

# 2011 Tall Fescue and Bromegrass 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 produces ergot alkaloids and 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, because their endophyte improves stand survival without creating animal production problems.

Smooth bromegrass (*Bromus inermis* Leyss) is a perennial pasture and hay grass imported from Europe. It has creeping underground stems or rootstocks from which the leafy stems arise. Smooth bromegrass is very palatable to all classes of livestock, from emergence to the heading stage. Meadow bromegrass (*Bromus biebersteinii* Roem. & Schult) is a native of southeastern Europe and the adjacent Near East. It resembles smooth bromegrass but has only short rhizomes or none at all. Meadow bromegrass is densely tufted and has a similar growth habit to tall fescue. Hybrid bromegrasses are a cross between smooth and meadow bromegrasses. Alaska bromegrass (*Bromus sitchensis*), also called Sitka bromegrass, is a long-lived perennial bunchgrass that will actively grow at moderate rates during the spring and summer season. It does not spread by rhizomes and is more suited to environments with harsh winters.

**Table 1. Temperature and rainfall at Lexington, Kentucky in 2009, 2010 and 2011.**

	2009				2010				2011 <sup>2</sup>			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	28	-3	2.45	-0.41	29	-2	2.40	-0.46	29	-2	2.10	-0.76
FEB	38	+3	2.86	-0.35	29	-6	1.38	-1.83	39	+4	6.34	+3.13
MAR	48	+4	2.19	-2.21	47	+3	1.05	-3.35	47	+3	4.76	+0.36
APR	55	0	4.48	+0.60	59	+4	2.74	-1.14	58	+3	12.36	+8.48
MAY	64	0	5.05	+0.58	67	+3	7.84	+3.37	64	0	6.72	+2.25
JUN	74	+2	5.41	-1.75	76	+4	4.61	+0.95	74	+2	2.61	-1.05
JUL	71	-5	5.89	+0.89	78	+2	5.49	+0.49	80	+4	6.29	1.29
AUG	73	-2	5.38	+1.45	78	+3	1.54	-2.39	75	0	2.89	-1.04
SEP	68	0	5.37	+2.17	71	+3	1.14	-2.06	66	-2	5.52	+2.32
OCT	54	-3	4.83	+2.26	59	+2	1.22	-1.35	55	-2	4.10	+1.53
NOV	49	+4	0.94	-2.45	47	+2	4.58	+1.19				
DEC	36	0	3.86	-0.12	28	-8	2.15	-1.93				
Total			48.71	+4.16			36.14	-8.41			53.69	+16.51

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2011 data is for the ten months through October

Prairie bromegrass (*Bromus willdenowii*) is a tall, cool-season, leafy short-lived, perennial, deep-rooted bunchgrass. It was introduced from South America. Seedheads are produced throughout the growing season, and to maintain productive stands for several years, it is necessary to manage at least one growth cycle each year for seed production and natural reseeding. Some prairie bromegrasses are susceptible to win-

terkill. Mountain bromegrass (*Bromus marginatus*) is native to North America from Alaska to northern Mexico, where it can be found in many types of habitat. It is a short-lived, perennial, cool-season, sod-forming grass. Leafy growth and a deep, well-branched root system give protection on erodible slopes. It is similar to California bromegrass (*Bromus carinatus*), and some consider them to be synonymous.

**Table 2. Temperature and rainfall at Princeton, Kentucky in 2009, 2010 and 2011.**

	2009				2010				2011 <sup>2</sup>			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	33	-1	0.94	-2.86	31	-3	3.06	-0.74	32	-2	2.35	-1.45
FEB	42	+4	3.28	-1.15	33	-5	1.54	-2.89	40	+2	5.71	+1.28
MAR	53	+6	2.89	-2.05	48	+1	3.24	-1.70	50	+3	5.54	+0.60
APR	58	-1	5.35	+0.55	62	3	3.3	-1.54	61	+2	16.15	+11.35
MAY	67	0	6.14	+1.18	69	+2	10.41	+5.45	66	-1	7.22	+2.26
JUN	77	+2	7.97	+4.12	79	4	4.82	0.97	77	+2	4.60	+0.75
JUL	74	-4	7.45	+3.16	80	2	2.73	-1.56	81	+3	2.98	-1.31
AUG	75	-2	2.44	-1.60	81	4	2.46	-1.55	77	0	3.95	-0.06
SEP	71	0	4.61	+1.28	72	1	0.94	-2.39	68	-3	3.86	+0.53
OCT	55	-4	9.08	+6.03	60	+1	0.97	-2.08	57	-2	1.35	-1.70
NOV	52	+5	1.50	-3.13	49	+2	3.98	-1.65				
DEC	36	-3	2.73	-2.31	32	-7	1.57	-3.47				
Total			54.31	+3.22			39.02	-12.11			53.71	+12.25

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2011 data is for the ten months through October

**Table 3. Temperature and rainfall at Quicksand, Kentucky in 2010 and 2011.**

	2010				2011 <sup>2</sup>			
	Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	31	0	4.09	+0.80	32	+1	2.63	-0.66
FEB	32	-1	2.82	-0.77	42	+9	3.94	+0.34
MAR	47	+6	2.38	-1.96	48	+7	4.66	+0.32
APR	60	+7	2.64	-1.46	60	+7	11.65	+7.55
MAY	67	+5	6.00	+1.52	65	+3	6.49	+2.01
JUN	76	+6	4.26	+0.44	73	+3	3.73	-0.09
JUL	77	+3	3.06	-2.19	78	+4	4.92	-0.33
AUG	77	+4	3.77	-0.24	75	+2	4.09	+0.08
SEP	69	+3	0.63	-2.89	67	+1	3.52	0
OCT	57	+3	1.33	-1.58	55	+1	4.16	+1.25
NOV	47	+5	3.88	0				
DEC	29	-4	3.15	-0.99				
Total			38.02	-9.32			49.79	+10.47

<sup>1</sup> DEP is departure from the long-term average.  
<sup>2</sup> 2011 data is for the ten months through October

All bromegrasses have several advantages over tall fescue, including retaining quality as they mature and better growth during dry weather, but they are generally less well adapted in Kentucky.

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. Tables 15 and 16 show a summary of all tall fescue and bromegrass varieties tested in Kentucky for the past 10-plus years. The UK Forage Extension web site at [www.uky.edu/Ag/Forage](http://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 “Continental” 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 Continental 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 Continental varieties to leaf diseases such as helminthsporium and rhizoctonia. Therefore, Mediterranean varieties are less preferred for use in Kentucky than Continental 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 Continental types produce more in the summer, allowing for extended grazing.

**Table 4. Descriptive scheme for the stages of development in perennial forage grasses**

Code	Description	Remarks
<b>Leaf development</b>		
11	First leaf unfolded	Applicable to regrowth of established (plants) and to primary growth of seedlings. Further subdivision by means of leaf development index (see text).
12	2 leaves unfolded	
13	3 leaves unfolded	
•	• • • • •	
19	9 or more leaves unfolded	
<b>Sheath elongation</b>		
20	No elongated sheath	Denotes first phase of new spring growth after overwintering. This character is used instead of tillering which is difficult to record in established stands.
21	1 elongated sheath	
22	2 elongated sheaths	
23	3 elongated sheaths	
•	• • • • •	
29	9 or more elongated sheaths	
<b>Tillering (alternative to sheath elongation)</b>		
21	Main shoot only	Applicable to primary growth of seedlings or to single tiller transplants.
22	Main shoot and 1 tiller	
23	Main shoot and 2 tillers	
24	Main shoot and 3 tillers	
•	• • • • •	
29	Main shoot and 9 or more tillers	
<b>Stem elongation</b>		
31	First node palpable	More precisely an accumulation of nodes. Fertile and sterile tillers distinguishable.
32	Second node palpable	
33	Third node palpable	
34	Fourth node palpable	
35	Fifth node palpable	
37	Flag leaf just visible	
39	Flag leaf ligule/collar just visible	
<b>Booting</b>		
45	Boot swollen	
<b>Inflorescence emergence</b>		
50	Upper 1 to 2 cm of inflorescence visible	
52	¼ of inflorescence emerged	
54	½ of inflorescence emerged	
56	¾ of inflorescence emerged	
58	Base of inflorescence just visible	
<b>Anthesis</b>		
60	Preanthesis	Inflorescence-bearing internode is visible. No anthers are visible.
62	Beginning of anthesis	First anthers appear.
64	Maximum anthesis	Maximum pollen shedding.
66	End of anthesis	No more pollen shedding.
<b>Seed ripening</b>		
75	Endosperm milky	Inflorescence green
85	Endosperm soft doughy	No seeds loosening when inflorescence is hit on palm.
87	Endosperm hard doughy	Inflorescence losing chlorophyll; a few seeds loosening when inflorescence hit on palm
91	Endosperm hard	Inflorescence-bearing internode losing chlorophyll; seeds loosening in quantity when inflorescence hit on palm.
93	Endosperm hard and dry	Final stage of seed development; most seeds shed.

Smith, J. Allan, and Virgil W. Hayes. 1981. p. 416-418. 14th International Grasslands Conference Proc. 1981. June 14-24, 1981, Lexington, Kentucky.

**Table 5. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue varieties sown September 29, 2008 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 30, 2008	Maturity <sup>2</sup>			Percent Stand							Yield (tons/acre)								
		2009 May 11	2010 May 18	2011 May 10	2008 Oct 30	2009		2010		2011			2009 Total	2010 Total	2011					3-year Total
						Apr 17	Nov 4	Mar 18	Oct 12	Apr 8	Oct 24	May 10			Jun 14	Aug 16	Oct 24	Total		
<b>Commercial Varieties-Available for Farm Use</b>																				
RAD-ERF50	4.3	56.7	66.7	58.0	99	99	99	95	90	71	69	5.98	2.55	1.04	0.71	0.40	0.64	2.80	11.33*	
Select	3.5	56.0	68.0	56.5	98	99	99	95	90	85	81	5.45	2.44	1.17	0.65	0.32	0.50	2.63	10.52*	
Cowgirl	3.8	56.5	68.0	56.0	94	93	95	92	89	86	86	5.14	2.66	0.99	0.62	0.25	0.58	2.44	10.23*	
HyMark	3.3	55.5	67.5	56.5	98	100	100	95	91	84	87	5.19	2.51	0.97	0.63	0.30	0.61	2.50	10.21	
Kentucky 32	4.0	54.5	68.0	56.5	100	100	98	96	93	89	90	5.04	2.22	1.07	0.71	0.29	0.55	2.62	9.87	
Atlas Select	2.8	56.0	67.0	56.5	98	100	103	98	94	78	78	4.95	2.43	0.86	0.65	0.24	0.41	2.17	9.55	
Jesup MaxQ	3.7	56.0	66.7	56.7	100	100	97	90	85	85	88	4.91	2.06	1.08	0.64	0.22	0.60	2.54	9.51	
Aprilia	3.8	55.0	67.5	55.0	95	98	97	88	81	58	60	4.76	2.16	0.86	0.64	0.34	0.59	2.43	9.35	
KY31+ <sup>3</sup>	3.8	54.5	68.0	54.5	100	100	100	95	97	45	43	5.25	2.42	0.56	0.60	0.22	0.26	1.63	9.31	
<b>Experimental Varieties</b>																				
GA593R	4.5	54.0	68.0	57.0	98	100	99	98	97	95	95	5.55	2.77	1.20	0.63	0.45	0.62	2.90	11.22*	
KYFA 9821/AR584	4.3	56.7	65.3	56.0	98	98	99	94	92	88	82	5.67	2.69	0.99	0.65	0.35	0.74	2.73	11.09*	
GA186	5.0	56.0	66.5	57.5	99	100	98	95	94	91	88	5.69	2.45	1.27	0.67	0.33	0.60	2.86	11.01*	
TF 0201	3.5	56.0	67.3	56.5	99	100	100	97	86	79	80	5.92	2.77	0.80	0.66	0.32	0.42	2.19	10.89*	
KYFA 9301/AR584	4.5	54.5	67.0	56.0	99	99	98	97	91	83	85	5.64	2.48	0.86	0.60	0.37	0.67	2.50	10.62*	
KY31- <sup>3</sup>	3.7	55.3	66.7	54.7	98	100	99	97	94	23	20	5.36	2.30	0.56	0.48	0.07	0.21	1.32	8.98	
Mean	3.9	55.6	67.2	56.2	98.0	98.8	98.7	94.8	90.5	75.9	75.4	5.35	2.45	0.95	0.64	0.30	0.53	2.40	10.21	
CV,%	20.0	2.4	2.0	11.5	3.7	4.2	3.5	5.0	5.9	18.0	16.9	9.84	15.48	22.57	22.99	32.27	27.38	15.78	7.04	
LSD,0.05	1.2	2.3	2.1	1.3	5.6	6.4	5.3	7.3	8.3	21.1	19.7	0.81	0.59	0.33	0.23	0.15	0.22	0.58	1.11	

<sup>1</sup> Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth  
<sup>2</sup> 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. See Table 4 for complete scale.  
<sup>3</sup> KY 31- is the variety KY31 from which the toxic endophyte has been removed. MaxQ and AR584 are non toxic endophytes. KY31+ contains the toxic endophyte. The other fescue varieties in this test do not contain an endophyte.  
\* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

**Table 6. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue varieties sown September 11, 2009 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 13, 2009	Maturity <sup>2</sup>			Percent Stand					Yield (tons/acre)						
		2010 May 6	2011 May 5	2009 Oct 13	2009		2010			2010 Total	2011					2-year Total
					Apr 13	Oct 15	Mar 29	Oct 27	May 5		Jun 21	Aug 11	Oct 21	Total		
<b>Commercial Varieties-Available for Farm Use</b>																
Jesup MaxQ	3.8	57.0	53.0	98	100	99	98	100	3.58	1.07	1.16	0.51	1.14	3.88	7.45*	
Bronson	3.1	57.5	54.5	98	100	99	100	100	3.25	1.14	1.02	0.50	1.31	3.97	7.22*	
KY31+ <sup>3</sup>	3.1	53.5	45.0	100	100	100	100	100	3.44	0.78	0.88	0.62	1.20	3.48	6.92*	
Select	3.1	56.5	53.5	98	100	96	97	100	3.38	1.12	0.89	0.47	1.05	3.53	6.91*	
Goliath	2.8	56.5	51.8	94	99	97	99	99	3.20	1.17	0.85	0.51	1.13	3.67	6.87*	
5CAN	1.0	57.0	53.3	53	93	97	96	98	2.37	1.00	0.74	0.46	1.13	3.33	5.70	
<b>Experimental Varieties</b>																
KYFA 0701	4.0	57.0	50.5	100	100	98	99	98	3.47	0.93	1.14	0.54	1.20	3.80	7.27*	
AgR1502	3.4	54.5	51.3	93	100	100	100	100	3.52	1.08	0.92	0.46	1.17	3.63	7.15*	
RAD-MRF59	3.3	56.5	53.5	91	100	98	98	98	3.36	0.95	1.17	0.50	1.09	3.71	7.07*	
KY31- <sup>3</sup>	3.5	56.5	48.5	100	100	100	100	100	3.43	0.95	1.00	0.47	1.06	3.49	6.92*	
RAD-ERF57	3.0	56.5	50.3	96	98	96	96	98	3.17	1.21	0.96	0.48	0.95	3.60	6.77*	
AgR1521	3.0	55.0	50.3	96	100	99	98	100	3.30	0.98	1.10	0.39	1.00	3.46	6.76*	
RAD-ERF58	2.5	58.0	56.0	93	98	92	93	98	3.47	0.94	0.80	0.45	1.07	3.26	6.73*	
GA-29	3.5	57.0	56.0	97	100	97	99	100	3.13	1.03	0.99	0.41	1.01	3.43	6.56	
TF0202	3.0	53.0	45.0	94	100	92	97	99	3.00	0.82	0.98	0.47	1.05	3.32	6.32	
Mean	3.1	56.1	51.5	93.2	99.1	97.2	97.8	99.1	3.27	1.01	0.97	0.48	1.10	3.57	6.84	
CV,%	23.9	2.3	5.4	5.6	1.9	3.9	2.4	1.6	7.20	16.97	26.97	20.53	12.33	10.92	8.24	
LSD,0.05	1.0	1.8	4.0	7.5	2.7	5.5	3.3	2.2	0.34	0.24	0.37	0.14	0.19	0.56	0.80	

<sup>1</sup> Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth  
<sup>2</sup> 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. See Table 4 for complete scale.  
<sup>3</sup> KY 31- is the variety KY31 from which the toxic endophyte has been removed. Jesup MaxQ, AgR1502 and AgR1521 contain a non-toxic endophyte. KY31+ contains the toxic endophyte. The other fescue varieties in this test do not contain an endophyte.  
\* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

**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. “Novel endophyte” varieties need 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 eight studies are reported. Tall fescue varieties were sown at Lexington (2009 and 2010), Princeton (2008 and 2010) and Quicksand (2010). The bromegrass trials were sown in Lexington in 2008 and 2010. The soils at Lexington (Maury), Princeton (Crider) and Quicksand (Nolin) are well-drained silt loams. They are well suited for tall fescue and bromegrass production.

Seedings were made at the rate of 25 lb/A for tall fescue and 20 lb/A for bromegrass into a prepared seedbed with a disk drill. Plots were 5 by 20 feet in a randomized complete block design with four replications with a harvested plot area of 5 by 15 feet. 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

**Table 7. Dry matter yields, seedling vigor and stand persistence of tall fescue varieties sown September 16, 2010 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Nov 19, 2010	Percent Stand			Yield (tons/acre)				
		2010 Nov 19	2011		2011				
			Apr 8	Oct 24	May 10	Jun 14	Aug 16	Oct 24	Total
<b>Commercial Varieties-Available for Farm Use</b>									
KY31+ <sup>2</sup>	4.3	100	100	100	0.47	0.79	0.72	0.63	2.60*
Jesup EF	3.5	100	100	100	0.39	0.76	0.70	0.57	2.42*
Cajun II	3.5	100	100	100	0.39	0.68	0.68	0.59	2.34*
Kentucky 32	3.4	100	100	100	0.32	0.72	0.72	0.55	2.31*
Jesup MaxQ	3.4	100	100	100	0.35	0.73	0.76	0.41	2.26*
Goliath	3.3	100	100	100	0.38	0.69	0.64	0.47	2.18
Cowgirl	3.9	100	100	100	0.31	0.69	0.66	0.49	2.15
BarOptima PLUS E34	2.6	100	100	100	0.28	0.63	0.73	0.47	2.10
Select	2.6	100	100	100	0.32	0.64	0.68	0.43	2.08
Bronson	3.6	100	100	100	0.37	0.60	0.68	0.37	2.03
BarElite	3.3	100	100	99	0.30	0.46	0.60	0.35	1.72
<b>Experimental Varieties</b>									
TF 0402	4.3	100	100	100	0.42	0.84	0.70	0.62	2.58*
RAD-ERF61	4.0	100	100	100	0.44	0.71	0.72	0.61	2.48*
RAD-ERF62	4.0	100	100	100	0.51	0.73	0.72	0.51	2.47*
KY31- <sup>2</sup>	3.5	100	100	100	0.45	0.73	0.60	0.58	2.36*
Mean	3.5	100.0	99.8	99.8	0.38	0.69	0.69	0.51	2.27
CV,%	20.4	0.0	0.7	0.7	22.71	16.51	16.72	22.16	11.90
LSD,0.05	1.0	0.0	1.0	0.9	0.12	0.16	0.16	0.16	0.39

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

<sup>2</sup> KY 31- is the variety KY31 from which the toxic endophyte has been removed. Jesup MaxQ contains a non-toxic endophyte. BarOptima PLUS E34 contains a beneficial endophyte. KY31+ contains the toxic endophyte. The other fescue varieties in this test do not contain an endophyte.

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

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 when all tall fescue and bromegrass 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, Princeton and Quicksand are presented in Tables 1, 2 and 3.

Ratings for maturity (see Table 4 for maturity scale), stand, and dry matter yields (tons/A) are reported in Tables 5 through 12. Yields are given by cutting date for 2011 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.

Tables 13 and 14 summarize information about distributors, 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;

**Table 8. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue varieties sown September 6, 2010 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 26, 2010	Maturity <sup>2</sup> 2011 May 9	Percent Stand			Yield (tons/acre)				
			2010 Oct 26	2011		2011				
				Mar 16	Nov 7	May 9	Jun 21	Aug 9	Oct 26	Total
KYFA 9732EF	2.5	54.5	99	95	96	1.69	1.40	0.88	1.38	5.35*
KYFA 9908/E1	3.0	52.0	100	97	97	1.63	1.42	0.83	1.33	5.22*
KYFA 9908/E3	2.8	53.5	98	96	99	1.52	1.34	0.81	1.46	5.14*
KYFA 9732/E5	3.4	54.5	100	100	99	1.82	1.24	0.70	1.36	5.11*
KYFA 0701	3.3	56.0	98	99	100	1.85	1.18	0.67	1.35	5.05*
KYFA 9908/E4	2.6	54.5	99	97	96	1.72	1.27	0.63	1.37	4.99*
KYFA 9732/E1	3.6	54.0	100	98	99	1.93	1.17	0.66	1.20	4.97*
KYFA 0601	2.9	56.0	98	99	99	1.81	1.18	0.56	1.34	4.89*
KYFA 9913EF	2.8	56.0	99	99	99	1.56	1.22	0.67	1.44	4.88*
KYFA 9732/E2	3.0	54.0	99	97	98	1.74	1.16	0.67	1.30	4.87*
KYFA 9905/E2	3.9	54.5	98	100	100	1.68	1.23	0.59	1.31	4.81*
KYFA 9908EF	3.5	54.0	99	97	96	1.59	1.17	0.67	1.33	4.76*
KYFA 9905EF	3.0	55.0	97	97	97	1.61	1.19	0.70	1.27	4.76*
KY31- <sup>3</sup>	3.3	56.0	97	97	98	1.71	1.22	0.66	1.15	4.74*
KYFA 9913/E2	2.4	54.0	97	96	97	1.42	1.20	0.71	1.40	4.73*
KYFA 9913/E1	3.3	53.5	97	95	97	1.62	1.13	0.72	1.20	4.68*
KYFA 9913/E5	3.0	54.5	97	95	97	1.69	1.09	0.64	1.25	4.67*
KYFA 9905/E5	3.0	54.0	100	99	100	1.55	1.16	0.54	1.36	4.62
AgR1502	2.3	56.0	97	95	97	1.61	1.12	0.56	1.32	4.61
KYFA 9905/E1	2.9	53.5	98	99	100	1.63	1.21	0.56	1.21	4.61
KYFA 9908/E5	2.3	54.0	98	88	94	1.44	1.20	0.67	1.29	4.60
KY31+ <sup>3</sup>	2.9	54.0	98	95	96	1.54	1.16	0.59	1.19	4.48
KYFA 0901	2.9	56.0	98	95	96	1.41	1.11	0.70	1.16	4.39
AgR1521	2.1	55.5	94	95	97	1.56	1.05	0.64	1.07	4.32
Mean	2.9	54.6	98.1	96.5	97.5	1.64	1.20	0.67	1.29	4.80
CV,%	25.2	1.8	2.0	4.9	2.8	11.96	13.69	25.43	14.19	10.63
LSD,0.05	1.0	1.4	2.8	6.7	3.8	0.28	0.23	0.24	0.26	0.72

<sup>1</sup> Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth.  
<sup>2</sup> 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. See Table 4 for complete scale.  
<sup>3</sup> KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. AgR1502 and AgR1521 contain a non-toxic endophyte. E1 through E5 are non-toxic endophytes. The other varieties do not contain an endophyte.  
\* Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

commercial varieties can be purchased from agricultural distributors. In Tables 13 and 14, 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 based on the 0.05 LSD. 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 and bromegrass varieties (Tables 5 through 12).

Tables 15 and 16 are summaries of yield data from 1999 to 2011 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 percent—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 Table 15 and 16 summaries, 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 Tables 15 and 16 to determine which yearly report to refer to.

**Summary**

Selecting a good variety of tall fescue and bromegrass 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.

**Table 9. Dry matter yields, seedling vigor and stand persistence of tall fescue varieties sown September 16, 2010 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Nov 19, 2010	Percent Stand			Yield (tons/acre)				
		2010 Nov 19	2011		2011				
			Apr 8	Oct 24	May 10	Jun 14	Aug 16	Oct 24	Total
KY31+ <sup>2</sup>	4.1	100	100	100	0.69	0.80	0.63	0.66	2.78*
KYFA9732/E5	3.6	100	99	100	0.61	0.85	0.54	0.65	2.64*
KYFA0701	3.8	100	100	100	0.68	0.90	0.52	0.53	2.64*
KYFA9905/E5	4.1	100	100	100	0.66	0.84	0.50	0.64	2.63*
KYFA9908/E3	3.5	100	100	100	0.54	0.85	0.64	0.56	2.58*
KYFA9908/E5	3.5	100	100	100	0.62	0.77	0.52	0.59	2.49*
KYFA9908/E1	4.1	100	100	100	0.58	0.80	0.57	0.52	2.47*
KY31- <sup>2</sup>	3.5	100	100	100	0.56	0.85	0.49	0.55	2.46*
KYFA9913/E5	2.5	100	99	100	0.55	0.81	0.58	0.52	2.46*
KYFA9732/E2	4.1	100	99	100	0.55	0.77	0.53	0.59	2.44*
KYFA9732EF	3.9	100	100	100	0.59	0.82	0.52	0.50	2.42*
KYFA9908EF	3.1	100	98	100	0.58	0.79	0.46	0.59	2.42*
KYFA9913/E2	2.9	100	99	100	0.58	0.80	0.52	0.52	2.42*
KYFA9732/E1	3.3	100	100	100	0.57	0.87	0.41	0.57	2.42*
KYFA9905/E2	3.8	100	100	100	0.61	0.74	0.52	0.52	2.39*
AgR1502	2.6	100	98	100	0.55	0.77	0.46	0.60	2.38*
KYFA9908/E4	3.6	100	100	100	0.53	0.82	0.50	0.50	2.34
KYFA9913EF	3.0	100	100	100	0.55	0.75	0.46	0.56	2.33
AgR1521	2.8	100	99	100	0.51	0.79	0.48	0.55	2.32
KYFA9913/E1	3.0	100	97	98	0.56	0.74	0.46	0.50	2.26
KYFA9905/E1	3.9	100	98	100	0.60	0.59	0.41	0.65	2.25
KYFA9905EF	3.6	100	100	100	0.59	0.70	0.34	0.60	2.22
KYFA0601	4.1	100	100	100	0.51	0.70	0.43	0.55	2.20
KYFA0901	3.5	100	100	100	0.47	0.62	0.42	0.50	2.01
Mean	3.5	100.0	99.3	99.8	0.57	0.78	0.50	0.56	2.42
CV,%	21.0	0.0	1.2	0.6	21.92	20.18	32.06	16.44	12.64
LSD,0.05	1.0	0.0	1.8	0.9	0.18	0.22	0.22	0.13	0.43

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

<sup>2</sup> KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. AgR1502 and AgR1521 contain a non-toxic endophyte. E1 through E5 are non-toxic endophytes. The other varieties do not contain an endophyte.

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

The following is a list of University of Kentucky Cooperative Extension publications related to tall fescue management available from your county Extension office and are listed in the "Publications" section of the UK Forage web site, [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage):

- *Lime and Fertilizer Recommendations* (AGR-1)

- *Grain and Forage Crop Guide for Kentucky* (AGR-18)
- *Tall Fescue* (AGR-59)
- *Establishing Forage Crops* (AGR-64)
- *Tall Fescue in Kentucky* (AGR-108)
- *Forage Identification and Use Guide* (AGR-175)
- *Rotational Grazing* (ID-143)

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**Table 10. Dry matter yields, seedling vigor, maturity and stand persistence of tall fescue varieties sown September 24, 2010 at Quicksand, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Nov 11, 2010	Maturity <sup>2</sup> 2011 May 13	Percent Stand			Yield (tons/acre)				
			2010 Nov 11	2011		2011				
				Mar 29	Nov 8	May 13	Jun 9	Jul 21	Oct 14	Total
KY31+ <sup>3</sup>	3.1	53.3	100	99	100	1.25	0.84	1.39	1.84	5.31*
KYFA9905EF	3.1	55.0	100	99	100	1.46	0.86	1.45	1.36	5.12*
KYFA0701	2.8	56.5	100	98	100	1.10	0.66	1.38	1.74	4.88*
KYFA9732/E5	3.5	57.0	100	98	100	1.73	0.78	1.35	0.98	4.83*
KYFA9908EF	2.8	52.3	100	96	96	1.27	0.85	1.53	1.08	4.72*
KYFA9905/E5	3.1	54.5	100	100	100	1.25	0.80	1.21	1.30	4.56*
KY31- <sup>3</sup>	3.5	54.5	100	99	98	1.24	0.71	1.34	1.27	4.56*
KYFA9732/E1	3.3	54.8	100	100	100	1.53	0.78	1.17	1.09	4.56*
KYFA9913/E2	2.8	57.5	100	96	95	1.21	0.74	1.28	1.33	4.56*
KYFA9732/E2	2.8	56.5	100	98	99	1.40	0.78	1.36	1.00	4.54*
AgR1502	2.4	58.0	100	97	99	1.27	0.75	1.36	1.15	4.53*
KYFA9908/E4	2.9	53.8	100	96	98	1.15	0.73	1.27	1.34	4.49*
KYFA9913/E5	2.8	56.0	99	95	98	1.40	0.74	1.30	1.01	4.46*
KYFA0601	3.1	58.5	100	99	100	1.25	0.67	1.35	1.16	4.43*
AgR1521	1.5	53.5	99	96	99	1.02	0.65	1.23	1.41	4.31*
KYFA9908/E5	2.6	53.8	100	97	99	1.32	0.71	1.23	1.03	4.29*
KYFA9905/E2	3.1	56.0	100	99	99	1.32	0.68	1.21	1.08	4.29*
KYFA9908/E1	2.9	55.5	100	96	99	1.27	0.78	1.31	0.89	4.25*
KYFA9913EF	2.8	57.5	99	93	96	1.00	0.74	1.34	1.16	4.25*
KYFA9732EF	2.5	57.0	100	99	100	1.25	0.77	1.42	0.81	4.24*
KYFA9905/E1	3.5	53.0	100	99	100	1.33	0.70	1.32	0.78	4.13*
KYFA9913/E1	2.9	57.5	100	97	96	1.32	0.66	1.22	0.79	3.99
KYFA9908/E3	2.5	55.5	100	95	95	1.08	0.69	1.20	0.96	3.94
KYFA0901	2.4	54.5	100	92	94	0.82	0.51	1.37	1.13	3.82
Mean	2.8	55.5	99.8	97.1	98.1	1.26	0.73	1.32	1.15	4.46
CV,%	26.0	5.9	0.9	2.1	1.9	31.00	18.99	20.25	39.55	20.22
LSD,0.05	1.0	4.6	1.3	2.8	2.7	0.55	0.20	0.38	0.64	1.27

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

<sup>2</sup> 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. See Table 4 for complete scale.

<sup>3</sup> KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. AgR1502 and AgR1521 contain a non-toxic endophyte. E1 through E5 are non-toxic endophytes. The other varieties do not contain an endophyte.

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

**Table 11. Dry matter yields, seedling vigor, maturity and stand persistence of bromegrass varieties sown September 6, 2010 at Lexington, Kentucky.**

Variety	Type	Seedling Vigor <sup>1</sup> Oct 14, 2010	Maturity <sup>2</sup>		Percent Stand			Yield (tons/acre)				
			2011		2010 Oct 14	2011		2011				
			May 13	Jun 20		Mar 17	Nov 7	May 13	Jun 21	Aug 11	Oct 31	Total
<b>Commercial Varieties-Available for Farm Use</b>												
Hakari	Alaska	4.0	53.5	53.0	90	96	89	2.59	1.25	0.44	0.55	4.83*
MacBeth	meadow	2.5	62.0	29.0	70	70	89	1.44	0.87	0.95	0.94	4.19*
Doina	smooth	3.8	55.5	29.0	90	88	88	1.60	1.05	0.69	0.63	3.97*
Olga	smooth	2.8	55.0	29.0	86	87	92	1.47	0.98	0.67	0.55	3.67
Bigfoot	meadow	2.3	60.0	29.0	85	85	93	1.19	0.93	0.78	0.75	3.65
AC Knowles	hybrid	2.8	55.0	60.5	86	81	91	0.98	0.81	0.64	0.53	2.96
<b>Experimental Varieties</b>												
BAR BcF1FRRL	meadow	2.5	59.0	29.0	76	74	91	1.64	0.94	0.92	0.90	4.40*
BAR BiF1GRL	smooth	4.5	55.0	29.0	93	94	93	1.58	1.01	0.70	0.63	3.91*
KYBI0101	smooth	-	56.5	29.0	6	10	29	0.71	0.73	0.72	0.43	2.59
BAR PAL16	hybrid	-	57.5	60.5	6	6	25	0.38	0.81	0.58	0.38	2.14
Mean		3.3	56.7	36.9	71.2	70.9	79.3	1.33	0.94	0.70	0.62	3.59
CV,%		22.7	2.5	2.3	10.3	11.5	6.6	34.39	27.45	20.62	28.66	21.90
LSD,0.05		1.1	2.1	1.2	10.6	11.8	7.6	0.66	0.32	0.21	0.26	1.14

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

<sup>2</sup> 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. See Table 4 for complete scale.

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

**Table 12. Dry matter yields, seedling vigor, maturity and stand persistence of bromegrass varieties sown September 18, 2008 at Lexington, Kentucky.**

Variety	Type	Seedling Vigor <sup>1</sup> Oct 22, 2008	Maturity <sup>2</sup>						Percent Stand						Yield (tons/acre)										
			2009		2010		2011		2009		2010		2011		2009		2010		2011						
			May 19	May 6	May 19	May 6	May 19	May 6	Oct 22	Apr 10	Oct 30	Apr 13	Oct 15	Mar 29	Oct 27	Total	Total	Total	May 9	Jun 21	Aug 11	Oct 18	Total	Total	
<b>Commercial Varieties-Available for Farm Use</b>																									
MacBeth	meadow	3.8	60.0	55.0	57.5	96	98	98	98	98	98	100	96	96	4.37	3.05	3.05	1.24	0.95	0.69	0.66	3.54	10.96*		
Bigfoot	meadow	2.5	59.0	56.0	56.5	94	96	92	95	95	95	95	89	89	3.20	3.02	3.02	1.01	0.91	0.65	0.53	3.11	9.33		
Olga	smooth	3.0	58.0	50.3	51.5	95	94	95	94	95	96	96	96	96	3.10	2.80	2.80	1.39	0.87	0.54	0.62	3.42	9.32		
Dolina	smooth	2.8	58.0	53.5	55.5	95	94	96	96	97	98	98	93	93	3.02	2.67	2.67	1.60	0.82	0.48	0.63	3.53	9.22		
Peak	smooth	2.0	57.0	54.0	54.0	78	53	64	74	88	89	89	78	78	1.85	2.73	2.73	1.34	0.95	0.40	0.54	3.22	7.79		
RAD-BIX29	smooth	1.8	56.0	49.3	45.0	41	25	50	55	93	97	97	97	97	1.45	2.42	2.42	1.25	0.88	0.42	0.51	3.07	6.93		
Hakari	Alaska	2.0	55.5	45.0	-	89	90	95	94	26	28	28	1	1	3.71	1.98	1.98	0.21	0.85	0.01	0.04	1.12	6.82		
Canterbury	mountain	4.3	57.5	51.0	-	95	99	90	89	14	15	15	1	1	3.33	2.43	2.43	0.05	0.50	0.01	0.01	0.57	6.33		
Persister	prairie	3.0	59.0	56.0	54.0	84	13	39	36	43	45	45	38	38	1.54	2.50	2.50	0.68	0.60	0.25	0.24	1.76	5.80		
<b>Experimental Varieties</b>																									
GRL	smooth	3.8	57.5	51.0	52.0	96	93	94	95	99	97	97	96	96	2.25	2.59	2.59	1.52	0.77	0.53	0.61	3.43	8.26		
KYBI0101	smooth	1.5	58.0	53.5	53.5	75	44	56	78	89	93	93	86	86	2.43	2.58	2.58	1.35	0.74	0.36	0.40	2.85	7.86		
RADBIX28	hybrid	1.0	57.5	55.5	52.5	15	16	38	33	58	48	48	43	43	1.11	2.18	2.18	1.01	0.57	0.25	0.45	2.28	5.56		
VJ1	prairie	4.5	56.0	55.0	-	91	13	8	5	9	9	9	11	11	0.58	1.18	1.18	0.29	0.54	0.28	0.15	1.27	3.03		
AGRBW105	prairie	2.8	-	57.0	55.0	80	8	9	8	18	19	19	14	14	0.34	1.12	1.12	0.43	0.16	0.11	0.11	0.81	2.26		
RADCAV215	-	-	-	-	-	4	1	0	1	1	0	0	0	0	0.06	0.46	0.46	0.01	0.15	0.00	0.01	0.17	0.69		
Mean		2.8	57.7	52.9	53.4	75.1	55.5	61.5	63.2	61.4	61.6	61.6	55.7	55.7	2.15	2.25	2.25	0.89	0.69	0.33	0.37	2.28	6.68		
CV%		21.8	2.3	3.2	4.8	12.2	20.1	21.4	16.8	15.9	14.3	13.8	13.8	13.8	28.11	15.94	15.94	19.09	29.55	35.89	25.09	16.42	14.81		
LSD <sub>0.05</sub>		0.9	2.3	2.5	3.7	13.0	15.9	18.8	15.1	14.0	12.6	10.9	10.9	10.9	0.86	0.51	0.51	0.24	0.29	0.17	0.13	0.53	1.41		

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

<sup>2</sup> 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. See Table 4 for complete scale.

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



**Table 13. Performance of tall fescue varieties across years and locations.**

Variety	Proprietor/KY distributor	Lexington			Princeton				Quicksand
		2009 <sup>1</sup>		2010	2008		2010		2010
		10 <sup>2</sup>	11	11	09	10	11	11	11
<b>Commercial Varieties-Available for Farm Use</b>									
Aprilia	ProSeeds Marketing				x <sup>3</sup>	x	*		
Atlas Select	ProSeeds Marketing				x	*	x		
BarElite	Barenbrug USA							x	
BarOptima PLUS E34	Barenbrug USA							x	
Bronson	Ampac Seed	*	*					x	
Cajun II	Smith Seed Services							*	
Cowgirl	Rose-Agri Seeds				*	*	*	x	
Goliath	Ampac Seed	x	*					x	
HyMark	Fraser Seeds				*	*	*		
Kentucky 32	Oregro Seeds				x	*	*	*	
KY31+ <sup>4</sup>	Ky Agric. Exp. Station/Public	*	*	x	*	*	x	*	*
Jesup EF	Pennington Seed							*	
Jesup MaxQ	Pennington Seed	*	*		x	x	*	*	
RAD-ERF 50	Radix Research, Inc.				*	*	*		
Select	FFR/Southern States	*	*		*	*	*	x	
5CAN	Brett Young	x	x						
<b>Experimental Varieties</b>									
AgR1502	AgResearch	*	*	x					*
AgR1521	AgResearch	*	*	x				x	*
GA-29	Univ of Georgia	x	*						
GA 186	Univ of Georgia				*	*	*		
GA 593R	Univ of Georgia				x	*	*		
KY31- <sup>4</sup>	KY Agric. Exp. Station	*	*	*	*	*	x	*	*
KYFA 0601	KY Agric. Exp. Station			*				x	*
KYFA 0701	KY Agric. Exp. Station	*	*	*				*	*
KYFA 0901	KY Agric. Exp. Station			x				x	x
KYFA9301/AR584	KY Agric. Exp. Station				*	*	*		
KYFA 9732 EF	KY Agric. Exp. Station			*				*	*
KYFA 9732/E1	KY Agric. Exp. Station			*				*	*
KYFA 9732/E2	KY Agric. Exp. Station			*				*	*
KYFA 9732/E5	KY Agric. Exp. Station			*				*	*
KYFA 9821/AR584	KY Agric. Exp. Station				*	*	*		
KYFA 9905 EF	KY Agric. Exp. Station			*				x	*
KYFA 9905/E1	KY Agric. Exp. Station			x				x	*
KYFA 9905/E2	KY Agric. Exp. Station			*				*	*
KYFA 9905/E5	KY Agric. Exp. Station			x				*	*
KYFA 9908 EF	KY Agric. Exp. Station			*				*	*
KYFA 9908/E1	KY Agric. Exp. Station			*				*	*
KYFA 9908/E3	KY Agric. Exp. Station			*				*	x
KYFA 9908/E4	KY Agric. Exp. Station			*				x	*
KYFA 9908/E5	KY Agric. Exp. Station			x				*	*
KYFA 9913 EF	KY Agric. Exp. Station			*				x	*
KYFA 9913/E1	KY Agric. Exp. Station			*				x	x
KYFA 9913/E2	KY Agric. Exp. Station			*				*	*
KYFA 9913/E5	KY Agric. Exp. Station			*				*	*
RAD ERF57	Radix Research, Inc.	x	*						
RAD-ERF58	Radix Research, Inc.	*	x						
RAD-ERF61	Radix Research, Inc.							*	
RAD-ERF62	Radix Research, Inc.							*	
RAD-MRF59	Radix Research, Inc.	*	*						
TF 0201	Winfield Solutions/FFR				*	*	x		
TF 0202	FFR/Southern States	x	x						
TF 0402	FFR/Southern States							*	

<sup>1</sup> Establishment year

<sup>2</sup> Harvest year.

<sup>3</sup> 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.

<sup>4</sup> KY31- is the variety KY31 from which the toxic endophyte has been removed. KY31+ contains the toxic endophyte. Jesup MaxQ, AgR1502 and AgR1521 contain a non-toxic endophyte. Baroptima PLUS E34 contains a beneficial endophyte. E1 through E5 and AR584 are non-toxic endophytes. The other varieties do not contain an endophyte.

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

<b>Table 14. Performance of bromegrass varieties at Lexington.</b>						
<b>Variety</b>	<b>Type</b>	<b>Proprietor/KY Distributor</b>	<b>2008<sup>1</sup></b>			<b>2010</b>
			<b>2009<sup>2</sup></b>	<b>2010</b>	<b>2011</b>	<b>2011</b>
<b>Commercial Varieties-Available for Farm Use</b>						
AC Knowles	hybrid	—				x
Bigfoot	hybrid	Grassland Oregon	x <sup>3</sup>	*	*	x
Canterbury	mountain	Barenbrug USA	x	x	x	
Doina	smooth	Barenbrug USA	x	*	*	*
Hakari	Alaska	Barenbrug USA	*	x	x	*
MacBeth	meadow	Cisco Seeds	*	*	*	*
Olga	smooth	Barenbrug USA	x	*	*	x
Peak	smooth	Allied Seed	x	*	*	
Persister	prairie	—	x	x	x	
RAD-BI29	smooth	Columbia Seeds	x	x	*	
<b>Experimental Varieties</b>						
AGRBW 105	prairie	Ag Research	x	x	x	
BAR BcF1FRRL	meadow	Barenbrug USA				*
BAR BiF1GRL	smooth	Barenbrug USA				*
BAR PAL 16	hybrid	Barenbrug USA				x
GRL	smooth	USDA-ARS/Barenbrug	x	*	*	
KYBI 0101	smooth	KY Agric. Exp. Station	x	*	x	x
RAD-BIx28	hybrid	Ampac Seed	x	x	x	
RAD CAV 215	pasture	Radix Research	x	x	x	
VJ 1	prairie	Ag Research	x	x	x	
<sup>1</sup> Establishment year. <sup>2</sup> Harvest year. <sup>3</sup> 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 15. Summary of Kentucky Tall Fescue Yield Trials 1999-2011 (yield shown as a percentage of the mean of the commercial varieties in the trial).**

Variety	Proprietor	Lexington						Princeton						Quicksand					Mean <sup>3</sup> #trials
		99:1 2-yr <sup>4</sup>	01 3-yr	03 2-yr	05 3-yr	07 2-yr	09 2-yr	98 2-yr	00 2-yr	02 3-yr	04 3-yr	06 3-yr	08 3-yr	99 2-yr	01 2-yr	03 2-yr	05 4-yr		
Atlas	ProSeeds Marketing	107												89				98(2)	
Atlas Select	ProSeeds Marketing											96							
Aprilia	ProSeeds Marketing											94							
BarElite	Barenbrug USA			87	103	99													
Barlane	Barenbrug USA				94												95	95(3)	
Barolex	Barenbrug USA																		
BarOptima PLUS E34	Barenbrug USA					101													
BAR 9 TMPO	Barenbrug USA	96											97					97(2)	
Bronson	Ampac Seed				91	100	105											100(4)	
Bull	Improved Forages			98	106			102	103						97			101(5)	
Carmine	DLF International		99											97				98(2)	
Cowgirl	Rose-AgriSeeds											102							
DLF-B	DLF International	96																	
Enhance	Allied Seed									107									
Festival	Pickseed West													107					
Fuego	Advanta Seeds	99				107												105(3)	
Goliath	Ampac Seed						100												
Hoedown	DLF International													106				105(2)	
HyMark	Fraser Seeds											102							
Jesup EF	Pennington Seed																		
Jesup MaxQ	Pennington Seed				102	104	109	106								100	102	101(7)	
Johnstone	ProSeeds Marketing	95	108						98				95					99(3)	
KENHY	KY Agric Exp Sta.									89									
Kentucky 32	Oregro Seeds																		
Kokanee	Ampac Seed			89					86									88(2)	
KY31+5	KY Agric Exp Sta.	102	118	113	112	105	101	122	108	104		106	93	107	124	98	110	115(15)	
Maximize	Turf-Seed	96	95											105	93			97(4)	
Nanryo	Jap. Grassland Forage Seed//USDA-ARS, El Reno, OK					99													
Noria	ProSeeds Marketing																		
RAD-ERF50	Radix Research, Inc.					100													
Resolute	Ampac Seed			90											65			78(2)	
Savory	DLF International															93			
Seine	Advanta Seeds	99														96		98(2)	
Select	FFR/Sou. St.	106	106	94	103	102	101	105	105	95	105	103	105	107	112	102	91	103(16)	
Stockman	Seed Research of OR			109												105		104(4)	
TF0203G	Seed Research of OR																		
TF33	Barenbrug USA																		
Tuscany	Forage Genetics							70											
Tuscany II	Seed Research of OR											100							
Vulcan	International Seeds																		
SCAN	Brett Young						83												

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](http://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.  
5 "+" indicates variety is endophyte infected.

**Table 16. Summary of Kentucky bromegrass trials 2006-2011 (yield shown as a percentage of the mean of the commercial varieties in the trial.**

Variety	Type	Proprietor/KY Distributor	Lexington		Mean <sup>3</sup> (#trials)
			2006 <sup>1,2</sup>	2008	
			4-yr <sup>4</sup>	3-yr	
AC Knowles	hybrid	–	85		–
Bigfoot	hybrid	Grassland Oregon	108	116	112(2)
Canterbury	mountain	Barenbrug USA		79	–
Doina	smooth	Barenbrug USA		114	–
Fleet	meadow	–	110		–
Hakari	Alaska	Barenbrug USA		85	–
MacBeth	meadow	Cisco Seeds		136	–
Olga	smooth	Barenbrug USA		116	–
Peak	smooth	Allied Seed		97	–
Persister	prairie	–		72	–
RAD-BI29	smooth	Columbia Seeds	96	86	91(2)

<sup>1</sup> Year trial was established.

<sup>2</sup> 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 2006 was harvested 4 years, so the final report would be “2009 Tall Fescue and Brome Report” archived in the KY Forage website at <[www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage)>.

<sup>3</sup> Mean only presented when respective variety was included in two or more trials.

<sup>4</sup> Number of years of data



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