

# Grow-in and Cultural Practice Inputs on USGA Putting Greens and Their Microbial Communities

**University of Nebraska**

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Start Date: 1996

Number of Years: 5

Total Funding: \$100,000 (Co-funded with the GCSAA)

## Objectives:

1. *Evaluate grow-in procedure effects on putting green establishment and performance, and develop criteria and recommendations for new putting green readiness for play.*
2. *Determine grow-in procedure impacts on root zone physical and chemical properties.*
3. *Evaluate post grow-in cultural practice effects on putting green long-term performance.*
4. *Determine temporal and spatial (by depth) patterns of rhizosphere community development in golf greens during accelerated and controlled grow-in of select root zone mixes and during long-term green maintenance.*

The overall goal of this project is to develop a better understanding of the impact of grow-in procedures on putting green establishment and performance. Impacts on the physical, chemical, and microbiological factors associated with the USGA root zones and rhizosphere are emphasized in the project.

The five year project is composed of three phases, One: Construction and Grow-in, Two: Microbial Community Assessments, and Three: Grow-in Procedure Impacts on the Long-term Performance of the Putting Green. Phases One and Two span three year periods, while Phase Three will involve experiments repeated over the five years of the project.

Two separate USGA-specification root zone mixtures - one composed of sand and peat (80/20 ratio) and one a combination of sand, peat, and soil (80/15/5 ratio) - were developed in 1996. Materials used for construction complied with USGA Greens recommendations for physical characteristics and organic matter content. First year greens (1997 Greens) were constructed in late summer of 1996, allowed to settle over the winter, and were seeded with Providence creeping bentgrass (1.5 lbs/1000 ft<sup>2</sup>) in the spring (May 30) of 1997. Second year greens (1998 Greens) were constructed in the summer of 1997, allowed to settle over the winter, and were seeded with Providence creeping bentgrass (1.5 lbs/1000 ft<sup>2</sup>) in the spring (May 27) of 1998. Third year greens (1999 Greens) were constructed in the fall of 1998 and allowed to settle over the winter. They were seeded with Providence creeping bentgrass (1.5 lbs/1 000 ft<sup>2</sup>) in spring (May 26) of 1999. The fourth year greens have been constructed and will be allowed to settle over the winter. They will be seeded with Providence creeping bentgrass in the spring of 2000.

Establishment results were similar in greens established in 1997, 1998 or 1999. For three consecutive years it was found that higher inputs will initially increase cover during

grow-in. This increase may not translate to earlier opening for play if environmental stress conditions occur that result in damage to lush, immature turf.