

The search is on for improved Bermudagrass varieties

By MARK LESLIE

FAR HILLS, N.J. — Whether it be finding the origins of off-types of hybrid varieties, or searching out cultivars that resist nematodes and spring dead spot or tolerate the cold, scientists across the South are investigating Bermudagrass and how to improve it.

Several research projects are among those being funded by the U.S. Golf Association Green Section, and reports on their progress will soon be released. They include:

- At Oklahoma State University, Dr. Michael P. Anderson in 1998 began a \$125,000 five-year study to increase re-

sistance in Bermudagrass turf varieties to spring dead spot through gene transformation technology.

"The use of high-velocity micro-projectiles (biolistics) to deliver recombinant DNA into intact plant cells has been successfully utilized to transform many grass species, and is considered the method of choice for most grass species," according to Anderson.

His experiments will identify, sequence and characterize a protein that has been discovered to be strongly and persistently inhibitory to-

ward the bacteria that causes spring dead spot, Anderson said.

- At Texas A&M University, Dr. Richard H. White is in the midst of a three-year study on best management practices for new dwarf Bermudagrasses.

"New dwarf Bermudagrasses are, in general, more aggressive thatch producers than Tifdwarf," White reported. "Judicious nitrogen fertilization will be required to slow the rate of thatch accumulation for many of the new Bermudagrass cultivars. Nitrogen amounts greater than 10 pounds

annually per 1,000 square feet improved turf quality but contributed to increased thatch, decreased ball-roll distance, and did not substantially increase shoot density."

White reported no differences in thatch accumulation among light (frequent) and severe (infrequent) vertical mowing and top-dressing regimes. However, he said, severe, infrequent vertical mowing reduced turf quality for long periods.

Meanwhile, White reported several new dwarf Bermudagrasses provided superior quality to Tifdwarf when mowed at 0.125

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Jim Snow

New Bermudagrass varieties in the golf course marketplace

SunDevil II

Medalist America Turfgrass Seed introduces SunDevil II seeded Bermudagrass that offers improved cold weather tolerance and disease resistance and requires less irrigation and maintenance. SunDevil II also greens up earlier in the spring and goes dormant later in the fall than common Bermudagrass.

The new turf is also ideal for overseeding existing common Bermudagrass and is a solution to areas of winter kill and turf disease.

For more information contact Medalist America: 1-800-568-TURF.

Southern Star

Jacklin Seed introduces Souther Star seeded Bermudagrass which offers improved quality, density, texture, greenup and seed yield than previous seeded varieties. The new turf establishes itself rapidly and is a comperable replacement for vegetative Bermudagrasses. Southern Star will be available following the 1999 harvest.

For more information contact Jacklin

Seed: 208-773-7581

PRIMO Bermudagrass Blend

Seed Research of Oregon announces improvements for 1999 on its certified PRIMO Bermudagrass blend. A Seed Research Advanced Seed Coat, an organic soil amendment agent, has been added to the seed surface. The certified blend of two or three different Bermudagrass varieties ensures that the seed will better handle varying soil and growing conditions.

OKS95-1 Bermudagrass

This experimental seeded Bermuda-

grass variety has been developed by Dr. Charles Taliaferro of Oklahoma State University and has been tested in the current NTEP Bermudagrass test. Seed Research of Oregon and Johnstons Seed of Enid, Okla. are presently working with Dr. Taliaferro on commercial seed production tests and expect to release the variety in the very near future.

OKS95-1 is noted for its winter hardiness and will be of good use for those in the upper transition zone who lose their Bermudagrass in cold years.

For more information contact Seed Research of Oregon: 800-253-5766

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Ultradwarfs

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year," said White. "In fact, above 10 pounds we start to see problems because of the aggressive thatching tendencies."

Mowing height is also critical, with 1/8 inch being the ideal height of cut. "Even at 5/32s thatch begins to be a problem and there is considerable scalping," said Dr. Bryan Unruh of the University of Florida, and sponsor of the on-site test in Mobile, Ala. "If the mechanic can't get a mower to cut true at 1/8 then there is going to be trouble."

While these maintenance practices help ensure proper turf health and growth, they may also adversely affect long term turf quality. As a result of light top dressing, root-zone profiles could be altered because the ultradwarfs act as a filter, allowing only fine sand to pass through.

"I am seeing a lot of black layer on established ultradwarf greens as a result of improper water infiltration," said Dr. Milt Engleke of Texas A&M University and sponsor of the on-site test in Dallas.

Bermudagrass

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inch. But only MiniVerde and TifEagle produced higher quality at a mowing height of 0.187 inch.

• At Mississippi State University, Dr. Michael Goatley Jr. is in the second year of a \$72,790 three-year study to determine the origin of the off-types that arise in hybrid Bermudagrass golf greens.

"Off-types of hybrid Bermudagrass putting green varieties are a persistent problem in Southeastern golf courses," Goatley said. "They disrupt green uniformity and interfere with ball roll. Their effects sometimes necessitate green replacement."

His goal is to learn if their formation has a genetic and/or cytological basis.

• At North Carolina State University, Dr. Rongda Qu is in the second year of a \$125,000 five-year project to obtain transgenic plants of hybrid Bermudagrass that express nematode-resistant genes.

• At Oklahoma State University, Dr. Charles M. Taliaferro is in the midst of a \$125,000 five-year study that will assess the cold-hardiness of advanced breeding lines of Bermudagrass, and isolate and characterize cold-regulated genes responsible for conferring freeze tolerance.

Taliaferro reported substantial progress toward isolating and characterizing cold-regulated genes from Midiron Bermudagrass.

In 1998 Taliaferro began a \$124,978 five-year project of breeding and evaluating Bermudagrass varieties.

"This is a red flag. Bermuda is not Bermuda anymore. We are going to have to start doing things differently than we used to."

With that in mind, research on ultradwarfs is continuing.

Even with constant verticutting and top dressing, White admits that thatch control is still not as effective as it should be. "We are going to look at core aeration in addition to verticutting and top dressing to control thatch accu-

mulation and see if we can be more effective," he said.

Guertal and Unruh are starting tests on cold tolerance and how to deal with established thatch.

Unruh has a 14,000-sq.-ft. green of TifEagle at his research facility that has about 2-1/2 to 3 inches of thatch and he plans to start a thatch remediation study in the coming months. "Everybody is going to plant these ultradwarfs and they will thatch,

so we have to look at how you get rid of it," said Unruh.

However, the advantages of ultradwarfs may outweigh the added maintenance headaches, according to Ihms and Sandburg.

Sandburg is working with Tifdwarf greens and intends to convert to an ultradwarf within the next three to five years. "We are going to wait until years three, four and five to decide which ultradwarf to go with," he said. "So far there is not a

favorite, but all the members agree that they are more acceptable than the Tifdwarf surfaces."

Ihms, who is working with bent greens, is also studying at the ultradwarfs. "When bent is good, nothing can beat it," said Ihms. "The question is, how often is that? Look at what you have to do to get there, running fans, etc. How much sense does that make, especially when these ultradwarfs are peaking while bent is down?"

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