

Weird Science Comes to Golf

GENE GUNS, GOLD PARTICLES AND PLANT DNA

A brief glimpse inside The Scotts Co.'s Marysville, Ohio, research-and-development laboratory reveals there are no skittish white mice. Only scientists like John A. Neal, armed with Ph.D.s, gold and tungsten, a supply of petri dishes and an arsenal of expensive, high-tech equipment. Oh yes, and the all-important selected plant DNA.

Neal and his team of white-coated scientists are performing pioneering research to create genetically engineered turfgrasses that perform well on golf courses. Some scientists say it boils down to improving turfgrass traits by helping Mother Nature along with the evolutionary process. Critics say it's meddling. No one can argue its effectiveness because, in as little as six months, plantlets are created with important traits designed to make them hold up better under the strain of thousands of players.

Such teamwork at Scotts has been ongoing for several years. In many ways, the work resembles that of seed companies that cross-breed different turfgrasses to create improved cultivars. The main difference is that biotechnological methods are much more precise and faster. Genes for tolerance can be cloned and transferred into different turfgrass plants.

At Scotts, one handy piece of proprietary equipment is the gene gun, which Neal said looks more like a toaster oven. In short, the gene gun is used to accelerate about 10 million gold particles, each containing about 10 million copies of a plant gene.

The gene gun is one handy piece of proprietary equipment at Scotts.

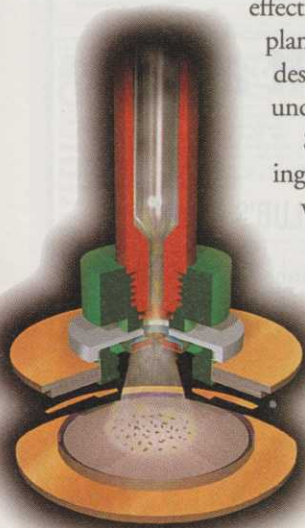
"That's like a hundred trillion bullets that we shoot at a million targets, and we get maybe 10 hits," Neal said of the process that takes a few minutes.

Neal said gold or tungsten is used because the material is heavy, inert and can be ground into a fine powder that is nearly invisible.

The real work comes in finding those 10 cells that survive because they contain specific genes.

"If the gene that I chose was the one to make the plant resistant to Roundup (glyphosate), then I would transfer those cells onto some media that contained glyphosate," Neal said. "Gradually, the cells that were not transferred would not do well and the ones that were transferred would." It's a selection process that takes months.

By 2002, the company's genetically engineered bentgrass may be growing on some golf courses.



Quotable

"We spilled our guts out."

— Hal Sutton, top soldier and scorer for the U.S. Ryder Cup team, telling a Reuters' reporter how captain Ben Crenshaw's group overcame a seemingly insurmountable lead to reclaim the cup it lost to the Europeans in 1995.

"Tuna!"

— A catcall from a heckler in the Ryder Cup gallery intended for Colin Montgomerie, who bears an uncanny resemblance to New York Jets football coach Bill Parcells, the man they nicknamed after the stinky fish. Parcells reportedly hates the nickname, and Montgomerie didn't like it much either.

"I've always said of most superintendents: If you give them a 50-foot section of garden hose and a walk-behind mower, they can make their courses look pretty nice."

— Don Bulmer, golf sales manager for the Toro Co.'s Irrigation Division, on hard-working superintendents.

"The greens aren't great. They're hard, and I don't think the weather has anything to do with it."

— Lee Janzen, as told to the Chicago Tribune, griping about the greens at the Medinah CC for the PGA Championship.

"All I can tell you is we are doing the best we can."

— Medinah's CGCS Danny Quast, as told to the Chicago Tribune, on Janzen's criticism.

"Superintendents are a lot smarter than they were 15 years ago. They're not tire-kicking, grease-monkey grass cutters."

— Todd Gray, director of finance programs for golf and turf leasing at John Deere Credit