

Stop 17. Managing Necrotic Ring Spot, Dollar Spot and Fairy Ring on Kentucky Bluegrass

Dr. Joe Vargas, Jr. and Nancy Dykema

Necrotic Ring Spot. Necrotic ring spot is a turf disease caused by the fungus *Leptosphaeria korrae*, which attacks the roots of the turfgrass plant. Kentucky bluegrass is the primary host of this disease. In the cool weather of the spring and fall in Michigan, the fungus actively infects the plants which produce characteristic red- to purple-colored leaves. As the disease progresses, infected plants with injured or depleted roots begin to wilt during stress periods and droughty conditions in the summer. Eventually, severely infected plants turn straw-colored and die in a characteristic circular ring, and over time, weeds or weedy grasses grow in the center. This is referred to as a “frog-eye” symptom. The disease is worse in areas with low fertility and frequent drought periods.

An integrated approach to management of this disease is very successful. Light, daily irrigation helps to alleviate stress due to depleted roots which function poorly in taking up water. It is a key component of this management regime. Slow release fertilizers, or spoon feeding on shorter intervals, are effective in producing uniform nutrient availability for the plants. In addition to fungicides, necrotic ring spot-resistant cultivars of Kentucky bluegrass are available.

Dollar Spot. Dollar spot is an important foliar disease of turf caused by the fungus *Sclerotinia homoeocarpa*. It is a foliar disease which infects a wide range of grasses, including most of those that would be used in an athletic field or lawn setting such as Kentucky bluegrass or perennial ryegrass. Infected plants exhibit white to tan colored lesions on the leaves, typically with a reddish brown border, except for annual bluegrass, which lacks the border. The fungus spreads from plant to plant via close proximity and equipment such as mowers, and causes clusters of infected plants resulting in blighted spots that vary in size from 0.5 to 3 inches in diameter. As the epidemic continues, affected spots may coalesce and form larger, irregular shaped areas. Dollar spot is typically more severe in drought-stressed areas as well as those under low fertility. It is most active when day time temperatures are warm, between 65-80°F, and nighttime temperatures fall into the 50-60°F range resulting in heavy dew formation. Under these conditions, cob-web like mycelia may be visible on the turf in the morning.

Fortunately, even though this disease can be devastating, many management strategies are available to combat dollar spot. Fungicides are commonly used to control dollar spot, but in addition to fungicides, cultural practices have been shown to reduce disease incidence. Removal of guttation water, maintenance of adequate levels of nitrogen fertility and light daily irrigation have been shown to reduce the severity of dollar spot. There are wide differences in the level of susceptibility of various grass cultivars, so reduction in disease levels can be achieved cultivar selection as well.

Fairy Ring. Fairy ring is a disease caused by many soil-inhabiting basidiomycete fungi. The fungus typically grows in a circular pattern and degrades organic matter present in thatch and soil. The disease is often identified by dark green circular rings in the turf, varying in diameter from several inches to 100 feet or more. Many times, fairy rings will not kill the turf but are nonetheless a cosmetic problem. They can be found in many different soil types, but are particularly problematic in dry soils, including sandy soils.

Fairy rings may be managed in a variety of ways, including masking them with fertility or even the use of fungicides like Tebuconazole, azoxystrobin, or Polyoxin D.

Stop 18. Carl Schwartzkopf Lab at the Hancock Turfgrass Research Center (HTRC)

Vijaya Shukla, Sanalkumar Krishnan, and Dr. Emily Merewitz

See pg. 6 for write-up.