

Performance of Tall Fescue Cultivars in Michigan: 2001-06

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Tall fescue is a resilient grass that adapts well to a wide range of growing conditions. It is used in home lawns, grounds, parks, playgrounds and forages. It is also a popular choice for low maintenance areas such as airports, fairgrounds, or as a highway roadside stabilizer or for soil erosion control. Tall fescue is the most heat and drought tolerant of the cool-season turfgrasses with the ability to produce deep root systems. Research at MSU shows that tall fescue root has good tolerance to European chafer grub damage when compared with other cool-season grasses.

Tall fescue has medium to coarse leaf texture with light to medium green color. It is primarily a bunch-type grass that occasionally produces short rhizomes and is less wear tolerant than Kentucky bluegrass. Tall fescue is not recommended for use on golf courses and athletic fields. Tall fescue performs well in open, sunny areas and is moderately shade tolerant. It is less suited to heavily shaded conditions than the fine fescues, but is more shade tolerant than Kentucky bluegrass and perennial ryegrass. This species is best suited on well-drained soils. It requires 1.0 to 3.0 lb nitrogen (N) per 1,000 sq ft per growing season. Thatch development is minimal with this species. The suggested mowing height ranges between 2.0 and 4.0 inches, or higher in dry summer. Tall fescue performs well in stands by itself and can be considered objectionable in a mixture with other fine-textured cool-season turfgrass species because it tends to form coarse-textured clumps in an otherwise uniform stand.

Tall fescue seeds germinate relatively quickly (about 10 days under ideal conditions), but the young plants are somewhat slow to establish due to its bunch type growth to develop extensive root system in the first year of growth. To obtain a dense, fine textured turf, tall fescue should be seeded at 6 to 8 lb of seed per 1000 sq ft. Seeding tall fescue in August is highly recommended for Michigan to allow grass to develop the deep root system needed to survive the cold winter. Tall fescue seeded in the summer tends to undergo excessive heat stress and is susceptible to seedling diseases. Planting tall fescue late in the fall may not allow the tall fescue to develop a fully established root system before winter to avoid winter diseases and ice damage.

The most serious diseases of tall fescue in Michigan are the snow molds and brown patch. Snow mold diseases occur mostly in northern areas of the state during winters with prolonged snow cover. Brown patch is more common in the southeastern portion of the state during the hot, humid months of summer. It is especially severe when the turf is heavily fertilized with N fertilizer. Other damaging diseases of tall fescue are net blotch, red thread, rust, and pythium blight.

Several tall fescue cultivars show endophyte-enhanced resistance to various leaves and stem feeding insects. Endophytes are beneficial fungi that reside within tall fescue seed that grow in the stem and leaf sheath, but not in the root or leaf blades. It does not harm the host plant, people, or pets that occasionally eat the grass. However, endophyte-containing tall fescue may be detrimental to animals that consume large quantities of the grass as a significant part of their nutritional requirements (i.e. cows, horses, and/or sheep). Endophytes produce chemicals called “alkaloids” which protect

tall fescue plants from insects and nematodes by discouraging leaf and stem-feeding insects from destroying the plant, and make the plants more tolerant to marginal soil environments and harsh management conditions. Tall fescues containing endophytes have shown increased resistance to sod webworms, fall armyworms, and chinch bugs, allowing the tall fescue to establishment quickly.

Two National Turfgrass Evaluation (NTEP) tall fescue tests were established in August 2001 at the Hancock Research Center at Michigan State University. The first test was established for quality evaluation which indicates the overall appearance of the turf and can incorporate several components including density, texture, uniformity, color, and freedom from disease and insect damage. The second test was established for traffic tolerance evaluation which is the combination of wear and compaction stress that occurs whenever a turf is exposed to foot or vehicular traffic. Each test includes 160 commercial cultivars (see the table), each cultivar was seeded in 4 by 6 ft plots at a rate of 4.4 lb of seed per 1000 sq ft. The entire test areas received full sunlight, mowed at 3 inches with a reel mower, and fertilized twice each year of the test (spring and fall) with 1 lb N per 1000 sq ft per application. The tests were irrigated whenever necessary to prevent wilting. The plots were visually evaluated once per month during the growing season for turfgrass quality and other parameters. Quality was rated using a scale of 1-9, where 9 = highest quality. Entries are listed in order of highest seasonal average quality for 2002, 2003, 2004, 2005 and 2006 to lowest seasonal average quality for the five years combined. For comparison, average turfgrass quality of tall fescue grown at 14 locations at US (AR, CA, IN, KY, MD, NC, NE, NJ, NM, OK, SD, TX, VA, and WA) are included in the table. Traffic tolerance of tall fescue was included also (see the table).

Simulated traffic was applied across plots with the Brinkman traffic simulator. Traffic was applied from August to November for 12 weeks. The trial received 10 passes per week. Traffic tolerance is a visual estimate of turfgrass tolerance using a 1 to 9 rating scale with 1 being no tolerance or 100% injury, and 9 being complete tolerance or no injury.

Differences between two cultivars are statistically significant only if the LSD value listed on the table is exceeded by the numerical differences between two cultivars. For example, if cultivar 'Coyote II' is 0.7 units higher in quality than cultivar 'Tulsa II', this difference is significant because the LSD value is smaller (0.6). If the LSD is greater than the numerical difference between the two cultivars then the differences is not significant. All tall fescue cultivars listed in Table 1 are significantly different than 'KY-31'. Little difference in turfgrass quality was found to occur among the tall fescue cultivars in this test during 2002 - 06. Owing to differences in growing conditions between the five years, the average turfgrass quality of some improved cultivars may vary little among seasons. Coefficient of variation which indicates the percent variation of the mean, smaller variation indicates good data validation.

Traffic tolerance of tall fescue was included also (see the table). The entries showing the best seasonal average quality and traffic tolerance over five year test period are listed in the table. Some tall fescue cultivars with high turfgrass quality show higher traffic tolerance while other show low traffic tolerance. For more information, visit the web at <http://www.ntep.org>> under Michigan State University data.

Turfgrass quality and traffic tolerance of tall Fescue cultivars for 2002-06 trials established August 2001 at the Hancock Turfgrass Research Center, MSU.

Entry	Quality 2001-06		
	MI	At 14 U.S. locations	Traffic tolerance MI
COYOTE II (K01-8015)	6.4	6.1	3.9
ESCALADE (01-0R41)	6.4	6.1	4.6
FALCON IV (F-4)	6.4	6.2	4.3
FINELAWN ELITE (DLSD)	6.4	6.2	4.4
*K01-E03	6.4	6.0	3.3
KALAHARI	6.4	6.1	4.4
*PST-5FZD	6.4	6.0	4.7
2ND MILLENNIUM	6.3	6.2	4.7
APACHE III (PST-5A1)	6.3	6.1	4.9
DYNASTY	6.3	5.9	3.6
GREENKEEPER WAF (K01-WAF)	6.3	6.2	4.6
*JT-9	6.3	5.8	4.9
*K01-E09	6.3	5.9	4.0
*PST-5BZ	6.3	5.9	4.4
RAPTOR (CIS-TF-33)	6.3	6.1	4.8
SR 8550 (SRX 8BE4)	6.3	6.0	4.7
ULTIMATE (01-RUTOR2)	6.3	6.1	4.2
AVENGER (JT-99)	6.2	6.2	4.8
BARLEXAS II	6.2	5.6	4.3
BINGO	6.2	6.1	3.2
*CAS-ED	6.2	5.9	3.7
DAVINCI (LTP-7801)	6.2	6.2	4.7
FIREBIRD (CIS-TF-65)	6.2	6.0	4.2
FIVE POIN (MCN-RC)	6.2	5.9	4.7
GUARDIAN-21 (ROBERTS DOG)	6.2	6.1	4.8
HOUNDOG 6 (CIS-TF-67)	6.2	6.1	3.6
INFERNO (JT-99)	6.2	6.3	4.7
*JT-12	6.2	5.9	4.0
*JT-15	6.2	5.8	4.9
LEXINGTON (UT-RB3)	6.2	6.1	3.8
MAGELLAN (OD-4)	6.2	6.0	3.6
MUSTANG 3	6.2	6.0	4.6
NINJA 2 (ATF-800)	6.2	5.8	3.2
PADRE (NJ4)	6.2	6.2	4.0
*PST-5LO	6.2	5.9	4.4
*PST-DDL	6.2	5.9	3.8
REMBRANDT	6.2	6.0	4.0
RENDITION	6.2	5.9	3.8
RIVERSIDE (PROSEEDS 5301)	6.2	5.9	4.1
SERENGETI (GO-OD2)	6.2	6.0	4.6
TITANIUM (SBM)	6.2	6.2	3.1
TRACER	6.2	5.6	3.4

*VIRTUOSO (CIS-TF-77)	6.2	5.9	5.3
*ATF 809	6.1	5.6	3.2
*B-7001	6.1	5.8	4.7
*BAR FA 1CR7	6.1	5.5	3.1
BLACKWATCH (PICK-OD3=01)	6.1	6.2	5.4
BLADE RUNNER (ROBERTS SM4)	6.1	5.9	3.6
CAYENNE	6.1	6.2	4.7
COCHISE III (018)	6.1	6.2	4.7
CORGI (CIS-TF-64)	6.1	5.9	3.4
DYNAMIC (PST-57E)	6.1	6.0	3.9
FINESSE II	6.1	5.8	4.1
GRANDE II	6.1	5.9	3.6
GREMLIN (P-5B)	6.1	5.9	3.4
HUNTER (CIS-TF-60)	6.1	6.0	4.4
INNOVATOR (PST-5KI)	6.1	6.0	4.1
JAGUAR 3	6.1	5.7	4.6
*JT-13	6.1	5.8	4.7
*JT-6	6.1	5.8	4.0
JUSTICE (RB2-01)	6.1	6.3	5.3
*K01-8007	6.1	5.8	3.1
KITTY HAWK 2000	6.1	5.7	3.9
MASTERPIECE	6.1	6.0	4.2
MATADOR	6.1	5.8	3.9
MATADORGT (PST-5TUO)	6.1	5.9	4.0
MRF 25	6.1	5.7	4.2
*MRF 26	6.1	5.8	3.8
PICK TF H-97	6.1	5.6	3.2
*PICK-OO-AFA	6.1	5.9	4.2
*PIEDMONT (MRF 27)	6.1	5.8	3.9
*R-4	6.1	6.3	5.4
REBEL EXEDA	6.1	6.1	4.4
SHERIDAN (NA-TDD)	6.1	5.9	3.9
SILVERADO II (PST-578)	6.1	6.0	5.1
SILVERSTAR (PST-5ASR)	6.1	6.0	5.3
SOLARA (BE1)	6.1	6.1	3.9
SR 8250	6.1	5.8	4.0
TAHOE (CAS=157)	6.1	5.8	5.0
TITAN LTD	6.1	5.5	4.2
TUXEDO (ATF 702)	6.1	5.8	4.6
BARLEXAS	6.0	5.6	5.3
BARVADO (BAR FA 1005)	6.0	6.1	4.4
BEACON (UT-155)	6.0	5.9	4.2
BILTMORE	6.0	6.1	3.7
*CHIPPER (MRF 211)	6.0	5.8	3.8
CONSTITUTION (ATF-593)	6.0	5.9	3.4
COVENANT (ATF-593)	6.0	5.7	3.7
*DESIRE (MRF 28)	6.0	5.8	3.2
ENDEAVO	6.0	5.7	4.0
FIDELITY (PST-5T1)	6.0	6.1	4.3
FOCUS	6.0	5.8	4.3

LEGITIMATE	6.0	5.5	3.1
*MA 138	6.0	5.8	3.7
PENN1901	6.0	5.8	4.3
*PST-5BAB	6.0	5.9	4.0
*PST-5JM	6.0	5.9	3.9
*PST-5KU	6.0	5.8	3.0
*PST-5S12	6.0	5.9	4.8
PURE GOLD	6.0	5.6	3.9
SCORPION	6.0	5.8	5.4
SCORPION II (ATF 799)	6.0	5.9	4.0
SOUTHER CHOICE II	6.0	5.6	4.2
SR 8600	6.0	5.8	4.8
STONEWALL (JT-18)	6.0	5.7	3.9
TAR HELL II (PST-5TRI)	6.0	6.0	5.7
TERRANOVA (T991)	6.0	5.6	4.4
TF66	6.0	5.5	3.7
WATCHDOG	6.0	5.8	4.6
WOLFPACK	6.0	5.9	4.6
*ATF 704	5.9	5.6	4.1
BARRERA	5.9	5.6	3.7
BARRINGTON	5.9	5.7	6.0
BARROBUSTO (BAR FA 1003)	5.9	5.8	3.8
BRAVO	5.9	5.5	4.8
COYOTE	5.9	5.6	3.9
EXPEDETION (ATF-803)	5.9	5.6	4.0
FORTE (BE-2)	5.9	5.9	3.7
*MA 158	5.9	5.8	3.9
MILLENNIUM	5.9	5.7	3.4
*MRF 210	5.9	5.8	3.9
*MRF 29	5.9	5.8	4.2
*OL' GLORY (MA 127)	5.9	5.9	3.7
OLYMPIC GOLD	5.9	5.8	4.7
PICASSO	5.9	6.0	3.9
*PICK ZMG	5.9	5.8	3.9
*PST-53T	5.9	5.9	3.7
*PST-5NAS	5.9	5.9	5.4
QUEST	5.9	5.9	4.1
REBEL SENTRY	5.9	5.7	4.4
REGIMENT II (SRX 805)	5.9	5.8	3.7
SIGNIA	5.9	5.7	4.2
TAR HEEL	5.9	5.8	4.7
TEMPEST	5.9	5.5	3.7
TROOPER	5.9	5.6	5.0
WYATT	5.9	5.6	3.3
*ATF 586	5.8	5.6	3.6
BONSAI	5.8	5.1	2.3
DOMINION	5.8	5.6	4.3
FALCON II	5.8	5.5	5.1
LARAMI	5.8	5.5	3.7
TOMAHAWK GT	5.8	5.5	3.6

TURBO (CAS-ML1)	5.8	6.0	4.0
*VENANZIO	5.8	5.6	4.4
*ATF 707	5.7	5.3	3.3
DAYTONA (MRF 23)	5.7	5.5	3.2
*DLF-J210	5.7	5.6	4.3
ELISA	5.7	5.3	4.3
*JTTF-200	5.7	5.3	3.1
LANCER	5.7	5.4	3.0
STETSON	5.7	5.3	4.8
TULSA II	5.7	5.4	4.7
*DP 50-9082	5.6	5.2	3.1
*EVERGREEN 2 (EA 163)	5.6	5.8	3.6
*GO-RD4	5.6	5.3	4.8
*GO-SIU2	5.6	5.3	4.1
PROSPECT	5.6	5.7	4.6
SOUTH PAW	5.6	5.4	4.3
FLORIDIAN (GO-FL3)	5.5	5.0	3.8
KY-31 E	4.2	3.6	4.2
LSD Value	0.6	0.3	2.4
C.V. (%)	6.0	8.6	37.9

* Commercially not available yet