

Tour Stop #5: Understanding the Mechanisms Involved in Dollar Spot Reduction through Lightweight Rolling on Creeping Bentgrass Putting Greens

Paul R. Giordano, Dr. Joseph M. Vargas Jr., Dr. Thomas Nikolai, Dr. Ray Hammerschmidt
Departments of Plant Pathology and Crop and Soil Sciences
Michigan State University

Field evaluations of lightweight rolling on creeping bentgrass putting greens have been conducted. Hypotheses such as dew and guttation removal, rootzone volumetric water contents, and microbial population dynamics have been investigated.

Dollar spot, a disease caused by the fungal pathogen *Rutstroemia floccosum*, has been significantly reduced on rolled plots compared to untreated control plots in both years this study was conducted. Interestingly, plots rolled in the P.M. after dew and guttation water naturally dissipated, have shown significant dollar spot reduction compared to the control and have not differed from plots rolled in the a.m. Volumetric water content was found to be significantly higher in rolled plots, and overall turfgrass quality was shown to be improved as well. Microbial populations have been measured from upper root zone soil from field plots via phospholipid fatty acid analysis. Microbial population trends exist in rolled plots indicating a possible change in bacterial populations in the upper root zone, due to rolling. This finding points to rolling having a potential positive effect on populations of "suppressive" or antagonistic microbes in the soil, thus rendering the turf less susceptible to infection by *R. floccosum*.

Treatments:

1. Control
2. Rolled Once (1x) a.m.
3. Rolled Once (1x) p.m.
4. Rolled Twice (2x) a.m.

Treatments were implemented 5 days/week during the growing seasons of 2008-2010.

1	3	4	2
2	4	3	1
3	2	4	1