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2007 Tall Fescue Report

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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 non-toxic endophyte. Varieties in the latter group are also referred to as "novel" or "friendly" endophyte varieties, because their endophyte improves stand survival without creating animal production problems.

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. Table 11 shows a summary of all tall fescue and festulolium varieties tested in Kentucky for the last 9 years. The UK Forage Extension Web site at <www.uky.edu/Ag/Forage> contains electronic versions of all forage variety testing reports from Kentucky and 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 originated. 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 dormant and nonproductive during the summer in Kentucky and are more susceptible than European varieties to leaf diseases such as helminthsporium 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 percent is regarded as 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 toxic 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. With "novel endophyte" varieties you want them to have a high infection level to improve stand survival.

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 the amount of 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 four studies is reported. Tall fescue varieties were sown at Lexington (2005), Quicksand (2005), and Princeton (2004 and 2006). 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/A) are reported in Tables 4 through 7. Yields are given by cutting date and as total annual production. Stated yields are adjusted for percent weeds, therefore the tonnage given is for crop only. 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 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 8 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; commercial varieties can be purchased from agricultural distributors. In Table 8, an open block indicates that the variety was not in that particular test (labeled at the top of the column); an (x) in the block means that the variety was in the test but yielded significantly less than the top-yielding variety. A 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 7).

Table 9 is a summary of yield data from 1999-2007 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 9, but these comparisons do help to identify varieties for further consideration. Varieties that have performed better then 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 9 to determine which yearly report to refer to.

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 and on the web at www.uky.edu/Ag/Forage:

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*

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Table 1. Temperature and rainfall at Lexington, Kentucky in 2005, 2006 and 2007.

	2005				2006				2007[2]			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	37	+6	4.35	+1.49	42	+11	4.77	+1.91	37	+6	2.93	+0.07
FEB	39	+4	1.68	-1.53	36	+1	2.13	-1.08	27	-8	1.83	-1.38
MAR	41	-3	2.79	-1.61	44	0	3.05	-1.35	52	+8	1.97	-2.43
APR	56	+1	3.30	-0.58	59	+4	3.52	-0.36	53	-2	3.87	-0.01
MAY	61	-3	1.78	-2.69	62	-2	2.99	-1.48	68	+4	1.45	-3.02
JUN	75	+3	1.33	-2.33	70	-2	1.82	-1.84	74	+2	1.77	-1.89
JUL	77	+1	3.30	-1.70	76	0	5.13	+0.13	74	-2	6.90	+1.90
AUG	78	+3	3.34	-0.59	76	+1	3.23	-0.70	80	+5	2.56	-1.37
SEP	72	+4	0.59	-2.21	64	-4	9.27	+6.07	72	+4	1.15	-2.05
OCT	58	+1	0.92	-1.65	54	-3	4.88	+2.31	63	+6	5.28	+2.71
NOV	47	+2	1.54	-1.85	47	+2	1.78	-1.61	46	+1	2.86	0.53
DEC	32	-4	2.19	-1.79	42	+6	2.45	-1.53				
Total			**27.51**	**-17.04**			**45.02**	**+0.47**			**29.71**	**-7.47**

[1] DEP is departure from the long-term average.
[2] 2007 data is for 11 months through November.

Table 2. Temperature and rainfall at Princeton, Kentucky in 2004, 2005, 2006 and 2007.

	2004				2005				2006				2007[2]			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	36	+2	4.12	+0.32	41	+7	5.30	+1.50	46	+12	5.38	+1.58	40	+6	4.89	+1.09
FEB	39	+1	2.44	-1.99	43	+5	2.30	-2.13	38	0	2.66	-1.77	34	-4	2.99	-1.44
MAR	53	+6	4.28	-0.66	47	0	4.11	-0.83	51	+4	4.22	-0.72	58	+11	1.85	-3.09
APR	59	0	5.32	+0.52	60	+1	4.61	-0.19	63	+4	4.02	-0.78	58	-1	3.95	-0.85
MAY	72	+5	7.34	+2.38	65	-2	1.54	-3.42	66	-1	5.42	+0.46	71	+4	2.29	-2.67
JUN	74	-1	3.40	-0.45	76	+1	3.09	-0.76	75	0	3.39	-0.46	76	+1	4.32	+0.47
JUL	75	-3	4.87	+0.58	79	+1	2.39	-1.90	79	+1	3.79	-0.50	77	-1	1.77	-2.52
AUG	73	-4	3.02	-0.99	80	+3	11.54	+7.53	80	+3	2.58	-1.43	85	+8	0.87	-3.14
SEP	71	0	0.20	-3.13	74	+2	2.17	-1.16	67	-4	9.80	+6.47	75	+4	3.52	+0.19
OCT	64	+5	4.03	+0.98	60	+1	0.19	-2.86	57	-2	4.5	+1.45	65	+6	8.33	+5.28
NOV	53	+6	6.94	+2.31	50	+3	2.48	-2.15	49	+2	4.31	-0.32	49	+2	2.31	-2.32
DEC	37	-1	4.29	-0.75	35	-4	1.92	-3.12	44	+5	4.76	-0.28				
Total			**50.25**	**-0.88**			**42.55**	**-8.58**			**54.82**	**+3.69**			**37.09**	**-9.00**

[1] DEP is departure from the long-term average.
[2] 2007 data is for 11 months through November.

Table 3. Temperature and rainfall at Quicksand, Kentucky in 2005, 2006 and 2007.

	2005				2006				2007[2]			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP[1]	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	40	+9	4.45	+1.16	44	+13	4.48	+1.19	38	+7	2.70	-0.59
FEB	42	+9	3.01	-0.59	37	+4	1.56	-2.04	31	-2	0.61	-2.99
MAR	44	+3	2.86	-1.48	47	+6	1.74	-2.60	54	+13	2.70	-1.64
APR	58	+5	6.63	+2.53	60	+7	2.95	-1.15	55	+2	1.71	-2.39
MAY	63	+1	2.05	-2.43	63	+1	3.45	-1.03	69	+7	1.82	-2.66
JUN	75	+5	2.39	-1.43	71	+1	3.00	-0.82	75	+5	1.95	-1.87
JUL	78	+4	2.58	-2.67	77	+3	3.85	-1.40	76	+2	4.00	-1.25
AUG	79	+6	3.51	-0.50	78	+5	3.55	-.046	82	+9	2.41	-1.60
SEP	72	+6	0.27	-3.25	65	-1	5.56	+2.04	73	+7	2.49	-1.03
OCT	59	+5	0.68	-2.23	55	+1	6.00	+3.09	63	+9	3.80	+0.89
NOV	49	+7	1.30	-2.58	48	+6	2.32	-1.56	47	+5	1.80	-2.08
DEC	34	+1	2.39	-1.75	43	+10	1.55	-2.59				
Total			**32.12**	**-15.22**			**40.07**	**-7.27**			**25.99**	**-17.21**

[1] DEP is departure from the long-term average.
[2] 2007 data is for 11 months through November.

Table 4. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue varieties sown Sept. 1, 2004 at Princeton, Kentucky.

	Seedling Vigor[1]	Maturity[2]		Percent Stand						Yield (tons/acre)							
		2005	2007	2005		2006		2007		2005	2006	2007					3-yr
Variety	Dec 21, 2004	May10	May 8	Apr 15	Nov 3	Apr 5	Oct 30	Apr 3	Oct 18	Total	Total	May 8	Jun 25	Aug 16	Nov 2	Total	Total
Commercial Varieties-Available for Farm Use																	
Enhance	2.5	51.5	55.5	98	96	95	98	99	96	5.89	4.58	0.89	0.52	0.69	0.48	2.58	13.05*
Select	3.8	55.5	56.0	100	96	99	99	97	97	6.57	3.89	0.75	0.44	0.62	0.48	2.30	12.75*
Festival	3.5	53.5	55.5	93	98	98	98	98	96	5.32	4.60	0.91	0.45	0.69	0.42	2.47	12.40*
Stockman	3.3	55.5	56.5	94	96	98	97	96	95	5.58	4.31	0.79	0.42	0.64	0.47	2.33	12.22*
Seine	2.8	53.5	56.0	96	99	100	97	98	97	4.94	4.33	0.84	0.46	0.59	0.55	2.45	11.72*
KENHY	4.0	53.0	56.5	100	99	100	95	96	93	5.16	3.77	0.63	0.39	0.56	0.30	1.87	10.80
KY31+[3]	3.0	52.0	54.5	98	98	96	95	94	91	5.68	1.86	0.45	0.27	0.48	0.27	1.47	9.00
Experimental Varieties																	
KYFA 9611	3.3	46.3	54.5	96	98	96	97	95	96	6.04	4.30	0.63	0.44	0.63	0.37	2.07	12.42*
KYFA 9304	4.0	55.5	57.5	98	100	100	98	98	95	6.47	3.78	0.71	0.38	0.62	0.36	2.07	12.32*
KYTF-2	3.0	52.8	56.0	96	100	99	100	98	95	5.91	4.18	0.73	0.47	0.59	0.39	2.18	12.28*
PST-5NF	3.3	54.5	55.5	76	100	100	100	98	97	5.71	4.10	0.72	0.46	0.56	0.52	2.26	12.08*
KYFA 9811	5.0	52.0	55.5	99	100	100	99	99	97	5.75	4.15	0.77	0.43	0.58	0.39	2.16	12.07*
KYFA 9905	5.0	51.0	55.5	100	100	100	100	98	95	6.05	4.16	0.55	0.40	0.58	0.31	1.83	12.04*
KYFA 9901	4.3	49.8	56.0	98	99	98	96	96	95	5.30	4.22	0.70	0.47	0.65	0.42	2.24	11.77*
CSN2G	3.5	53.8	56.0	98	99	99	99	98	97	5.22	4.12	0.79	0.46	0.53	0.45	2.24	11.58
ARGL	4.5	56.0	57.5	99	98	99	95	93	92	5.23	4.15	0.65	0.37	0.60	0.29	1.91	11.30
KYFA 9602	3.5	49.3	55.5	84	80	76	78	80	79	5.27	3.80	0.54	0.46	0.54	0.32	1.86	10.94
KY31-[3]	3.3	51.0	56.0	98	94	96	98	97	95	5.20	3.38	0.67	0.39	0.48	0.37	1.92	10.50
KYFA 9917	3.5	49.3	54.0	98	99	99	99	97	95	4.35	3.93	0.63	0.40	0.52	0.30	1.84	10.13
Mean	3.6	52.4	55.8	95.5	97.2	97.2	96.6	95.9	94.3	5.56	3.98	0.70	0.43	0.59	0.39	2.11	11.65
CV,%	16.9	5.7	2.7	11.3	5.9	6.3	5.3	5.9	6.7	13.77	12.96	24.68	17.55	17.89	28.82	16.32	8.79
LSD,0.05	0.9	4.2	2.1	15.3	8.2	8.7	7.2	8.0	8.9	1.09	0.73	0.25	0.11	0.13	0.16	0.49	1.45

[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.

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

Table 5. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue and festulolium (FL) varieties sown September 12, 2005 at Lexington, Kentucky.

Variety	Seedling Vigor[1] Nov 7, 2005	Maturity[2] 2006 May 15	Maturity[2] 2007 May 11	Percent Stand 2006 Apr 17	Percent Stand 2006 Oct 17	Percent Stand 2007 Mar 26	Percent Stand 2007 Oct 11	Yield (tons/acre) 2006 Total	Yield (tons/acre) 2007 May 11	Yield (tons/acre) 2007 Jun 28	Yield (tons/acre) 2007 Aug 14	Yield (tons/acre) 2007 Nov 6	Yield (tons/acre) 2007 Total	Yield (tons/acre) 2-yr Total
Commercial Varieties-Available for Farm Use														
Bariane	1.5	55.5	50.0	79	89	88	90	5.52	0.92	0.18	0.74	0.20	2.04	7.56*
Spring Green (FL)	4.8	53.0	32.8	100	94	94	79	5.20	1.41	0.25	0.34	0.13	2.13	7.33*
KY31+[3]	3.0	56.5	56.0	100	98	98	97	4.77	0.95	0.32	0.84	0.35	2.47	7.24*
Select	2.0	59.0	56.5	94	94	95	95	5.09	0.91	0.28	0.64	0.17	2.00	7.09*
Jesup MaxQ	1.5	59.0	56.0	95	96	97	93	4.58	0.91	0.28	0.75	0.26	2.20	6.79*
Bull	2.0	60.0	57.5	95	94	95	93	4.55	0.86	0.24	0.69	0.24	2.03	6.58
Barolex	1.8	58.0	55.0	85	84	84	86	4.08	0.80	0.24	0.64	0.30	1.98	6.06
Bronson	2.5	59.5	56.0	91	94	95	95	4.23	0.76	0.19	0.62	0.24	1.81	6.04
Duo (FL)	4.5	56.5	32.5	100	79	83	60	4.15	1.19	0.25	0.22	0.11	1.77	5.92
Experimental Varieties														
BARFA BE9301a	2.8	57.5	53.5	96	98	97	96	5.41	1.12	0.32	0.99	0.46	2.88	8.29*
AGRFA 148	3.0	59.5	56.0	96	94	95	95	5.35	0.97	0.20	0.73	0.27	2.17	7.52*
KYFA 9304EF	3.3	59.0	56.0	96	94	95	90	5.60	0.80	0.16	0.70	0.19	1.84	7.45*
KYFA 9301/AR584	3.3	58.0	56.0	99	98	97	96	4.97	0.91	0.23	0.71	0.32	2.17	7.14*
AGRFA 129	2.0	59.5	55.5	96	93	93	83	5.07	0.79	0.22	0.79	0.19	1.97	7.04*
AGRFA 128	2.3	59.5	54.5	94	94	95	94	4.64	0.87	0.33	0.90	0.25	2.35	6.99*
KYFA 9821/AR584	3.0	58.0	56.5	95	94	94	96	4.69	0.94	0.28	0.75	0.31	2.28	6.96*
KYFA 9301/AR542	2.5	57.5	55.5	95	94	94	92	4.98	0.70	0.26	0.73	0.27	1.96	6.94*
AGRFA 118	4.5	58.5	56.5	99	95	94	94	4.80	0.81	0.22	0.86	0.24	2.13	6.93*
IS-FTF-25	3.0	59.0	56.0	98	94	95	93	5.05	0.77	0.19	0.68	0.22	1.86	6.91*
KY31-[3]	2.8	58.5	55.5	99	96	97	96	4.68	0.94	0.25	0.73	0.29	2.21	6.89*
AGRFA 144	3.0	60.0	56.0	94	96	96	96	4.23	0.85	0.26	0.68	0.29	2.08	6.31
KYFA 9821/AR542	2.0	58.5	57.0	96	94	95	95	4.02	0.81	0.30	0.81	0.32	2.24	6.26
RAD-ERF38	1.8	59.5	56.5	91	89	90	89	4.39	0.85	0.14	0.54	0.22	1.75	6.13
KYFA 9821EF	2.3	57.5	56.5	96	96	97	95	4.24	0.83	0.24	0.61	0.19	1.87	6.11
RAD-MRF44	2.0	57.5	55.0	89	93	93	91	4.35	0.66	0.18	0.52	0.18	1.54	5.89
KYFA 9301EF	1.8	58.5	56.5	85	90	90	90	3.88	0.71	0.29	0.65	0.24	1.89	5.77
CSN26	2.3	59.5	55.5	90	91	92	79	3.97	0.68	0.24	0.53	0.20	1.65	5.62
IS-FTF-12	1.3	59.5	56.5	78	80	81	85	3.31	0.71	0.26	0.65	0.27	1.88	5.20
UMTF	1.5	56.0	56.0	70	73	66	56	3.94	0.24	0.11	0.52	0.11	0.98	4.92
AGRFA 123	2.5	56.5	56	75	84	60	73	3.15	0.04	0.15	0.57	0.15	0.92	4.07
Mean	2.5	58.2	54.1	92.2	91.6	90.9	88.6	4.56	0.82	0.23	0.67	0.24	1.97	6.53
CV,%	33.5	2.6	1.8	10.3	7.2	6.8	10.9	20.07	28.11	38.38	21.68	24.83	17.96	17.15
LSD,0.05	1.2	2.1	3.8	13.4	9.2	8.7	13.6	1.29	0.33	0.13	0.20	0.08	0.50	1.57

[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.

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

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

	Percent Stand				Yield (tons/acre)				
	2006		2007		2006	2007			2-yr
Variety	Apr 18	Nov 3	Apr 12	Oct 17	Total	May 22	Oct 15	Total	Total
Commercial Varieties-Available for Farm Use									
KY31+	100	97	97	97	7.38	2.70	1.49	4.18	11.57*
JesupMaxQ	98	98	99	95	7.29	2.55	1.33	3.88	11.17*
Bronson	100	98	98	93	7.50	2.68	0.82	3.50	11.00*
Barianne	80	83	85	84	6.62	2.87	1.01	3.87	10.49
Select	100	100	100	100	6.68	2.42	0.66	3.09	9.77
Experimental Varieties									
KYFA9821/AR584	100	99	98	95	8.28	3.24	1.16	4.40	12.68*
KYFA9821	100	99	98	98	7.84	3.12	1.42	4.54	12.39*
KYFA9301/AR542	98	98	99	99	7.83	3.08	1.14	4.22	12.04*
KYFA9301	100	96	97	97	8.10	2.76	0.91	3.67	11.77*
KY31-	100	98	99	99	7.51	2.77	1.36	4.12	11.63*
KYFA9301/AR584	100	97	97	95	7.14	2.68	1.19	3.87	11.02*
KYFA9821/AR542	99	99	97	97	6.18	2.69	0.92	3.61	9.79
Mean	97.8	96.7	96.8	95.6	7.36	2.80	1.12	3.91	11.27
CV,%	4.9	3.4	2.3	3.5	11.15	13.33	29.33	15.02	11.04
LSD,0.05	7.0	4.7	3.1	4.8	1.18	0.54	0.47	0.85	1.79

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

Table 7. Dry matter yields, seedling vigor and stand persistence of tall fescue varieties sown September 6, 2006 at Princeton, Kentucky.

	Seedling Vigor[1]	Maturity[2] 2007	Percent Stand			Yield (tons/acre)				
			2006	2007		2007				
Variety	Oct 30, 2006	May 8	Oct 30	Apr 3	Oct 18	May 8	Jun 25	Aug 16	Nov 2	Total
Commercial Varieties-Available for Farm Use										
Select	3.5	56.8	100	100	100	1.29	0.82	0.62	0.70	3.42*
Tuscany II	4.0	56.0	100	100	98	1.32	0.79	0.58	0.72	3.41*
Stockman	4.3	56.0	100	100	100	1.22	0.78	0.61	0.69	3.30*
KY31+[3]	4.0	55.5	100	100	100	0.99	0.80	0.67	0.80	3.26*
Savory	3.3	55.0	100	100	99	1.17	0.65	0.45	0.69	2.96
Experimental varieties										
KYFA 9821/AR542	4.3	55.5	100	100	100	1.34	0.77	0.62	0.75	3.49*
KYFA 9905	4.8	55.0	100	100	99	1.39	0.74	0.63	0.72	3.47*
KYFA 9801	4.8	56.0	100	100	99	1.34	0.71	0.57	0.78	3.41*
KYFA 9304	4.5	55.3	99	100	98	1.17	0.68	0.68	0.86	3.38*
GO-TF	3.5	56.0	99	99	99	1.20	0.74	0.59	0.84	3.37*
TF4	3.8	55.8	100	75	100	1.26	0.73	0.61	0.71	3.31*
KYFA 9301EF	3.8	56.0	100	100	100	1.30	0.65	0.64	0.71	3.30*
KYFA 9808	5.0	56.3	100	100	98	1.28	0.67	0.57	0.75	3.28*
KYFA 9908	3.3	55.0	98	100	98	1.16	0.81	0.64	0.65	3.26*
KY31-[3]	4.9	55.5	100	100	98	1.13	0.67	0.71	0.74	3.24*
KYFA 9821/AR584	4.3	55.5	100	100	98	1.15	0.69	0.63	0.73	3.21*
IS-FTF31	3.8	56.3	100	99	97	1.24	0.72	0.50	0.74	3.20*
KYFA 9301/AR584	4.3	56.3	100	100	98	1.23	0.69	0.54	0.72	3.18*
KYFA 9402	2.8	56.8	98	99	100	1.24	0.65	0.61	0.62	3.12
KYFA 9821EF	4.3	56.3	100	100	98	1.18	0.74	0.51	0.69	3.11
RAD-ERF48	3.8	57.0	100	100	99	1.09	0.73	0.50	0.75	3.06
KYFA 9301/AR542	4.3	55.0	100	100	100	1.04	0.62	0.66	0.72	3.03
Verdant	2.8	56.0	97	98	97	1.01	0.67	0.69	0.65	3.01
KYTF2	2.8	55.0	97	99	98	0.98	0.71	0.64	0.65	2.98
KYFA 9401	2.5	55.5	97	98	99	0.93	0.65	0.52	0.72	2.81
Mean	3.9	55.8	99.2	98.6	98.6	1.19	0.72	0.60	0.72	3.22
CV,%	15.1	1.6	1.5	10.2	1.5	12.52	14.41	19.31	16.38	7.09
LSD,0.05	0.8	1.3	2.0	14.1	2.2	0.21	0.15	0.16	0.17	0.32

[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.

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

Table 8. Performance of tall fescue and festulolium(FL) varieties across years and location.

		Lexington		Quicksand		Princeton			
		2005[1]		2005		2004			2006
Variety	Proprietor/KY distributor	06[2]	07	06	07	05	06	07	07
Commercial Varieties									
Bariane	Barenbrug USA	*	x[4]	x	*				
Barolex	Barenbrug USA	x	x						
Bronson	Ampac Seed	x	x	*	x				
Bull	Improved Forages	*	x						
Duo (FL)	Ampac Seed	x	x						
Enhance	Allied Seed					*	*	*	
Festival	Pickseed West, Inc.					x	*	*	
KENHY	Ky Agric. Exp. Station/Public					x	x	x	
KY31+[3]	Ky Agric. Exp. Station/Public	*	*	*	*	*	x	x	*
Jesup MaxQ	Pennington Seed	*	x	*	*				
Savory	DLF International Seed								x
Seine	Seed Research of Oregon					x	*	*	
Select	FFR/Southern States	*	x	x	x	*	*	*	*
Spring Green	Seed Research of Oregon	*	x						
Stockman	Seed Research of Oregon					*	*	*	*
Tuscany II	Seed Research of Oregon								*
Experimental Varieties									
AGRFA 118	AgResearch USA	*	x						
AGRFA 123	AgResearch USA	x	x						
AGRFA 128	AgResearch USA	*	x						
AGRFA 129	AgResearch USA	*	x						
AGRFA144	Noble Foundation	x	x						
AGRFA148	Noble Foundation	*	x						
ARGL						*	*	x	
BARFA BE 9301a	Barenbrug USA	*	*						
CSN 2G	Radix Research, Inc.					x	*	*	
CSN 26	Fraser Seeds	x	x						
FABE9301a	Barenbrug USA								
GO TF	Grassland Oregon								*
IS-FTF-12	DLF International Seed	x	x						
IS-FTF-25	DLF International Seed	*	x						
IS-FTF31	DLF International Seed								*
KY31-[3]	KY Agric. Exp. Station	*	x	*	*	x	x	x	*
KYFA9301	KY Agric. Exp. Station	x	x	*	x				*
KYFA9301/AR542	KY Agric. Exp. Station	*	x	*	*				x
KYFA9301/AR584	KY Agric. Exp. Station	*	x	*	*				*
KYFA9304	KY Agric. Exp. Station	*	x			*	x	x	*
KYFA9401	KY Agric. Exp. Statiion								x
KYFA9402	KY Agric. Exp. Statiion								x
KYFA9602	KY Agric. Exp. Station					x	x	x	
KYFA9611	KY Agric. Exp. Station					*	*	x	
KYFA9801	KY Agric. Exp. Statiion								*
KYFA9808	KY Agric. Exp. Statiion								*
KYFA9811	KY Agric. Exp. Station					*	*	*	
KYFA9821	KY Agric. Exp. Station	x	x	*	*				x
KYFA9821/AR542	KY Agric. Exp. Station	x	x	x	x				*
KYFA9821/AR584	KY Agric. Exp. Station	*	x	*	*				*
KYFA9901	KY Agric. Exp. Station					x	*	*	
KYFA9905	KY Agric. Exp. Station					*	*	x	*
KYFA9908	KY Agric. Exp. Statiion								*
KYFA9917	KY Agric. Exp. Station					x	*	x	
KYTF2	KY Agric. Exp. Station					*	*	*	x
PST-5NF	Turf- Seed, Inc.					*	*	*	
RAD-ERF38	Columbia Seed	*	x						
RAD ERF48	Radix Research, Inc.								x
RAD-MRF44	Radix Research, Inc.	*	x						
TF4	Oregro Seeds, Inc.								*
UMTF	Pickseed Canada	x	x						
Verdant	American Grass Seed Producers								x

[1] Establishment year

[2] Harvest year.

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

[4] x in the box indicates the variety was in the test but yielded significantly less than the top yielding variety in the test.

Open boxes indicate the variety was not in the test.

* Not significantly different from the highest yielding variety in the test.

Table 9. Summary of Kentucky Tall Fescue Yield Trials 1999-2007 (yield shown as a percentage of the mean of the commercial varieties in the trial).

		Lexington				Princeton				Quicksand				
		1999[1,2]	2001	2003	2005	1998	2000	2002	2004	1999	2001	2003	2005	Mean[3]
Variety	Proprietor	2-yr[4]	3-yr	2-yr	2-yr	2-yr	2-yr	3-yr	3-yr	2-yr	2-yr	2-yr	2-yr	(#trials)
Atlas	Proseeds	107								89				99(2)
Bariane	Barenbrug			87	112								97	99(3)
Barolex	Barenbrug				90									
BAR 9 TMPO	Barenbrug	96								97				97(2)
Bronson	Ampac Seed				90								102	96(2)
Bull	Improved Forages			98	98		102	103				97		100(5)
Carmine	DLF International		99								97			98(2)
DLF-B	DLF International	96												–
Enhance	Allied Seed								111					–
Festival	Pickseed West		107						106		107			107(3)
Fuego	Advanta Seeds	99												–
Hoedown	DLF International		104								106			105(2)
Jesup EF	Pennington Seed					106								–
Jesup MaxQ	Pennington Seed				101			98				100	103	101(3)
Johnstone	Proseeds	95	108							95				99(3)
KENHY	KY Agric Exp Sta.								92					–
Kokanee	Ampac Seed		89				86							88(2)
KY31+	KY Agric Exp Sta.	102	118	113	108	122	108	104	77	107	124	98	107	107(12)
Maximize	Turf-Seed	96	95							105	93			97(4)
Resolute	Ampac Seed		90								65			78(2)
Seine	Advanta Seeds	99							100					99(2)
Select	FFR/Sou. St.	106	106	94	105	105	105	95	109	107	112	102	90	103(12)
Stockman	Seed Research of OR			109					104			105		106(3)
TF33	Barenbrug					70								–
Tuscany	Forage Genetics		112											–
Vulcan	International Seeds					97								–
Summary of Kentucky Festulolium Yield Trials														
Duo	Ampac Seed	104			88									96(2)
Felina	DLF International		101											–
Hykor	DLF International			98								98		98(2)
Spring Green	Turf-Seed		88		109						97			98(3)
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 2 years, so the final report would be "2001 Tall Fescue Report" archived in the KY Forage website 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

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