

# Turfgrass Disease Profiles

## Fairy Ring

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Numerous types of soil-inhabiting fungi cause fairy rings in stands of all turfgrass species. The appearance of fairy rings on high maintenance golf greens, sports turf and manicured landscapes is often unacceptable, even though the symptoms are frequently cosmetic and result in no lasting turf damage. Sometimes, however, fairy ring activity kills turfgrass plants; and in areas where it does, new growth is very difficult to re-establish. Also, when fairy ring fungi colonize soils, they may contribute to “localized dry spot,” a serious condition on golf greens.

### Fairy Ring Symptoms and Development

Fairy rings are dark green circular bands in turf (Figures 1 and 2). They range from less than one foot to more than 100 feet in diameter. Sometimes, they appear as arcs or incomplete circles (Figure 3), and may result in bands of dead turf. The rings are more prevalent in dry soils during dry months in summer and fall. After extended periods of precipitation, mushrooms (of all sorts) may be associated with some fairy rings (Figure 4).

Rings develop as the fungi grow radially through soil and thatch, breaking down organic matter. The breakdown releases ammonium, which other microorganisms further reduce to nitrate. The nitrate stimulates growth ahead of the ring’s leading edge. Hence, the darker green rings of turf are actually the plants’ response to nitrogen release in the soil.



Figure 1



Figure 2



Figure 3

- Gray Snow Mold
- Pink Snow Mold
- Leaf Spot/Melting Out
- Red Thread
- Dollar Spot
- Brown Patch
- Gray Leaf Spot
- Anthracoese
- Pythium Blight
- Leaf Rust
- Powdery Mildew
- Slime Mold
- Fairy Ring**
- Take All Patch
- Summer Patch
- Necrotic Ring Spot
- Rhizoctonia Large Patch
- Yellow Patch

The cause of turf death associated with fairy rings is not well understood. One theory holds that the extensive fungal growth in soil creates a “hydrophobic soil condition.” Hydrophobic soils actually repel water, causing plants to wilt and die. Another possible cause may be that the normal metabolic processes of some fairy ring fungi release lethal amounts of hydrogen cyanide into the soil. A third explanation supposes that some fairy ring fungi actually parasitize turfgrass roots. Regardless of the cause of death, reseeding and resodding the areas where such damage occurs are always more difficult.



Figure 4

### Cultural Control

The simplest means of managing fairy rings is to use additional N fertilizer (spoon feed 0.1-0.25 lb. per 1,000 square feet) in the areas where rings occur to mask the dark green bands. Another nonchemical method involves excavating soil in affected areas, replacing it, and re-establishing the turf. The excavation option is obviously very expensive and only practiced on very high maintenance golf and sports turf.

### Fungicides and Fumigation

Flutolanil (Prostar®) and strobilurin fungicides (Heritage® and perhaps Compass® and Insignia®) may be effective in suppressing fairy ring development under certain conditions where the fungicide is effectively applied to the soil. Foliar sprays with 2-4 gallons of water per 1,000 square feet have yielded inconsistent results. In some experiments, satisfactory results were achieved using a hydroject device to force a fungicide suspension 1-4 inches

into the soil profile. Also, the timing of the fungicide application may significantly affect performance. It is likely that even the most generous application of fungicide with a hydroject device will result in only marginal control if the target fungi are inactive and incapable of absorbing the toxic ingredient. Like turf problems involving other soil fungi (such as summer patch and take all patch), most effective fungicide applications are those made when the

causal agent is actively growing.

Fumigation of affected areas is another chemical option. However, the expense is nearly prohibitive. Also, with the promise of new fungicide treatments and delivery systems, fumigation is even less attractive.

### Home Lawn Help

Homeowners who manage their own lawns should try to coexist peacefully with fairy rings. Although the rings normally appear in the same place year after year, they may be barely visible and hardly a concern in some years. The best way to deal with the rings is to mask the dark green bands with small amounts of additional fertilizer and regular mowing. Investing in a spreader, small amounts of fertilizer, and a little more time in affected areas is much less expensive than excavation or chemical options, and will produce satisfactory results more consistently.

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*All photos by Richard Latin.*

