



2020 Tall Fescue and Bromegrass Report

G.L. Olson, S.R. Smith, C.D. Teutsch, T.D. Phillips, and J.C. Henning, Plant and Soil Sciences

Introduction

Tall fescue (*Festuca arundinacea*) is a productive, well-adapted, persistent, soil-conserving, cool-season grass 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 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 contain 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*) is a perennial pasture and hay grass native to Europe. Smooth bromegrass has creeping underground stems or rootstocks from which the leafy stems arise. This grass is palatable to all classes of livestock, from emergence to the heading stage. Meadow bromegrass (*Bromus biebersteinii*) 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 and has the advantage of greater seedling vigor than smooth bromegrass. Hybrid bromegrass is a cross between smooth and meadow bromegrasses that combines the vigorous growth of smooth bromegrass with the leafiness and good regrowth of meadow bromegrass. Alaska bromegrass (*Bromus sitchensis*), also called Sitka bromegrass, is a long-lived perennial bunchgrass that grows at moderate rates during the spring and summer season. It does not spread by rhizomes and is more suited to environments with harsh winters.

Prairie bromegrass (*Bromus wildenowii*) 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. 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 winterkill. Mountain bromegrass (*Bromus marginatus*) is native to North America from Alaska to northern Mexico, where it can be found in many different habitats. It is a short-lived, perennial, cool-season, sod-

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2018, 2019, and 2020.

	2018				2019				2020 ²			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	0	2.01	-0.85	33	+2	4.11	+1.25	40	+9	3.72	+0.86
FEB	45	+10	9.77	+6.56	42	+7	7.64	+4.43	38	+3	5.14	+1.93
MAR	42	-2	5.16	+0.76	43	-1	3.49	-0.91	51	+7	3.79	-0.61
APR	50	-5	5.52	+1.64	54	+4	4.76	+0.88	52	-3	4.92	+1.04
MAY	73	+9	8.39	+3.92	69	+5	4.49	+0.02	62	-2	5.69	+1.22
JUN	76	+4	6.42	+2.76	73	+1	6.13	+2.47	72	0	2.56	-1.10
JUL	77	+1	6.15	+1.15	79	+3	3.30	-1.70	79	+3	3.23	-1.77
AUG	77	+2	6.45	+2.52	77	+2	2.42	-1.51	75	0	3.41	-0.52
SEP	74	+6	12.88	+9.68	77	+9	0.18	-3.02	68	0	4.43	+0.83
OCT	59	+2	6.54	+3.97	61	+4	7.55	+5.58	57	0	4.98	+2.41
NOV	42	-3	5.64	+2.25	41	-4	5.39	+2.00				
DEC	40	+4	7.35	+3.37	43	+7	5.74	+1.76				
Total			82.28	+37.73			55.20	+10.65			41.47	+4.29

¹ DEP is departure from the long-term average.

² 2020 data is for ten months through October.

Table 2. Temperature and rainfall at Princeton, Kentucky, in 2019 and 2020.

	2018				2019				2020 ²			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	32	-2	4.28	+0.48	36	+2	3.62	-0.18	40	+6	4.27	+0.47
FEB	45	+7	9.50	+5.07	43	+5	11.14	+6.71	40	+2	6.80	+2.37
MAR	47	0	9.53	-1.41	44	-3	3.34	-1.60	52	+5	6.63	+1.69
APR	53	-6	4.90	+0.10	59	0	4.50	-0.30	54	-5	3.08	-1.72
MAY	74	+7	4.69	-0.27	69	+2	5.61	+0.05	64	-3	5.48	+0.52
JUN	78	+3	7.80	+3.95	73	*2	4.33	+0.48	74	-1	5.13	+1.28
JUL	78	0	2.58	-1.71	77	-1	3.12	-1.17	79	+1	6.31	+2.02
AUG	77	0	2.68	-1.33	76	-1	6.31	+2.30	75	-2	3.77	-0.24
SEP	74	+4	5.61	+2.28	75	+4	0.34	-2.99	69	-2	4.93	+1.60
OCT	61	+2	2.96	-0.09	59	0	6.36	+3.31	57	-2	7.45	+4.40
NOV	42	-5	4.77	+0.14	42	-5	6.94	+2.31				
DEC	42	+3	5.45	+0.41	43	+4	3.32	-1.82				
Total			58.75	7.62			58.93	+7.80			53.85	+12.39

¹ DEP is departure from the long-term average.

² 2020 data is for the ten months through October.

Table 3. Temperature and rainfall at Quicksand, Kentucky, in 2019 and 2020.

	2019				2020 ²			
	Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP
JAN	37	+6	4.93	+1.64	42	+11	3.32	+0.03
FEB	45	+12	8.15	+4.55	41	+8	7.11	+3.51
MAR	44	+3	2.15	-2.19	52	+11	7.96	+3.62
APR	58	+5	2.55	-1.55	53	0	4.93	+0.83
MAY	68	+6	3.91	-0.57	62	0	5.75	+1.27
JUN	72	+2	8.35	+4.53	71	+1	4.54	+0.72
JUL	77	+3	6.32	+1.07	78	+4	4.26	-0.99
AUG	75	+2	1.57	-2.44	75	+2	6.56	+2.55
SEP	74	+8	0.04	-3.48	69	+3	4.40	+0.88
OCT	60	+6	6.80	+3.89	59	+5	3.55	+0.64
NOV	42	0	5.48	+1.60				
DEC	43	+10	6.15	+2.01				
Total			56.40	+9.06			52.38	+13.06

¹ DEP is departure from the long-term average.

² 2020 data is for the ten months through October.

forming grass. Mountain brome grass' leafy growth and deep, well-branched root system give erosion protection on sloping ground. It is similar to California brome grass (*Bromus carinatus*), and some consider them to be synonymous. Compared to tall fescue, the brome grasses retain quality better as they mature and grow better during dry weather. However they are generally less well adapted to Kentucky conditions.

This report provides Kentucky yield trial data on varieties of tall fescue and similar grass species as well as guidelines for selecting tall fescue varieties. Consult the UK Forage Extension website at www.forages.ca.uky.edu to access all forage variety testing reports from Kentucky and surrounding states as well as a large number of other forage publications.

Important Selection Considerations

Local adaptation and seasonal yield. Select a variety that is well 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). Compared to continental types, Mediterranean types mature earlier in spring and become dormant and nonproductive during the summer in Kentucky. They are also more susceptible to leaf diseases such as helminthosporium 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.

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. Seed of novel tall fescues 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. Look for Alliance for Grassland Renewal seed quality assurance printed on each bag of novel fescue seed.

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. Please check label for 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 ensure that it will be available when needed.

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

Code	Description	Remarks
Leaf development		
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	Further subdivision by means of leaf development index (see text).
13	3 leaves unfolded	
•	•••••	
19	9 or more leaves unfolded	
Sheath elongation		
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	
Tillering (alternative to sheath elongation)		
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	
Stem elongation		
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	
Booting		
45	Boot swollen	
Inflorescence emergence		
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	
Anthesis		
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.
Seed ripening		
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.

Source: 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 and meadow fescue (MF) varieties sown September 8, 2017, at Lexington, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Oct 12, 2017	Maturity ³			Percent Stand								Yield (tons/acre)						3-year Total		
			2018	2019	2020	2017	2018		2019		2020		2018	2019	2020							
			May 8	May 6	May 4	Oct 12	Mar 14	Oct 19	Mar 22	Oct 17	Mar 17	Oct 27	Total	Total	May 4	Jun 19	Oct 22	Total				
Commercial Varieties-Available for Farm Use																						
SS0705TFSL	free	4.0	51.0	53.5	52.0	100	99	99	99	99	99	99	99	99	99	5.42	2.10	1.29	0.67	1.90	3.86	11.38*
Cajun II	free	3.9	52.5	55.5	48.0	99	99	99	99	100	100	100	100	100	100	5.29	2.19	1.43	0.59	1.47	3.49	10.98*
Jesup MaxQ	novel	4.0	54.0	55.5	49.8	100	100	100	100	100	100	100	100	100	100	5.38	2.16	1.23	0.63	1.27	3.13	10.67*
KY31+	toxic	4.3	46.3	51.5	48.0	100	100	100	100	100	100	100	100	100	100	5.32	1.60	1.20	0.67	1.58	3.46	10.38*
Lacefield MaxQII	novel	4.0	46.3	53.0	48.5	100	100	100	100	100	100	100	99	99	99	4.77	1.59	1.09	0.60	1.57	3.26	9.61*
Ranchero	free	2.3	52.5	53.0	50.3	93	91	93	93	93	93	93	93	93	93	4.49	2.01	1.08	0.44	1.38	2.90	9.40
BarOptima PLUS E34	novel	3.3	45.0	48.8	45.0	99	95	98	98	100	100	100	100	100	100	4.59	1.78	0.87	0.55	1.42	2.84	9.21
Pradel (MF)	free	3.9	45.0	45.0	45.0	100	100	100	98	51	48	43	4.13	1.28	0.75	0.39	0.97	2.11	7.52			
Experimental Varieties																						
KYFA1306	free	3.8	49.3	49.8	49.3	78	100	100	100	100	100	100	100	100	100	5.44	1.68	1.43	0.58	1.55	3.56	10.69*
KYFA1304	free	2.9	49.8	53.5	51.5	91	90	91	91	94	95	95	5.07	1.77	1.25	0.48	1.77	3.50	10.33*			
KYFA1305	free	4.0	45.0	53.3	49.3	100	100	100	100	100	100	100	5.54	1.77	1.08	0.60	1.24	2.92	10.23*			
KYFA1404	free	2.9	45.0	50.3	46.8	98	98	98	99	99	99	99	4.60	2.04	1.34	0.61	1.49	3.44	10.07*			
KYFA1405	free	2.8	46.3	52.0	52.0	83	83	87	95	96	96	96	4.85	1.95	1.31	0.60	1.25	3.17	9.97*			
FTF94	free	2.1	52.5	56.0	51.5	86	86	89	89	95	96	97	4.78	2.10	1.21	0.62	1.21	3.05	9.93*			
KYFA9304	free	4.0	48.5	52.0	48.0	99	99	99	99	99	99	96	4.85	1.96	1.12	0.59	1.38	3.09	9.89*			
RAD-ERF37	free	3.3	51.5	56.0	51.5	97	96	97	98	98	100	99	4.48	2.01	1.24	0.58	1.52	3.33	9.82*			
KY31-	free	3.5	50.3	52.5	48.0	100	100	100	100	100	100	100	4.38	1.79	1.10	0.59	1.29	2.99	9.16			
KYFP1301 (MF)	free	3.8	45.0	45.0	45.0	98	98	98	97	81	79	76	4.42	1.46	0.70	0.37	1.14	2.21	8.08			
BARFA6BTR179	free	3.3	45.0	46.8	46.3	98	98	99	98	96	94	3.86	1.63	0.72	0.43	1.32	2.47	7.96				
KYFA1606	free	1.0	45.0	52.3	49.8	63	51	53	65	59	69	69	3.49	1.31	0.79	0.53	1.10	2.41	7.25			
Mean		3.3	48.3	51.8	48.8	94	94	95	96	93	93	93	4.77	1.81	1.11	0.56	1.39	3.06	9.66			
CV,%		18.4	4.5	5.2	5.5	14	10	8	8	9	8	8	16.33	19.60	32.08	40.70	23.25	18.56	12.91			
LSD,0.05		0.9	3.0	3.8	3.8	19	13	11	11	11	10	10	1.11	0.50	0.50	0.32	0.46	0.80	1.78			

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

³ 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.

Description of the Tests

Data from ten studies are reported. Tall fescue varieties were sown at Lexington (2017, 2018, and 2019), Princeton (2017 and 2019) and Quicksand (2018). Bromegrass varieties were sown in Lexington in 2016, 2017, 2018, and 2019. The soils at Lexington (Maury), Princeton (Crider) and Quicksand (Nolin) are well-drained silt loams and are well suited for tall fescue and bromegrass production.

Seedings were made at the rate of 25 pounds per acre for tall fescue and 20 pounds per acre for bromegrass into a prepared seedbed with a disk drill. Plots were 5 feet by 20 feet in a randomized complete block design with four replications with a harvested plot area of 5 feet by 15 feet. Nitrogen was topdressed at 60 pounds per acre of actual nitrogen in March, after the first cutting, and again in late summer, for a total of 180 pounds per acre 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 when all tall fescue and bromegrass varieties were at the boot stage or later. Fresh weight samples were taken at each harvest to calculate dry matter production. Management practices for these tests regarding establishment, fertility (P, K, and lime based on regular soil tests), 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 (see Table 4 for maturity scale), stand, and dry matter yields (tons/A) are reported in Tables 5 through 14. Yields are given by cutting date for 2020 and as total annual production for all years of the trial. 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. 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 15 and 16 show information about proprietors/distributors for all varieties studied in this report. Varieties are listed in alphabetical order by species, with the experimental varieties at the bottom. Remember that experimental va-

Table 6. Dry matter yields, seedling vigor, maturity, and stand persistence of tall fescue and festulolium (FL) varieties sown September 4, 2018, at Lexington, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Sep 28, 2018	Maturity ³		Percent Stand					Yield (tons/acre)					2-year Total
			2019	2020	2018	2019		2020		2019	2020				
			May 6	May 4	Sep 28	Mar 22	Oct 17	Mar 17	Oct 27	Total	May 4	Jun 19	Oct 22	Total	
Commercial Varieties-Available for Farm Use															
Cajun II	free	4.9	56.5	53.0	100	100	100	100	100	3.37	1.53	1.00	1.34	3.87	7.24*
KY31+	toxic	4.9	55.5	50.5	100	100	100	100	100	3.23	1.88	0.77	1.00	3.66	6.89*
Lacefield MaxQII	novel	4.4	55.5	54.0	100	100	100	100	100	3.07	1.46	0.96	1.22	3.65	6.71*
Estancia Arkshield	novel	4.3	56.5	54.0	100	100	100	100	100	3.15	1.62	0.82	1.04	3.47	6.62*
Bull	free	4.5	57.5	54.5	100	100	100	100	100	3.15	1.70	0.86	0.83	3.39	6.55*
Jesup MaxQ	novel	4.8	56.5	53.0	100	100	100	100	100	2.95	1.63	0.91	1.02	3.56	6.51*
SS0705TFSL	free	4.8	56.5	53.5	100	100	100	100	100	2.69	1.52	0.84	1.29	3.65	6.34*
BarOptima PLUS E34	novel	4.8	52.0	51.5	100	100	100	100	100	2.60	1.63	0.80	1.30	3.73	6.33*
Kentucky 32	free	4.9	56.0	54.5	100	100	100	100	100	2.65	1.37	0.65	0.85	2.88	5.53
Experimental Varieties															
KYFA9304	free	4.9	55.0	52.5	100	100	100	100	100	3.19	1.82	0.98	1.15	3.94	7.13*
B-18.1787	free	4.5	57.5	52.5	100	100	100	100	100	2.99	1.68	0.99	1.03	3.71	6.70*
KY31-	free	5.0	55.0	50.5	100	100	100	100	100	2.95	1.68	0.89	1.15	3.73	6.68*
KYFA9821/AR584	novel	4.8	56.0	52.0	100	100	100	100	100	3.04	1.56	0.82	1.03	3.41	6.45*
FTF2(FL)	free	4.8	56.5	52.5	100	100	100	100	100	2.88	1.66	0.88	1.04	3.57	6.45*
KYFA1704	free	4.8	54.0	50.5	100	100	100	100	99	2.72	1.60	0.95	0.97	3.53	3.25*
KYFA9611	free	4.6	52.0	50.0	100	100	100	100	100	2.83	1.30	0.86	1.23	3.40	6.22*
BARFAF137	free	4.5	51.5	51.5	100	100	100	100	100	3.05	1.56	0.74	0.87	3.17	6.22*
BARFAF135	free	4.9	53.0	50.0	100	100	100	100	100	2.87	1.42	0.79	1.12	3.33	6.20*
BARFAF131	free	3.4	55.0	53.0	100	100	100	100	100	2.59	1.55	0.84	1.08	3.47	6.06*
FTF89	free	4.9	57.0	53.5	100	100	100	100	100	2.65	1.31	0.88	1.17	3.36	6.00
7FACF82	free	5.0	51.0	50.5	100	100	100	100	100	2.62	1.44	0.67	1.00	3.11	5.73
BARFABTR7 NEA23	novel	3.9	54.0	53.5	100	100	100	100	100	2.50	1.52	0.74	0.96	3.22	5.73
7016	free	4.9	56.0	52.0	100	100	100	100	100	2.70	1.36	0.56	1.10	3.01	5.72
RADMRF20	free	4.8	54.5	54.0	100	100	100	100	100	2.49	1.23	0.74	1.06	3.03	5.52
BARFA6BR-179	free	4.3	50.5	51.5	100	99	99	98	98	2.26	1.32	0.61	0.91	2.85	5.11
SLTF10-3	free	4.6	54.5	54.5	100	100	100	100	100	2.09	1.31	0.57	1.03	2.91	5.00
Mean		4.6	54.8	52.4	100	100	100	100	100	2.82	1.53	0.81	1.07	3.41	6.23
CV,%		6.2	2.0	3.0	0	0	0	1	1	18.22	22.93	29.14	25.59	17.06	15.87
LSD,0.05		0.4	1.6	2.2	0	1	1	1	1	0.72	0.49	0.33	0.39	0.82	1.39

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

³ 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.

rieties are not available for farm use; commercial varieties can be purchased from agricultural distributors. 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.

Summaries of yield data from 2004 to 2020 for tall fescue and from 2006 to 2020 for bromegrass commercial varieties are presented in Tables 17 and 18, respectively. The value for each variety in these tables is listed as a percentage of the mean of the commercial varieties entered in each specific trial. 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 17 and 18 summaries, but these

comparisons can 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 more information from past years can be found in the appropriate annual reports. See the footnotes in Tables 17 and 18 to determine the yearly report that should be referenced.

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 neces-

sary for even the highest-yielding variety to produce to its genetic potential.

For more information, consult the following University of Kentucky Cooperative Extension publications related to tall fescue management. These resources are available from your county Extension office and may be accessed in the "Publications" section of the UK Forage website at www.forages.ca.uky.edu.

- 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)

Table 7. Dry matter yields, seedling vigor, maturity, and stand persistence of tall fescue varieties sown August 30, 2019, at Lexington, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Oct 23, 2019	Maturity ³ 2020 May 4	Percent Stand			Yield (tons/acre)			
				2019	2020		2020			
				Oct 23	Mar 17	Oct 27	May 4	Jun 23	Oct 23	Total
Commercial Varieties-Available for Farm Use										
SS0705TFSL	free	3.8	50.3	100	100	100	1.11	0.94	1.74	3.80*
Lacefield MaxQII	novel	4.0	51.5	100	100	100	0.95	0.81	1.86	3.63*
Bronson	free	3.9	53.0	100	100	100	1.19	0.86	1.54	3.58*
Martin2 Protek	novel	4.3	52.5	100	100	100	1.17	0.96	1.44	3.56*
KY31+	toxic	4.3	49.8	100	100	100	1.03	0.85	1.65	3.52*
Greendale Protek	novel	4.4	46.3	100	100	100	1.36	0.69	1.43	3.48*
Tower	free	4.4	45.0	100	100	100	0.89	0.73	1.85	3.47*
Greendale	free	3.9	46.3	100	100	100	0.99	0.80	1.68	3.47*
Ranchero	free	4.1	53.0	100	100	100	1.02	0.86	1.59	3.46*
Texoma MaxQII	novel	3.3	48.5	100	99	99	0.81	0.79	1.73	3.34*
BarOptima PLUS E34	novel	3.8	46.3	100	100	100	0.69	0.73	1.91	3.33*
DLFPS-FTF100 Protek	novel	4.1	51.5	100	100	100	1.13	0.77	1.34	3.24
Tower Protek	novel	4.0	45.0	100	100	100	0.95	0.89	1.39	3.24
BARFASTF-43	free	3.8	46.3	100	100	100	0.84	0.65	1.71	3.21
Triumphant	free	3.9	52.0	100	100	100	1.01	0.72	1.41	3.13
Cajun II	free	3.5	51.5	100	100	100	1.00	0.72	1.38	3.10
Triumphant Protek	novel	3.4	52.0	100	100	100	0.92	0.71	1.44	3.07
Estancia Arkshield	novel	3.1	49.8	100	100	100	0.86	0.60	1.56	3.02
Jesup MaxQII	novel	3.0	48.5	100	100	100	0.79	0.60	1.57	2.97
Armory	free	2.6	49.3	100	100	100	0.78	0.61	1.55	2.94
Kokanee	free	3.8	45.0	100	100	100	0.55	0.80	1.56	2.91
Kentucky 32	free	2.1	53.0	96	96	94	0.53	0.66	1.53	2.72
Velvet	free	3.6	46.8	100	100	100	0.71	0.48	1.34	2.52
Experimental Varieties										
KYFA9611	free	3.9	45.0	100	100	100	1.02	1.04	1.91	3.97*
KY31-	free	4.3	50.5	100	100	100	0.92	0.86	1.58	3.36*
PPG-FTF116	free	3.9	52.5	100	100	100	1.01	0.84	1.41	3.26
DLFPS-TF89	free	3.6	52.0	100	100	100	0.98	0.78	1.39	3.16
PPG-FTF111	free	3.8	49.0	100	100	100	1.00	0.75	1.34	3.09
BARFA9125	free	2.0	45.0	100	98	98	0.44	0.71	1.89	3.04
SETFN97	free	2.9	51.0	100	100	100	0.79	0.56	1.47	2.82
GA95101T	free	3.8	46.3	100	100	100	0.72	0.25	1.35	2.32
GA29	free	2.3	49.0	95	88	95	0.55	0.44	1.26	2.25
Mean		3.6	49.2	100	99	100	0.90	0.73	1.56	3.19
CV,%		19.8	4.7	2	4	2	21.78	26.29	21.17	15.67
LSD,0.05		1.0	3.3	3	5	3	0.27	0.27	0.46	0.70

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

³ 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.

About the Authors

G.L. Olson is a research specialist, S.R. Smith and J.C. Henning are Extension professors and forage specialists, C.D. Teutsch is an Extension associate professor and forage specialist, and T.D. Phillips is an associate professor in tall fescue and grass breeding.

Table 8. Dry matter yields, seedling vigor, maturity, and stand persistence of tall fescue varieties sown September 22, 2017, at Princeton, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Nov 14, 2017	Maturity ³ 2019 May 7	Percent Stand								Yield (tons/acre) ⁴					2-year Total
				2017		2018		2019		2020		2019	2020				
				Nov 14	Apr 5	Oct 11	Apr 3	Nov 4	Mar 12	Nov 10	Total	May 11	Jun 11	Oct 22	Total		
Commercial Varieties-Available for Farm Use																	
KY31+	toxic	3.5	54.5	100	99	100	99	99	99	95	2.91	1.55	1.13	1.33	4.01	6.92*	
BarOptima PLUS E34	novel	3.5	53.5	100	98	98	98	98	98	84	3.16	1.73	1.31	0.69	3.73	6.89*	
Jesup MaxQ	novel	3.8	56.5	100	99	99	100	100	100	83	3.19	1.57	1.26	0.75	3.58	6.78*	
SS0705TFSL	free	3.5	56.0	100	98	98	100	100	99	81	3.22	1.46	1.18	0.78	3.43	6.65*	
Lacefield MaxQII	novel	3.4	56.0	99	95	96	99	99	99	86	3.27	1.42	1.09	0.79	3.30	6.57*	
Ranchero	free	3.4	57.0	100	97	98	99	99	98	91	3.18	1.27	1.22	0.65	3.14	6.32*	
Cajun II	free	2.9	56.5	98	91	93	99	99	98	80	3.24	1.43	1.12	0.12	2.66	5.99*	
Experimental Varieties																	
RAD-ERF37	free	3.3	57.5	99	87	88	97	93	93	75	3.17	1.87	0.97	0.76	3.59	6.77*	
FTF94	free	2.6	57.5	95	86	86	96	96	96	80	3.29	1.42	1.11	0.60	3.13	6.41*	
KYFA1405	free	3.0	56.0	99	98	98	99	98	84	66	3.51	1.56	0.70	0.38	2.63	6.14*	
KY31-	free	3.8	54.5	100	98	98	99	99	99	87	3.24	1.33	1.12	0.43	2.88	6.12*	
KYFA1404	free	3.0	55.5	99	95	96	98	76	98	88	3.01	1.62	0.99	0.19	2.80	6.01*	
KYFA1304	free	3.0	57.5	96	88	88	98	94	94	62	3.20	1.30	1.26	0.15	2.71	5.91*	
KYFA1305	free	3.6	54.5	100	96	96	99	99	98	85	3.15	1.30	1.14	0.32	2.76	5.90*	
KYFA9304	free	3.0	54.5	98	95	94	99	99	98	82	2.80	1.66	1.00	0.25	2.91	5.88	
KYFA1306	free	3.4	54.5	100	98	98	77	100	100	86	2.82	1.55	0.80	0.21	2.57	5.38	
KYFP1301	free	4.1	52.5	100	99	93	84	61	43	20	2.89	0.88	0.67	0.26	1.81	4.69	
KYFA1606	free	3.0	57.0	99	28	30	24	24	18	13	2.53	1.03	0.84	0.22	2.09	4.62	
Mean		3.3	55.6	99	91	91	92	91	89	75	3.11	1.40	1.05	0.49	2.99	6.14	
CV,%		17.3	2.0	2	9	9	12	13	10	22	12.04	24.97	19.14	105.30	23.00	11.32	
LSD,0.05		0.8	1.6	3	11	12	15	17	13	23	0.56	0.51	0.29	0.74	0.97	1.04	

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

³ 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.

⁴ Due to mechanical and other issues, the 2018 yield data is not reported.

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

Table 9. Dry matter yields, seedling vigor, and stand persistence of tall fescue varieties sown September 6, 2019, at Princeton, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Nov 4, 2019	Percent Stand			Yield (tons/acre)		
			2019	2020		2020		
			Nov 4	Mar 12	Nov 10	Jun 2	Oct 22	Total
Commercial Varieties-Available for Farm Use								
BarOptima PLUS E34	novel	5.0	100	97	98	2.58	2.38	4.96*
Greendale Protek	novel	5.0	100	98	97	3.01	1.95	4.96*
Tower Protek	novel	4.9	100	91	93	2.72	1.69	4.62*
Estancia Arkshield	novel	4.8	100	96	96	2.95	1.58	4.53*
Greendale	free	4.8	100	99	98	2.80	1.72	4.52*
Tower	free	4.5	100	84	91	2.38	2.14	4.52*
Ranchero	free	4.4	100	93	93	2.32	2.01	4.45*
Cajun II	free	5.0	100	100	100	2.53	1.92	4.40*
KY31+	toxic	4.9	100	98	99	2.91	2.07	4.29*
DLFPS-FTF100 Protek	novel	4.8	100	93	93	2.50	1.72	3.87*
Triumphant Protek	novel	5.0	100	88	91	2.06	1.80	3.86*
Triumphant	free	4.9	100	78	82	2.23	1.56	3.79*
BARFASTF-43	free	5.0	100	86	88	2.31	1.45	3.76
Armory	free	4.3	100	65	74	2.14	1.64	3.74
Martin2 Protek	novel	5.0	100	98	97	2.02	1.58	3.59
Experimental Varieties								
KY31-	free	5.0	100	96	96	2.56	1.60	4.16*
DLFPS-TF89	free	4.6	100	98	98	2.55	1.49	4.02*
PPG-FTF116	free	4.9	100	91	91	2.48	1.53	4.01*
SETFN97	free	4.6	100	71	84	2.47	1.33	3.80*
KYFA9611	free	4.8	100	92	81	2.21	1.30	3.51
PPG-FTF111	free	4.4	100	90	95	1.67	1.44	2.96
BARFA9125	free	4.6	100	88	87	1.91	0.75	2.75
Mean		4.8	100	91	92	2.41	1.69	4.06
CV,%		7.1	0	13	10	22.61	33.84	18.81
LSD,0.05		0.5	0	19	15	0.81	0.84	1.19

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

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

Table 10. Dry matter yields, seedling vigor and stand persistence of tall fescue and festulolium (FL) varieties sown September 7, 2018, at Quicksand, Kentucky.

Variety	Endophyte Status ¹	Seedling Vigor ² Oct 5, 2018	Percent Stand					Yield (tons/acre)					2-year Total
			2018	2019		2020		2019	2020				
			Oct 5	Mar 15	Oct 23	Mar 26	Nov 9	Total	Apr 27	Jul 1	Nov 6	Total	
Commercial Varieties-Available for Farm Use													
KY31+	toxic	4.9	100	100	100	100	100	3.48	1.72	2.18	0.64	4.54	8.02*
Jesup MaxQ	novel	4.1	100	100	100	100	100	3.33	1.69	1.57	0.77	4.02	7.36*
Cajun II	free	4.5	100	100	100	100	98	3.11	1.69	1.76	0.50	3.96	7.07*
SS0705TFSL	free	4.1	100	100	96	100	98	3.11	1.28	1.35	0.48	3.11	6.22
Lacefield MaxQII	novel	4.4	100	100	98	98	98	3.10	1.26	1.44	0.36	3.06	6.16
BarOptima PLUS E34	novel	4.0	100	100	91	93	84	2.59	1.31	1.34	0.07	2.72	5.31
Experimental Varieties													
KYFA9821/AR584	novel	4.5	100	100	99	100	100	4.49	1.78	1.95	0.64	4.38	8.86*
KYFA9611	free	4.6	100	100	99	99	97	3.87	1.58	2.27	0.63	4.48	8.36*
KYFA9304	free	4.8	100	100	100	100	100	3.68	1.71	2.01	0.74	4.46	8.15*
B-18.1787	free	4.0	100	100	100	100	100	4.07	1.81	1.70	0.53	4.04	8.12*
BARFAF131	free	3.5	94	99	96	99	99	3.38	1.83	1.94	0.56	4.33	7.71*
KY31-	free	4.6	99	100	100	99	98	3.31	1.61	1.85	0.53	3.99	7.30*
KYFA1704	free	5.0	100	100	100	100	98	2.95	1.58	2.00	0.57	4.15	7.11*
FTF89	free	4.9	100	100	100	100	100	3.33	1.56	1.52	0.52	3.60	6.93*
7016	free	4.4	100	100	99	99	99	3.15	1.42	1.28	0.43	3.13	6.28
FTF2(FL)	free	4.0	98	100	96	97	94	2.52	1.48	1.51	0.35	3.34	5.87
BARFAF137	free	4.6	100	100	94	92	82	2.61	1.12	1.56	0.21	2.89	5.50
BARFA6BR-179	free	3.9	100	97	65	74	61	2.74	0.91	1.39	0.24	2.54	5.28
BARFABTR7 NEA23	novel	4.0	100	88	87	87	87	1.74	1.23	1.38	0.45	3.06	4.80
RADMR20	free	4.8	100	100	100	100	100	2.04	1.04	1.05	0.27	2.37	4.41
7FACF82	free	4.6	100	100	67	81	81	2.05	0.81	1.15	0.08	2.04	4.09
BARFAF135	free	4.6	100	100	95	95	93	1.84	0.79	0.94	0.26	1.98	3.82
Mean		4.4	100	99	94	96	94	3.02	1.42	1.60	0.45	3.46	6.49
CV,%		11.5	2	5	14	10	11	27.72	26.67	28.15	64.56	28.86	26.04
LSD,0.05		0.7	3	8	18	13	14	1.18	0.53	0.64	0.41	1.41	2.39

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

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

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

Table 13. Dry matter yields, seedling vigor, maturity, and stand persistence of bromegrass varieties sown September 5, 2018, at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Sep 28, 2018	Maturity ²				Percent Stand					Yield (tons/acre)					2-year Total	
			2019		2020		2018	2019		2020		2019	2020					
			May 2	Jun 6	May 6	Jun 17	Sep 28	Mar 22	Oct 18	Mar 17	Oct 27	Total	May 6	Jun 17	Aug 19	Oct 23		Total
Commercial Varieties-Available for Farm Use																		
Arsenal	meadow.	3.9	57.5	29.0	56.5	29.0	94	97	97	97	95	4.05	1.81	0.57	0.78	0.59	3.75	7.81*
Admiral	meadow.	4.3	56.0	29.0	56.5	57.0	96	98	98	98	98	4.04	1.62	0.57	0.68	0.59	3.46	7.50*
Macbeth	meadow.	3.4	55.0	60.0	56.5	58.5	92	97	97	97	97	3.83	1.64	0.62	0.69	0.53	3.48	7.31*
Peak	smooth	4.6	49.0	29.0	45.0	29.0	98	98	98	98	98	3.96	1.59	0.62	0.65	0.49	3.35	7.30*
Artillery	smooth	4.8	46.3	29.0	46.3	29.0	97	98	98	98	98	3.78	1.74	0.46	0.64	0.43	3.27	7.05*
Carlton	smooth	4.0	45.0	60.0	45.0	60.0	95	95	97	95	95	2.85	1.04	0.79	0.54	0.26	2.64	5.48
Mean		4.2	51.6	38.0	51.0	42.5	95	97	98	97	97	3.80	1.60	0.60	0.67	0.49	3.36	7.15
CV,%		14.1	3.6	0.0	1.8	2.2	3	2	1	2	2	8.37	16.31	21.24	18.81	47.07	12.72	7.44
LSD,0.05		0.9	2.8	0.0	1.3	1.4	4	3	2	3	2	0.48	0.40	0.19	0.19	0.35	0.64	0.81

¹ Vigor score based on a 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. See Table 4 for complete scale.

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

Table 14. Dry matter yields, seedling vigor, maturity, and stand persistence of bromegrass varieties sown August 30, 2019, at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Nov 1, 2019	Maturity ²		Percent Stand			Yield (tons/acre)				
			2020		2019	2020		2020				
			May 7	Jun 17	Nov 1	Mar 17	Oct 27	May 7	Jun 17	Aug 19	Oct 23	Total
Commercial Varieties-Available for Farm Use												
Admiral	meadow	4.3	55.5	60.0	98	98	98	1.31	0.77	1.15	0.79	4.02*
Artillery	smooth	5.0	50.3	29.0	100	98	98	1.63	0.54	1.00	0.58	3.75*
Arsenal	meadow	5.0	56.5	60.0	99	97	96	1.06	0.75	1.16	0.69	3.66*
MacBeth	meadow	3.9	54.5	60.0	94	87	90	1.03	0.48	0.88	0.82	3.21
Experimental Varieties												
MB1302	meadow	4.3	56.0	60.0	99	99	97	1.25	0.74	0.84	0.64	3.48*
mean		4.5	54.6	53.8	98	96	96	1.26	0.66	1.00	0.71	3.62
CV,%		9.2	4.1	0.0	3	7	5	22.62	21.77	23.03	32.00	13.53
LSD,0.05		0.6	3.4	0.0	5	10	8	0.44	0.22	0.36	0.35	0.76

¹ Vigor score based on a 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. See Table 4 for complete scale.

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

Table 15. Proprietors of tall fescue varieties in current trials.

Variety	Endophyte Status ¹	Proprietor/KY Distributor
Commercial Varieties-Available for Farm Use		
Armory	free	Barenbrug USA
BARFASTF-43	free	Barenbrug USA
BarOptima PLUS E34	novel	Barenbrug USA
Bronson	free	Ampac Seed
Bull	free	Improved Forages
Cajun II	free	Smith Seed Services
DLFPS-FTF100 Protek	novel	DLF-Pickseed
Estancia Arkshield	novel	Mountain View Seeds
Greendale	free	DLF-Pickseed
Greendale Protek	novel	DLF-Pickseed
Kentucky 32	free	Oregro Seeds
Kokanee	free	Smith Seed Services
KY31+	toxic	Ky Agric. Exp. Station/Public
Jesup MaxQ	novel	Pennington Seed
Jesup MaxQII	novel	Pennington Seed
Lacefield MaxQ II	novel	Pennington Seed
Martin 2 Protek	novel	DLF-Pickseed
Ranchero	free	Smith Seed Services
SS-0705TFSL	free	Southern States
Texoma MaxQII	novel	DLF-Pickseed
Tower	free	DLF-Pickseed
Tower Protek	novel	DLF-Pickseed
Triumphant	free	DLF-Pickseed
Triumphant Protek	novel	DLF-Pickseed
Velvet	free	Oregro Seeds
Experimental Varieties²		
BARFABTR7NEA23	novel	Barenbrug USA
BARFAF131	free	Barenbrug USA
BARFAF135	free	Barenbrug USA
BARFAF137	free	Barenbrug USA
BARFA6BTR179	free	Barenbrug USA
BARFA9125	free	Barenbrug USA
B-18.1787	free	Blue Moon Farms
DLFPS-TF-89	free	DLF-Pickseed
FTF89	free	DLF-Pickseed
FTF94	free	DLF-Pickseed
GA29	free	Univ. of Georgia
GA95101T	free	Univ. of Georgia
KY31-	free	KY Agric. Exp. Station
KYFA1304	free	KY Agric. Exp. Station
KYFA1305	free	KY Agric. Exp. Station
KYFA1306	free	KY Agric. Exp. Station
KYFA1404	free	KY Agric. Exp. Station
KYFA1405	free	KY Agric. Exp. Station
KYFA1606	free	KY Agric. Exp. Station
KYFA1704	free	KY Agric. Exp. Station
KYFA9304	free	KY Agric. Exp. Station
KYFA9611	free	KY Agric. Exp. Station
KYFA9821/AR584	novel	KY Agric. Exp. Station
PPG-FTF 111	free	Mountain View Seeds
PPG-FTF 116	free	Mountain View Seeds
RAD-ERF37	free	Radix Research
RADMRF20	free	Radix Research
SETFN97	free	Smith Seed Services
SLTF10-3	free	Oregro Seeds
7016	free	KY Agric. Exp. Station
7FACF82	free	Barenbrug USA

¹ Free-varieties that do not contain an endophyte. Toxic-KY31+ contains a toxic endophyte. Novel-varieties that contain an endophyte that aids persistence but is not toxic to cattle.

² Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 16. Proprietors of bromegrass varieties in current trials.

Variety	Type	Proprietor/KY Distributor
Commercial Varieties-Available for Farm Use		
Admiral	meadow	Cisco Seeds
Arid	smooth	Mountain View Seeds
Arsenal	meadow	Barenbrug USA
Artillery	meadow	Barenbrug USA
Carlton	smooth	Pickseed USA
MacBeth	meadow	Cisco Seeds
Peak	smooth	Allied Seed
Experimental Varieties¹		
MB1302	meadow	Allied Seed
MB1303	meadow	Allied Seed

¹ Experimental varieties are not available commercially, but provide an indication of the progress being made by forage breeding companies.

Table 18. Summary of Kentucky bromegrass yield trials at Lexington 2006-2020 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Type	Proprietor/KY Distributor	2006 ^{1,2}	2008	2010	2012	2014	2015	2016	2017	2018	Mean ³ (#trials)
			4-yr ⁴	3-yr	3-yr	3-yr	3-yr	3-yr	4-yr	3-yr	2-yr	
AC Knowles	hybrid	Agriculture Canada	85		82	102	89					89(4)
Admiral	meadow	Cisco Seeds							107	106	105	106(3)
Arid	meadow	Mountain View Seeds							94	93		94(2)
Arsenal	meadow	Barenbrug USA									109	–
Artillery	smooth	Barenbrug USA									99	–
Bigfoot	hybrid	Grassland Oregon	108	116	105							110(3)
Canterbury	mountain	Barenbrug USA		79								–
Carlton	smooth	Pickseed USA				82	95				77	85(3)
Doina	smooth	Barenbrug USA		114	108							111(2)
Fleet	meadow	Agriculture Canada	110			109						110(2)
Hakari	Alaska	Barenbrug USA		85	85							85(2)
MacBeth	meadow	Cisco Seeds		136	119	107	116	107	103	123	102	114(8)
Olga	smooth	Barenbrug USA		116	101							109(2)
Peak	smooth	Allied Seed		97		100		93	95	88	102	96(6)
Persister	prairie	DLF Pickseed		72								–
RAD-BI29	smooth	Columbia Seeds	96	86								91(2)

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 2012 was harvested 3 years, so the final report would be “2015 Tall Fescue and Brome Report” archived in the UK Forage website at <forages.ca.uky.edu>.

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.