

1991 NTEP Buffalograss and Zoysiagrass Cultivar Trials

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The severe growing seasons of 1988 and 1991 have increased interest in drought- and heat-tolerant grasses for Illinois. Among cool-season grasses tall fescue and the fine-leaf fescues tend to be most tolerant of ardent and droughty conditions. Warm-season grasses, in general, have exhibited even greater ability to tolerate, and even thrive in, very hot and dry conditions. Of the warm-season grasses, buffalograss (*Buchloe dactyloides*) and zoysiagrass (*Zoysia* spp.), may be the most promising for use in Illinois.

Research Protocol:	1991 NTEP Buffalograss & Zoysiagrass Cultivar Trials
Location:	Joliet Junior College, Joliet, IL; Ornamental Horticulture Research Center, Urbana, IL.
Site Preparation:	existing vegetation killed with Roundup (Joliet); area rotary tilled; fertilized at 1 lb N/M.
Seeding/ Establishment:	seeding date - June 27, 1991 (Joliet), June 28, 1991 (Urbana); plugging rate - 6 to 24 plugs/plot; plot size - 7 ft x 7 ft; irrigation - to insure establishment; pesticides - preemergence application of Simazine.
Plot Maintenance:	1991 mowing height - 2.0 inches; pesticides - broad spectrum postemergence broadleaf herbicide (Urbana); irrigation - none after establishment; fertilization - none after establishment.
	1992 pesticides - broad spectrum postemergence broadleaf herbicide (Urbana); irrigation - none; fertilization - none.
Experimental Design:	RCB; 3 replications.

During the summer of 1991, Buffalograss and Zoysiagrass NTEP studies were initiated in Urbana. In addition, a second Buffalograss NTEP study was planted on the grounds of Joliet Junior College, Joliet, Illinois. The twenty-two buffalograss and twenty-four zoysiagrass cultivars in the studies are listed in Tables 7 and 8.

The purpose of these trials is to evaluate different buffalograss and zoysiagrass selections for their suitability for utility turf or lawn uses in Illinois, with primary interest in overall turf quality. Data collection began in 1992. Buffalograss and zoysiagrass cultivar recommendations will be made following the conclusion of this study in 1996.

Until recommendations, based on multiple years of data collection, can be confidently be given, 'Texoka' and 'Sharp's Improved' seeded buffalograss can be used.

Buffalograss at Urbana. There were significant differences in overall buffalograss turf quality at each of the six monthly evaluations (Table 7). There were few, however, season-long consistencies in cultivar quality following one and one-half growing seasons. ‘Highlight 4’, ‘Highlight 15’, ‘Highlight 25’, and ‘Bufflawn’ produced poor quality turf throughout the season. No selections produced consistently high quality turf throughout the growing season.

On September 16 buffalograss color was evaluated. There were no significant differences among selections. Note that none of selections had minimally acceptable turf color. When compared to other, more commonly planted turfgrasses, all buffalograss selections were markedly gray-green.

Also on September 16 buffalograss cover was evaluated. There were significant differences in cover among the selections. ‘BAM 101’, ‘NTDG-1’, ‘NTDG-3’, ‘NTDG-4’, ‘NTDG-5’, ‘Prairie’, and ‘Sharp’s Improved’ covered the greatest portion of the 7' by 7' plots by the evaluation date. These selections covered 70 to 90 percent, on average, in one and one-half growing seasons.

Zoysiagrass at Urbana. There were significant differences in overall zoysiagrass quality at each of the six monthly evaluations (Table 8). There were few, however, season-long consistencies in cultivar quality following one and one-half growing seasons. ‘DALZ8501’, ‘DALZ8502’, ‘DALZ8516’, and ‘DALZ8701’ produced poor quality turf throughout the season. None of the selections produced consistently high quality turf throughout the entire growing season, but ‘GT2047’ and ‘El Toro’ performed in the top group of these selections May through September.

On September 16 zoysiagrass color was evaluated. There were significant differences among selections. ‘Belair’, ‘CD259-13’, ‘DALZ8501’, ‘DALZ8507’, ‘DALZ8512’, ‘DALZ8514’, ‘DALZ9006’, ‘El Toro’, ‘Emerald’, ‘GT2004’, and ‘Meyer’ were darker green at this evaluation than the other selections.

Also on September 16 zoysiagrass cover was evaluated. There were significant differences in cover among the selections. ‘CD259-13’, ‘DALZ8512’, ‘El Toro’, ‘GT2047’, and ‘Korean Common’ covered the greatest portion of the 7' by 7' plots by the evaluation date. These selections covered 60 to 80 percent, on average, in one and one-half growing seasons.

Buffalograss at Joliet. There were significant differences in overall buffalograss turf quality during each of the three monthly evaluations (Table 9). There were several season-long consistencies in cultivar quality following one and one-half growing seasons. ‘Highlight 15’ and ‘Highlight 25’ produced poor quality turf throughout the season. The turf quality of ‘NE 84-315’, ‘NE 84-378’, ‘NE 84-45-3’, ‘NE 84-436’, ‘NTDG-1’, ‘NTDG-2’, and ‘Texoka’ was rated in the top group at each of the three evaluations.

There were also significant color differences among selections on August 25. At that evaluation, the color of ‘Highlight 4’ and ‘Highlight 15’, ‘Highlight 25’ and ‘Rutgers’ was rated significantly lower than the other selections.

Also on August 25 buffalograss cover was evaluated. There were significant differences in cover among the selections. ‘NE 84-378’ produced significantly less plot cover than all selections except ‘Highlight 15’, ‘Highlight 25’, and ‘Prairie’. ‘AZ143’ covered significantly more of the plot than ‘NE 84-378’ and ‘Highlight 25’.

Table 11. The evaluation of buffalograss cultivars during the 1992 growing season in Urbana¹.

Cultivar	Quality ²						Color ^{3ns}	Cover ⁴
	5/29	6/30	7/20	8/25	9/16	10/21	9/16	9/16
AZ143	3.7ef	5.0f-h	3.7c-e	5.7cd	5.3e-h	3.0b-d	4.0	5.7ef
BAM 101	3.7ef	5.0f-h	4.0d-f	6.0c-e	6.0gf	3.0b-d	4.0	6.7f-h
BAM202	2.7b-d	3.7d-f	3.7c-e	5.3c	5.0d-h	3.0b-d	4.0	6.0fg
Bison	2.3bc	3.7d-f	3.0bc	3.3b	4.7d-g	3.3cd	4.3	5.3d-f
Bufflawn	1.3a	1.7ab	2.0a	2.3a	3.7b-d	2.3ab	3.3	3.7b-d
Highlight 15	2.0ab	2.0a-c	2.0a	2.0a	2.3ab	2.0a	4.7	2.0ab
Highlight 25	1.3a	1.3a	2.0a	2.0a	2.0a	2.0a	3.3	2.0ab
Highlight 4	1.3a	1.3a	2.0a	1.7a	2.0a	2.0a	2.3	1.7a
NE 84-315	4.3f	5.0f-h	4.7f	6.7e	6.0gf	3.0b-d	4.0	6.0fg
NE 84-436	2.3bc	4.0d-g	3.7c-e	5.7cd	5.3e-h	3.0b-d	3.7	5.3d-f
NE 84-45-3	2.3bc	3.7d-f	3.0bc	3.7b	2.7a-c	2.3ab	3.7	4.0c-e
NE 84-609	2.7b-d	4.0d-g	3.7c-e	6.3de	5.7f-h	4.3e	5.0	5.7ef
NE 85-378	2.7b-d	4.0d-g	3.7c-e	6.0c-e	6.0gf	3.0b-d	4.7	6.0fg
NTDG-1	3.3de	5.3gh	4.3ef	6.7e	6.3h	3.0b-d	4.3	7.7gh
NTDG-2	3.3de	4.7e-h	4.0d-f	6.3de	5.3e-h	3.0b-d	4.0	6.0fg
NTDG-3	3.3de	5.0f-h	4.3ef	6.0c-e	6.0gf	3.0b-d	4.0	6.3f-h
NTDG-4	3.3de	5.0f-h	3.7c-e	5.7cd	6.0gf	3.0b-d	4.0	6.7f-h
NTDG-5	4.3f	6.0h	4.7f	6.7e	6.0gf	3.0b-d	4.0	6.3f-h
Prairie	2.0ab	3.3c-e	3.7c-e	4.0b	6.0gf	3.7cd	4.7	6.3f-h
Rutgers	2.0ab	2.7a-d	2.3ab	3.3b	4.3d-f	3.0b-d	5.0	3.3a-c
Sharps	3.0c-e	4.7e-h	3.3cd	6.0c-e	5.3e-h	3.0b-d	4.0	8.0h
Improved Texoka	2.3bc	3.0b-d	3.3cd	4.0b	4.0c-e	2.7a-c	4.0	4.0c-e

¹All values represent the mean of 3 replications. Means in the same column with the same letter are not significantly different at the 0.05 level as determined by Fisher's Protected Least Significant Difference test.

²Turf quality is based on a 1-9 scale where 1=tan turf, bare soil, lowest quality, 6=minimal turfgrass quality, and 9=darkest green, very dense, highest quality.

³Turf color is based on a 1-9 scale where 1=tan turf, 6=minimal acceptable turfgrass color, and 9=darkest green.

^{ns}No significant difference was found among the means in this group of data.

⁴Turf cover is based on a 1-9 scale where 1=0% plot cover or dead turf, 2=20% plot cover, 3=40% plot cover, 4=50% plot cover, 6=70% plot cover, 7=80% plot cover, 8=90% plot cover, and 9=99% plot cover.

Table 12. The evaluation of zoysiagrass cultivars during the 1992 growing season in Urbana¹.

Cultivar	Quality ²						Color ³	Cover ⁴
	5/29	6/30	7/20	8/25	9/16	10/21	9/16	9/16
Belair	4.3ef	3.7c-e	4.7c-f	4.0b	4.3c-d	3.3e-g	6.7d-f	4.7cd
CD2013	3.0b-d	3.7c-e	5.0c-g	4.3bc	5.3e-g	4.0gg	5.7de	4.3b-d
CD259-13	4.3ef	5.3f	6.3g	6.7ef	5.7e-g	3.0d-f	6.0d-f	6.0de
DALZ8501	2.0ab	2.0ab	2.3ab	2.3a	2.7a-c	2.0bc	6.0d-f	2.7ab
DALZ8502	1.0a	1.3a	1.3a	1.0a	1.0a	1.0a	1.0a	2.0a
DALZ8507	2.7bc	4.0c-f	5.0c-g	5.0b-d	5.3e-g	3.0d-f	6.7d-f	4.7cd
DALZ8508	2.7bc	4.3c-f	4.3c-e	4.3bc	5.3e-g	2.7c-e	5.7de	4.0bc
DALZ8512	3.7c-e	4.7d-f	6.3g	7.0f	6.3fg	3.3e-g	7.0ef	7.3e
DALZ8514	3.3c-e	3.3b-d	5.0c-g	6.0d-f	6.3fg	2.7c-e	7.3f	6.0de
DALZ8516	2.7bc	3.0bc	3.7bc	2.3a	3.0b-d	1.7ab	6.7d-f	2.7ab
DALZ8701	1.3a	1.3a	1.7a	1.3a	1.3ab	1.0a	3.0b	1.3a
DALZ9006	2.7bc	4.3c-f	4.3c-e	5.0b-d	4.7d-f	2.3b-d	6.3d-f	4.0bc
El Toro	4.0d-f	4.7d-f	5.7e-g	6.3d-f	6.7g	3.0d-f	7.0ef	7.0e
Emerald	3.7c-e	4.7d-f	5.0c-g	5.0b-d	5.3e-g	3.7fg	6.3d-f	4.0bc
GT2004	3.7c-e	3.7c-e	4.3c-e	4.3bc	5.3e-g	4.0g	6.0d-f	4.3b-d
GT2047	4.3ef	4.7d-f	5.3d-g	5.7c-f	6.0e-g	2.0bc	5.7de	5.7c-e
JZ-1 lot A89-1	3.0b-d	3.3b-d	4.0cd	4.3bc	4.7d-f	3.0d-f	5.7de	5.0cd
Korean Common Seed	3.3c-e	4.0c-f	4.3c-e	5.0b-d	5.0e-g	2.7c-e	5.3cd	5.7c-e
Meyer	3.3c-e	3.7c-e	5.0c-g	4.0b	4.7d-f	3.0d-f	6.7d-f	4.3b-d
Sunburst	5.0f	5.0ef	6.0fg	6.3d-f	4.7d-f	2.7c-e	4.0bc	4.3b-d
TC2033	3.7c-e	4.0c-f	4.3c-e	6.0d-f	6.0e-g	3.3e-g	6.7d-f	4.3b-d
TC5018	4.3ef	4.7d-f	5.3d-g	6.0d-f	5.3e-g	3.0d-f	5.7de	6.0de
TGS-B10	3.7c-e	4.3c-f	4.7c-f	5.3b-d	5.7e-g	2.7c-e	6.0d-f	4.3b-d
TGS-W10	4.0d-f	3.7c-e	4.7c-f	5.0b-d	4.7d-f	3.0d-f	6.0d-f	5.0cd

¹All values represent the mean of 3 replications. Means in the same column with the same letter are not significantly different at the 0.05 level as determined by Fisher's Protected Least Significant Difference test.

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