Fairy Ring

O & T Guide TD-5

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Cooperative Extension Service College of Agriculture and Home Economics October 2006

Causal Agents and Hosts: Fairy ring can be caused by many different species of soil-inhabiting fungi in the fungal group (class) known as basidiomycetes. All grass species are susceptible to this disease.

Symptoms: Symptoms of fairy ring are variable depending on the fungal species, soil type, condition of the grass, and the environment, but generally consist of circles or semi-circles in the affected turf area. The disease may appear as circles, rings or arcs of dark green, faster growing grass. The grass inside the rings may die-out leaving dead areas surrounded by dark green growth or the rings may develop with no dead grass (surrounded by normal colored grass). Conversely, some fairy ring fungi result in circles or arcs of dead grass surrounded by apparently healthy grass. Rings can vary in size during the year and can appear or disappear throughout the growing season. The rings may be surrounded by mushrooms, toadstools, or puffballs which are fruiting bodies of these fungi. In some cases, rings of fruiting bodies may develop with no visible effect on the grass. These fruiting bodies are excellent signs of the fungi and can be used as a diagnostic tool. Weed invasion into affected areas is common due to the lack of competition from healthy grass. Some fairy ring fungi cause a hardened hydrophobic (water repellant) layer to develop resulting in turf areas that are difficult to water.

Dark green rings caused by fairy ring. Photo: APS.

Fairy ring with no dead grass. Photo: M. A. Fidanza, The Pennsylvania State University.

Fairy ring with two rings of dead grass. Photo: D. H. Scott, Purdue University.

Mushrooms produced by fairy ring fungus. Photo: N. P. Goldberg, New Mexico State University.

Fairy ring affected turf (note weed invasion into diseased area). Photo: APS.

Conditions for Disease: The fungi which cause fairy rings live in the soil and decomposing thatch layer. They are spread from one area to another by the movement of infected plant material or infested soil by equipment and wind blown spores.

The disease occurs from spring to early summer, and the fruiting bodies generally appear in the late summer (during the summer rainy period). The fungi are favored by light textured soils, excessive thatch, low fertility, and drought. Symptoms are most obvious on nitrogen-starved turf.

Management: Cultural practices which help to reduce the occurrence and severity of the disease include:

- Maintain appropriate fertility levels. Apply adequate nitrogen, but do not over fertilize.
- Follow proper irrigation practices. Avoid shallow, frequent irrigations. The use of a surfactant (wetting agent) may be necessary if the disease has caused a hydrophobic condition.
- Aerate to improve water penetration.
- Reduce thatch.
- Removing the turf, digging out and discarding the infested soil (2 ft. beyond the rings on all sides to a depth of 3 ft.), replacing it with fresh soil, and resodding may be possible for small infected areas.
- Fungicide applications are ineffective if applied after the disease is apparent; however the use of systemic fungicides prior to symptom development may provide protection in areas known to be infested with these fungi.
- The fruiting bodies of many of these fungi are poisonous. Removal of the fruiting bodies is recommended – while this will not reduce the disease, it does help to improve the appearance of the grass area.