

Sowing the Seeds R&D

Companies continue to search for top turfgrass species

BY PETER BLAIS

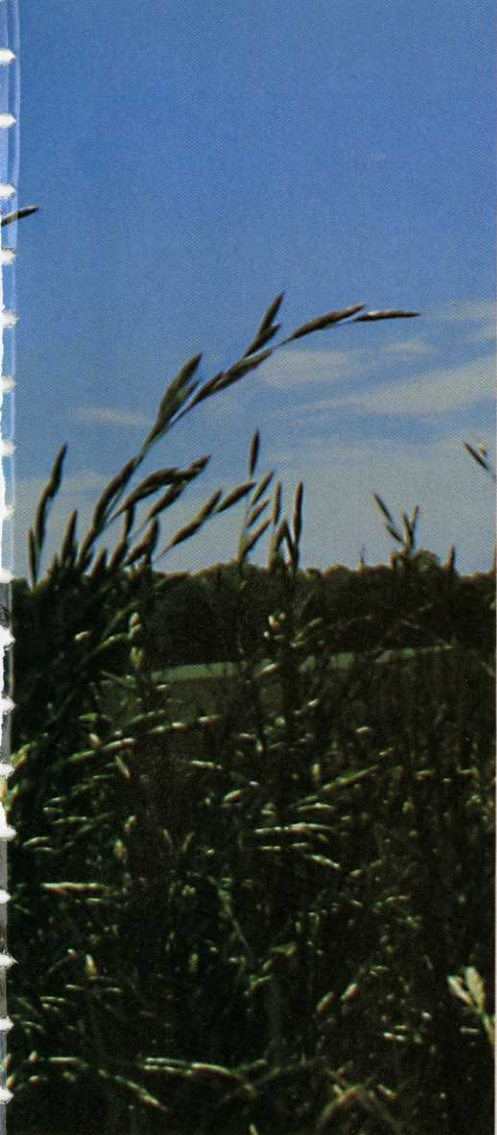
Seed companies are working diligently to improve all types of golf course turf, although recent headlines have focused on the efforts of The Scotts Co. and Monsanto Co. to gain government approval of a genetically engineered bentgrass that is resistant to the herbicide Roundup.

According to a recent *New York Times* article, an Environmental Protection Agency (EPA) study showed that the genetically engineered bentgrass pollinated test plants of the same species as far away as 13 miles downwind from a 400-acre Oregon test farm. Natural growths of wild grass of a different species were pollinated nearly nine miles away. Previous studies had measured pollination between various types of genetically modified plants and wild relatives at no more than about a mile.

The study has heightened concerns that the

grass could spread to areas where it is not wanted or transfer its herbicide resistance to weedy relatives. Because of the environmental questions, a decision on a U.S. Department of Agriculture petition for commercial approval of the bioengineered bentgrass will likely take at least another year because the department has decided to first produce a full environmental impact statement.

Scotts' Director of Communication Jim King said the outcome of the EPA study was not overly surprising. "Grass creates pollen that is very, very light," he says. "When you get a lightweight pollen up in the air with sustained winds, clearly it's going to travel. This was our production field, so we were fully involved with this study and cooperated with EPA every step of the way. The study showed pollen flowed farther than we had documented in the past. The main reason that was true was because pollen flow



LARRY KASSELL

A major goal for seed companies is to develop varieties that overcome various stresses.

had never been tested from such a big production field. [Previously] we had tested it from just a few plants. Other than that, there was nothing about the study we found too surprising. We remain fully engaged in the regulatory process.

"While there have been questions raised about pollen flow and some technical questions about the petition and our technology," King added, "there has been no debate we are aware of that there are some real environmental [benefits] and market benefits to RRCB [Roundup Ready Creeping Bentgrass]. We believe — and to this point no one has disputed the fact — that the product will result in significantly less use of more-toxic chemicals to manage weeds and other issues for golf courses."

The RRCB debate has deflected

attention away from the short-term (one to two years into the future) and long-term (10 years and more) efforts of researchers at Scotts and other seed companies as they look down the road for ways to overcome various stresses placed on turfgrasses and improve overall playing conditions.

In the short-term

"Water use will continue to be the No. 1 issue on golf courses," says Wayne Horman, director of seed sales and marketing with Scotts, which is looking at bluegrasses that would use less water and grow slower. "We are making advancements in traditional breeding. For instance, we have taken a Kentucky bluegrass and crossed it with a Texas bluegrass that gave us a new hybrid [called Thermal Blue]. By doing this, we pushed the transition zone south. If you are in Memphis [Tenn.], Birmingham [Ala.] or Knoxville [Tenn.] and tall fescue is your current grass choice, it may

not be as much fun [as bluegrass] to hit out of, is not as attractive, does not repair as well and is susceptible to brown patch. Now you are able to use bluegrass."

Barenbrug USA Director of Research Devesh Singh says his company is concentrating on salt tolerance, particularly in the South and Southwest, as well as shade tolerance and turf recovery, especially on tees.

"Generally we are not looking at one variety, but at mixtures," he says. "We're working with courses here in the Northwest on fine fescues that blend well with perennial ryegrasses."

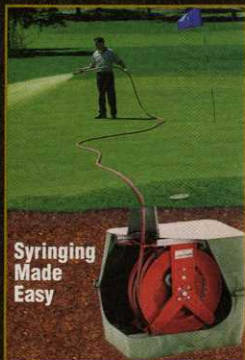
An annual ryegrass called Canterra is drawing a lot of interest at Barenbrug.

"It's good for sports and turf fields, but it can be used on golf courses in the South," Singh says. "It's fairly inexpensive and, with perennial ryegrass so expensive, it is a good overseeding alternative. You don't have to spray to

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Seeds of Change

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remove the annual ryegrass since it will die off anyway. It makes a beautiful golf course turf and has good wear tolerance. The perennial ryegrasses are getting so persistent they are hard to remove. We are looking for even more wear tolerance and darker color in the annual ryegrass."

Seed Research of Oregon Technical Agronomist Skip Lynch says his firm is making strides on dollar spot resistance and will introduce three new bentgrass varieties next year that are resistant to the disease. The Corvallis, Ore.-based company has also cross-bred bluegrasses to develop a variety called Cheetah that's fine-textured, upright and aggressive.

Lebanon Turf recently introduced Declaration and Independence creeping bentgrasses and Legendary velvet bentgrass, according to Turfgrass Marketing Manager Murray Wingate, who is particularly intrigued with Legendary.

"The velvets have a limited geography,

adapted primarily to the Northeast, Upper Midwest and Pacific Northwest," he says. "But that could change as some of these new varieties of velvet bentgrass come out.

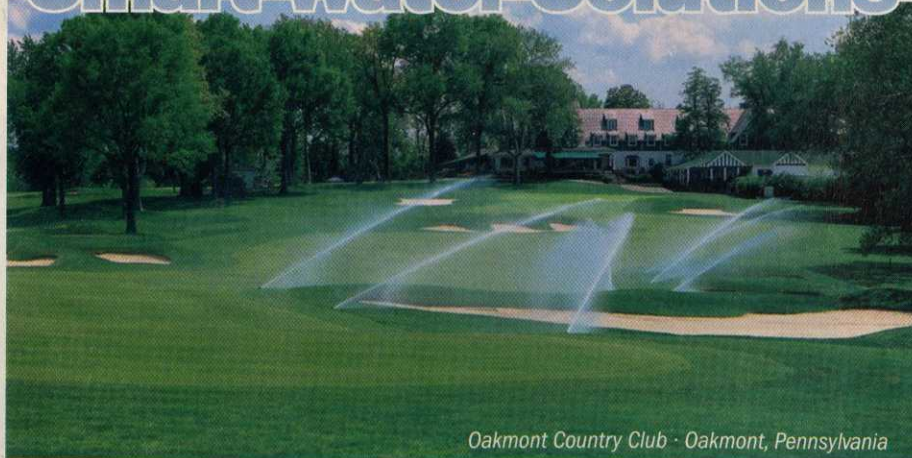
The velvets use fewer inputs and have better dollar spot resistance than many of the bentgrass varieties out there. They are dense, keep *Poa annua* out and provide a



JASON STAHL

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nice putting surface without a lot of chemicals or water. With the potential loss of some fungicides down the road, you could see a real resurgence of velvet bentgrass."

Finding a way to combat brown patch in tall fescue is another point of emphasis at Lebanon. "We are getting some fescues that are starting to look more like bluegrasses, with finer texture, darker color and denser canopies," Wingate said. "But a denser canopy may exacerbate brown patch potential. So you need to look for more brown patch-resistant grasses at the same time."

Russ Nicholson, Pennington Seeds national sales manager for the Professional Turfgrass Group, says his company is looking at ways to further improve bermudagrass, including Princess 77, considered among the leaders in the growing seeded bermudagrass market. The firm is also a player in bluegrass and bentgrass.

"With the bermudagrasses, we are trying to improve shade tolerance, drought tolerance, texture and make it more economical to establish," Nicholson says. "With the bluegrasses, we are increasing drought tolerances and stress resistances that coincide with those species so we can take it down to a half-inch in the fairways and still be strong enough to recuperate from divot and cart damage. With bentgrasses we are looking at improved disease and drought tolerance so we don't need to apply as many chemicals as in the past."

In the long-term

Strides made in research over the past 10 years have allowed superintendents to mow greens lower than ever. But some wonder whether lower is better and look for the emphasis to change over the next decade.

"You can't get much lower with green cuts," Nicholson says. "They are down to one-tenth of an inch in many places. Green design may have to change. Years ago the classic courses had very undulating greens. With the ultradwarf bermudagrasses and bentgrasses [cut so short], it has become difficult for the average golfer to enjoy a round of golf on that type of

putting surface. Speed can be controlled by other things than height of cut."

Nicholson says smoothness in greens has much to do with speed.

"With the bermudagrasses, we are trying to improve shade tolerance."

RUSS NICHOLSON
PENNINGTON SEEDS

"Topdressing and rolling are important," he adds. "That way you can allow the turf to actually grow and not scalp it down so close to the crown that the turf is always under stress. You need to breed plants that are very efficient in using and storing energy from the sun."

Adds Lynch: "There is no agronomic reason to mow greens as tightly as some are being mowed today. If you can develop a variety that germinates quickly, establishes quickly and can give you a putting surface that does not have to be cut below one-eighth inch, why wouldn't you do it? The tighter you mow, the more accentuated the flaws of the greens, including spike and ball marks. I would hope greens will be cut longer in 10 years."

Lynch also believes the increasing emphasis on renovating existing courses rather than building as many new ones will encourage the development of putting-surface grasses that establish quickly. "Owners do not want to be closed down for a long time. So if you have varieties that you can seed and have open in less than 10 weeks, that's a direction you have to go." ■

Blais is a freelance writer from Monmouth, Maine.



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