First nat'l tests on buffalograss, zoysia revealed

BELTSVILLE, Md. — The U.S. Department of Agriculture's National Turfgrass Evaluation Program has released results of its first year of tests on both buffalograss and zoysiagrass. Both are long-awaited but stand as just the first step to fully and justly evaluating the cultivars entered at the two dozen sites from coast to coast, according to the test's national director, Kevin Morris.

Twenty-two buffalograss and 24 zoysiagrass cultivars are being tested for such characteristics as winter hardiness, spring green-up, color, leaf texture, seed head production, and tolerance to frost, drought, leafspot and mites. Density and percent of living ground cover during spring, summer and fall were also calculated.

Another year or two of testing will provide more valuable information, Morris said.

Plus, he said the seeds were planted in the fall of 1991 and bad winter kill in the spring of 1992 could skew the data from some Northern sites.

"Many of the seeded types [of buffalograss] tended to be more winter-hardy," he added.

University of Nebraska Professor Terry Riordan said, for instance, the 609 and Prairie cultivars will rate more highly in the tests than they did the first year. Both are adapted to the South, and a number of the test locations are in the North.

"They received winter damage that first year because it was a tough winter. They are just now starting to fill in and perform better," Riordan said.

Jim Snow, national director of the United States Golf Association Green Section, agreed not to take first-year results as gospel.

"Some [cultivars] are very aggressive and establish well. And in the first year they may look better than they are in comparison later on," Snow said. "Any slow-establishing one won't look so good now."

Snow suggested that golf course superintendents, architects and builders contact experts at the regional trial sites to see which varieties perform well in their areas.

"A lot of grasses that come out of breeding programs will be good in one place, but not in another," he said.

Buffalograss national test results

Name	AZ1	CA1	CA3	CO1	ID2	IL1	IL2	IL3	KS1	KS2	MO1	MO2	MS1	NE1	OH2	OK1	TX1	TX2	TX3	UB1	WA4	Mean
*315 (NE 84-315)	5.9	5.3	5.7	5.8	3.3	4.9	5.7	7.4	5.8	7.1	8.3	8.7	4.5	6.9	5.8	7.2	4.5	7.3	5.2	6.1	4.9	6.0
*NE 84-378	5.3	5.0	5.4	6.7	3.7	4.2	6.9	6.1	5.5	7.8	7.3	8.0	5.8	6.5	3.9	6.8	4.8	6.5	5.4	6.9	4.8	5.9
AZ 143	5.5	5.2	5.8	7.6	1.0	4.4	6.5	6.7	5.5	6.8	7.8	7.7	5.0	6.6	5.2	6.9	4.5	6.8	5.6	6.9	4.8	5.8
*Buffalawn	6.6	7.1	6.2	8.2	5.3	2.2	7.3	4.7	5.7	7.7	6.8	6.7	6.5	5.5	4.1	6.4	4.9	5.5	5.4	5.8	4.0	5.8
NE 84-436	5.7	5.3	5.3	7.5	2.0	4.0	6.8	6.4	5.6	7.0	7.4	8.0	4.9	5.7	4.8	6.8	4.9	6.5	4.7	6.4	4.7	5.7
(S) NTDG-5	5.7	5.3	5.3	6.4	3.7	5.1	6.5	6.0	5.9	7.2	7.2	5.7	4.8	6.3	4.9	6.1	4.9	6.5	4.8	6.0	5.6	5.7
(S) NTDG-3	5.8	5.3	5.2	6.7	1.7	4.6	6.9	5.9	5.3	7.2	7.8	5.3	4.4	6.5	5.3	6.6	4.9	5.8	4.8	6.2	5.4	5.6
(S) NTDG-1	5.5	5.6	5.0	6.8	1.7	4.8	6.7	6.6	5.9	7.6	7.4	6.3	4.7	5.7	5.1	6.3	4.5	5.7	4.7	5.9	4.6	5.6
(S) NTDG-2	6.2	5.2	5.5	6.9	2.0	4.4	6.9	6.6	5.6	7.1	7.3	5.3	4.2	6.3	5.0	6.9	4.4	5.3	4.6	5.9	4.5	5.5
(S) NTDG-4	5.7	5.3	5.1	6.2	1.0	4.4	6.5	6.1	5.2	7.6	7.5	6.0	5.4	5.8	4.8	6.3	4.3	5.7	4.8	6.0	5.5	5.5
Highlight 4	6.1	6.1	6.2	7.3	3.7	1.7	7.1	4.3	5.8	7.0	6.8	7.3	5.3	3.2	2.9	6.8	5.1	5.2	3.9	6.0	4.8	5.4
*609 (NE 84-609)	6.3	6.0	5.4	4.3	1.0	4.4	6.7	5.3	4.9	7.7	6.8	6.7	5.1	3.1	3.8	6.6	5.5	6.2	3.8	6.0	5.5	5.3
*(S) Sharps Improved	5.9	5.6	4.9	6.3	2.0	4.2	7.2	6.2	5.1	7.3	7.5	5.0	5.0	5.3	4.2	6.3	4.7	4.3	4.0	5.0	4.8	5.3
*(S) Top Gun	5.8	5.7	5.1	6.1	1.0	4.6	6.9	4.6	5.6	7.3	7.5	5.7	5.2	6.1	4.4	6.2	4.6	4.3	4.1	5.5	4.1	5.3
NE 84-45-3	5.5	4.6	5.0	6.3	2.7	2.9	6.9	6.2	4.8	6.0	5.8	6.3	5.3	6.2	4.1	6.4	4.3	6.0	4.3	5.9	3.5	5.2
Rutgers	6.4	6.4	6.2	7.3	1.7	2.9	7.0	4.1	5.5	7.2	6.4	5.7	5.7	2.3	3.0	6.0	5.0	4.8	5.1	4.2	5.9	5.2
Highlight 15	6.3	6.6	5.9	8.1	NA	2.1	7.5	1.7	5.2	7.1	6.3	5.7	5.7	2.8	2.9	6.7	4.8	4.5	3.7	4.1	5.5	5.2
*Prairie	6.2	6.1	5.6	NA	1.3	3.8	7.4	4.2	5.3	6.6	5.7	6.7	4.0	4.5	5.0	6.7	5.2	4.7	3.1	6.1	4.9	5.1
Highlight 25	6.3	7.1	6.2	7.4	3.3	1.8	7.3	3.6	5.6	7.0	4.6	6.7	5.9	3.0	1.9	6.6	4.9	4.3	4.8	5.4	4.0	5.1
*(S) Plain	5.6	5.5	4.9	6.8	2.0	3.9	6.7	6.1	4.7	6.3	7.8	4.0	4.4	5.1	5.3	5.6	4.6	4.3	3.9	4.8	4.9	5.1
*(S) Bison	6.0	5.7	4.9	6.5	1.3	3.4	6.7	5.9	4.8	6.7	7.8	4.0	4.3	5.6	4.1	6.2	4.6	4.3	3.9	5.3	5.0	5.1
*(S) Texoka	4.9	5.6	4.6	6.0	2.0	3.2	7.0	5.9	5.3	6.4	7.6	1.0	4.7	5.9	3.8	5.8	3.9	6.0	3.9	5.7	5.3	5.0
LSD Value	0.6	0.7	0.4	1.1	1.8	0.8	1.0	1.4	0.7	0.7	1.3	1.8	1.1	0.7	2.1	0.7	0.6	1.0	1.0	1.0	1.3	0.2

* — Commercially available in the United States in 1993.
(S) — Seeded entries.

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

AZ1 — Tucson, sandy loam, 7.6-8.5, 2.1-3.0, 0.6-1.0, to prevent stress.

CA1 — Santa Clara, loam, 6.6-7.0, 2.1-3.0, 1.6-2.0, to prevent stress.

CA3 — Riverside, sandy loam, 6.6-7.0, 4.1-5.0, 1.6-2.0, to prevent stress.

CO1 — Ft. Collins, silty clay loam, 7.6-8.5, 1.1-2.0, 2.1-2.5, to prevent dormancy.

ID2 — Post Falls, silt loam and silt, 6.1-6.5, 1.1-2.0, 1.1-1.5, only during severe stress.

IL1 — Urbana, N/A, N/A, N/A, 1.6-2.0, only during severe stress.

IL2 — Carbondale, silty clay loam, 6.1-6.5, 2.1-3.0, 2.1-2.5, only during severe stress.

IL3 — Joliet, N/A, N/A, N/A, 1.6-2.0, only during severe stress.

KS1 — Manhattan, silt loam and silt, 6.6-7.0, 1.1-2.0, 1.1-1.5, to prevent stress.

KS2 — Wichita, silt loam and silt, 6.6-7.0, 1.1-2.0, 2.6-3.0, no irrigation.

MO1 — Columbia, silt loam and silt, 6.1-6.5, 1.1-2.0, 1.6-2.0, to prevent stress.

MO2 — Columbia, silty clay loam, 6.6-7.0, 1.1-2.0, 1.6-2.0, to prevent stress.

MS1 — Mississippi State, sandy clay loam, 7.1-7.5, 1.1-2.0, 2.1-2.5, only during severe stress

NE1 — Lincoln, silty clay loam, 6.6-7.0, 0.0-1.0, 2.1-2.5, to prevent dormancy.

OH2 — Marysville, silty clay loam, N/A, N/A, 1.6-2.0, no irrigation.

OK1 — Stillwater, sandy clay loam, 6.1-6.5, 0.0-1.0, 2.1-2.5, to prevent stress.

TX1 — Dallas, silty clay and clay, 7.6-8.5, 1.1-2.0, 1.6-2.0, to prevent stress.

TX2 — Bastrop, N/A.

TX3 — Cleveland, silt loam and silt, 5.6-6.0, 1.1-2.0, 1.6-2.0, no irrigation.

UB1 — Beltsville, loam, 5.6-6.0, 1.1-2.0, 1.6-2.0, no irrigation.

VA6 — Norton, N/A, N/A0.0-1.0, 2.6-3.0, no irrigation.

WA4 - Yakima, sandy clay loam, 6.1-6.5, 1.1-2.0, 2.6-3.0, to prevent dormancy.

Zoysiagrass national test results

Name	AZ1	CA1	CA2	CA3	FL1	FL2	GA1	GA2	ID2	IL1	KS2	KY1	MO1	MS1	NE1	OH2	TX1	TX3	UB1	UB2	Mean
DALZ 8507	6.3	6.9	6.1	6.9	7.0	8.0	6.9	3.6	6.8	4.2	7.7	5.4	5.8	7.3	3.5	2.4	4.5	6.1	7.9	7.7	6.0
TC 2033	6.3	6.4	5.7	6.4	6.0	7.7	6.6	3.3	8.0	4.6	8.3	4.5	5.7	7.0	5.0	3.0	4.9	6.3	7.5	6.3	6.0
Sunburst	5.8	5.0	5.6	6.1	6.3	7.7	6.6	4.3	5.8	4.9	8.0	5.8	5.7	6.2	5.7	5.1	4.8	6.0	7.1	6.6	6.0
TC 5018	6.4	5.1	5.8	6.1	6.0	8.0	6.1	3.8	5.5	4.8	8.7	5.8	5.4	5.8	5.6	6.1	4.9	6.1	6.9	6.1	5.9
DALZ 8512	6.4	5.0	6.2	6.2	8.0	7.3	6.9	4.7	5.5	5.2	8.7	5.4	5.5	6.0	4.7	4.4	5.0	5.6	6.3	5.5	5.9
DALZ 8514	6.4	5.0	6.0	6.2	7.3	6.3	6.8	5.2	5.2	4.4	8.3	6.4	5.7	6.0	4.8	4.2	5.0	6.8	6.3	5.8	5.9
*El Toro	6.5	4.9	6.1	6.3	7.3	7.0	6.6	4.3	4.7	5.1	8.7	5.6	5.5	5.9	5.0	4.6	5.1	6.4	6.0	5.9	5.9
*Emerald	6.0	7.6	6.4	6.6	6.3	6.3	5.4	3.1	7.2	4.6	8.0	4.8	5.4	7.3	5.1	2.8	5.2	6.0	6.9	6.3	5.9
QT 2004	6.3	7.0	5.6	6.6	6.0	7.0	5.7	4.2	6.8	4.1	8.0	3.7	5.9	6.6	5.5	3.0	4.6	5.7	6.9	6.9	5.8
DALZ 9006	6.0	7.1	6.0	6.5	6.0	5.3	5.9	3.2	7.2	3.9	8.0	3.4	5.9	7.3	4.1	2.3	4.8	7.1	7.7	7.4	5.8
CD 2013	6.3	6.3	5.5	6.2	6.0	7.0	6.2	3.2	6.3	4.2	8.7	3.9	5.8	6.8	4.7	3.4	4.5	5.3	7.0	6.5	5.7
DALZ 8508	6.1	7.1	5.9	6.6	6.0	5.7	6.9	3.2	7.0	3.9	8.0	3.3	5.7	7.5	3.4	2.0	4.5	6.7	7.7	6.9	5.7
QT 2047	6.0	5.1	5.2	5.9	5.3	7.7	5.8	3.2	4.5	4.7	7.3	5.6	5.3	6.3	4.7	4.7	4.8	5.4	6.6	5.8	5.5
CD 259-13	6.0	4.8	5.2	6.0	4.7	4.3	6.9	2.4	4.3	5.2	7.7	5.7	5.3	6.0	5.4	3.9	4.9	6.1	6.9	6.8	5.4
*Meyer	6.0	5.7	5.3	6.2	4.0	5.0	4.9	3.3	7.0	4.0	8.0	3.3	5.9	6.5	6.2	3.7	4.7	6.1	6.6	5.7	5.4
(S)TGS-B10	6.1	3.9	5.3	6.1	6.3	5.3	5.8	2.9	4.5	4.4	7.0	5.7	5.3	5.0	5.0	3.8	4.8	5.1	5.8	5.7	5.2
*Belair	5.5	4.6	5.0	5.4	4.3	3.3	5.8	3.9	4.3	4.1	8.0	4.8	5.4	5.2	5.8	4.4	4.3	5.9	6.7	5.7	5.1
(S)TGS-W10	5.8	3.9	5.3	5.7	5.3	4.7	5.7	3.6	4.3	4.2	7.3	4.8	5.5	5.1	5.0	3.8	3.9	6.1	6.5	5.9	5.1
DALZ 8501	5.6	7.7	6.2	5.8	7.0	7.3	5.2	2.7	6.3	2.3	7.0	1.9	4.3	6.9	1.0	1.0	4.0	5.7	5.5	5.4	4.9
DALZ 8516	5.6	6.1	5.1	5.6	5.0	3.3	4.9	3.3	8.2	2.7	8.0	3.1	5.2	5.8	3.2	1.5	4.2	6.2	5.3	4.5	4.8
*(S)Korean Common	5.6	4.1	4.9	5.0	5.7	4.0	5.2	3.6	2.8	4.1	6.3	4.3	5.3	4.7	4.3	3.2	4.4	5.4	5.6	5.1	4.7
(S)JZ-1	5.8	4.4	4.9	5.0	4.7	3.3	5.2	3.3	3.7	3.7	6.0	4.8	5.1	4.9	4.3	3.8	4.6	5.3	5.4	4.8	4.7
DALZ 8502	6.0	7.7	6.1	6.3	5.0	3.0	4.8	2.8	6.0	1.1	7.0	1.0	4.0	6.8	1.0	1.0	4.3	6.2	5.1	3.9	4.4
DALZ 8701	6.1	6.8	6.7	6.5	6.7	5.3	5.1	2.7	4.3	1.3	7.3	1.1	1.9	5.3	1.0	1.0	3.6	5.4	3.9	3.5	4.3
LSD Value	0.4	0.7	0.5	0.4	1.6	2.0	0.8	1.5	1.3	0.9	1.0	1.3	0.5	0.4	1.0	1.1	0.7	0.9	0.4	0.7	0.2

* — Commercially available in the U.S.
(S) — Seeded entries.

AL1 — Auburn University, sandy loam, 4.6-5.5, 2.1-3.0, N/A, N.A.

AZ1 — Tucson, sandy loam, 7.6-8.5, 2.1-3.0, 1.1-1.5, to prevent stress.

CA1 — Santa Clara, loam, 6.6-7.0, 2.1-3.0, 1.6-2.0, to prevent stress.

CA2 — Santa Ana, silty clay loam, 6.6-7.0, 4.1-5.0, 0.6-1.0, to prevent stress.

CA3 — Riverside, sandy loam, 6.6-7.0, 4.1-5.0, 0.6-1.0, to prevent stress.

FL1 — Bradenton, N/A.

FL2 — Apopka, sand, 6.1-6.5, 4.1-5.0, 1.6-2.0, to prevent stress.

GA1 — Griffin (high soil pH), sandy loam, 4.6-5.5, 0.0-1.0, 1.1-1.5, to prevent dormancy.

GA2 — Griffin (low soil pH), sandy loam, 3.6-4.5, 0.0-1.0, 1.1-1.5, no irrigation.

ID2 — Post Falls, silt loam and silt, 6.1-6.5, 2.1-3.0, 1.1-1.5, to prevent stress.

IL1 — Urbana, N/A, N/A, N/A, 1.67-2.0, only during severe stress.

IL2 — Carbondale, silty clay loam, 6.1-6.5, 2.1-3.0, 1.1-1.5, no irrigation.

KS2 — Wichita, sandy loam, 6.6-7.0, 3.1-4.0, 1.1-1.5, to prevent stress.

KY1 — Lexington, silt loam and silt, 6.1-6.5, 2.1-3.0, 0.6-1.0, no irrigation.

MD1 — Silver Spring, sandy loam, 5.6-6.0, 2.1-3.0, 0.6-1.0, only during severe stress.

MO1 — Columbia, silty clay loam, 6.1-6.5, 2.1-3.0, 1.1-1.5, to prevent stress.

MS1 — Mississippi State, sandy clay loam, 7.1-7.5, 3.1-4.0, 2.1-2.5, to prevent dormancy.

NE1 — Lincoln, silty clay loam, 6.6-7.0, 1.1-2.0, 1.6-2.0, to prevent dormancy.

OH2 — Marysville, silty clay loam, N/A, 3.1-4.0, 1.6-2.0, no irrigation.

OK1 — Stillwater, silty clay loam, 7.1-7.5, 0.0-1.0, 2.1-2.5, to prevent stress.

TX1 — Dallas, silty clay and clay, 7.6-8.5, 1.1-2.0, 1.6-2.0, to prevent stress.

TX3 — Cleveland, silt loam and silt, 4.6-5.5, 3.1-4.0, 1.1-1.5, to prevent stress.

UB1 — Beltsville, Md. (high maintenance), sandy loam, 4.6-5.5, 2.1-3.0, 1.1-1.5, to prevent dormancy.

UB2 — Beltsville, Md. (low maintenance), loam, 4.6-5.5, 0.0-1.0, 1.6-2.0, no irrigation.

'Keep it lean' to keep it happy

Lean ain't mean in the care and management of buffalograss and zoysiagrass.

That's one of the discoveries of turf scientists studying maintenance of the two grasses.

"Not enough research has been done on how to manage these grasses. Now we're starting to put attention in that area and we're having a greater success with them," said Dr. Milt Engelke of Texas A&M University.

The major factor to remember with buffalograsses, Engelke said, is "don't touch them. Mow once or twice a year. Fertilize — maybe — depending on what kind of soils they're in. A lot of soils will have enough mineralization to produce enough nitrogen for the buffalograss."

Zoysias, he said, require the same low fertilization requirements.

"The misapplication of fertilizer on zoysia is very devastating," Engelke said. "You're going to get a tremendous amount of thatch buildup, and when you can't get irrigation into it, the grass grows on itself. Also, if Bermudagrass is around, you'll promote the Bermuda."

Engelke said superintendents should "keep it lean." Buffalograss requires perhaps two pounds of nitrogen a year, while zoysia needs only two to three pounds.

While Bermudagrass requires around 48 inches of water annually, or four to six inches a month "to survive and persist," buffalograss needs 18 to 22 inches and zoysia 15 to 22.

The right mix

Tests at the University of California at Riverside and at the U.S. Department of Agriculture's Beltsville, Md., station indicate excellent results by mixing zoysiagrass with other species.

Steve Cockerham, superintendent of agricultural operations at UCal-Riverside, said he has overseeded zoysia with tall fescue and it "looks like a good combination" that shows green year-round.

Zoysia, he said, goes dormant early in his area — around Thanksgiving — and starts greening around April or May. Tall fescue fills the gap nicely, he said.

Meanwhile, in Maryland, Kevin Morris of the National Turfgrass Evaluation Program reported good ability to establish cool-season grasses with zoysia.

"We've mixed zoysia with ryes, bluegrass and tall fescue for 10 or 12 years. Tall fescue seems to be the best," he said. "We used that combination in the mall in Washington, D.C., and it is tolerating heavy wear."

Morris said the mix has been mowed to one inch for several years, and he is going to try it at 5/8 inch. "We may have to use a lower-growing tall fescue," he said.

When mixed, zoysia tends to green up four to six weeks earlier then when standing by itself and it holds the color longer in the fall, he said. The tall fescue greens up in the spring.

"Here in Maryland, we have a turf that's green almost year-round," Morris said.