



## Fairy Ring on Turfgrass: *Various Basidiomycetes*

### Introduction

During the spring or summer a circle or arc of stimulated grass or of toadstools may appear in lawns. These are turf abnormalities called fairy rings. The rings can range from a few centimeters to 20 meters in diameter, but most are between 0.5 m and 5 m across. These rings of lush growth in the lawn are caused by the release of nutrients, in particular nitrogen, from the activity of the fungus on organic matter in the soil. Most of these causal organisms are fungi that may produce a mushroom- or puffball fruiting body. Some mushrooms or puffballs are very poisonous when eaten and it is, therefore, important that they be routinely destroyed if small children or pets are likely to be attracted to them.

### Symptoms and Signs

There are three kinds of fairy rings. One type has no mushrooms. Only the stimulated grass growth reveals the activity of those fungi in soil (Fig. 1). Another



Figure 1: Symptoms may include variously sized dark green circles of quickly growing grass. (provided by Dr. Eric B. Nelson, Cornell University)

type contains a ring of mushrooms as well as a ring of stimulated grass growth. A third type contains only a ring of mushrooms, with no evidence of unusual grass growth (Fig. 2).



Figure 2: A circle of mushrooms is a classic symptom. (provided by Dr. Eric B. Nelson, Cornell University)

### Disease Cycle

Fairy rings are not usually a lethal threat to the affected turf, but sometimes a ring of dead grass occurs in addition to the ring of stimulated grass growth. Death in the ring may be due to several factors. The presence of a dense mat of fungal mycelium may interfere with penetration of water into the soil, a toxic substance may be given off by the fungus in the soil, or the fungus may have a direct effect on the health of the grass plants.

Fairy rings normally reoccur each year, and their diameter slowly increases. Small rings appear as the initial symptoms of the infection. The rings become larger each year as the fungus grows in radial pattern. Rings can increase in size up to 0.5 m annually and can become quite large after years of infections.

## Management Strategies

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If the fairy ring consists only of mushrooms or puffballs, with no stimulated grass growth, simply rake off and dispose of these fungal fruiting structures. If handling the mushrooms, wear gloves and/or wash your hands when done.

As serious injury to the turf does not occur often with fairy rings, the most practical method of dealing with them in lawns is through a cosmetic approach. Disguise the symptoms by providing adequate water deep into the root zone, and by applying moderate rates of fertilizers. This will increase the vigor of the surrounding grass to the level more like that of the grass in the fairy ring. Excessive application of water or fertilizer should be avoided as either may contribute to other turf diseases or stimulate fairy ring development. More frequent mowing may make the difference in height between grass of the fairy ring and adjacent grass less conspicuous.

In rare cases where complete eradication of a fairy ring is necessary, the sod and underlying soil in a band 40 to 55 cm in front of and in back of the ring can be removed to a depth of 20 to 90 cm, depending on the extent of the development of the ring. The resulting hole should be replaced with clean, preferably sterilized, topsoil or soil mix. New sod or seed can then be established where the fairy ring was removed. Soil fumigants are sometimes effective for eliminating fairy rings, but this treatment must only be done by a licensed pest control applicator who is qualified to safely use toxic fumigants.

Some fungicides are available to treat some fairy rings, but this is discouraged in home lawns and should only be considered where mushrooms are being produced and have been **accurately identified**.

For homeowners in New York, making their own lawn applications, please refer to our [turf fungicide table](#). Before purchasing, be sure the specific product is labeled for the intended use. As usual, read the label carefully and follow label directions. Use only if other management practices do not provide adequate suppression, and use only to treat fairy rings caused by the genera listed on the label. It is not necessary to treat the entire lawn. Treat only the affected area and the lawn within a few feet of the ring. For best control, use in conjunction with cosmetic approaches described above.

### Reference:

*Compendium of Turfgrass Diseases*, Third Edition, 2005. R.W. Smiley, P.H. Dernoeden and B.B. Clarke. APS Press.

Updated SLJ, 1/15

**READ THE LABEL BEFORE APPLYING ANY PESTICIDE!** Changes in pesticide regulations occur constantly. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office.

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