



Brushing—When Does It Hurt The Turf?

Superintendents have concerns about brushing putting greens too often and damaging the turf. What are the benefits of, or stresses caused by brushing bentgrass greens?

Researchers at The Ohio State University investigated brushing and mowing treatments. The research, conducted on a native soil 'Penncross' bentgrass putting green, was started in May 2014. The cutting height was 0.125 inch and 0.25 pounds of nitrogen per 1,000 square feet was applied every 14 days. The green received weekly applications of 0.125 fluid ounces of trinexapac-ethyl per 1,000 square feet. Weekly, light topdressing also occurred during the study. These practices were continued through 2015.

In 2014, the treatments were 1) brushing once a week, 2) brushing three times a week, and 3) control – i.e., no brushing. On August 18, 2014, the brushing treatment of once a week was increased to five times a week. Initially, the brushes were set in the forward-rotating configuration at 0.100 inch. After August 18, 2014, the brushing unit was set to 0.000 inch and the brushes were configured to run in the reverse direction. All treatments were applied using a walk-behind mower.

In 2015, double mowing replaced the brushing once a week treatment. The treatments were 1) single cut – i.e., untreated control, 2) double cut, 3) double cut with brushing 3 times a week and 4) double cut with brushing five times a week. The brushing treatments were applied with the brushes configured to rotate in the reverse direction set at 0.000 inch.

The researchers visually evaluated treatments for color and injury, measuring malondialdehyde (MDA) levels as an indicator of plant stress. MDA forms when reactive oxygen species (ROS) degrade membranes – i.e., lipid peroxidation. During periods of environmental stress – e.g., heat, light, etc. – ROS can increase resulting in damage to cell structure. During summer 2015, the scientists also

made many measurements of photochemical efficiency – i.e., chlorophyll fluorescence.

Through October 15, 2015, the researchers saw improvement in leaf texture with brushing. From July through October, there were no differences in the measured plant-stress indicators among all treatments for 6 of the 7 sampling dates – i.e., brushing did not cause significant, measurable plant stress.

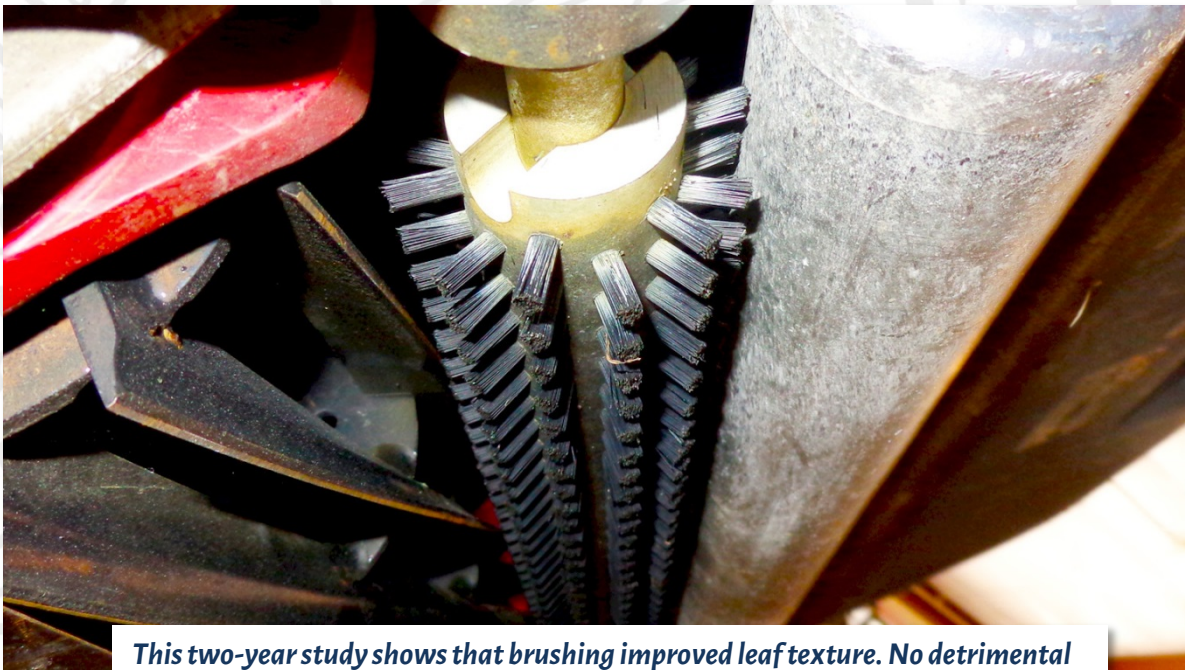
In 2014, the researchers observed thinner leaf blades that appeared to have less leaf moisture in the brushed treatments. In 2015, the researchers quantified the amount of cuticle on the leaf blade among the treatments. Double cutting had the greatest effect on reducing the amount of cuticle wax on leaf blades; brushing had no effect.

Source: Mike Kenna

Additional Information:

[Effects of brushing on bentgrass morphology and putting surface quality](#)

Happ, K. 2015. To brush or not to brush? That was the question! *Bulletin for Sports Surface Management*. 269:p. 40-41.



This two-year study shows that brushing improved leaf texture. No detrimental visual or physiological effects occurred from brushing.