch on this 18-hole course, built in the 1920s. Pointing out that he applied the product in split applications in April and May and got season-long control, Gaige says he's been so pleased with the results — 90 percent control on problem areas in just one season — that he plans to use Rubigan again this year to control patch diseases.

"The first symptoms of summer patch appeared a couple of years ago when some areas began turning yellow and the classic 'frog-eye' pattern developed," Gaige says. "So, we took some turf samples to Michigan State University, which is only about 45 minutes away. A plant pathologist there diagnosed the problem as summer patch and we began a preventive treatment program last year."

Gaige notes that summer patch has been one of the most difficult diseases to control to date. It originated in five to ten dying plants. Place the plant in water to remove soil from the roots.

3. Place the washed plants in a container of water and spread the roots apart.

4. Observe the plant roots with a hand lens. The infected roots will show a few dark strands of fungal mycelia growing along the surface of the roots, crowns and stems. If a field test indicates that patch disease is present, you can then send the sample to a state or university extension plant pathologist for a precise lab identification.
zonysagrass and centipedegrass. In addition, depending on the region of the country, it is most active in warm weather from June through September, occurring when one to two weeks of hot weather follow a heavy rainfall. Early symptoms of summer patch show wilted turf in infected areas. Later development, however, shows scattered circular patches of dead grass with healthy grass in the center. These patches may be several feet in diameter, and if the disease is not controlled, the whole lawn can be destroyed. Properly matched cultural practices and fungicide programs can control the diseases.

Dodenhoff also sprays Subdue on greens three times a year for Pythium blight control. Dodenhoff’s program has resulted in season-long control of summer patch, as well as other diseases, and a 90 percent turnaround in favor of the bentgrass in areas where summer patch had been a problem. In addition, Rubigan has helped Dodenhoff control dollar spot and anthracnose.

In conjunction with this fungicide program, Dodenhoff uses several cultural methods to reduce the chance of disease development on greens and tees. Practices include aerifying in the spring and fall, verticutting once every two to three weeks during the season, applying a light topdressing of sand every two to three weeks, avoiding overwatering, and overseeding in the fall.

“We’ve seen our disease program change during the last few years,” Dodenhoff says, adding that it’s become more preventive. “The development of new chemicals has really changed the outlook for us as far as keeping down the chance of disease — especially summer patch. Before Rubigan was available, there wasn’t anything we could use to combat that disease.

“At times, it seems like some of the cultural practices we’re using to try to help the turf can actually end up working against us by helping promote disease. In some instances,” Dodenhoff says, “therefore, it’s important to find and maintain the right balance between cultural practices and control methods.”

Product list

- Tersan 1991 (benomyl, DuPont)
- Bayleton (triazidine, Mobay)
- Subdue (metazalu, Ciba-Geigy)
- Banod (propanocarb Hydrochloride, Nor-Ant)
- Chipco 2601 (iprodiol, Phone-Poulecn)
- Aliette (amino tri, Resh-Poulecn)
- Rubigan (Eranoce)
- Daconil 7477 (chlorothalonil, Fermenta)
- PMAS (PMA, W.A. Cleary)
- Scotts ProTurf (PCNBV, O.M. Scott & Sons)

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