Bermudagrass 'revolution' predicted

By MARK LESLIE

New seeded varieties that will "revolutionize" the Bermudagrass marketplace are on the near horizon, according to industry researchers.

Doyle Jacklin of Jacklin Seed Co. in Post Falls, Idaho, said his company next year will introduce Jackpot, a seed-propagated Bermudagrass that he claims will rival the industry-standard vegetative-propagated Tifway 419 for golf course fairways.

Dr. Arden Baltensperger of Farmers Marketing in Las Cruces, N.M., and formerly of New Mexico State University, said a seeded Bermudagrass acceptable for golf greens may be bred within five to seven years.

And Dr. Charlie Taliaferro's timetable at Oklahoma State University is within five years of marketing a vegetatively propagated Bermudagrass to compete with putting green standards Tifgreen and Tifdwarf.

Farmers Marketing President Royce R. Richardson predicted his firm is three to five years away from producing a seeded Bermuda similar to Tifway 419.

Thrilled at the prospects of being first off the starting blocks in breeding a seed-propa

Continued on page 28

Name	AR1	AZ1	CA2	CA3	FL1	KS1	KS2	LA1	LA2	MD1	MO4	MS1	MS2	NM1	NM2	OK1	TX1	UB1	VA1	VA2	VA3	VA4	Mean
Tifway II	7.9	7.1	6.5	6.0	6.6	6.9	6.9	7.6	7.3	6.8	3.0	7.1	3.8	7.5	7.7	6.7	8.0	7.0	6.2	6.7	6.9	7.3	6.7
MS-Pride	8.0	7.1	6.7	5.7	6.7	7.0	6.9	7.6	7.2	6.8	2.5	7.2	4.1	7.2	7.7	6.9	7.7	7.0	6.1	6.7	6.4	7.3	6.7
Tifway	7.8	7.2	6.5	5.8	6.6	6.8	6.7	7.6	7.4	6.8	3.0	6.9	3.7	7.0	8.0	7.1	7.5	7.0	6.3	6.8	6.3	7.4	6.6
MS-Express	7.5	6.5	5.8	5.6	6.2	7.0	6.6	7.4	8.3	6.9	2.3	7.4	4.5	6.7	8.0	6.8	8.0	7.2	6.4	6.8	6.0	7.2	6.6
Tifgreen	7.1	6.6	5.7	5.4	6.1	7.1	606	7.4	8.0	6.2	2.7	7.1	4.3	6.3	7.0	6.8	8.3	7.4	6.2	6.7	6.2	7.2	6.5
MS-Choice	6.9	6.5	6.3	5.4	6.1	7.0	7.0	7.0	7.1	6.5	3.7	6.1	4.9	7.3	7.0	6.9	7.3	6.8	5.9	6.7	6.7	7.5	6.5
NM 43	7.2	6.5	5.8	5.4	6.3	6.8	6.4	7.7	7.9	6.5	2.3	7.2	3.9	6.6	7.7	6.8	7.3	7.4	6.2	6.8	6.3	6.8	6.4
A-29	6.9	6.5	5.7	5.5	5.7	7.0	8.1	7.3	7.2	6.2	3.5	5.4	2.9	6.5	6.7	6.6	5.8	6.7	6.4	6.2	5.8	6.4	6.1
WM 471	7.0	6.3	6.3	5.3	6.7	5.0	6.0	7.3	6.9	5.8	3.2	5.1	4.2	6.8	6.0	6.2	7.3	5.6	5.2	6.6	7.2	7.4	6.1
Tufcote	7.3	6.3	5.5	5.5	6.3	7.1	6.6	7.3	7.2	5.7	3.3	5.6	3.4	6.2	6.7	6.5	5.7	6.9	6.1	6.2	4.9	6.9	6.1
Midlawn	7.0	6.3	5.6	5.9	5.7	7.1	8.2	6.9	6.9	6.2	2.9	5.4	2.4	7.0	6.0	6.6	6.0	6.5	5.8	6.1	5.6	6.4	6.0
Midfield	6.8	5.8	5.8	5.9	5.8	6.7	8.3	6.7	6.9	6.3	3.9	5.3	1.9	7.5	8.0	6.3	5.0	6.5	6.2	5.8	4.3	6.4	6.0
Texturf 10	7.1	5.4	5.8	5.3	5.9	7.0	6.9	6.7	6.9	5.6	2.5	5.3	3.5	6.8	7.7	6.5	5.2	6.4	6.2	6.5	5.7	6.9	6.0
NM 507	7.0	6.6	6.3	5.2	6.9	4.4	6.0	7.3	7.0	5.6	3.0	5.2	3.4	7.0	5.7	6.	7.2	5.4	4.7	7.0	6.8	7.4	6.0
CT-23	6.4	6.9	5.7	5.7	5.7	6.2	6.7	7.2	6.8	6.6	2.8	5.9	2.5	6.6	8.0	5.6	6.0	6.0	5.3	5.7	5.8	6.8	6.0
Midiron	6.4	5.9	5.9	5.3	5.8	6.7	7.8	6.7	6.3	5.7	4.0	4.9	2.1	6.5	5.0	6.1	5.5	6.1	5.4	5.7	5.9	6.3	5.7
FB-119	6.6	5.9	5.3	4.9	6.2	5.3	5.5	7.4	7.3	6.1	3.9	5.0	3.7	5.6	5.0	5.0	5.8	5.7	6.1	6.5	6.3	6.9	5.7
NM 375	6.7	5.1	5.4	5.3	6.6	5.7	6.4	6.9	6.9	5.4	3.0	4.9	3.0	6.1	6.3	5.8	6.3	6.1	4.8	6.0	5.7	6.9	5.7
RS-1	5.9	5.1	5.4	5.5	5.3	6.7	6.8	6.2	6.6	5.8	3.6	4.7	2.8	5.2	6.0	6.3	6.0	5.8	5.9	5.9	5.7	6.3	5.6
NM 72	6.0	5.8	5.2	4.8	6.4	4.6	5.3	6.9	6.3	5.7	3.2	5.0	3.6	5.1	6.0	5.9	5.8	5.5	5.0	6.5	6.1	6.9	5.5
Vamont	5.5	4.8	5.2	5.4	5.7	6.2	5.7	6.7	7.0	5.6	4.0	4.4	3.3	5.1	4.7	6.2	5.2	6.1	6.0	6.2	5.2	6.1	5.5
*Sonesta	6.0	6.0	5.3	4.8	5.7	5.1	5.1	6.9	6.7	5.8	3.2	4.6	2.7	5.5	5.0	5.6	5.2	5.7	5.4	6.2	5.9	6.8	5.4
*NMS 4	6.1	5.4	5.3	4.7	6.0	5.5	5.4	6.6	6.4	5.5	3.3	4.0	2.8	5.5	3.7	5.7	4.7	5.7	5.4	6.0	6.2	6.7	5.3
*NuMex-Samara	5.4	4.7	4.9	4.8	5.3	5.4	5.1	6.4	5.8	5.3	2.7	3.7	2.7	4.7	4.7	5.5	4.5	5.4	4.9	5.4	5.1	6.3	4.9
*NMS 2	5.2	4.1	4.8	4.9	4.9	5.2	4.5	6.1	6.6	5.9	3.8	3.7	2.9	4.6	4.7	5.1	4.2	5.0	4.7	5.5	5.1	6.1	4.9
*NMS 14	5.3	4.3	4.9	4.8	5.1	5.4	4.9	6.0	6.5	5.3	3.7	3.7	2.7	4.1	3.3	5.1	4.0	4.6	4.9	5.2	4.4	6.0	4.7
*Guymon	4.8	5.2	4.5	4.6	5.3	5.2	5.9	5.7	5.8	4.8	3.6	3.1	1.7	5.2	1.7	5.2	3.2	5.1	4.0	4.7	3.8	4.4	4.4
*Ariz. Common	5.2	3.9	4.7	4.7	5.0	4.6	4.8	6.0	6.2	4.3	2.8	3.6	2.5	3.8	2.7	4.9	3.5	4.6	4.1	4.8	3.9	5.4	4.4
LSD Value	0.5	1.0	0.3	0.4	0.7	0.7	1.6	0.5	0.8	0.6	2.6	0.4	0.6	1.0	1.9	0.8	0.9	0.4	0.6	0.5	0.8	0.6	0.2

* — Seeded Bermudagrasses. All others are vegetative.

Above are the final results of the 1986-1992 National Turfgrass Evaluation Program tests on Bermudagrasses, released in February by the U.S. Department of Agriculture.

Following are the soil texture, soil pH, nitrogen in pounds per 1,000 square feet, mowing height and irrigation practiced at each of the test sites:

AR1 — silt loam and silt, 4.6-5.5, 3.1-4.0, 2.1-2.5, to prevent dormancy.

AZ1 — sand, N/A, N/A, 0.6-1.0, to prevent stress.

CA2 — sandy loam, 6.6-7.0, 5.1-6.0, 0.6-1.0, to prevent stress.

CA3 — sandy loam, 6.6-7.0, 5.1-6.0, 0.6-1.0, to prevent stress.

FL1 — loamy sand, 6.6-7.0, 5.1-6.0, 0.6-1.0, to prevent stress.

IL1 — silty clay and clay, 6.1-6.5, 3.1-4.0, 2.1-2.5 to prevent stress.

KS1 — silty clay loam, 7./1-7.5, 3.1-4.0, 0.6-1.0, to prevent stress.

KS2 — sandy laom, 6.6-7.0, 3.1-4.0, 1.1-1.5, to prevent dormancy.

LA1 — silt loam and silt, 5.6-6.0, 4.1-5.0, 2.1-2.5, to prevent dormancy.

LA2 — silt loam and silt, 5.6-6.0, 3.1-4.0, 0;.0-0.5, to prevent dormancy.

MD1 — sandy loam, 6.1-6.5, 3.1-4.0, 1.1-1.5, to prevent dormancy.

MO4 — silty clay loam, 6.1-6.5, 3.1-4.0, 1.1-1.5, no irrigation.

MS1 — sandy clay loam, 7.1-7.5,m 1.1-2.0, 1.6-2.0, no irrigation.

MS2 — sandy clay loam, 6.6-7.0, 2.1-3.0, 2.6-3.0, to prevent dormancy.

NC1 — sandy clay loam, 0;0-3.5, 2.1-3.0, 1.1-1.5, to prevent stress.

NM1 — sandy clay loam, 7.6-8.5, 5.1-6.0, 1.1-1.5, to prevent stress.

NM2 — sandy clay loam, 7.6-8.5, 5.1-6.0, 0.0-0.5, to prevent stress.

OK1 — silty clay loam, 6.1-6.5, N.A, 0.6-1.0, to prevent stress.

TX1 — sandy loam, 5.6-6.0, 3.1-4.0, 0.6-1.0, to prevent stress.

UB1 — silt loam and silt, 5.6-6.0, 1.1-2.0, 0.6-1.0, to prevent dormancy.

VA1 — sandy loam, 5.6-6.0, 3.1-4.0, 0.6-1.0, only during severe stress.

VA2 — sandy loam, 5.6-6.0, 2.1-3.0, 1.1-1.5, only during severe stress.

International market for Bermudagrass is booming

By MARK LESLIE

It may be called "hooch" in Australia and "cooch" in India, but United States seed growers call Bermudagrass a money-maker — internationally.

"There is a substantial international market for Bermudagrass seed," said Dr. Charlie Taliaferro, a plant pathologist at Oklahoma State University. "Many of the [U.S.] seed companies sell more overseas, basically because Bermudagrass is such a widely grown species there are markets for it in many, many different countries that lie essentially 40 degrees latitude north and south of the equator."

Jacklin Seed Co. research director Doug Brede said Bermudagrass sales have done particularly well overseas, where "they can't get certified sod."

And Kevin Morris, director of the U.S. Department of Agriculture's National Turfgrass Evaluation Program, said: "Seeded Bermudagrass is a much more attractive option overseas...

"They can't just take a vegetative variety and let it grow. In five years it would have all sorts of weeds and other problems. Plus, it would be cost-prohibitive to transport it there."

Farmers Marketing President Royce Richardson acknowledged that he sold the Sonesta variety of Bermudagrass to O.M. Scott which "has tremendous distribution ... and can go into areas and sell where I can't."

But he added his firm does market heavily abroad, going into areas "where people want to build a golf course and [with seeded Bermudagrass] they can put in a course for one-third the cost of sod.

"That's why we're being successful in the Pacific Rim area. We're putting in courses in Rota, Guam, Saipan... It's hard to get sod into the Pacific and keep it alive. We send them seed and they can put it down and hit golf balls off it in two months," Richardson said.

Bermudagrass revolution

Continued from page 25

gated Bermuda of fairway quality, Jacklin said, "All we ask for is a moderate summer, then a dry harvest time."

He added that Jacklin Seed may have a small amount of Jackpot for sale next winter, but most likely it will be late summer or early fall 1994.

POSITIVES AND NEGATIVES

But why all the hype?

Bermudagrass is already a highly valued turfgrass for golf courses. Its vegetative types are in demand in hot, arid climates for golf course fairways and greens.

A seed-propagated variety comparable to vegetative types would be, well, a jackpot. While in all types of turfgrasses, the best vegetative types are better than the best seeded types, plant breeders are working long hours perfecting the seeded types because of the advantages of seed.

Turfgrass seed is much cheaper than sod or sprigs, and can be transported great distances and stored on the shelf for years.

Kevin Morris, director of the U.S. Department of Agriculture's National Turfgrass Evaluation Program, said Bermudagrass is a favorite in warm climates because it is quick to recover, hard to kill, very aggressive, and has excellent drought, wear and salt tolerance.

Vegetatively propagated Bermudagrass is fine-textured and can be mowed closer, he said.

On the other hand, Bermudagrasses are winter-tender and require higher fertility rates than some other warm-season grasses, he said.

Researchers agree with Morris' assessment that seeded Bermudagrasses "will have more and more a place on golf courses."

Baltensperger pointed out that while only three seed-propagated varieties were entered in the 1986-1991 national tests, the 1992-96 tests include six commercially available varieties (Guymon, NewMex Sahara, Sonesta, Cheyenne, Sundevil and Arizona Common), and 10 experimental types (two each from Jacklin and Oklahoma State University, one from International Seed and five from Baltensperger's program at New Mexico State).

Baltensperger told superintendents at the International Golf Course Conference and Show in January: "Even in the transition zone you'll do well to look at these [Bermudagrasses] and you will find a greater choice than even now for density, texture, fineness, shoot elongation, and so forth."

"At this point, vegetative Bermudagrasses are finer-textured," said Jacklin Seed research director Dr. Doug Brede. "All are general purpose turfs. They are ideally suited for home lawns. They are great for golf course roughs. If managed properly, they do very well on fairways. But they're not as fine-textured as Tifway 419.

Continued on next page

Bermudagrass revolution

Continued from previous page

"It's taken several years of breeding, but I think we're there in terms of our program and Charlie Taliaferro's program."

Jackpot (or J91-2 in the tests), discovered by Brede in a cemetery in the state of Washington, is "very similar to Tifway 419," he said. "It's a little darker. The leaves are a little shorter. It possesses the same cold- and drought-tolerance. I wanted to come close to 419. It's been the standard for 30 years."

Brede said Jacklin's short-term goal will be to produce similar varieties to Jackpot for other companies, Brede said.

He predicted new varieties of seeded Bermudagrass will replace vegetative types, and older courses will overseed with them.

Brede and Taliaferro are trying to add more cold tolerance to Bermudagrass strains in order to grow it further north in the turfgrass transition zone.

"But I don't want to spend a lot of time trying to grow Bermudagrass in Minnesota. I want to grow it where it's supposed to grow," said Farmers Marketing's Richardson, who has perhaps sold more Bermudagrass than anyone in the world in his 40 years in the business.

VEGETATIVE PROGRESS

Meanwhile, Taliaferro is excited about the promise of the African Bermudagrass Cynodon-Transvaalensis he is developing for putting greens.

"We have identified several very promising types that are being widely nationally evaluated at this time," he said. "None of these Bermudagrasses are in the the national tests, but we have plantings in Florida, Texas, and next year in several other states."

While believing better Bermudagrass cultivars can be developed for putting greens, Taliaferro feels their use will remain in the Deep South where bentgrass is poorly adapted.

"I do not feel at this point that it would be feasible or desirable to attempt to develop Bermudagrass cultivars for greens for the upper regions of the Bermudagrass belt or transition zone where bentgrass is better adapted," he said.

"Cynodon-Transvaalensis, however, has excellent cold tolerance. And we're looking at developing pure Cynodon-Transvaalensis cultivars and hybrids between the Cynodon-Transvaalensis and Cynodon-Dactylon for the transition zone," he said. "There is potential to develop Cynodon-Transvaalensis cultivars that would compete with and possibly be better than the traditional kinds of Bermudagrasses used on fairways in temperate regions."

He said OSU's research is "within four years of having some of the African Bermudagrasses released [in the marketplace] — if the valuations we're doing show they are truly worthy of release."

Pioneer in Bermuda research gives tips on care

Dr. Arden Baltensperger, retired professor at New Mexico State University and the father of Bermudagrass research, hailed the plant for its easy management, but nevertheless gave a few hints to golf course superintendents.

Speaking at the International Golf Course Conference and Show on Bermudagrass management, Baltensperger suggested:

- Use certified seed.
- Prepare a good seed bed. "Bermudagrass is tough, but not in the germination and seedling state," he said.
- Plant the grass only when the soil is 60 degrees or above. "The most common cause of failure is planting when the soil is below this temperature," Baltensperger said.
- Be cognizant of how the seed was processed. The seeding rate depends on if the seed was hulled, unhulled, hulled and coated, or unhulled and coated. Unhulled Bermudagrass yields 1.6 million seeds per pound and needs 1.5 to 2.0 pounds per thousand square feet. Hulled Bermudagrass yields 2.1 million seeds per pound and needs 1.0 to 1.5 pounds per thousand square feet.
- Bermudagrass is drought-tolerant but it needs adequate root-zone moisture to remain green in the summer. It will stay dormant and live for months.
- Most new varieties need four pounds of nitrogen per 1,000 square feet during the growing season.
- Use pesticides sparingly.
- Seeding improved Bermudagrass is relatively rapid, inexpensive and very satisfactory for spring renovation and damage repair.
- On large areas, use a packer seeder.