BACTERIAL POPULATIONS AND DIVERSITY WITHIN NEW USGA PUTTING GREENS

EXECUTIVE SUMMARY

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This project is being conducted in collaboration with Clemson University (Horace Skipper) and the University of Florida (Monica Elliott).

The objective of this new USGA project is to develop baseline data concerning bacterial composition (population and diversity) of new USGA putting greens. Specific objectives include: 1) determine bacterial populations associated with putting green root-zone mix materials, 2) compare rhizosphere bacterial population dynamics in Alabama, South Carolina and Florida, 3) document rhizosphere bacterial population dynamics in bentgrass over a four year period, and, 4) monitor NO_3-N and NH_4-N concentration in new bentgrass putting greens.

At Auburn these objectives will be accomplished by the use of miniature greens (1-m by 1/2-m by 1-m), each separately drained to allow collection of leachate from each green. Specific treatments at the Auburn site will be 2 nitrogen rates (1 or 2 lb N/1000 ft^2) and 2 greens mixes (100% sand and a 80%sand/20% peat mix). Greens will be planted with bentgrass (var. 'Crenshaw').

Soil/root samples will be collected during the months of November, February, May and August. Samples will be subject to dilution plating using standardized techniques and media. Selected rhizobacterial isolates will be identified using GC FAME analysis. Soil and leachate samples will be analyzed for NO_3-N and NH_4-N concentrations using 2M KCl extractions (soil) and standard colorimetric techniques (soil and leachate).

Miniature greens have been constructed, and will be filled with greens mix in the coming week. Planting and initial sampling will begin the 3rd week of November.

Percentage of time devoted to research: PI (currently 5%)
Technicians and students (10%)

Summary of expenditures: None at this time.