

# Turfgrass Maintenance Rolling

**Tom Samples, Professor, and John Sorochan, Associate Professor  
Plant Sciences**

For centuries, agricultural producers have recognized the benefits of rolling a cultivated seedbed before planting a crop. Similarly, turfgrass planting beds are rolled to firm the soil surface before planting. A roller is used to press seeds or sprigs to soil immediately after planting. Turfgrass sod may be rolled just before harvest and again immediately after installation.



A roller is also a very important tool for correcting minor surface irregularities in established turfs. Turfgrasses are lifted and roots are exposed as soils heave during winter months in

response to freezing. Moles may dislodge plants as they channel through turf in search of earthworms and insects. Skunks may uproot turfgrasses as they dig into the soil.

Turfgrass managers have been rolling sports fields and golf course turfs for many years. In the 1800s, golf greens were routinely rolled in an effort to



maintain uniform putting surfaces and appropriate ball speeds. Many turf professionals believed that rolling using weighted rollers promoted turfgrass growth. Some considered rolling just as important, if not more important, than mowing. It wasn't until the 1950s, when researchers noted several problems associated with the over-use of heavy rollers on poorly drained, clay-based golf greens, that the practice of frequent rolling stopped.

Due, in part, to an increased demand for fast, firm and smooth putting surfaces, turfs growing in sandy soils capable of resisting compaction may, once again, be rolled several times each year. A goal is often improved surface smoothness and/or increased ball roll distance without lowering the height of cut.



Research verifies that there is merit in the practice of lightweight rolling of golf greens at appropriate frequencies.

Research conducted by J. Sorochan, here

at the University of Tennessee, and by D. Karcher, the University of Arkansas, demonstrates that alternating mowing and rolling versus daily rolling may significantly increase the quality of a creeping bentgrass green throughout the summer with no adverse effect on green speed. Giving the greens mower every other day off, and rolling with a lightweight greens roller instead of mowing, make a tremendous difference.

Similarly, a study by J. Beard, International Sports Turf Institute, revealed that a single early morning

rolling using a weighted, powered walking roller resulted in a consistent 10 percent increase in ball roll distance on sand-based, bentgrass greens at Grand Traverse Resort in Michigan. There was no increase in the distance of ball roll when rolling pressure was increased from 4.8 to 11.9 pounds per lateral inch.

Research conducted by K. Dannenberger at Ohio State University demonstrated the beneficial effects of rolling 'Penncross' bentgrass maintained at 3/16-inch growing in a sand-based soil. Rolling the turf with a Smithco® Tournament Roller and a True Surface® vibratory roller mounted on a Toro Greensmaster® mower increased ball roll speed. The effect of rolling lasted much longer when bentgrass was rolled in October and November when the rate of plant growth was relatively slow. No additional turfgrass wear injury or reduction in water infiltration were noted when bentgrass was rolled twice each week.

C. Hartwiger, Agronomist, United States Golf Association (U.S.G.A.) Green Section; C. Peacock, North Carolina State University; and J. DiPaola, Syngenta Corp., demonstrated that a U.S.G.A.-specification green root zone resisted soil compaction at rolling frequencies of up to seven times weekly. There was no increase in the bulk density of the sand-based soil after rolling.

The bulk density of a native soil root zone with considerably less sand increased as the turf was rolled four or more times each week.

If surface irregularities in turf are severe or rutting has occurred, sod can be cut, lifted and set aside. Soil can then be used to fill the deep depressions before sod is re-installed and ... rolled.

## References:

Beard, J. B. 1994. Turf rolling. Grounds Maintenance. January. pp. 44, 46, 48, 52.

Dannenberger, K., E. McCoy and T. Parobek. 1993. Rolling greens - help or hindrance? Ohio State University Turf News. 17 (5) pp. 13-14.

DiPaola, J. M. and C. E. Hartwiger. 1994. Green speed rolling and soil compaction. Golf Course Management. 62 (9). pp. 49-51, 78.

Hartwiger, C. E. 1996. The ups and downs of rolling putting greens. U.S.G.A. Green Section Record. Far Hills, N.J. vol. 34 (4) pp. 1-4.

Hartwiger, C. E., C. H. Peacock and J. M. DiPaola. 2001. Impact of lightweight rolling on putting green performance. Crop Science 41 (4) pp. 1179-1184.

Visit the UT Extension Web site at  
<http://www.utextension.utk.edu/>

W161L-3/08

Copyright 2008 The University of Tennessee. All rights reserved. This document may be reproduced and distributed for nonprofit educational purposes providing that credit is given to University of Tennessee Extension.

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.