

Manganese and/or Copper:*Gaeumannomyces* Relationships in the Ultradwarf Bermudagrasses

(Beth Guertal, Auburn University and Monica Elliott, University of Florida)

Golf course superintendents in the Southeast who have putting greens with ultradwarf bermudagrasses receive much information about the susceptibility of those grasses to take-all root rot (*Gaeumannomyces*). The objective of this research project is to provide basic background data about manganese and copper relationships with *Gaeumannomyces* in the ultradwarf bermudagrasses.

Evaluation of Sand Materials for Golf Course Sand Bunkers *(Cale Bigelow, Purdue University)*

A major desirable functional characteristic for those materials that are installed into bunkers in the primary line of play (e.g. green-side or fairway bunkers) is avoiding embedded balls or causing a "fried-egg lie". Sands that are prone to producing embedded balls generally will not pack well and are more likely to be prone to significant erosion during heavy rainfall events. The objective of this project is to characterize various commercially available sands used for golf course bunkers throughout the United States.

Evaluation of Golf Turf Management Systems with Reduced Chemical Pesticide Inputs

(Jennifer Grant and Frank Rossi, Cornell University)

This project was designed to provide information on the feasibility and performance of golf course turf managed with an IPM approach to reduce or completely eliminate chemical pesticide use. The work was conducted on the Green Course at the Bethpage State Park, Long Island, New York. The project began in 2001, and a more detailed discussion of methodology and results from the first three years can be found in the 2004 *TERO* article at <http://usgatero.msu.edu/v03/n04.pdf>.

Evaluating New *Poa annua* Cultivars under Warmer Growing Conditions

(Soymya Mitra, California State Polytechnic University)

Although most golf course putting greens are planted to creeping bentgrass or bermudagrass, *Poa annua* may soon invade and become the dominant species of putting greens in many parts of the country. Scientists at Penn State University are developing *Poa annua* cultivars as an alternative to creeping bentgrass and bermudagrass that could be used on putting greens where *Poa annua* is well adapted. Researchers at Cal Poly are evaluating *Poa annua* selections for their ability to be used as putting surfaces in California.

Biological Control of Grey Snow Mold at High Elevation Golf Courses *(Tamala Blunt, Colorado State University)*

Snow mold disease caused by *Typhula* spp. is a serious problem for high elevation golf courses. Researchers at Colorado State University are developing molecular techniques for identifying *Typhula* species, screening four potential biological controls (*Trichoderma atroviride*, *Acremonium boreale*, *Typhula phacorrhiza*, and *Muscodora albus*) for snow mold, and testing both granular and spray fungicide treatments for the control of snow mold on golf courses. Fungicide trials are being conducted at both the Vail Golf Club and Breckenridge Golf Club with a total of 45 treatments.

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