

Mini Ring Disease

Ring Around the Collars

By Brian Unruh, Ph.D.

Over the past several years, superintendents from Memphis to West Palm Beach have

observed small, ring-like symptoms on their bermudagrass putting greens (Fig. 2). Symptoms typically begin to show up in the springtime, with small rings and/or patches of damaged turf. As the

season progresses, the rings and patches slowly grow in size or disappear completely, or disappear and then reappear later in the season. At the onset of bermudagrass dormancy, the rings and patches become most pronounced and superintendents and golfers are forced to live with the unsightliness through the busy winter season. Because of the nature of the small rings, Dr. Mike Healy of Healy and Associates, Inc., has dubbed the phenomenon “Mini-Ring disease.”

Although ultradwarf bermudagrass varieties are the most common hosts of the unwanted rings, the 2004 season revealed that Tifdwarf and possibly Tifgreen are susceptible as well. Similarly, ring symptoms were thought to be found mainly on high sand content, low cation-exchange-capacity (CEC) putting greens. However, rings have been



Fig. 1. Mini rings seem more pronounced in surface drainage areas and height of cut doesn't seem to matter. Photo by Brian Unruh.



Fig.2. Superintendents begin to see small rings in the spring. They subside during growing season reappear during fall dormancy. Photo by Brian Unruh



Fig. 3. Water droplets are absorbed in non-damaged areas but not in the damaged areas. Photo by Brian Unruh.



Fig. 4. In the spring the overseeding seems to be stimulated within the ring. Photo by Brian Unruh.

sighted on native soil, push-up greens which have higher CECs and higher organic matter content. These conditions suggest that the soil's water-holding and/or nutrient-holding capacity may somehow be involved in the development of this condition.

Larry Stowell, of PACE Turfgrass Research Institute in San Diego, has noted the hydrophobic nature of the mycelium growing over the surface of a sample of TifEagle from Mississippi. In non-damaged areas of the turf, water droplets are immediately absorbed into the thatch, but in damaged areas, the water droplet remains on the turf surface without being absorbed (Fig. 3). In some cases — but not all — superintendents observing the rings on their putting greens regularly use wetting agents.

Superintendents have racked their brains trying to find common denominators but have found exceptions to most hypotheses. Observations that tend to recur are:

- Rings are worse in surface drainage areas (Fig. 1).
- Increased mowing height (collar) does not appear to relieve symptoms (Fig. 1).
- Subtle rings can be masked by increased nitrogen fertility.
- In the spring, the overseed is stimulated in the ring (Fig. 4).

Dr. Stowell states: "The cause of the condition remains a mystery at this point. Although several different fungi have been identified from turf samples (including Rhizoctonia, Curvularia, fairy ring and ectotrophic root-infecting fungi, spring dead spot), no one fungus stands out as the culprit. In some cases, the damaged areas are hydrophobic (water repellent), a condition that can develop due to the growth of a large number of bacteria and/or fungi."

In extensive fungicide research and demonstration trials, the symptoms are not easily relieved via fungicide applications alone. Minimal to no control has been achieved from applications of major turf fungicides including the SI, QoI, benza-midazole, dicarboximide, and multi-site products. To date, the only treatments that appear to alleviate the symptoms are various combinations of nitrogen, peat, zeolite and the humus/manure-based products.

A team of turf scientists, plant pathologists, and industry leaders including Dr. Stowell; Dr. Phil Colbaugh, Texas A&M University; Dr. Phil Harmon, University of Florida; Dr. Healy; Dr. Henry Wetzel, Syngenta Crop Protection, Inc.; Mr. Steve Davis, Bayer Environmental Sciences; and the author are diligently working on this serious turf problem. When more information is learned, it will be made available.

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