Turf geneticists making strides toward perfection

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format. And little collaboration exists between scientists working on different aspects of turfgrass improvement.

"This is an exciting time," said MSU biotechnologist Dr. Mariam Sticklen. "This is Step Two in the Green Revolution. Step One was plant breeding. Genetic engineering research is taking even greater steps."

The associate professor in MSU's Department of Crop and Soil Sciences explained genetic engineering as "tailored plant breeding."

"With breeding, you are mixing up genes with the hope that you get rid of the bad genes, essentially," she said. "But with genetic engineering you are tailoring the whole process. You are cutting the genes that you are interested in and putting them in the plant.

"Also, in plant breeding you can not take a gene from a pathogen, which would be herbicide-resistant, or a bacterium which controls insects, and put it in turfgrass. With genetic engineering, you can..."

Saying that problems still need to be solved, Sticklen added: "This is just the beginning. I'm talking about [dealing with] pathogens, insects, stress factors... We have a long way to go in the evolution of turfgrass science."

But already, MSU has developed a creeping bentgrass that is resistant to herbicide, brown patch and dollar spot. And, she said: "We have the capabilities to develop dwarf turfgrass, insect-. pathogen-, heat-, drought-, cold- and salt-resistant turfgrass — anything that anyone could wish.

"If we had the finances, we could do this in a very short period of time — a maximum of three to five years for the laboratory work."

MSU is using bentgrass in its research because "we had it here and when we started working on it, it became a model system," Sticklen said. "Some of the turfgrasses may be more difficult than others. It's not that genetic engineering would be much different. It's that the efficiency of *in vitro* culture or regeneration in vitro might be different."

The work of cell and molecular genetics — which ranges from gene cloning to genetic engineering to bringing [the results] to breeding and to the field level and so on — is "very labor-intensive, highly technological and it's information-intensive," Sticklen said.

The USGA-MSU conference will address that information intensity.

Researchers, breeders and others in the industry will hear talks under the general topics Turfgrass Molecular Marker Analysis; Biological Control, Including Endophyte Strategies; Genes with Potential for Turfgrass Improvement; *In Vitro* Culture and Genetic Engineering of Turfgrass; and *In Vitro* Culture and Genetic Engineering of Turfgrass.

More information on the conference is available from Kenna at 405-743-3900, or Sticklen at 206 Pesticide Research Center, MSU, East Lansing, Mich. 48824; 517-353-9140, or FAX 517-353-1698.

HEAVEN-BENT AT HELL'S BUNKER
Superintendent Tony Gustaitis of Whitemarsh Valley Country Club in Lafayette Hill, Pa., prepares to blast out of the infamous Hell's Bunker during a round at St. Andrews Old Course in Scotland. People might remember Jack Nicklaus taking five strokes to get out of this bunker during the British Open last year. Gustaitis slapped the ball out in one attempt. Gustaitis' round was part of the expense-paid trip for two to Scotland that he won from American Cyanamid Co. during the International Golf Course Conference and Show last year. The trip included five rounds of golf at various courses in Scotland.