NEW AND TRADITIONAL AERATION TECHNOLOGIES

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The purpose of this study is to evaluate the difference in two cultivation methods on a putting green surface. Even though core cultivation will disrupt the putting surface, the benefits of this practice have obviously been well documented, both in terms of soil physical properties and turf quality. However, the Graden cultivation machine is a fairly new product with little to no documented research. Briefly, it operates similar to a verticutting machine, but is able to penetrate down into the soil profile as deep as 1.5". The Graden has the potential to improve soil properties and turf quality without the hassle of removing soil cores.

MATERIALS AND METHODS

The experimental design was a 1 x 5 (cultivation x treatments) randomized complete block design with three replications. Each plot was measured to 1.67 m x 1.67 m. The plots were located at the Hancock Turfgrass Research Center on the Michigan State University campus. *Agrostis palustris* "Penncross" was established at the site. Two aerifiers were used; the first a Toro Greens Aerifier using 3/8" tines (2" by 2" spacing) at a width of 27 inches and the second, a Graden aerifier with vertical blades measuring 17" wide. There are 12 blades measured to 2 mm thick with 25 mm spacing in between each blade. The depth of the Toro aerifier was at 3" and the depth of the Graden was at 1". The treatments consisted of a check, aerified with the Toro once (T1), aerified with the Toro twice (T2), aerified with the Graden once (G1), and aerified with the Graden twice (G2). Treatments were applied on 14 August, 2001. Grass and plugs were harvested and then the treatments were topdressed and dragged in. Urea was applied at a 0.5 #N/M rate. Mowing height was maintained at 135 mm throughout the study.

Before treatments were applied, infiltration rates were recorded on each plot on 3 and 4 August and 10 September 2001. The double ring infiltrometer test was conducted using a constant head with the outside ring having a diameter of 227 mm and the inside ring having a diameter of 125 mm. Organic matter content was evaluated on 30 July and 19 September 2001 and at depths of 0-1.27 cm, 1.27-2.54 cm, 2.54-5.08 cm, 5.08-10.16 cm, and 10.16-20.32 cm. The soil probe had a diameter of 1.9 cm.

Results and observations will be discussed.

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A		E		C
B		C		A
C		B		E
D		D		B
E		A		D

A – Control, B – Aerify 1X, C – Aerify 2X, D – Graden 1X, E – Graden 2X