

# 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



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

and fiber, said Dr. Peter M. Gresshoff, plant molecular geneticist at the University of Tennessee.

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, "piggy-backed" 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.

# Oldest college track to be renovated

Historic Edwards Stadium at the University of California—the country's oldest pure collegiate track facility—will be renovated soon as part of a \$3 million project.

The stadium's existing track and infield areas will be reshaped and resurfaced to accommodate both track and soccer competition. U.Cal officials feel the upgrade will

make Edwards an attractive site for future NCAA and international track and soccer events.

CMX Group, Inc., of Phoenix, Ariz., is handling the project with the Cal Athletic Department as primary consultant and engineer.

CMX recently handled the conversion of UCal's Memorial Stadium from arti-



ficial turf to natural grass.

For the Memorial Stadium project, CMX removed the field's 2-1/2-foot crown; installed Kentucky Bluegrass sod atop a specially-designed, sand-based, gravity-flow drainage system with fully-automated field irrigation technology.

"We had some interesting sub-surface issues," says CMX President Mike Lloyd.

"We had to avoid Strawberry Creek, which flows di-

**Built in 1923 overlooking San Francisco, UCal's Memorial Stadium went from grass to artificial, and back to grass again.**

rectly under the stadium. During construction, we also encountered natural underground springs, which had to be intercepted, and some unstable soil which had to be treated."

The field at Edwards Stadium will feature a natural grass field system similar to that at Memorial.



CMX Group designed, oversaw the 5-month Memorial Stadium construction project and installation of new Kentucky bluegrass field.

## Snow removal symposium

The Snow & Ice Management Association holds a "Snow & Ice Symposium", May 7-9, at the Airport Marriott, Pittsburgh, Pa. Topics include pricing, weather reporting and insurance. Cost is \$295 for members, \$365 for non-members. Call 814/456-9550.

## Penn turf flies high

Three ounces of turfseed is going with Dr. James Pawelczyk when he blasts off in the Space Shuttle Columbia on April 2. Pawelczyk, is an assistant professor of physiology and kinesiology at Penn State University. The grass seed is from experimental lines of Kentucky bluegrass and perennial ryegrass developed at the university

Dr. David R. Huff, assistant professor of turfgrass and genetics at Penn State, selected the seed types. He said genetically identical seeds will be kept on Earth to compare with the shuttle seeds. Huff says this is the first time turfseed has flown in space.

At the completion of the 16-day shuttle mission the seed will be planted, and one square foot of the resultant "space turf" will be installed at each of the 24 campuses in the Penn State system.

Students Charles C. Eagle, Michael S. Bell, Margaret M. Bloch and Michael A. Roofner suggested the turfseed which won over other suggestions such as taking along a cardboard Joe Paterno and a football.