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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 and fairgrounds, 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 ability to produce deep root systems. Our research at MSU shows that, compared with other cool-season grasses, tall fescue has good tolerance to root damage by European chafer grubs.

Tall fescue has a medium to coarse leaf texture and a light to medium green color. It is primarily a bunch-type grass that occasionally produces short rhizomes. It is less wear-tolerant than Kentucky bluegrass, so it has limited use on golf courses and athletic fields. Tall fescue performs well in open, sunny areas and is moderately shade-tolerant. It is less well-suited to heavily shaded conditions than the fine fescues but is more shade-tolerant than Kentucky bluegrass and perennial ryegrass. This species does best on well-drained soils. It requires 1 to 3 pounds of nitrogen (N) per 1,000 square feet per growing season. Thatch development is minimal with this species. The suggested mowing height ranges between 2 and 4 inches; higher in dry summers.

Tall fescue performs well in stands by itself and can be considered objectionable in a mixture with 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 — in about 10 days under ideal conditions — but, because of the bunch-type growth, the young plants are somewhat slow to establish extensive root systems in the first year of growth. To obtain a dense, fine-textured turf, tall fescue should be seeded at 6 to 8 pounds of seed per 1,000 square feet. Seeding tall fescue in August in Michigan is highly recommended to allow the grass plants time to develop the deep root systems needed to survive the cold winter. Tall fescue seeded in the summer tends to undergo excessive heat stress and is susceptible to seedling diseases. Tall fescue planted late in the fall may not have time to develop a fully established root system before winter. Winter diseases and ice damage are then likely.

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 leaf- and stem-feeding insects. Endophytes are beneficial fungi that reside within tall fescue seed that grow in the stem and leaf sheaths but not in the root or leaf blades. It does not harm the host plant, people or pets that occasionally eat the grass. Endophyte-containing tall fescue may be detrimental to animals that consume large quantities of the grass as a significant part of their nutritional requirements, how-

ever — e.g., cows, horses and/or sheep. Endophytes produce chemicals called alkaloids that protect tall fescue plants from leaf- and stem-feeding insects and nematodes. They also make the plants more tolerant of marginal soil environments and harsh management conditions. Tall fescues containing endophytes have shown increased resistance to sod webworms, fall armyworms and chinch bugs, which allows the tall fescue to establish quickly.

Two National Turfgrass Evaluation Program (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 looks at 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 looks at 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-foot plots at a rate of 4.4 pounds of seed per 1,000 square feet. The entire test areas received full sunlight, were mowed at 3 inches with a reel mower and were fertilized twice each year of the test (spring and fall) with 1 pound of N per 1,000 square feet 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 to 9, where 9 indicates the highest quality. Entries are listed in order of highest to lowest seasonal average quality for 2002, 2003, 2004, 2005 and 2006 combined. For comparison, average turfgrass ratings of tall fescue grown at 14 locations across the United States — Arkansas, California, Indiana, Kentucky, Maryland, North Carolina, Nebraska, New Jersey, New Mexico, Oklahoma, South Dakota, Texas, Virginia and Washington — are included in the table. Simulated traffic was applied across plots with the Brinkman traffic simulator. Traffic — 10 passes per week — was applied from August to November (12 weeks). Traffic tolerance evaluation is a visual estimate of turfgrass tolerance using a 1 to 9 rating scale, with 1 being no tolerance, or 100 percent injury, and 9 being complete tolerance — 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 difference is not significant. All tall fescue cultivars listed in the table are significantly different from 'KY-31'. Little difference in turfgrass quality was found to occur among the tall fescue cultivars in this test during 2002-06. Smaller coefficients of variation, which indicate the percent variation of the mean, indicate good data validation.

Traffic tolerance of tall fescue was also included in the table. The entries showing the best seasonal average quality and traffic tolerance over the five-year test period are listed in the table. Some tall fescue cultivars with high turfgrass quality showed higher traffic tolerance; others showed low traffic tolerance. For more information, visit the Web at **htpp://www.ntep.org>** and look under Michigan State University data.

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

Entry	MI	Average 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 POINT (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

Continued

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Entry	MI	Average at 14 U.S. locations	Traffic tolerance MI
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

Continued

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Entry	MI	Average at 14 U.S. locations	Traffic tolerance MI
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
SOUTHERN 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
*JTTFF-200	5.7	5.3	3.1
LANCER	5.7	5.4	3.0

Continued

Entry	MI	Average at 14 U.S. locations	Traffic tolerance MI
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**

* Not commercially available yet.

Sources of Seed

The following list of seed companies is included to help the reader who may not be able to find sources of some varieties of seed — it is not intended as a recommendation of these companies, or as an inclusive/exclusive listing.

CSI/GEOTURF INC.
1225 76th Street
Byron Center, MI 49315
Phone: 888-208-5772

J. MOLLEMA & SONS
4660 E. Paris, S.E.
Grand Rapids, MI 49512
Phone: 800-234-4769

MICHIGAN STATE SEED SOLUTIONS
717 N. Clinton
Grand Ledge, MI 48837
Phone: 800-647-8873, 517-627-2164

RHINO SEED AND LANDSCAPE SUPPLY
850 Old US-23
Brighton, MI 48114
Phone: 810-632-5640

SOUTHERN MICHIGAN SEED
48580 County Road 352
Decatur, MI 49045
Phone: 269-423-7051

STANDISH MILLING COMPANY INC.
1331 West Cedar Street
Standish, MI 48658
Phone: 989-846-6911

SWEENEY SEED COMPANY
110 South Washington Street
Mount Pleasant, MI 48858
Phone: 800-344-2482

TRI TURF
3751 Blair Townhall Road
Traverse City, MI 49684
Phone: 800-636-7039

Other Publications in this Series

(The following publications and other materials on lawns, turfgrasses and related topics are available online at: **www.emdc.msue.msu.edu** or from your MSU county Extension office — look under "Government, County" in your phone book.)

E-2910, Establishing a New Lawn Using Seed
E-2911, Nine Steps for Establishing a New Lawn Using Sod
E-2912, Turfgrass Species and Cultivar Selection
E-2913, Calendar for Lawn Care
E-2917, Performance of Bentgrass Cultivars and Selection Under Putting Green and Fairway Conditions (for golf courses)
E-2924, Performance of Kentucky Bluegrass Cultivars in Michigan, 2001-2005

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