Genetic turf research needs support

By RON HALL/ Managing Editor

Genetically engineered turfgrass is coming, but when it will become commercially available isn't clear. What's clear is that transgenic research in turfgrass lags far behind similar research in food and fiber, said Dr. Peter M. Gresshoff, plant molecular geneticist at the University of Tennessee.

Dr. Peter M. Gresshoff says U.S. turf industry must begin supporting genetic research.

The turfgrass industry has gotten no financial support from federal or state agencies for research in gene splicing, claimed Gresshoff. It will have to do more on its own to advance the knowledge of the genetic material within the many species and varieties of turfgrass.

"We're in a situation of cultivar development which is equivalent to the Babylonians 3000 years ago who walked around the fields (and said), 'Oh, here's a good plant. Let's pick the seeds of this and see how well it grows'," said the scientist at the Tennessee Turfgrass Conference this past January.

The future is here

That's not the case in agriculture.

In fact, chances are that you're eating genetically engineered food. Or, perhaps, wearing clothing made of transgenic fiber. Here's a short list of genetically altered crops being grown (or soon to be grown) commercially: corn, cotton, potato, soybean, squash, tomato, and canola.

These plants exhibit the characteristics of genes isolated from other plants or animals. These genes are inserted into the DNA of host plants, for instance, to make them resistant to certain diseases or insect pests. Or to make them more efficient users of nitrogen or water. The list of crops and of the number of genes are expanding, more or less in order of the economic importance of each crop.

Research into gene splice, indeed, is accelerating. Rapidly increasing are:

- the applications for genetic engineering,
- the number of organisms being "improved",
- the rapidity with which engineered products can be brought to the marketplace.

A Wisconsin company, for instance, "piggybacked" seven new properties into a new corn variety in just 1½ years. The process would have taken 10 to 12 years using traditional plant breeding, said Gresshoff.

Big hurdles

While researchers at Rutgers and Michigan State University have reportedly engineered a bentgrass resistant to the herbicide Finale, the industry, in general, faces big hurdles in developing turfgrasses with improved characteristics through gene splicing. Not the least of these challenges is the turfgrass itself, both the number of species (and people or companies championing individual species) and the fact that grasses—like other cereals—have lots of DNA, said Gresshoff.

"Right now there is not a single (genetic) map for any turfgrass. We're not even close," he added. "We first have to get the map to understand where the genes are functioning in the turfgrass."

While new varieties of turfgrass arising from gene splicing appear to be years away, DNA technology is being used in turfgrass. For instance, a gene "marker" technology can be used as a diagnostic tool.

"DNA fingerprinting is a reality right now," said Gresshoff. "We can see if something is a legal Tifway 419 variety or not. We can check production, identify contamination."

Gresshoff urged the U.S. green industry to support genetic turfgrass research at the university level. Otherwise, he hinted, it could be looking to other countries or huge multi-national companies for the technology to produce the next generation of improved varieties.