

Evaluation of New Technologies in Construction and Maintenance of Golf Course Greens

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Goals:

- *Determine the laboratory and field physical and microbiological properties of sand amended with organic and inorganic materials.*
- *Determine creeping bentgrass morphological and physiological responses under low oxygen situations.*
- *Evaluate soil physical and plant responses of forced air injection and water evacuation.*

Cooperators:

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The initial study investigating the effects of inorganic amendments on sand-based rootzone mixes has been completed. Three very uniform sands (coarse, medium and fine) were amended with Irish sphagnum peat, Profile[®], Greenschoice[®], Isolite[®], and Ecolite[®]. The amendments were used at 10% and 20% by volume. PVC cylinders, 30 cm deep, were filled with the various mixes. Soil physical properties, including bulk density, saturated conductivity, air-filled pore space and water-filled pore space were determined. Moisture profiles were generated with depth of the soil columns. The results indicate that the inorganic amendments did improve soil moisture holding capacity, but much less so than did the peat. Saturated hydraulic conductivity was high in all soils, probably due to the uniform sands used.

Nutrient retention studies indicated that none of the amendments reduced nitrate leaching, but that Ecolite and profile were very efficient at retarding ammonium leaching. Rate and positioning effects of amendment on nutrient leaching is presently under investigation. These data have implications for fertility practices in new putting greens.

The field installation, consisting of 60 mini-putting greens, has been completed. Each green is equipped with its own drainage system, which will also permit application of SubAir[®] treatments. The plots were seeded October 3 with L93 bentgrass.