



Current Report

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1988-1992 Performance Testing of Tall Fescue Turf-grasses at Oklahoma State University, Stillwater

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Tall fescue (*Festuca arundinacea*) is the most widely used cool-season turfgrass in Oklahoma. With irrigation, tall fescue usually can provide the consumer with 12 months of green turf. Tall fescue is versatile. It performs well in either full sun or light to medium shade when properly managed.

The purpose of this trial was to evaluate the performance of 65 tall fescue cultivars. The trial was performed at the Oklahoma State University Turfgrass Research Center at Stillwater, Oklahoma from 1988 to 1992. The Stillwater site was one of 42 sites nationally that conducted the tall fescue evaluation in cooperation with the National Turfgrass Evaluation Program (NTEP).

The tall fescue trial was established by seeding the grasses into 5 x 5 foot plots at the rate of 4 pounds of seed per 1000 square feet on October 12, 1987. The plots were replicated three times in a randomized complete block design. The study was managed under the conditions described in Table 1.

Performance characteristics were evaluated under the guidelines of the NTEP. Performance characteristics presented in this report are for density, color, and overall quality (Tables 2-4). Color of the grasses was evaluated visually using a 1 to 9 scale, where 1 equaled yellow green and 9 equaled dark green. Color ratings were made during the spring and fall when tall fescue was under the least heat or drought stress and during the time when fescues typically exhibit their best color. Density of the grasses was rated visually using a 1 to 9 scale, where 1 equaled very thin turf and 9 equaled very dense turf. Quality was evaluated each month during the growing season using a 1 to 9 scale where 1 equaled very poor quality and 9 equaled the highest possible quality. Visual quality ratings incorporated the aspects of color, texture, density, smoothness, and uniformity into a single rating value. Visual quality is widely accepted by turfgrass specialists to be one of the single most important measures of turfgrass performance. High visual quality ratings over several years of testing indicate a good adaptation of the variety to the conditions present at the test site.

Data from the trial was subjected to statistical analysis using an analysis of variance (ANOVA) procedure. Data for visual color, density, and quality were averaged for each year and overall five years of the trial. When the ANOVA procedure identified true statistical differences between the grasses at the 95% confidence level, the least significant difference (LSD) test was employed to separate the performance values of the various grasses present. If statistical differences were present, the LSD value was placed at the bottom of each column within each year or at the bottom of the five year average for comparison of turfgrass performance.

To compare the performance of any two turfgrasses within a column, determine if the difference in their performance value is greater than the LSD value listed at the bottom of the column. If the difference between the performance values is equal to or larger than the LSD value, then the grass with the larger value provided statistically greater performance than the grass with the smaller value for the characteristic under consideration. In these tests we are 95% certain that statistical differences present are true performance differences that exist among the cultivars. It is not possible to achieve 100% certainty regarding differences in performance. If the difference between the two means is less than the LSD value provided or if no LSD value is given at the bottom of the column for data of concern (i.e. - - -) then the difference between the performance values is not statistically different. When two performance values are not statistically different, any difference in performance is believed to have been due to random chance rather than one cultivar truly being superior to the other. Cultivar performance is affected by a number of factors such as soil type, climatic conditions, and management practices such as mowing, fertilization, and irrigation. Differences in performance results may occur when growing the grasses under conditions other than those used in this five year evaluation.

New cultivars of tall fescue become available each year. Many of the new cultivars available were tested in the 1988-1992 trial under their commercial name or under an

experimental designation. If a tall fescue grass of interest is not listed in Tables 2-4, make certain the grass is not a blend of two or more tall fescues. Examine the marketing literature and seed label, or contact your seed vendor to determine the components of tall fescue blends. Blends of cultivars were not evaluated in this test, however, the individual components of a blend may have been tested. Blends of cultivars are not tested due to the impracticality of evaluating the large numbers of combinations possible. Some newly released cultivars may have been tested in the 1988-1992 evaluation but under an experimental number

designation. Many trade flyers will list the experimental designation that cultivars were tested under in NTEP trials.

Current tall fescue cultivar recommendations can be found in "OSU Extension Fact Sheet F-6418: Selecting a Turfgrass For Oklahoma," while management suggestions can be found in "OSU Extension Fact Sheet F-6420: Managing a Lawn in Oklahoma".

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Table 1. Practices Used in Managing The 1988-1992 Tall Fescue Trial at Stillwater, Oklahoma.

Mowing height:	Spring, Fall, Winter - 2 inch height Summer - 2.5 inch height	Irrigation:	Irrigation applied as needed to keep turf from wilting.
Mowing frequency:	Two times/week in spring, summer, fall As needed in winter.	Soil pH:	6.5
Clippings:	Clippings were not collected.	Herbicide program:	Pre-emergent herbicides applied in March and again 8 weeks later for control of annual weedy grasses.
Fertilization:	4 lbs nitrogen per 1000 square feet per year applied in 4 applications, March, May, September, and November. Soil potassium was maintained at a level greater than an OSU soil K index of 250. Soil phosphorus was maintained at a level greater than an OSU soil P index of 65.		Post-emergent broadleaf herbicides applied in November for broadleaf weed control.

Table 2. Color Ratings For 65 Tall Fescues Evaluated at Stillwater, Oklahoma during 1988-1992

<i>Cultivar</i>	1988	1990	1991	1992	<i>Overall Mean</i>	<i>Cultivar</i>	1988	1990	1991	1992	<i>Overall Mean</i>
Guardian	8.0	6.7	6.8	7.7	7.2	Barnone	6.7	5.3	6.0	6.3	6.1
Austin	7.0	7.3	6.8	7.3	7.1	BEL86-2	6.0	5.3	6.2	6.7	6.1
Crossfire	7.3	6.3	6.7	7.7	6.9	Falcon	5.3	6.0	6.3	6.7	6.1
Vegas	7.3	6.3	6.7	7.3	6.9	Finelawn 5GL	5.7	5.7	6.3	6.7	6.1
Safari	7.7	6.0	6.7	7.3	6.9	Jaguar	5.3	6.0	6.2	6.7	6.1
Shortstop	8.0	6.7	6.3	7.3	6.9	Olympic	5.7	6.0	6.2	6.7	6.1
Twilight	8.0	6.3	6.2	7.7	6.9	Olympic II	6.0	5.3	6.2	7.0	6.1
PE-7	8.0	6.3	6.2	7.3	6.8	PST-5AG	6.3	5.7	6.0	6.7	6.1
Silverado	7.0	7.0	6.3	7.3	6.8	Arriba	6.0	6.0	5.8	6.7	6.1
Hubbard 87	7.0	6.7	6.3	7.0	6.7	Titan	6.0	5.3	6.0	7.0	6.1
Trailblazer	7.0	6.3	6.5	7.0	6.7	Willamette	5.7	5.3	6.3	7.0	6.1
BEL 86-1	7.3	5.3	6.3	7.3	6.6	Aquara	6.0	5.3	6.0	6.7	6.0
Chieftan	7.0	6.0	6.3	7.0	6.6	Fatima	5.0	5.0	6.3	6.7	5.9
Maverick II	7.3	5.3	6.7	7.0	6.6	Anthem	6.0	6.0	5.5	6.7	5.9
PST-5AP	7.0	6.0	6.3	7.0	6.6	KY-31	5.0	6.0	6.0	6.7	5.9
Tradition	7.0	6.0	6.5	7.0	6.6	Rebel	5.3	5.3	6.0	6.7	5.9
Aztec	7.7	6.0	5.8	7.0	6.5	Richmond	5.7	5.3	6.0	6.7	5.9
Mesa	6.7	6.3	6.2	7.0	6.5	Thoroughbred	6.3	4.7	6.0	6.7	5.9
Avanti	7.3	6.0	5.8	7.3	6.5	Adventure	5.7	5.0	6.0	6.3	5.8
Shenandoah	6.3	6.3	6.3	7.0	6.5	JB-2	5.3	6.0	5.3	7.0	5.8
Trident	6.7	6.0	6.3	7.0	6.5	Finelawn I	5.3	5.0	5.8	6.3	5.7
JaguarII	6.3	6.3	6.3	6.7	6.4	LSD _(0.05)	1.3	---	---	---	0.7
Emperor	7.0	5.7	6.2	7.0	6.4						
Murietta	6.3	6.3	6.2	7.0	6.4						
Winchester	7.3	5.7	6.0	7.0	6.4						
Bonanza	6.7	5.3	6.3	6.7	6.3						
Legend	6.0	6.3	6.2	7.0	6.3						
Monarch	6.7	5.3	6.2	7.3	6.3						
Pacer	6.3	6.0	6.2	7.0	6.3						
Cochise	7.3	5.7	5.8	7.0	6.3						
Eldorado	6.3	5.7	6.3	6.7	6.3						
PST-5EN	6.0	6.0	6.2	7.0	6.3						
Tip	6.0	4.7	5.7	6.7	5.7						
Amigo	6.0	6.3	6.2	7.0	6.3						
Rebel II	5.7	6.0	6.3	7.3	6.3						
Taurus	6.0	5.7	6.5	7.0	6.3						
Apache	6.3	6.0	6.0	6.7	6.2						
Carefree	6.3	6.0	6.0	6.7	6.2						
Cimmaron	7.0	5.3	5.8	7.0	6.2						
Phoenix	6.3	5.3	6.3	6.7	6.2						
Sundance	6.7	5.3	6.2	6.7	6.2						
Tribute	5.7	5.3	6.5	7.0	6.2						
Wrangler	5.3	6.0	6.5	6.7	6.2						
Arid	5.3	5.7	6.3	6.7	6.1						
LSD _(0.05)	1.3	---	---	---	0.7						

Tall fescue color was rated on a 1 to 9 scale, where 1 = yellow green turf and 9 = dark green turf. Color ratings were taken in the spring and fall of 1988, 1990, 1991 and 1992. No significant differences were present in years where the LED value was “---.”

Table 3. Density Ratings For 65 Tall Fescues Evaluated at Stillwater, Oklahoma during 1988-1992.

<i>Cultivar</i>	1988	1989	1990	1991	1992	Mean	<i>Cultivar</i>	1988	1989	1990	1991	1992	Mean
Chieftan	6.7	7.3	7.0	6.0	7.3	6.7	JB-2	5.3	6.0	6.0	5.8	6.3	5.9
PST-5AG	6.7	6.7	5.3	6.5	7.3	6.5	KY-31	5.7	5.7	5.3	6.2	6.3	5.9
Crossfire	6.0	6.3	6.0	6.3	7.7	6.4	Emperor	4.3	6.3	5.3	6.0	7.3	5.9
PE-7	6.3	7.0	5.7	6.2	7.0	6.4	Aquara	4.7	6.7	5.3	6.0	7.0	5.9
PST-5AP	7.3	6.3	5.3	6.2	7.0	6.4	Tribute	6.7	7.0	4.3	5.5	6.3	5.9
Murietta	5.3	6.7	6.7	6.2	7.3	6.4	Trident	5.7	5.7	5.7	6.0	6.7	5.9
Tradition	7.0	6.7	5.7	6.2	7.0	6.4	Finelawn I	6.0	6.0	4.7	5.5	7.0	5.8
Shenandoah	7.3	7.0	5.7	5.8	7.0	6.4	Finelawn 5GL	6.7	5.7	4.7	5.7	6.7	5.8
Titan	7.3	6.7	5.7	6.0	7.0	6.4	Avanti	5.3	6.0	5.7	5.5	7.0	5.8
Trailblazer	5.7	7.3	5.7	6.5	7.0	6.4	PST-5EN	5.3	6.7	4.7	5.7	6.7	5.8
Wrangler	6.3	7.0	5.3	6.3	7.0	6.4	Carefree	4.3	5.3	5.3	6.0	7.0	5.7
Austin	5.7	6.7	6.3	6.2	6.7	6.3	Vegas	4.0	7.0	5.0	5.5	7.3	5.7
Hubbard 87	5.7	6.0	6.7	6.0	7.3	6.3	Richmond	4.3	6.7	5.0	5.7	6.7	5.7
Mesa	6.3	6.7	6.0	6.0	7.0	6.3	Shortstop	3.7	6.3	5.3	5.8	7.3	5.7
Phoenix	7.3	6.3	5.3	6.0	7.0	6.3	Aztec	5.3	6.3	5.0	5.0	7.0	5.6
Olympic II	6.3	6.7	6.3	5.8	7.0	6.3	Bamone	4.3	6.0	5.0	5.7	6.7	5.6
Taurus	6.0	7.0	5.3	6.2	7.0	6.3	Anthem	4.7	6.7	4.7	5.5	6.0	5.5
Arid	6.0	6.7	5.3	6.0	7.0	6.2	Cochise	5.0	6.0	5.0	5.2	6.7	5.5
BEL86-2	5.0	7.0	6.0	6.2	7.0	6.2	Tip	5.3	5.0	4.7	5.7	6.7	5.5
Fatima	5.3	6.7	5.3	6.5	7.0	6.2	Willamette	4.7	5.3	5.0	5.7	6.7	5.5
Jaguariil	5.7	7.0	5.3	6.0	7.0	6.2	Cimmaron	4.3	6.0	4.7	5.5	6.3	5.4
Guardian	6.3	6.0	5.7	6.3	6.7	6.2	Twilight	4.0	6.3	5.3	5.3	6.0	5.4
Silverado	5.3	7.0	6.3	6.0	6.3	6.2	LSD _(0.05)	1.8	---	---	---	---	0.6
Rebel	4.3	7.3	5.7	6.2	7.3	6.2							
Falcon	5.7	6.0	6.7	5.8	6.7	6.1							
Legend	6.3	7.0	5.0	5.8	6.3	6.1							
Monarch	6.0	6.7	5.7	5.5	7.0	6.1							
Olympic	6.0	6.3	6.0	6.0	6.3	6.1							
Pacer	6.0	6.7	5.3	6.0	6.7	6.1							
Maverick II	5.0	6.7	5.7	6.0	7.0	6.1							
Arriba	5.0	7.7	5.7	5.7	7.0	6.1							
Amigo	5.7	6.3	5.7	6.0	7.0	6.1							
Rebel II	5.0	6.3	6.0	6.0	7.0	6.1							
Thoroughbred	6.0	7.0	5.0	6.0	6.7	6.1							
BEL 86-1	6.7	5.7	4.7	6.2	6.7	6.0							
Bonanza	7.0	5.0	4.7	6.2	7.0	6.0							
Jaguar	6.7	6.3	5.3	5.7	6.3	6.0							
Eldorado	5.7	6.0	5.7	5.8	7.0	6.0							
Winchester	4.7	7.3	5.3	6.0	6.7	6.0							
Safari	4.7	7.0	5.7	6.0	6.7	6.0							
Sundance	5.7	6.3	5.0	6.2	6.7	6.0							
Adventure	6.7	6.0	4.7	5.8	6.7	5.9							
Apache	6.7	5.3	5.7	5.8	6.0	5.9							
LSD _(0.05)	1.8	---	---	---	---	0.6							

Density was rated on a 1 to 9 scale, where 1 = very thin turf and 9 = very dense turf. Density ratings were made in spring and fall of 1988, 1989, 1990, 1991 and 1992. No significant differences were present in years where the LED value was “---.”

Table 4. Quality Ratings For 65 Tall Fescues Evaluated at Stillwater, Oklahoma during 1988-1992.

<i>Cultivar</i>	1988	1989	1990	1991	1992	Mean	<i>Cultivar</i>	1988	1989	1990	1991	1992	Mean
Crossfire	6.3	5.8	6.3	6.0	6.8	6.2	Eldorado	5.5	4.8	6.2	5.8	6.6	5.7
Trailblazer	5.9	5.5	6.1	6.1	6.6	6.1	Winchester	5.7	5.0	6.1	5.5	6.6	5.7
PE-7	6.1	5.1	6.4	5.8	6.8	6.0	Rebel	5.6	5.3	6.0	5.6	6.4	5.7
Austin	6.0	4.9	6.5	5.7	6.8	5.9	Trident	5.4	4.7	6.0	5.5	6.5	5.7
Aztec	6.0	4.8	6.0	5.3	6.3	5.9	Finelawn I	5.9	5.1	5.8	5.5	6.1	5.6
Chieftan	6.1	5.3	6.3	5.4	6.5	5.9	Legend	5.7	4.8	6.0	5.6	6.4	5.6
Hubbard 87	6.0	5.0	6.4	5.9	6.9	5.9	Murietta	5.3	4.9	6.1	5.7	6.6	5.6
JaguarII	6.0	5.5	6.1	5.18	6.5	5.9	PST-5EN	5.5	4.5	5.9	5.8	6.7	5.6
Maverick II	6.1	4.9	6.3	5.8	6.5	5.9	Amigo	5.5	4.3	6.3	5.7	6.8	5.6
Olympic II	6.1	5.2	6.1	5.7	6.8	5.9	Shortstop	4.9	5.0	6.0	6.0	6.9	5.6
PST-5AG	6.0	5.5	6.2	5.8	6.4	5.9	Tip	6.2	4.5	6.0	5.5	6.6	5.6
PST-5AP	6.5	5.1	6.1	5.7	6.7	5.9	Twilight	4.7	5.2	6.3	5.8	6.5	5.6
Silverado	5.5	5.4	6.2	6.0	6.6	5.9	Barnone	5.3	5.1	6.0	5.4	6.3	5.5
Arriba	5.7	5.8	6.1	5.7	6.4	5.9	Cimmaron	5.5	5.0	5.8	5.3	6.4	5.5
Safari	5.9	5.0	6.3	6.0	6.8	5.9	Cochise	5.5	5.0	6.0	5.4	6.3	5.5
Shenandoah	6.5	5.6	5.8	5.7	6.2	5.9	Richmond	5.3	4.9	5.7	5.5	6.4	5.5
Sundance	5.8	5.3	6.3	5.7	6.4	5.9	Aquara	5.3	4.8	6.0	5.6	6.1	5.5
Titan	6.6	5.1	6.0	5.6	6.8	5.9	Willamette	5.2	5.0	5.5	5.5	6.3	5.5
Tribute	5.8	5.5	6.1	6.0	6.4	5.9	Adventure	5.5	4.5	5.7	5.4	6.3	5.4
Arid	5.9	5.3	5.8	5.8	6.6	5.8	Anthem	5.4	5.0	5.7	5.4	5.9	5.4
Bonanza	5.9	5.3	6.0	5.6	6.6	5.8	Emperor	5.0	4.8	5.8	5.5	6.4	5.4
Falcon	5.8	5.0	6.2	5.8	6.3	5.8	LSD	0.8	---	---	---	---	--
Fatima	5.5	5.4	6.2	5.7	6.6	5.8							
Mesa	6.0	5.1	6.1	5.7	6.8	5.8							
Pacer	5.8	5.4	6.1	5.5	6.4	5.8							
Guardian	5.9	4.6	6.3	5.9	7.0	5.8							
Avanti	5.8	5.3	6.1	5.5	6.8	5.8							
Tradition	6.4	4.8	6.0	5.7	6.5	5.8							
Rebel II	6.0	4.8	6.2	5.7	6.9	5.8							
Taurus	5.4	5.6	6.2	5.8	6.5	5.8							
Thoroughbred	6.0	5.2	6.1	5.7	6.3	5.8							
Wrangler	6.1	4.7	6.0	5.9	6.6	5.8							
Apache	5.9	4.9	6.1	5.6	6.3	5.7							
BEL 86-1	6.0	4.7	6.0	5.7	6.4	5.7							
BEL86-2	5.5	4.5	6.3	5.8	6.7	5.7							
Carefree	5.5	4.9	6.3	5.9	6.3	5.7							
Finelawn 5GL	6.0	4.6	6.0	5.6	6.6	5.7							
Jaguar	6.4	5.0	5.8	5.3	6.2	5.7							
JB-2	5.7	5.2	6.3	5.3	6.2	5.7							
KY-31	6.0	4.5	6.3	5.5	6.3	5.7							
Monarch	5.6	5.2	6.1	5.4	6.8	5.7							
Vegas	5.3	5.2	6.1	5.8	6.8	5.7							
Olympic	6.0	4.9	6.1	5.5	6.3	5.7							
Phoenix	6.2	4.4	6.0	5.9	6.7	5.7							
LSD	0.8	---	---	---	---	--							

Tall fescue quality was rated on a 1 to 9 scale, where 1 =very poor quality and 9= the highest possible quality for tall fescue. Quality ratings were taken each month during the growing season in 1988, 1989, 1990, 1991 and 1992. No significant differences were present in years where the LED value was “---.”

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- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Visit the OSU Turfgrass Extension program on the web at: <http://www.turf.okstate.edu>

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