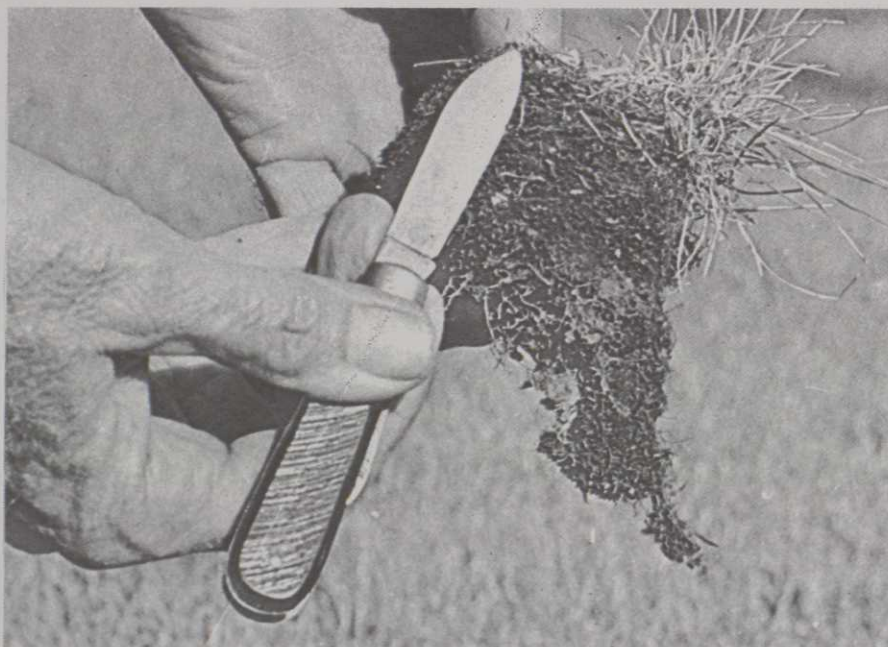


The search continues for the golf course turfgrass that will produce the greenest blades and finest texture while growing at a moderate pace. The grass must also be able to stave off poa annua, an array of insects, and the chemicals that are constantly sprayed to chase them away. It must keep its color during weeks of 90 degree temperatures, but not be so strong that it will overtake other grasses growing adjacent to it.

Despite the vast amount of



**RESEARCH
REPORT:**
**New
grasses for
golf courses**

by Scott Scredon, assistant editor

research at universities and seed companies across the nation, no one will claim that their new cultivar possesses all of these vital characteristics.

Yet, like the engineers who devise automobile changes each year to satisfy a public with diversified tastes, researchers are finding new products that are performing better than the existing models. And a number of them have found a company willing to promote and market their new strains.

The introduction of so many different varieties since the mid-1960's has made it even more difficult for a new cultivar to find a niche in the marketplace. Besides years of research and testing, the product must be properly promoted.

The promotional aspects, however, should not blur the results produced by years of breeding and field testing done by researchers. Dr. Joseph Duich at Penn State University began working in 1960 on a new strain of bentgrass to be planted on putting greens. The new cultivar will be introduced this fall.

New varieties

The new turfgrass will compete with Penncross, the brand introduced 25 years ago after work by Dr. Duich and the kind used on more putting greens than any other brand in the United States. Dr. Duich says the new brand, still unnamed, will grow "a little less vigorously" than Penncross.

The turfgrass called PSU-PBCB during its experimental stage was initially installed in 1975 at the new Brooktree golf course in Owatonna, Minn. The grass has also been planted at five 9-hole additions, and Dr. Duich said it has been distributed to 100 golf courses for comment. Even though the new cultivar will compete with Penncross, Dr. Duich developed it so a putting green can be planted from grass seed instead of vegetatively. This new bentgrass also has four

parents, allowing for a broad genetic base so it can be planted wherever bentgrass is now used.

Dr. Duich says the new variety will produce a finer texture than greens using other kinds of grasses, but claims its growth rate will not be slow enough to invite poa annua.

Although Dr. Duich expects the new turf to grow well at courses where bentgrass has traditionally been planted, he has also received encouraging news from unlikely locations. Dr. Jack D. Butler at Colorado State University in Fort Collins, Colo., has told the Penn State professor that the new cultivar has performed well in tests in Colorado's high plains and poor soils. "This is my first information that it has advantages in the high saline environment," Dr. Duich said.

The seed for the new turfgrass will be harvested in July and these yields will determine the amount of production for 1979. Dr. Duich hopes to have a new name selected for his product in the next few months.

Putting greens, especially those in the South that consist of bermudagrass, need to be overseeded when the primary turfgrass goes dormant. To accomplish this better, International Seeds, Inc., has produced Saber, a new bluegrass.

Dr. Jerry Pepin, vice president and research director at International Seeds, says the new turf is extremely shade tolerant. "It requires the minimum amount of sunlight that any Kentucky bluegrass needs to survive," he said.

It will require between 10 and 12 pounds of Saber for each 1,000 square feet on the putting green when overseeding. Dr. Pepin claims the seed has "very rapid germination and establishes quicker than other Kentucky bluegrasses," when planted. Saber has a financial advantage, too, he says, since it is less expensive than most perennial ryegrasses used in overseeding.

The new seed was introduced in the fall at Los Rios Country Club in Dallas since superintendent Melvin Williams wanted a turfgrass with a different color than his bermudagrass.

"The spring transition in the past two years has been so hard because

the ryegrass just seemed to hang on, and on, and on. I wanted a grass with just enough different color so I could tell what areas to fertilize."

Williams said the bluegrass takes about two weeks before its first blades appear, compared to about one week for ryegrass. But he is enthusiastic about Saber since "I've not found a weed yet in any of my greens." The superintendent also backed up Pepin's claims about Saber's costs, saying he spent about \$1,000 less this year than in 1977 for overseeding. Williams also says his greens are putting smoother and faster than when ryegrass was used.

Another bluegrass cultivar has been produced by the Loft Pedigreed Seed Co. in Boundbrook, N.J., but this will be used on fairways. Loft Research Director Richard Hurley said Ram 1 had been produced vegetatively by the company after Al Radko, national director for the United States Golf Association's Green Section, spotted the grass growing on a small green at a golf course in eastern Maine. The grass was brought by Radko to Rutgers University for observation and Loft plans to produce a limited quantity this fall and a large amount in the spring of 1979.

"We found it on a putting green, so we know it can be mowed at a close height. A lot of clubs want their fairways at $\frac{3}{4}$ of an inch, so we will produce it for use on tees and fairways." Hurley did say, however, that the new grass has been susceptible to leafspot during tests.

The newest grass intended for use in golf course rough is called Beaumont and has been developed by Dr. Kenyon Payne at Michigan State University. The tall, meadow fescue will also be produced by Loft.

Dr. Payne says the grass will have a finer, softer leaf than common meadow fescues. "Its texture will not be as coarse or stiff as the common varieties," he says.

The professor says he has developed the grass since none of the fescues in the northern states have the hardiness to withstand cold winters. "The strain now used loses 50 percent of its hardiness in the first winter," he complained.

Dr. Payne recommends that every 3 pounds of Beaumont be mixed with a

pound of Kentucky bluegrass. "It's a bunch-type grass; it has only one crown and doesn't spread rapidly." A limited amount will be available for planting in fall 1979.

In the near future

Two more promising varieties of Kentucky bluegrass and bermudagrass are in their final study stage and may be released in 2 or 3 years.

Northrup King Co. has developed Rugby, a bluegrass that can perform well with low or high amounts of nitrogen, said Keith Auti, a company turfgrass specialist. Auti was especially enthusiastic about Rugby's performance when only 4 pounds of nitrogen was applied for each 1,000 square feet of turf in tests. He reported good growth at low cutting heights and at 2 inches; he said it performed well in drought and heat stress tests and has resisted powdery mildew and Fusarium blight. The new strain has been "moderately susceptible" to stripe smut, Auti said, "but much less than a sensitive material like Merion."

Northrup has looked into the use of grasses that use low amounts of nitrogen for about 10 years, believing there may be fertilizer shortages in the future. Auti explained the reasons:

"Turf management programs in the past had unrestricted use of water and nitrogen. Since the Arab oil boycott, we've learned that nitrogen is not a finite resource. The turfgrass industry had better evaluate itself where its need for nitrogen is concerned because if there is a shortage, food production will need it before turf recreation."

Superintendents looking for any breakthroughs in bermudagrass research will have to wait at least two more years before any new varieties become available. Dr. Glenn Burton is using radiation to produce genetic changes in his experiments, attempting to improve the hardiness and nematode resistance in bermudagrass.

Dr. Burton, a geneticist at the College of Agriculture, University of Georgia in Tifton, has found "two or three" of his original 158 samples that are more resistant than current varieties. Dr. Burton places 1-inch sections of dormant rhizomes in half-

gallon, cylinder-shaped cans and drops them into a dark chamber. Each sample is left there for a specific period before he applies cobalt 60, the source of radiation used by medical doctors when they try to kill cancer cells. About half of the sample is killed and researchers study the genetic changes in mutations created by the radiation.

Dr. Burton believes the hardiness can be improved. His interest began around 1966 when he found bermudagrass growing in Berlin, Germany, and Milan, Italy. Some rhizome samples were returned to the United States and survived as far north as Lake City, Mich.

Work on existing grasses

A number of other researchers, either because they lack the facilities to establish a strong breeding program, or because of special geographical problems, have decided to find ways to improve growing conditions for ex-

isting turfgrasses.

Dr. Robert Shearman, horticulture professor at the University of Nebraska, has experimented with timely applications of low nitrogen levels at golf courses in Lincoln and Omaha.

He found that using 3 pounds of nitrogen for every 1,000 square feet on the fairways resulted in slower turf growth and better spring green-up. Dr. Shearman said slow-release fertilizers, such as IBDU and Milorganite, were "very effective," when applied at about the same time as the season's final mowing.

Dr. Shearman said his method is better than monthly applications from April through September, a common practice for many superintendents. These monthly applications of urea or ammonium nitrate result in a watery turf with too much top growth and less root development.

Another regional test, this one concerning effects of lower sulphur ap-

plications on bentgrass putting greens, was conducted by Dr. Roy Goss, an agronomist with the Western Washington Research and Extension Center in Puyallup, Wash.

Dr. Goss studied the sulphur experiments for 12 years. He varied the amounts of soil nutrients that a course superintendent would use for every 1,000 square feet of a green for a year. He used 6, 12, and 20 pounds of nitrogen; either none or 4 pounds of phosphorus; and 1.15 or 3.45 pounds of sulphur. In each test, 8 pounds of potassium was used.

"Over a period of 12 years, low levels of phosphorus (none), high levels of sulphur (3.45 pounds) and low levels of nitrogen (6) have produced the finest quality of texture, free of disease and poa annua. In fact, adding phosphorus stimulates poa annua," Goss said. Dr. Goss said that many superintendents have reduced their phosphorus levels since the results were published last fall. □

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