

## **Evaluation of a Novel Topdressing Brush Technology**

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### **Objectives:**

This field study was designed to measure the effectiveness of a new combination roller/brush (RB) device for its ability to incorporate topdressing on a ‘Pennlinks’ creeping bentgrass research green.

### **Rationale:**

Regular sand topdressing is a routine putting green maintenance practice used to manage organic matter and promote surface smoothness. Excess sand remaining on the surface after topdressing can be deleterious to turf health, playability, and maintenance equipment if not adequately incorporated into the turf canopy.

### **How it was done:**

The research green was maintained similar to contemporary management practices for creeping bentgrass putting greens in the cool-humid region. Plots were topdressed with a medium-coarse sand at a medium ( $6.67 \times 10^{-4} \text{ m}^3 \text{ m}^{-2}$ ) rate (Figure 1) and then worked into the canopy using two procedures: hand brooming (HB), RB or non-brushed (NB). The sand remaining after incorporation was measured immediately by mower pick-up on 24 July, 2007 with a walk behind reel mower. Topdressing particles removed by mowing were separated from clippings by adding water and decanting off clippings. The remaining sand was oven dried and weighed. Turf appearance or quality (TQ), injury (TI) were two visual measurements taken immediately after brush treatments. Ball roll distance was measured using a modified stimpmeter with the ball release notch location half (38 cm) the distance compared to the conventional stimpmeter. The study design was a randomized complete block with four replications. All data was subjected to ANOVA using the general linear model procedure in SAS (SAS Institute, 1999).

### **Results to date:**

Among brushing treatments, the RB plots resulted in the least sand pick-up, 23 g sand  $\text{m}^{-2}$ , followed by the HB, 46 g sand  $\text{m}^{-2}$ , and the NB, 80 g sand  $\text{m}^{-2}$  (Table 1). TQ was higher for HB and RB plots compared to the NB plot, however, ball roll distance and TI were not significantly affected. The results of this study demonstrate that innovative topdressing incorporation methods can improve the ability to work sand into the turf canopy with minimal negative effects. These newer incorporation technologies may be particularly important for use with newer high shoot density bentgrasses or where larger quantities of sand require incorporation such as following hollow tine core cultivation, or where additional surface smoothness is desired. Brushing sand into the turf surface causes abrasion to the leaf tissue and should be avoided when the turf is under stress, regardless of the sand incorporation techniques.



Figure 1. A non-topdressed plot was included as a second control to ensure sand pick-up was not from previous topdressing applications.



Figure 2. Roller/brush treatments were conducted as recommended by the manufacturers of the greensIRON 3000TM. Dragging the brush for the initial pass, then leading with the brush for the final pass.

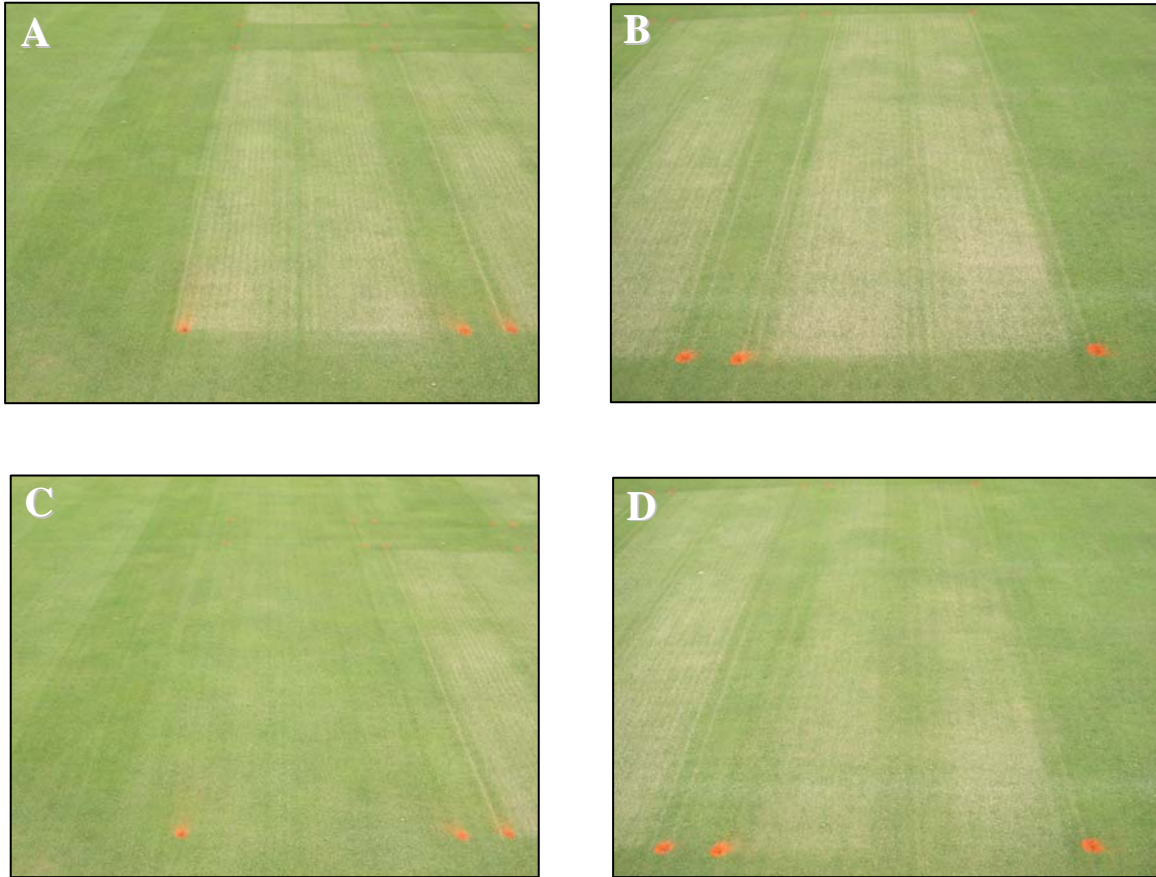


Figure 3. A medium rate of topdressing was applied before brushing (A and B). After brushing using a roller with a brush attachment (C) and a hand broom (D) back and forth.

Table 1. Sand pick-up, turf quality, turf injury, and ball roll distance as affected by two different topdressing brush incorporation technologies.

Treatment †	24 July, 2007			
	Sand ‡ ----- g m <sup>-2</sup> -----	Turf quality ----- 1-9 § -----	Turf injury ----- 1-9 ¶ -----	Ball roll distance ----- cm # -----
Hand broom	46 b*	6.75 a	1.0 a	198 a
Roller/brush	23 a	7.25 a	1.0 a	197 a
None	80 c	5.75 b	1.0 a	190 a

† Brush treatments were conducted immediately following topdressing application.

‡ A medium-coarse (> 60% between 0.25-1.0 mm) sand was applied at to a 'Pennlinks' creeping bentgrass putting green.

§ Turfgrass quality was visually rated on a 1-9 scale where 1= brown, dead turf, 9= optimum greenness and uniformity and  $\geq 6$  acceptable.

¶ Turfgrass injury was visually rated on a 1-9 scale where 1= no injury, 9= severe injury and  $\leq 3$  acceptable.

# Ball roll distance was measured using a modified (39 cm) stimpmeter.

\* Means in the same column followed by the same letter are not significantly different according to Fischer's protected LSD t-test ( $p= 0.05$ ).

## Literature Cited

SAS Institute. 1999. SAS OnlineDoc. Version 8. SAS Inst., Cary, NC.