Time Ripe for Pythium Blight

BY KARL DANNEBERGER

With summer around the corner, it's time to look at a disease that resides deep in the psyche of golf course superintendents. *Pythium* blight is a devastating disease that has the potential to kill entire greens within hours.

Pythium pathogens are classified as oomycetes, which are water-loving fungi. The spores (oospores) spread easily and rapidly through the movement of water. Poorly drained greens, hot and humid weather combined with a thunderstorm could turn a perfect-looking green on Saturday into a completely dead green by Sunday morning.

In the 1960s, protectant fungicides for *Pythium* blight became available, including fenaminosulf (diazoben, Dexon), which had an extremely short duration — measured in hours — because of its rapid photodegradation. Even with the introduction of ethazole (Koban, Terrazole) in the 1960s, *Pythium* control usually lasted less than a week.

Thus, controlling *Pythium* blight was a high-risk venture. Not only did you need to know exactly when it was going to occur but also the fungicide that you were using would only last a few days at most. Controlling *Pythium* blight was like Russian roulette; chance played the major role in green survival. However, at least there was the potential for successful control even if numerous applications were required.

With the introduction of the fungicides mefenoxam (Subdue), propanocarb (Banol), and Fosetlyl-Aluminum (Aliette) in the late 1970s, *Pythium* control went from days to weeks. The availability of these three fungicides, primarily the systemic mefenoxam, was one of those major turning points in golf course management.

The ability to consistently control *Pythium* blight on greens and fairways for prolonged periods helped change golf courses from "dead" to "living" during summer. From a management perspective, these fungicides provided the opportunity — if so desired — to transform golf course fairways from Kentucky bluegrass to creeping bentgrass and perennial ryegrass. These fungicides also provided many superintendents their first real chance to sleep at night.

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With the ability to control *Pythium* blight from tee to green, widespread repeated use resulted in reported cases of fungicide resistance to mefenoxam. Fortunately, at the same time, we were learning more about the pathogen itself. And research led to the development of cultural practices that reduced the likelihood of the disease.

Predictive models were also developed in the 1980s. One relatively reliable predictive model for *Pythium* blight occurrence is when the maximum daily air temperature is greater than 30 degrees Celsius (C), the minimum daily temperature exceeds 20 degrees C and the relative humidity for nine hours is greater than 90 percent.

It would be easy to say *Pythium* blight has been relegated to just another disease. However, like a bad dream, *Pythium* has a way of expressing itself in various ways. It's still a disease to be wary of, as the summer of 2005 proved. *Pythium* blight caught many superintendents off guard because it had not been as severe in prior years.

Additionally, with at least 28 *Pythium* species identified on creeping bentgrass and *Poa annua* greens (Feng & Dernoeden, 1999), maladies no doubt will be associated with this species. *Pythium* root dysfunction first reported in the 1980s (Hodges & Coleman, 1985) continues to be associated with the decline of new creeping bentgrass greens. In what appears to be a similar situation in the southeastern United States, *Pythium volutum* has been associated with a root rotting of creeping bentgrass (Treadway, 2004).

As long as there are hot humid summers, *Pythium* diseases will remain in our collective psyche.

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