

2006 Tall Fescue Report

G.L. Olson, S.R. Smith, T.D. Phillips, G.D. Lacefield, and D.C. Ditsch

Introduction

Tall fescue (*Festuca arundinacea*) is a productive, well-adapted, persistent, soil-conserving, cool-season grass that is grown on approximately 5.5 million acres in Kentucky. This grass, used for both hay and pasture, is the forage base of most of Kentucky's livestock enterprises, particularly beef cattle.

Much of the tall fescue in Kentucky is infected with an internal fungus (endophyte) that results in decreased weight gains in growing ruminants and lower pregnancy rates in breeding stock, especially in hot weather. Varieties are now available that are free of this fungal endophyte or infected with a nontoxic endophyte. Varieties in the latter group are also referred to as "novel" or "friendly" endophyte varieties.

This report provides current yield data on tall fescue varieties and similar grass species in trials in Kentucky, as well as guidelines for selecting tall fescue varieties. New for 2006, Table 11 shows a summary of all tall fescue and festulolium varieties tested in Kentucky for the last 9 years. Go to the UK Forage Extension Web site at <www.uky.edu/Ag/Forage> to obtain electronic versions of all forage variety testing reports from Kentucky and from surrounding states and a large number of other forage publications.

Important Selection Considerations

Local Adaptation and Seasonal Yield. Before purchasing tall fescue seed, make sure that the variety is adapted to Kentucky, as indicated by good performance across years and locations in replicated yield trials such as those presented in this publication. Choose high-yielding persistent varieties and varieties that are productive during the desired season of use.

Tall fescues are often classified as either "Mediterranean" or "European" types according to the area from which the parental material for the variety came. In general, the Mediterranean types (e.g., Cajun and Fawn) are more productive in the fall and winter than the European types, such as Kentucky 31. Although they mature earlier in the spring, the Mediterranean types become very dormant and nonproductive during the summer in Kentucky and are more susceptible than European varieties to leaf diseases such as helminthosporium and rhizoctonia. Therefore, Mediterranean varieties are less preferred for use in Kentucky than European types. Because Mediterranean varieties mature earlier in the spring, first-cutting yields are generally higher when the two types are harvested at the same time. However, the European types produce more in the summer, allowing for extended grazing.

Endophyte Level. Seed with infection levels of less than 5% is regarded as being endophyte-free. A statement to that effect will be displayed prominently on a green tag attached to

the seed bag. If no tag is present, assume the seed is infected with the endophyte. Several varieties, both with and without the endophyte, are adapted for use in Kentucky. With the new "novel endophyte" tall fescues, the seed tag should specify the infection level. Also, seed of these varieties should be handled carefully to preserve this infection, which means keeping seed cool and planting as soon as possible.

Seed Quality. Buy premium-quality seed that is high in germination and purity levels and free from weed seed. Buy certified seed of improved varieties. An improved variety is one that has performed well in independent trials. The label also includes the test date (which must be within the previous nine months), the level of germination, and other crop and weed seed. Order seed well in advance of planting time to assure that it will be available when needed.

Description of the Tests

Data from six studies is reported. Tall fescue varieties were sown at Lexington (2003 and 2005), Quicksand (2003 and 2005), and Princeton (2002 and 2004). The soils at Lexington (Maury), Quicksand (Pope), and Princeton (Crider) are well-drained silt loams. All are well suited for tall fescue production.

Seedings were made at the rate of 25 lb/A into a prepared seedbed with a disk drill. Plots were 5 by 15 feet in a randomized complete block design, with four replications. Nitrogen was topdressed at 60 lb/A of actual N in March, after the first cutting, and again in late summer, for a total of 180 lb/A over the season. The tests were harvested using a sickle-type forage plot harvester to simulate a spring cut hay/summer grazing/fall stockpile management system. The first cutting was harvested at each location when all tall fescue varieties had reached at least the boot stage. Fresh weight samples were taken at each harvest to calculate dry matter production. Management practices for these tests regarding establishment, fertility, weed control, and harvest timing were in accordance with University of Kentucky recommendations.

Results and Discussion

Weather data for Lexington, Quicksand, and Princeton are presented in Tables 1 through 3.

Ratings for maturity, stand, and dry matter yields (tons/acre) are reported in Tables 4 through 9. Yields are given by cutting date and as total annual production. Varieties are listed by total yield in descending order. Experimental varieties are listed separately at the bottom of the tables.

Statistical analyses were performed on all data to determine if the apparent differences are truly due to varietal differences or just to chance. In the tables, varieties that are not significantly

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2003, 2004, 2005, and 2006.

	2003				2004				2005				2006			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	26	-5	0.96	-1.90	30	-1	3.14	+0.28	37	+6	4.35	+1.49	42	+11	4.77	+1.91
FEB	32	-3	3.59	+0.38	36	+1	1.32	-1.89	39	+4	1.68	-1.53	36	+1	2.13	-1.08
MAR	47	+3	2.09	-2.31	47	+3	3.43	-0.97	41	-3	2.79	-1.61	44	0	3.05	-1.35
APR	57	+2	3.14	-0.74	55	0	3.06	-0.82	56	+1	3.30	-0.58	59	+4	3.52	-0.36
MAY	63	-1	6.68	+2.21	68	+4	9.79	+5.32	61	-3	1.78	-2.69	62	-2	2.99	-1.48
JUN	69	-3	4.85	+1.19	72	0	3.13	-0.53	75	+3	1.33	-2.33	70	-2	1.82	-1.84
JUL	74	-2	2.68	-2.32	73	-3	7.65	+2.65	77	+1	3.30	-1.70	76	0	5.13	+0.13
AUG	75	0	5.26	+1.33	71	-4	2.91	-1.02	78	+3	3.34	-0.59	76	+1	3.23	-0.70
SEP	65	-3	4.22	+1.02	68	0	2.61	-0.59	72	+4	0.59	-2.21	64	-4	9.27	+6.07
OCT	56	-1	1.61	-0.96	58	+1	5.65	+3.08	58	+1	0.92	-1.65	54	-3	4.88	+2.31
NOV	50	+5	4.63	+1.24	49	+4	6.29	+2.90	47	+2	1.54	-1.85	47	+2	1.78	-1.61
DEC	36	0	3.26	-0.72	36	0	3.20	-0.78	32	-4	2.19	-1.79				
Total			42.97	-1.58			52.18	+7.63			27.51	-17.04			42.57	+2.00

DEP is departure from the long-term average.

Table 2. Temperature and rainfall at Princeton, Kentucky, in 2003, 2004, 2005, and 2006.

	2003				2004				2005				2006			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	-3	2.19	-1.61	36	+2	4.12	+0.32	41	+7	5.30	+1.50	46	+12	5.38	+1.58
FEB	35	-3	7.45	+3.02	39	+1	2.44	-1.99	43	+5	2.30	-2.13	38	0	2.66	-1.77
MAR	50	+3	2.46	-2.48	53	+6	4.28	-0.66	47	0	4.11	-0.83	51	+4	4.22	-0.72
APR	60	+1	6.99	+2.19	59	0	5.32	+0.52	60	+1	4.61	-0.19	63	+4	4.02	-0.78
MAY	67	0	4.81	-0.15	72	+5	7.34	+2.38	65	-2	1.54	-3.42	66	-1	5.42	+0.46
JUN	71	-4	5.05	+1.20	74	-1	3.40	-0.45	76	+1	3.09	-0.76	75	0	3.39	-0.46
JUL	79	+1	4.75	+0.46	75	-3	4.87	+0.58	79	+1	2.39	-1.90	79	+1	3.79	-0.50
AUG	79	+2	2.05	-1.96	73	-4	3.02	-0.99	80	+3	11.54	+7.53	80	+3	2.58	-1.43
SEP	69	-2	6.17	+2.84	71	0	0.20	-3.13	74	+2	2.17	-1.16	67	-4	9.80	+6.47
OCT	60	+1	3.73	+0.68	64	+5	4.03	+0.98	60	+1	0.19	-2.86	57	-2	4.5	+1.45
NOV	53	+6	5.85	+1.22	53	+6	6.94	+2.31	50	+3	2.48	-2.15	49	+2	4.31	-0.32
DEC	40	+1	2.39	-2.65	37	-1	4.29	-0.75	35	-4	1.92	-3.12				
Total			53.89	+2.76			50.25	-0.88			42.55	-8.58			50.07	+3.98

DEP is departure from the long-term average.

Table 3. Temperature and rainfall at Quicksand, Kentucky, in 2003, 2004, 2005, and 2006.

	2003				2004				2005				2006			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	0	2.63	-0.66	34	+3	4.48	+1.19	40	+9	4.45	+1.16	44	+13	4.48	+1.19
FEB	35	+2	8.01	+4.41	39	+6	3.45	-0.15	42	+9	3.01	-0.59	37	+4	1.56	-2.04
MAR	50	+9	1.34	-3.00	49	+8	3.84	-0.5	44	+3	2.86	-1.48	47	+6	1.74	-2.60
APR	60	+7	5.02	+0.92	51	+4	4.84	+0.74	58	+5	6.63	+2.53	60	+7	2.95	-1.15
MAY	64	+2	7.05	+2.57	68	+6	11.22	+6.74	63	+1	2.05	-2.43	63	+1	3.45	-1.03
JUN	68	-2	11.92	+8.10	71	+1	6.19	+2.37	75	+5	2.39	-1.43	71	+1	3.00	-0.82
JUL	74	0	3.36	-1.89	75	+1	2.30	-2.95	78	+4	2.58	-2.67	77	+3	3.85	-1.40
AUG	75	+2	6.34	+2.33	72	-1	1.37	-2.64	79	+6	3.51	-0.50	78	+5	3.55	-0.46
SEP	66	0	3.12	-0.40	69	+3	6.80	+3.28	72	+6	0.27	-3.25	65	-1	5.56	+2.04
OCT	58	+4	2.93	+0.02	61	+7	4.19	+1.29	59	+5	0.68	-2.23	55	+1	6.00	+3.09
NOV	53	+11	5.95	+2.07	51	+9	3.56	-0.32	49	+7	1.30	-2.58	48	+6	2.32	-1.56
DEC	38	+5	4.02	-0.12	37	+4	3.59	-0.55	34	+1	2.39	-1.75				
Total			61.69	+14.35			55.83	+8.49			32.12	-15.22			38.46	-4.74

DEP is departure from the long-term average for that location.

different from the top variety in the column for that characteristic are marked with one asterisk (*). To determine if two varieties are truly different, compare the difference between them and the LSD (Least Significant Difference) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different when grown under the conditions at the given locations. The Coefficient of Variation (CV) is a measure of the variability of the data and is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

Table 10 summarizes information about distributors, endophyte infection, and yield performance across locations for all varieties currently included in tests discussed in this report. Varieties are listed in alphabetical order by species, with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use, while commercial varieties can be purchased from agricultural distributors. In Table 10, an open block indicates that the variety was not in that particular test (labeled at the top of the column), while an (x) in the block means that the variety was in the test but yielded significantly less than the top-yielding variety. A

Table 4. Dry matter yields, seedling vigor, maturity, and stand persistence of tall fescue and festulolium (FL) varieties sown Sept. 12, 2005, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Nov 7, 2005	2006			2006 Yield (tons/acre)				
		Maturity ² May 15	Percent Stand		May 16	Jun 21	Jul 27	Oct 6	Total
			Apr 17	Oct 17					
Commercial Varieties—Available for Farm Use									
Bariane	1.5	55.5	79	89	1.97	1.21	0.79	1.55	5.52*
Spring Green (FL)	4.8	53.0	100	94	2.58	1.38	0.40	0.84	5.20*
Select	2.0	59.0	94	94	2.01	0.98	0.74	1.35	5.09*
KY31+ ³	3.0	56.5	100	98	2.01	0.91	0.57	1.29	4.77*
Jesup MaxQ	1.5	59.0	95	96	1.86	0.82	0.62	1.29	4.58*
Bull	2.0	60.0	95	94	1.91	0.79	0.49	1.36	4.55*
Bronson	2.5	59.5	91	94	1.53	0.80	0.66	1.24	4.23
Duo (FL)	4.5	56.5	100	79	2.66	0.73	0.14	0.62	4.15
Barolex	1.8	58.0	85	84	1.57	0.81	0.54	1.16	4.08
Experimental Varieties									
KYFA 9304EF	3.3	59.0	96	94	2.39	1.06	0.78	1.37	5.60*
BARFA BE 9301a	2.8	57.5	96	98	2.12	1.10	0.53	1.66	5.41*
AGRFA 148	3.0	59.5	96	94	2.13	1.06	0.68	1.48	5.35*
AGRFA 129	2.0	59.5	96	93	1.74	1.00	0.82	1.51	5.07*
IS-FTF-25	3.0	59.0	98	94	1.86	1.07	0.72	1.39	5.05*
KYFA 9301/AR542	2.5	57.5	95	94	1.99	1.01	0.64	1.34	4.98*
KYFA 9301/AR584	3.3	58.0	99	98	2.29	0.89	0.61	1.18	4.97*
AGRFA 118	4.5	58.5	99	95	1.97	0.76	0.62	1.44	4.80*
KYFA 9821/AR584	3.0	58.0	95	94	2.19	0.91	0.52	1.06	4.69*
KY31- ³	2.8	58.5	99	96	2.06	0.84	0.57	1.20	4.68*
AGRFA 128	2.3	59.5	94	94	1.73	0.76	0.71	1.44	4.64*
RAD-ERF38	1.8	59.5	91	89	1.74	0.80	0.57	1.28	4.39*
RAD-MRF44	2.0	57.5	89	93	1.54	0.97	0.63	1.20	4.35*
KYFA 9821EF	2.3	57.5	96	96	1.85	0.73	0.53	1.14	4.24
AGRFA 144	3.0	60.0	94	96	1.72	0.81	0.55	1.17	4.23
KYFA 9821/AR542	2.0	58.5	96	94	1.91	0.63	0.48	1.01	4.02
CSN26	2.3	59.5	90	91	1.86	0.59	0.46	1.06	3.97
UMTF	1.5	56.0	70	73	1.26	0.95	0.62	1.12	3.94
KYFA 9301EF	1.8	58.5	85	90	1.79	0.68	0.49	0.92	3.88
IS-FTF-12	1.3	59.5	78	80	1.20	0.69	0.45	0.96	3.31
AGRFA 123	2.5	56.5	75	84	0.94	0.62	0.39	1.21	3.15
Mean	2.5	58.2	92.2	91.6	1.88	0.88	0.58	1.23	4.56
CV,%	33.5	2.6	10.3	7.2	23.22	30.88	35.60	25.52	20.07
LSD,0.05	1.2	2.1	13.4	9.2	0.61	0.38	0.29	0.44	1.29

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

¹ Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth.

² Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.

³ "+" indicates variety is endophyte infected; "-" indicates variety is endophyte-free.

Table 5. Dry matter yields, seedling vigor, maturity, and stand persistence of tall fescue varieties sown Sept. 1, 2004, at Princeton, Kentucky.

Variety	Seedling Vigor ² Dec 21, 2004	Maturity ¹ May 10 2005	Percent Stand				Yield (tons/acre)					2-yr Total	
			2005		2006		2005 Total	2006					
			Apr 15	Nov 3	Apr 5	Oct 10		May 23	Jun 26	Jul 24	Oct 10		Total
Commercial Varieties—Available for Farm Use													
Enhance	2.5	51.5	98	96	95	98	5.89	2.70	0.83	0.39	0.66	4.58	10.47*
Select	3.8	55.5	100	96	99	99	6.57	2.25	0.68	0.32	0.64	3.89	10.46*
Festival	3.5	53.5	93	98	98	98	5.32	2.48	0.93	0.36	0.84	4.60	9.93*
Stockman	3.3	55.5	94	96	98	97	5.58	2.40	0.70	0.49	0.72	4.31	9.89*
Seine	2.8	53.5	96	99	100	97	4.94	2.33	0.88	0.40	0.72	4.33	9.27*
Kenhy	4.0	53.0	100	99	100	95	5.16	1.97	0.88	0.34	0.58	3.77	8.93
KY31+ ³	3.0	52.0	98	98	96	95	5.68	0.99	0.16	0.18	0.53	1.86	7.53
Experimental Varieties													
KYFA9611	3.3	46.3	96	98	96	97	6.04	2.28	0.90	0.41	0.71	4.30	10.35*
KYFA9304	4.0	55.5	98	100	100	98	6.47	2.07	0.71	0.35	0.65	3.78	10.25*
KYFA9905	5.0	51.0	100	100	100	100	6.05	2.13	0.92	0.39	0.72	4.16	10.21*
KYTF-2	3.0	52.8	96	100	99	100	5.91	2.27	0.75	0.41	0.75	4.18	10.10*
KYFA9811	5.0	52.0	99	100	100	99	5.75	2.27	0.81	0.39	0.69	4.15	9.90*
PST-5NF	3.3	54.5	76	100	100	100	5.71	2.24	0.73	0.35	0.79	4.10	9.81*
KYFA9901	4.3	49.8	98	99	98	96	5.30	2.29	0.77	0.47	0.70	4.22	9.53*
ARGL	4.5	56.0	99	98	99	95	5.23	2.27	0.61	0.43	0.83	4.15	9.38*
CSN2G	3.5	53.8	98	99	99	99	5.22	2.24	0.80	0.43	0.65	4.12	9.34*
KYFA9602	3.5	49.3	84	80	76	78	5.27	2.29	0.68	0.37	0.47	3.80	9.08
KY31- ³	3.3	51.0	98	94	96	98	5.20	1.54	0.71	0.38	0.75	3.38	8.59
KYFA9917	3.5	49.3	98	99	99	99	4.35	2.09	0.78	0.36	0.71	3.93	8.29
Mean	3.6	52.4	95.5	97.2	97.2	96.6	5.56	2.16	0.75	0.38	0.69	3.98	9.54
CV,%	16.9	5.7	11.3	5.9	6.3	5.3	13.77	19.93	22.50	29.76	19.61	12.96	9.31
LSD,0.05	0.9	4.2	15.3	8.2	8.7	7.2	1.09	0.61	0.24	0.16	0.19	0.73	1.23

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

¹ Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.

² Vigor score based on a scale of 1 to 5 with 5 being the most vigorous seedling growth.

³ "+" indicates variety is endophyte infected; "-" indicates variety is endophyte-free.

single asterisk (*) means that the variety was not significantly different from the top variety. It is best to choose a variety that has performed well over several years and locations. Remember to consider the relative spring maturity and the distribution of yield across the growing season when evaluating productivity of tall fescue varieties (Tables 4 through 9).

Table 11 is a summary of yield data from 1999-2006 of commercial varieties that have been entered in the Kentucky trials. The data is listed as a percentage of the mean of the commercial varieties entered in each specific trial. In other words, the mean for each trial is 100%—varieties with percentages over 100 yielded better than average and varieties with percentages less than 100 yielded lower than average. Direct, statistical comparisons of varieties cannot be made using the summary Table 11, but these comparisons do help to identify varieties for further consideration. Varieties that have performed better than average over many years and at several locations have very stable performance, while others may have performed very well in wet years or on particular soil types. These details may influence variety choice and the information can be found in the yearly reports. See footnote in Table 11 to determine which yearly report to refer to.

Table 6. Dry matter yields and stand persistence of tall fescue varieties sown Sept. 30, 2005, at Quicksand, Kentucky.

Variety	Percent Stand		2006 Yield (tons/acre)			
	Apr 18	Nov 3	May 4	Jul 10	Oct 4	Total
Commercial Varieties—Available for Farm Use						
Bronson	100	98	3.00	2.63	1.87	7.50*
KY31+	100	97	2.68	2.87	1.83	7.38*
Jesup MaxQ	98	98	2.70	2.81	1.78	7.29*
Select	100	100	2.66	2.36	1.66	6.68
Bariane	80	83	2.08	2.76	1.78	6.62
Experimental Varieties						
KYFA9821/AR584	100	99	3.39	3.20	1.69	8.28*
KYFA9301	100	96	2.96	3.27	1.87	8.10*
KYFA9821	100	99	2.81	3.18	1.85	7.84*
KYFA9301/AR542	98	98	2.97	2.99	1.87	7.83*
KY31-	100	98	2.70	2.96	1.84	7.51*
KYFA9301/AR584	100	97	2.54	2.87	1.74	7.14*
KYFA9821/AR542	99	99	2.34	2.41	1.42	6.18
Mean	97.8	96.7	2.74	2.86	1.77	7.36
CV,%	4.9	3.4	12.51	15.00	14.85	11.15
LSD,0.05	7.0	4.7	0.49	0.62	0.38	1.18

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Summary

Selecting a good variety of tall fescue is an important first step in establishing a productive stand of grass. Proper management, beginning with seedbed preparation and continuing throughout the life of the stand, is necessary for even the highest-yielding variety to produce to its genetic potential.

The following is a list of University of Kentucky Cooperative Extension publications related to tall fescue management available from your county Extension office:

- AGR-1 *Lime and Fertilizer Recommendations*
- AGR-18 *Grain and Forage Crop Guide for Kentucky*
- AGR-59 *Tall Fescue*
- AGR-64 *Establishing Forage Crops*
- AGR-108 *Tall Fescue in Kentucky*

Authors

- G.L. Olson, Research Specialist, Forages, UK Department of Plant and Soil Sciences
- S.R. Smith, Extension Associate Professor, Forages, UK Department of Plant and Soil Sciences
- T.D. Phillips, Associate Professor, Tall Fescue Breeding, UK Department of Plant and Soil Sciences
- G.D. Lacefield, Extension Professor, Forages, UK Department of Plant and Soil Sciences
- D.C. Ditsch, Extension Associate Professor, Feed Production, UK Department of Plant and Soil Sciences

Table 7. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue, festulolium (FL) and Kentucky bluegrass (BG) sown September 16, 2003, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct. 31 2003	Maturity ² May 13, 2005	Percent Stand			Yield(tons/acre)		
			2005		2006	2004 Total	2005 Total	2-yr Total
			Apr 8	Oct 31	Apr 17			
Commercial Varieties—Available for Farm Use								
KY31+ ³	4.8	54.0	98	94	94	7.04	5.19	12.23*
Stockman	4.0	56.0	98	93	75	7.66	4.07	11.73*
Bull	4.3	58.0	100	94	94	6.28	4.37	10.66
Hykor (FL) ⁴	4.3	56.5	100	81	59	6.90	3.73	10.64
Select	3.3	55.5	96	78	75	6.35	3.84	10.18
Bariane	3.8	45.0	99	94	79	5.57	3.84	9.41
Slezanka (BG) ⁴	2.3	55.5	95	95	91	3.03	3.25	6.27
Ginger (BG) ⁴	2.0	66.0	83	48	49	3.20	1.78	4.98
Experimental Varieties								
CIS-FTF25	4.5	56.5	98	95	86	6.95	4.41	11.36*
KYFA0006	4.3	50.5	98	91	76	6.89	4.38	11.27*
KYTF2	4.0	51.5	98	75	64	7.18	3.85	11.02*
KYFA9304	4.0	54.0	98	95	86	6.85	4.10	10.95*
KY31- ³	4.5	55.5	100	96	86	6.94	3.96	10.90*
ERF38	4.0	56.5	99	90	84	6.20	4.01	10.21
CIS-FTF24	4.5	58.0	100	91	94	5.57	4.52	10.09
MRF42	4.0	54.5	98	95	79	6.36	3.49	9.85
KYFA9611	3.0	46.3	95	74	60	6.74	2.88	9.62
KYFA9602	3.3	52.5	95	63	43	6.08	3.35	9.43
KYFA9819 (FL) ⁴	5.0	46.3	88	86	40	5.26	3.05	8.31
KYPP9901 (BG) ⁴	2.5	64.5	99	100	95	2.26	3.33	5.58
HB95 (BG) ⁴	1.0	61.0	15	34	34	0.04	0.89	0.93
HB96 (BG) ⁴	1.0	66.0	0	20	18	0.08	0.48	0.56
Mean	3.6	52.3	88.9	81.6	71.9	5.49	3.52	9.01
CV,%	11.2	2.9	9.4	20.9	26.1	12.89	17.85	11.86
LSD,0.05	0.6	2.4	11.8	24.0	26.4	1.00	0.89	1.51
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.								
¹ Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth.								
² Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.								
³ "+" indicates variety is endophyte infected; "-" indicates variety is endophyte-free.								
⁴ FL=festulolium; BG=Kentucky bluegrass.								

Table 8. Dry matter yields, maturity, and stand persistence of tall fescue varieties sown Sept. 25, 2002, at Princeton, Kentucky.

Variety	Maturity ¹ May 10 2005	Percent Stand			Yield(tons/acre)			
		2005		2006 Apr 5	2003 Total	2004 Total	2005 Total	3-yr Total
		Apr 15	Nov 3					
Commercial Varieties—Available for Farm Use								
KY31+ ²	54.0	83	95	99	5.03	3.76	3.57	12.36*
Bull	57.5	88	95	100	4.86	3.92	3.39	12.16*
Jesup MaxQ	55.5	79	95	96	4.70	3.18	3.76	11.64*
Select	55.0	88	95	99	4.56	3.58	3.09	11.22*
Experimental Varieties								
RAD-MA216	56.5	85	70	93	4.88	3.96	3.41	12.25*
FABE9301a	46.3	84	90	93	4.45	4.03	3.33	11.82*
KY31- ²	56.0	86	95	100	4.72	3.85	3.13	11.70*
KYFA9301	56.0	83	95	99	4.91	3.04	3.71	11.66*
KYFA9304	54.5	79	95	99	4.69	3.43	2.87	11.00*
PBR	55.0	43	40	38	3.35	3.64	1.99	8.97
EC409	56.0	16	18	20	3.34	3.39	2.23	8.95
Mean	54.9	74.4	81.5	87.7	4.52	3.63	3.15	11.30
CV,%	2.5	9.3	16.9	14.6	9.14	17.93	19.52	9.84
LSD,0.05	1.9	10.0	19.8	18.7	0.59	0.94	0.89	1.60

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
¹ Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.
² "+" indicates variety is endophyte infected; "-" indicates variety is endophyte-free.

Table 9. Dry matter yields and stand persistence of tall fescue and festulolium varieties sown Oct. 9, 2003, at Quicksand, Kentucky.

Variety	Percent Stand			Yield(tons/acre)		
	2005		2006 Apr 18	2004 Total	2005 Total	2-yr Total
	Apr 14	Nov 28				
Commercial Varieties—Available for Farm Use						
Stockman	88	85	84	7.10	5.02	12.13*
Select	93	91	91	6.54	5.22	11.75*
Jesup MaxQ	93	93	93	6.83	4.72	11.55*
Hykor (FL)	90	80	79	6.08	5.29	11.37*
KY 31+	90	89	88	6.88	4.47	11.35*
Bull	95	91	91	6.38	4.85	11.23
Experimental Varieties						
KYTF 2	86	76	79	7.18	5.27	12.46*
KYFA 9304	90	89	86	6.83	5.15	11.98*
KYFA 9602	85	84	84	7.44	4.54	11.98*
Mean	89.9	86.6	86.4	6.81	4.91	11.72
CV,%	5.5	8.4	10.6	7.78	12.36	6.62
LSD,0.05	7.1	10.6	13.3	0.77	0.88	1.13

*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 10. Performance of tall fescue and festulolium (FL) varieties across years and location.									
		Lexington			Quicksand			Princeton	
		2003¹	2005	2006	2003	2005	2006	2004	
Variety/Proprietor		04²	05	06	04	05	06	05	06
Commercial Varieties									
Bariene	Barenbrug USA	x	x	*			x		
Barolex	Barenbrug USA			x					
Bronson	Ampac Seed			x			*		
Bull	Improved Forages	x	*	*	x	x			
Duo (FL)	Ampac Seed			x					
Enhance	Allied Seed							*	*
Festival	Pickseed West, Inc.							x	*
Hykor (FL)	DLF International Seed	*	x		x	*			
Kenhy	Ky Agric. Exp. Station/Public							x	x
KY31+ ³	Ky Agric. Exp. Station/Public	*	*	*	*	*	*	*	x
Jesup MaxQ	Pennington Seed			*	*	*	*		
Seine	Seed Research of Oregon							x	*
Select	FFR/Southern States	x	x	*	*	*	x	*	*
Spring Green	Seed Research of Oregon			*					
Stockman	Seed Research of Oregon	*	x		*	*		*	*
Experimental Varieties									
AGRFA 118	AgResearch USA			*					
AGRFA 123	AgResearch USA			x					
AGRFA 128	AgResearch USA			*					
AGRFA 129	AgResearch USA			*					
AGRFA144	Noble Foundation			x					
AGRFA148	Noble Foundation			*					
ARGL								*	*
BARFA BE 9301a	Barenbrug USA			*					
CIS-FTF24	Cebeco International Seeds	x	*						
CIS-FTF25	Cebeco International Seeds	*	*						
CSN 2G	Radix Research, Inc.							x	*
CSN 26	Fraser Seeds			x					
ERF38	Radix Research, Inc.	x	x						
FABE9301a	Barenbrug USA								
IS-FTF-12	DLF International Seed			x					
IS-FTF-25	DLF International Seed			*					
KY31- ³	KY Agric. Exp. Station	*	x	*			*	x	x
KYFA0006	KY Agric. Exp. Station	*	*						
KYFA9301	KY Agric. Exp. Station			x			*		
KYFA9301/AR542	KY Agric. Exp. Station			*			*		
KYFA9301/AR584	KY Agric. Exp. Station			*			*		
KYFA9304	KY Agric. Exp. Station	*	x	*	*	*		*	x
KYFA9602	KY Agric. Exp. Station	x	x		*	*		x	x
KYFA9611	KY Agric. Exp. Station	*	x					*	*
KYFA9811	KY Agric. Exp. Station							*	*
KYFA9819 (FL)	KY Agric. Exp. Station	x	x		*				
KYFA9821	KY Agric. Exp. Station			x			*		
KYFA9821/AR542	KY Agric. Exp. Station			x			x		
KYFA9821/AR584	KY Agric. Exp. Station			*			*		
KYFA9901	KY Agric. Exp. Station							x	*
KYFA9905	KY Agric. Exp. Station							*	*
KYFA9917	KY Agric. Exp. Station							x	*
KYTF2	KY Agric. Exp. Station	*	x		*	*		*	*
MRF42	Radix Research, Inc.	x	x						
PBR	Barenbrug USA								
PST-5NF	Turf- Seed, Inc.							*	*
RAD-ERF38	Columbia Seed			*					
RAD-MRF44	Radix Research, Inc.			*					
UMTF	Pickseed Canada			x					
<p>*Not significantly different from the highest yielding variety in the test. Open boxes indicate the variety was not in the test. x in the box indicates the variety was in the test but yielded significantly less than the top yielding variety in the test. ¹ Establishment year ² Harvest year. ³ "+" indicates variety is endophyte infected; "-" indicates variety is endophyte-free.</p>									

Table 11. Summary of Kentucky Tall Fescue and Festulolium Yield Trials 1998-2006 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety/Proprietor	Lexington			Princeton				Quicksand			Mean ³ (# trials)	
	1999 ^{1,2} 2-yr ⁴	2001 3-yr	2003 2-yr	1998 2-yr	2000 2-yr	2002 3-yr	2004 2-yr	1999 2-yr	2001 2-yr	2003 2-yr		
Tall Fescue Varieties												
Atlas	Proseeds	107							89			99(2)
Bariane	Barenbrug			87								-
BAR 9 TMPO	Barenbrug	96							97			97(2)
Bull	Improved Forages			98		102	103				97	100(4)
Carmine	DLF-Jenks		99							97		98(2)
DLF-B	DLF-Trifolium	96										-
Enhance	Allied Seed						110					-
Festival	Pickseed West		107				105		107			106(3)
Fuego	Advanta Seeds	99										-
Hoedown	DLF-Jenks		104						106			105(2)
Jesup EF	Pennington Seed				106							-
Jesup MaxQ	Pennington Seed						98				100	99(2)
Johnstone	Proseeds	95	108						95			99(3)
Kenhy	KY Agric Exp Sta.							94				-
Kokanee	Ampac Seed		89			86						88(2)
KY31+	KY Agric Exp Sta.	102	118	113	122	108	104	79	107	124	98	108(10)
Maximize	Turf-Seed	96	95						105	93		97(4)
Resolute	Ampac Seed		90							65		78(2)
Seine	Advanta Seeds	99					98					99(2)
Select	FFR/Sou. St.	106	106	94	105	105	95	110	107	112	102	104(10)
Stockman	Seed Research of OR			109				104			105	107(2)
TF33	Barenbrug				70							-
Tuscany	Forage Genetics		112									-
Vulcan	International Seeds				97							-
Festulolium Varieties												
Duo	Ampac Seed	104										-
Felina	DLF-Jenks		101									-
Hykor	DLF International			98							98	98(2)
Spring Green	Turf-Seed		88							97		93(2)
Vorage	Improved Forages					99						-

¹ Year trial was established.
² Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in 1999 was harvested two years, so the final report would be "2001 Tall Fescue Report" archived in the Kentucky Forage Web site at <www.uky.edu/Ag/Forage>.
³ Mean only presented when respective variety was included in two or more trials.
⁴ Number of years of data.



Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement and does not imply approval to the exclusion of other suitable products or firms.