

2012 Annual and Perennial Ryegrass and Festulolium Report

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Introduction

Annual ryegrass (*Lolium multiflorum*) and perennial ryegrass (*Lolium perenne*) are high-quality, productive cool-season grasses used in Kentucky. Both have exceptionally high seedling vigor and are highly palatable to livestock.

Annual ryegrasses are increasing in use across Kentucky as more winter-hardy varieties are released and promoted. Annual ryegrass is productive for three to four months and is used primarily for late fall and early to late spring pasture. Winter growth occurs only during mild winters. This crop has garnered increased interest for high quality baleage. Two main types of annual ryegrasses are used. The most commonly used type in Kentucky is Italian ryegrass. The other is sometimes referred to as Westerwolds ryegrass. The Westerwolds type is a true annual, in that stands seeded in the spring produce seedheads that summer, and little regrowth occurs after seedheads are produced. Westerwolds ryegrass varieties are commonly used in the lower South (Florida to Texas) because they can be seeded in the fall and will survive the winter. In Kentucky, winter survival can be an issue for Westerwolds varieties, so before planting one of these varieties, review winter survival results for Kentucky.

Italian ryegrass is native to Southern Europe and is not a true annual. In Kentucky most varieties behave as biennials or short-lived perennials, depending on environmental conditions. Italian ryegrasses provide high yields of quality forage and show quick regrowth. If planted in the spring, no or few seedheads will grow that summer (vernalization is required). Spring planting of Italian ryegrass is common in northern states (e.g., Wisconsin, Minnesota, etc.) for

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2010, 2011, and 2012.

	2010				2011				2012 ²			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	29	-2	2.40	-0.46	29	-2	2.10	-0.76	38	+7	4.80	+1.94
FEB	29	-6	1.38	-1.83	39	+4	6.34	+3.13	40	+5	5.39	+2.18
MAR	47	+3	1.05	-3.35	47	+3	4.76	+0.36	56	+12	5.64	+1.24
APR	59	+4	2.74	-1.14	58	+3	12.36	+8.48	56	+1	3.26	-0.62
MAY	67	+3	7.84	+3.37	64	0	6.72	+2.25	69	+5	4.02	-0.45
JUN	76	+4	4.61	+0.95	74	+2	2.61	-1.05	73	+1	2.42	-1.24
JUL	78	+2	5.49	+0.49	80	+4	6.29	1.29	81	+5	2.50	-2.50
AUG	78	+3	1.54	-2.39	75	0	2.89	-1.04	75	0	1.68	-2.25
SEP	71	+3	1.14	-2.06	66	-2	5.52	+2.32	67	-1	6.40	+3.20
OCT	59	+2	1.22	-1.35	55	-2	4.10	+1.53	55	-2	2.00	-0.57
NOV	47	+2	4.58	+1.19	50	+5	9.53	+6.14				
DEC	28	-8	2.15	-1.93	41	+5	5.58	+1.60				
Total			36.14	-8.41			68.80	+24.25			38.11	+0.93

¹ DEP is departure from the long-term average.

² 2012 data is for the ten months through October.

summer grazing, but most current varieties do not dependably survive Kentucky summers. Italian ryegrasses are almost always planted late summer to early fall in Kentucky and typically provide forage production into early summer.

Both forage and turf types of annual ryegrasses are available. Turf types are low growing and have poor yield. Turf types are also infected with a fungal endophyte that lives inside the plant, protecting it from insect attack but producing a toxin that reduces performance of grazing animals. All turf types are infected. Plant only forage-type varieties for grazing, hay, or silage.

Perennial ryegrass can be used as a short-lived hay or pasture plant and has growth characteristics similar to tall fescue. It is more persistent than Italian ryegrass but less persistent than other cool-season grass species. It tillers more profusely but is lower growing than Italian ryegrass and will not form a seedhead in the seeding year. Both diploid (two sets of chromosomes) and tetraploid (four sets of chromosomes) varieties of perennial ryegrass exist. Tetraploids

have larger tillers and seedheads and wider leaves. Tetraploid types tend to be taller and less dense than diploid types even in early stages of regrowth. Diploid types produce more tillers, have better stand persistence, and are more tolerant to heavy grazing.

Intermediate or hybrid ryegrass (*Lolium hybridum*, Hausska) is the result of a cross between Italian ryegrass and perennial ryegrass. It is not as winter hardy as perennial ryegrass, but it is higher yielding. It is also more persistent and winter hardy than Italian ryegrass. Its uses would be similar to those of perennial ryegrass.

Festuloliums are hybrids between various fescues and ryegrasses with higher quality than tall fescue and improved stand survival over perennial ryegrass. Their use in Kentucky is still limited since they do not survive as long as tall fescue.

This report provides current yield data on annual and perennial ryegrass varieties in trials in Kentucky as well as guidelines for selecting varieties. Tables 16, 17, and 18 show summaries of all annual and perennial ryegrass and fes-

tulolium varieties tested in Kentucky for the last 10-plus 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. The variety should be adapted to Kentucky as indicated by good winter survival and good performance across years and locations in replicated yield trials, such as those presented in this publication. Choose high-yielding varieties, but choose varieties that are productive during the desired season of use.

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

Important: When seeding perennial ryegrasses for horse pasture (of any kind), insist on an endophyte-free variety. The endophyte level will be stated on a green tag on every bag of seed. Most forage types of perennial ryegrass are endophyte free, and most new turf types are infected. This endophyte is similar to the endophyte of tall fescue and produces alkaloids that are toxic to cattle and horses.

Description of the Tests

Data from ten studies are reported. Annual ryegrass tests were established in the fall of 2009, 2010, and 2011 at Lexington. A perennial ryegrass (with festulolium) test was established at Lexington in the fall of 2009. Perennial ryegrass and festulolium varieties were established in separate tests at Lexington in the fall of 2010 and 2011. The soil at Lexington is a well-drained silt loam (Maury) and is well suited for ryegrass production.

Seedings were made at the rate of 25 pounds per acre 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 top-dressed at 60 pounds per acre of actual nitrogen in March, May, and August. The tests were harvested using a sickle-type forage plot harvester. The first cutting was harvested at each location when all ryegrass 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.

Table 2. 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.
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.

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

Table 3. Dry matter yields, seedling vigor, maturity, and stand persistence of annual ryegrass varieties sown September 30, 2009, at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Oct 30, 2009	Maturity ²		Percent Stand			Yield (tons/acre)				
			2010		2010			2010				
			Apr 20	May 24	Oct 30	Apr 13	Jul 20	Apr 20	May 24	Jun 22	Jul 20	Total
Commercial Varieties—Available for Farm Use												
Feast II	Italian tetraploid	3.5	33.0	54.0	95	100	97	1.58	1.76	1.13	0.22	4.69*
Bruiser	Westerwold diploid	4.8	36.5	54.5	100	100	2	2.07	1.54	0.74	0.00	4.35*
Jackson	Westerwold diploid	4.0	36.0	55.5	99	100	2	1.89	1.58	0.71	0.00	4.18
Marshall	Westerwold diploid	4.8	34.3	55.5	100	100	2	1.89	1.55	0.72	0.00	4.15
Gulf	Westerwold diploid	5.0	39.3	56.5	100	100	0	1.85	1.41	0.38	0.00	3.63
Experimental Varieties												
ME4	Westerwold diploid	3.8	33.3	54.0	96	100	4	1.72	1.67	0.83	0.00	4.21
ME-94	Westerwold diploid	4.8	33.5	55.0	99	100	4	1.83	1.57	0.73	0.00	4.14
FLx2003(New3)LRCT	—	4.4	33.3	56.0	100	100	3	1.79	1.61	0.70	0.00	4.10
Mean		4.4	34.9	55.1	99	100	14	1.83	1.58	0.74	0.03	4.18
CV,%		11.9	10.9	2.2	2	0	19	9.55	9.70	15.95	33.96	7.04
LSD,0.05		0.8	5.6	1.7	2	0	4	0.26	0.23	0.17	0.02	0.43

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. See Table 2 for complete scale.

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

Table 4. Dry matter yields, seedling vigor, maturity and stand persistence of annual ryegrass varieties sown September 24, 2010, at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Oct 27, 2010	Maturity ²			Percent Stand			Yield (tons/acre)			
			2011			2010	2011		2011			
			May 4	Jun 3	Jun 22	Oct 27	Mar 16	Jul 13	May 5	Jun 3	Jun 22	Total
Commercial Varieties—Available for Farm Use												
Jackson	Westerwold diploid	3.8	54.0	56.3	60.0	100	100	100	1.53	0.78	0.16	2.47*
Marshall	Westerwold diploid	3.8	45.0	57.8	60.0	100	100	100	1.37	0.89	0.18	2.45*
Big Daddy	Westerwold tetraploid	4.0	54.0	59.5	60.0	100	100	100	1.52	0.77	0.12	2.41*
Nelson	Westerwold tetraploid	2.8	49.0	57.8	60.0	100	100	100	1.15	0.78	0.17	2.10
Experimental Varieties												
ME4	Westerwold diploid	2.5	46.8	57.0	60.0	100	100	100	1.56	0.90	0.16	2.63*
ME-94	Westerwold diploid	3.0	53.5	57.3	60.0	100	100	100	1.35	0.78	0.15	2.28*
Mean		3.3	50.4	57.6	60.0	100	100	100	1.41	0.82	0.16	2.39
CV,%		20.4	5.3	1.9	0.0	0	0	0	19.15	9.20	24.74	13.50
LSD,0.05		1.0	4.0	1.6	0.0	0	0	0	0.41	0.11	0.06	0.49

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. See Table 2 for complete scale.

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

Results and Discussion

Weather data for Lexington are presented in Table 1.

Ratings for maturity (see Table 2 for maturity scale) and dry matter yields (tons/A) are reported in tables 3 through 12. Yields are given by cutting date for 2012 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, listed separately at the bottom of the tables, are not available commercially.

In most years, annual ryegrasses can be expected to die or become unproductive after mid-June in their first summer. Unlike annual ryegrasses, perennials should be productive under Kentucky conditions for an average of two to three growing seasons.

The perennial ryegrass tests contained several festuloliums that are hybrids of meadow fescue and perennial ryegrass and have some of the characteristics of both. The festuloliums were in fescue trials from 1999 to 2005.

Statistical analyses were performed on all data (including experimentals) to determine if the apparent differences are truly due to varietal differences or just

due to chance. Varieties not significantly different from the top variety in the column are marked with one asterisk (*). To determine if two varieties are truly different, compare the difference between them to the Least Significant Difference (LSD) 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; increased variability within a study results in higher CVs and larger LSDs.

Table 5. Dry matter yields, seedling vigor, maturity, and stand persistence of annual ryegrass varieties sown September 6, 2010, at Lexington, Kentucky.

Variety	Type	Seedling Vigor ¹ Oct 14, 2010	Maturity ²					Percent Stand					Yield (tons/acre)					
			2011					2011					2011					
			Apr 21	May 19	Jun 7	Jun 28	Oct 14	Jan 5	Mar 16	Jul 13	Aug 23	Jan 5	Apr 21	May 19	Jun 7	Jun 28	Jul 22	Total
Commercial Varieties—Available for Farm Use																		
Barmultra II	Italian tetraploid	3.0	33.3	41.8	53.5	62	99	100	100	100	83	0.16	1.99	1.36	1.01	0.38	0.13	5.03*
GR-AS10	Italian	4.0	32.5	39.0	52.0	62	100	100	100	58	0.20	1.76	1.12	0.80	0.25	0.11	4.25	
Attain	Westerwold diploid	3.6	33.0	49.8	59.0	62	100	100	99	0	0.36	1.95	1.07	0.63	0.17	0.00	4.18	
Feast II	Westerwold tetraploid	4.8	32.0	39.0	52.0	62	100	98	99	91	0.20	1.49	1.12	0.86	0.31	0.14	4.11	
Fox	Italian diploid	4.3	32.8	43.8	53.5	62	100	99	99	71	0.18	1.66	0.99	0.81	0.31	0.12	4.07	
Winterhawk	Westerwold diploid	3.4	33.3	49.8	57.5	62	100	100	100	0	0.28	1.91	0.96	0.56	0.22	0.01	3.93	
TAMTBO	Italian tetraploid	3.8	33.0	47.0	58.0	62	100	100	100	0	0.22	1.88	0.90	0.65	0.16	0.01	3.82	
Marshall	Westerwold diploid	4.3	33.0	51.3	56.5	62	100	100	100	0	0.39	1.64	0.99	0.58	0.17	0.00	3.77	
Bruiser	Westerwold diploid	4.3	33.5	48.8	60.5	62	100	100	100	3	0.40	1.85	0.87	0.49	0.14	0.00	3.76	
Jackson	Westerwold diploid	3.3	33.3	46.5	58.0	62	100	100	100	0	0.42	1.91	0.80	0.49	0.11	0.01	3.74	
Big Boss	Westerwold tetraploid	3.8	33.8	55.0	62.0	62	99	100	99	0	0.29	1.61	0.98	0.68	0.12	0.00	3.68	
Ed	Westerwold diploid	2.5	33.8	50.3	61.0	62	99	100	100	0	0.22	1.92	0.87	0.50	0.12	0.00	3.62	
Fria	Westerwold diploid	3.1	33.0	46.0	59.0	62	100	100	100	5	0.31	1.85	0.84	0.46	0.12	0.00	3.58	
Brangus	Italian diploid	4.0	32.3	55.5	60.5	62	100	100	99	0	0.29	1.42	1.02	0.57	0.24	0.01	3.56	
Big Daddy	Westerwold tetraploid	3.5	33.0	56.0	61.0	62	100	100	98	0	0.23	1.32	0.99	0.56	0.14	0.02	3.25	
Verdure	Westerwold tetraploid	4.3	32.5	56.0	62.0	62	100	100	99	1	0.32	1.31	0.93	0.54	0.12	0.01	3.23	
KB Royal	Italian diploid	4.3	32.8	54.0	59.0	62	100	100	100	1	0.35	1.31	0.86	0.47	0.12	0.01	3.12	
Gulf	Westerwold diploid	4.1	32.8	55.5	61.0	62	100	100	99	0	0.31	1.34	0.83	0.34	0.10	0.00	2.93	
HS-1	Italian diploid	4.6	32.0	56.0	60.0	62	100	100	97	0	0.25	1.13	0.86	0.41	0.07	0.00	2.72	
Experimental Varieties																		
BAR LMF9881	—	3.0	33.5	41.8	54.0	62	100	100	100	48	0.20	2.17	1.20	0.92	0.31	0.12	4.91*	
BAR LMF9876	—	2.6	33.0	43.8	56.0	62	98	100	100	13	0.16	2.05	1.09	0.75	0.26	0.08	4.39	
PPG-LMT103	Italian tetraploid	1.6	31.8	41.8	52.0	62	99	100	100	100	0.19	1.54	1.32	0.79	0.33	0.12	4.28	
BAR LMF9740	—	3.4	33.5	43.5	56.0	62	100	100	98	6	0.20	1.75	1.13	0.81	0.25	0.02	4.16	
B-7.1366	Italian diploid	3.5	33.0	42.0	57.0	62	100	100	99	0	0.25	2.03	0.91	0.68	0.15	0.02	4.04	
PPG-LMT102	Italian diploid	2.0	33.8	49.3	56.0	62	98	100	100	0	0.17	1.70	0.89	0.58	0.17	0.01	3.51	
Mean		3.6	33.0	48.1	57.5	62	100	100	99	19	0.26	1.70	1.00	0.64	0.19	0.04	3.83	
CV%		22.1	1.8	8.8	3.3	0	1	0	1	49	42.91	14.16	11.56	14.01	26.30	60.61	9.01	
LSD,0.05		1.1	0.8	6.0	2.7	0	1	0	2	13	0.16	0.34	0.16	0.13	0.07	0.03	0.49	

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. See Table 2 for complete scale.

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

Tables 13, 14, and 15 summarize information about distributors and yield performance for all annual and perennial ryegrass and festulolium 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 tables 13, 14, and 15, 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

Table 6. Dry matter yields, seedling vigor, plant height, maturity, and stand persistence of annual ryegrass varieties sown September 14, 2011, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 11, 2011	Maturity ²			Percent Stand			Height (inches)			Yield (tons/acre)				
		2012			2011	2012		2011	2012		2011	2012			
		Apr 5	May 10	Jun 4	Oct 11	Mar 21	Jun 4	Dec 2	Apr 5	May 10	Dec 2	Apr 6	May 10	Jun 4	Total
Commercial Varieties—Available for Farm Use															
Winterhawk	5.0	34	52	58	100	100	100	10	23	15	1.06	1.61	0.62	0.44	3.72*
TAMTBO	2.8	34	54	59	100	100	100	10	20	18	0.92	1.45	0.68	0.41	3.46*
Jackson	4.0	34	53	61	100	100	100	10	23	15	0.94	1.53	0.54	0.38	3.39*
MX 108	3.5	33	48	56	100	100	100	9	19	16	0.75	1.44	0.72	0.44	3.35*
Bruiser	4.5	34	54	59	100	100	100	10	24	16	0.98	1.47	0.54	0.33	3.32*
Maximo	3.5	33	45	57	100	100	100	9	19	15	0.63	1.52	0.66	0.42	3.23
Marshall	4.0	34	50	59	100	100	100	10	24	18	0.76	1.48	0.62	0.32	3.19
Primecut	3.0	34	53	60	100	100	100	10	22	14	0.78	1.42	0.50	0.29	2.99
TillageMax-Bristol	3.3	33	51	58	100	100	100	9	20	14	0.67	1.26	0.61	0.34	2.87
TillageMax-INDY	3.3	33	50	60	100	100	100	10	22	15	0.63	1.37	0.48	0.38	2.85
DH3	4.3	34	56	59	100	100	100	10	20	18	0.77	1.17	0.55	0.35	2.85
AE110	2.6	33	48	58	100	100	100	9	21	17	0.56	1.38	0.61	0.29	2.84
Fria	3.3	34	54	60	100	100	100	10	25	15	0.64	1.43	0.43	0.29	2.79
Big Daddy	3.5	33	56	61	100	100	100	9	19	18	0.68	1.10	0.55	0.29	2.62
TillageRootMax	3.8	33	49	58	100	100	100	10	19	14	0.74	1.01	0.54	0.32	2.61
Feast II	2.0	33	46	59	100	100	100	8	15	13	0.44	1.10	0.55	0.48	2.57
Gulf	3.8	34	56	59	100	100	100	10	22	16	0.63	1.17	0.41	0.22	2.43
Experimental Varieties															
07-2 AR	3.5	33	46	61	100	100	100	10	22	15	0.79	1.76	0.72	0.49	3.76*
PS-AR-09-1	3.0	33	45	61	100	100	100	9	20	16	0.74	1.39	0.70	0.48	3.32*
PS-Lm-09-2	3.5	33	48	59	100	100	100	11	21	15	0.77	1.46	0.60	0.45	3.27*
XLFLOLHY	4.3	34	52	58	100	100	100	10	18	17	0.91	1.27	0.69	0.37	3.23
XLFDARG	2.0	33	51	60	100	100	100	6	20	12	0.28	1.47	0.52	0.43	2.70
Mean	3.5	33.3	50.6	59.0	0	0	0	9.4	20.6	15.2	0.73	1.38	0.58	0.37	3.06
CV,%	18.3	2.2	4.7	3.3	0	0	0	9.0	7.6	11.6	21.47	14.25	18.11	26.67	11.51
LSD,0.05	0.9	1.1	3.4	2.8	0	0	0	1.2	2.2	2.5	0.22	0.28	0.15	0.14	0.50

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. See Table 2 for complete scale.

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

Table 7. Dry matter yields, seedling vigor, plant height, maturity, and stand persistence of annual ryegrass varieties sown September 16, 2011, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 11, 2011	Maturity ²			Percent Stand			Height (inches)			Yield (tons/acre)				
		2012			2011	2012		2011	2012		2011	2012			
		Apr 5	May 10	Jun 4	Oct 11	Mar 21	Jun 4	Dec 2	Apr 5	May 10	Dec 2	Apr 6	May 10	Jun 4	Total
Commercial Varieties—Available for Farm Use															
Marshall	4.6	33	54	56	100	100	100	6	20	15	0.45	1.13	0.67	0.17	2.42*
Jackson	4.8	33	56	57	100	100	100	6	22	15	0.45	1.10	0.47	0.19	2.20*
Nelson	4.0	33	54	57	100	100	100	6	20	15	0.32	0.97	0.68	0.17	2.14*
Experimental Varieties															
ME4	3.3	33	53	56	100	100	100	6	22	15	0.30	1.22	0.71	0.18	2.42*
M2CVS	4.6	33	52	57	100	100	100	6	20	15	0.29	0.91	0.64	0.24	2.08
ME-94	4.5	33	56	57	100	100	100	6	21	15	0.32	0.96	0.55	0.22	2.04
Mean	4.3	33.1	53.8	56.5	0	0	0	0	20.8	15	0.35	1.05	0.62	0.19	2.22
CV,%	7.8	1.0	1.6	1.5	0	0	0	0	4.1	0	27.34	9.69	12.01	19.08	9.46
LSD,0.05	0.5	0.5	1.3	1.3	0	0	0	0	1.3	0	0.15	0.15	0.11	0.06	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. See Table 2 for complete scale.

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

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 ryegrass varieties (tables 3 through 12).

Tables 16, 17, and 18 are summaries of yield data from 1999 to 2012 of commercial varieties that have been entered in the Kentucky trials. The data are 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 summary tables

16, 17, and 18, 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 stable performance; others may have performed 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 the footnotes in tables 16, 17, and 18 to determine to which yearly report to refer.

Summary

Selecting a good variety of annual or perennial ryegrass 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 ryegrass management.

They are available from your county Extension office and are listed in the “Publications” section of the UK Forage Web site, www.uky.edu/Ag/Forage.

- Lime and Fertilizer Recommendations (AGR-1)
- Grain and Forage Crop Guide for Kentucky (AGR-18)
- Establishing Forage Crops (AGR-64)
- Forage Identification and Use Guide (AGR-175)
- Annual Ryegrass (AGR-179)
- New Recommendations for Perennial Ryegrass Seedings for Kentucky Horse Farms (ID-142)
- Rotational Grazing (ID-143)
- Establishing and Managing Horse Pastures (ID-147)

Authors

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Table 8. Dry matter yields, seedling vigor, maturity, and stand persistence of perennial ryegrass and festulolium (FL) varieties sown September 11, 2009, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 13, 2009	Maturity ²			Percent Stand						Yield (tons/acre)							
		2010	2011	2012	2009	2010		2011		2012		2010 Total	2011 Total	2012			3-year Total	
		May 5	May 17	May 7	Oct 13	Apr 13	Oct 18	Mar 29	Oct 27	Mar 21	Oct 19			May 7	Jun 21	Oct 23		Total
Commercial Varieties—Available for Farm Use																		
SpringGreen (FL)	3.4	54.5	55.0	52.5	99	100	99	77	99	99	34	3.14	2.79	1.24	0.38	0.06	1.68	7.61*
Duo (FL)	4.5	58.0	55.0	54.0	100	100	94	94	83	90	24	3.54	2.28	1.25	0.35	0.03	1.62	7.44*
Boost	3.1	49.0	48.5	54.5	99	100	100	100	100	100	31	2.96	2.61	1.23	0.40	0.03	1.66	7.23*
Calibra	3.1	39.0	38.3	49.3	100	100	100	99	97	97	35	2.34	2.70	1.03	0.43	0.06	1.52	6.56*
Impressario	2.5	50.5	55.0	55.5	97	100	100	99	98	99	30	2.54	2.58	0.95	0.31	0.05	1.32	6.44
Tonga	3.5	55.0	55.5	56.5	99	100	100	98	96	97	31	2.62	2.19	1.05	0.32	0.05	1.43	6.23
Lactal	2.6	42.0	43.0	46.8	100	100	99	98	97	99	23	2.21	2.52	0.96	0.39	0.05	1.40	6.13
Power	3.3	46.5	53.0	51.3	100	100	100	100	100	100	26	2.31	2.51	0.85	0.38	0.06	1.30	6.13
Linn	2.8	56.0	58.0	59.5	99	100	99	98	78	86	21	2.60	1.93	1.23	0.27	0.04	1.54	6.08
Orantas	2.6	39.0	33.8	49.8	100	100	100	100	84	92	11	1.97	1.80	0.68	0.41	0.05	1.14	4.92
Granddaddy	2.8	53.5	54.5	56.5	100	100	100	100	98	98	16	2.37	1.04	1.11	0.02	0.05	1.18	4.60
Experimental Varieties																		
RAD-ERP214	2.3	55.0	58.0	58.0	98	100	100	100	91	97	25	2.43	2.22	1.20	0.26	0.03	1.49	6.13
Mean	3.0	49.8	50.6	53.7	99	100	99	97	93	96	26	2.59	2.27	1.07	0.33	0.05	1.44	6.29
CV,%	20.2	5.6	8.3	4.5	2	0	1	13	14	7	61	11.20	18.63	21.06	20.04	73.46	16.31	12.23
LSD,0.05	0.9	4.0	6.1	3.5	3	0	1	19	18	10	23	0.42	0.61	0.32	0.09	0.05	0.34	1.11

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. See Table 2 for complete scale.

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

Table 9. Dry matter yields, seedling vigor, maturity, and stand persistence of perennial ryegrass varieties sown September 7, 2010, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 14, 2010	Maturity ²		Percent Stand					Yield (tons/acre)					2-year Total
		2011	2012	2010	2011		2012		2011	2012				
		May 12	May 7	Oct 14	Mar 16	Nov 7	Mar 21	Oct 19	Total	May 7	Jun 21	Oct 22	Total	
Commercial Varieties—Available for Farm Use														
Boost	4.0	57.0	53.5	100	99	99	99	56	4.27	1.37	0.24	0.06	1.67	5.94*
Polim	3.6	37.8	46.8	100	100	100	99	69	3.35	0.64	0.31	0.11	1.05	4.40
Power	2.4	53.0	53.5	99	99	100	100	58	3.06	0.78	0.23	0.07	1.08	4.14
Granddaddy	1.9	54.5	54.0	95	98	99	99	18	2.91	0.72	0.16	0.02	0.90	3.82
Linn	2.1	58.0	61.5	99	100	100	100	16	2.85	0.81	0.11	0.04	0.96	3.81
BG34	2.5	43.8	46.7	100	100	100	97	22	2.70	0.58	0.25	0.06	0.89	3.59
Calibra	2.2	37.2	47.8	97	95	99	99	42	2.35	0.69	0.25	0.07	1.02	3.37
Experimental Varieties														
PPG-LHT 104	2.1	37.5	45.0	98	100	100	99	26	3.93	0.84	0.33	0.03	1.19	5.12*
IS-FLPT3	2.1	43.3	50.3	98	100	100	99	61	3.38	0.72	0.26	0.04	1.02	4.39
AGRLP4138	3.3	54.7	55.3	100	99	100	100	50	3.20	0.82	0.21	0.06	1.09	4.29
KRC46576	3.3	50.8	51.5	98	93	98	98	48	3.04	0.59	0.29	0.05	0.93	3.96
AGRLP 136	3.4	39.0	46.3	100	98	100	99	31	2.99	0.61	0.15	0.04	0.80	3.79
AGRLP 137	3.0	56.7	55.3	99	100	100	100	23	2.77	0.64	0.17	0.05	0.87	3.63
AGRLP 135	3.8	34.8	45.0	100	95	100	97	28	2.74	0.54	0.23	0.05	0.83	3.57
AGRLP 140	3.0	39.3	47.3	99	100	100	100	45	2.56	0.65	0.26	0.09	0.99	3.56
PPG-FPRT 103	1.9	40.8	48.0	97	100	100	100	49	2.49	0.67	0.21	0.07	0.94	3.44
AGRLP 141	1.7	43.0	46.7	99	100	100	99	33	2.30	0.59	0.17	0.03	0.79	3.10
IS-FLPD4	2.0	47.0	48.0	98	100	99	99	8	2.28	0.52	0.22	0.02	0.75	3.03
Mean	2.7	45.6	49.9	99	98	100	99	38	2.94	0.71	0.23	0.05	0.99	3.93
CV,%	35.6	12.1	5.3	2	5	1	1	67	21.56	28.14	28.53	97.29	27.06	21.17
LSD,0.05	1.4	7.9	3.9	2	7	1	2	37	0.92	0.29	0.09	0.08	0.39	1.20

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. See Table 2 for complete scale.

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

Table 10. Dry matter yields, seedling vigor, maturity, and stand persistence of perennial ryegrass varieties sown September 14, 2011, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 11, 2011	Maturity ² 2012 May 4	Percent Stand			Yield (tons/acre)			
			2011	2012		2012			
			Oct 11	Mar 21	Oct 23	May 4	Jun 18	Oct 22	Total
Commercial Varieties-Available for Farm Use									
Boost	4.8	54.5	100	100	93	1.83	0.72	0.42	2.98*
Kentaur	3.5	48.0	100	100	95	1.56	0.85	0.47	2.88*
Power	3.3	53.0	100	100	96	1.54	0.60	0.51	2.65*
Calibra	3.8	48.8	100	100	97	1.38	0.66	0.45	2.49
Granddaddy	2.8	52.0	100	100	95	1.25	0.49	0.41	2.15
Linn	3.8	59.0	100	100	100	1.58	0.29	0.25	2.12
Experimental Varieties									
XLFTETPRG	4.3	55.0	100	100	94	2.08	0.62	0.42	3.12*
Mean	3.7	52.9	100	100	96	1.60	0.61	0.42	2.63
CV,%	11.9	3.0	0	0	2	22.72	11.34	12.76	14.71
LSD,0.05	0.7	2.4	0	0	3	0.54	0.10	0.08	0.57

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. See Table 2 for complete scale.

*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 festulolium varieties sown September 7, 2010, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 14, 2010	Maturity ²			Percent Stand					Height (in)	Yield (tons/acre)					
		2011		2012	2010	2011		2012		2011	2011 Total	2012			2-year Total	
		May 5	Jun 7	May 7	Oct 14	Mar 11	Nov 7	Mar 21	Oct 19	May 5		May 7	Jun 21	Oct 22		Total
Commercial Varieties-Available for Farm Use																
Perseus	4.0	43.0	54.0	49.8	98	75	99	99	75	24	5.46	1.37	0.54	0.24	2.15	7.61*
Perun	3.0	47.5	56.5	53.5	97	100	95	96	59	23	5.13	1.14	0.50	0.14	1.78	6.91*
Barfest	2.4	38.3	48.8	51.3	96	100	100	100	96	20	4.02	1.63	0.36	0.33	2.33	6.35
Spring Green	2.8	52.0	58.5	54.0	99	100	98	98	95	22	4.57	1.19	0.32	0.18	1.69	6.26
Lofa	2.8	37.0	54.5	53.5	97	100	97	85	65	23	4.76	1.27	0.39	0.12	1.77	6.25
Felina	1.4	55.5	29.5	68.0	95	98	99	100	99	30	3.86	1.39	0.37	0.36	2.12	5.98
Hykor	1.8	56.0	29.5	68.0	95	97	97	98	97	32	4.00	1.21	0.34	0.38	1.94	5.93
Gain	2.8	45.0	57.5	46.3	95	99	96	96	53	23	4.40	0.79	0.33	0.07	1.18	5.58
Duo	4.6	53.5	62.0	55.0	100	100	92	90	78	30	3.80	1.31	0.36	0.21	1.88	5.48
Agula	2.1	46.3	60.0	46.3	92	99	97	97	55	23	4.18	0.76	0.27	0.10	1.12	5.30
Sweet Tart	3.4	42.5	43.3	55.0	99	100	100	99	83	20	3.73	0.86	0.27	0.32	1.45	5.19
Bonus	2.3	46.0	59.0	49.8	97	100	82	71	51	21	3.69	0.78	0.38	0.08	1.24	5.07
Fojtan	1.0	52.5	29.0	68.0	91	96	99	99	98	20	3.17	1.21	0.27	0.32	1.79	4.96
Experimental Varieties																
KYFA9819/E2	2.0	35.0	56.0	52.5	92	96	96	96	95	19	3.78	1.27	0.42	0.38	2.07	5.85
KYFA9819/E1	1.8	33.0	59.0	52.0	95	97	97	97	92	19	3.96	1.33	0.33	0.23	1.88	5.84
KYFA9819/EF	2.1	33.0	58.5	54.0	95	99	97	97	92	21	3.85	1.19	0.33	0.18	1.71	5.56
KYFA9819/E3	1.3	34.0	58.5	52.0	92	97	98	98	87	19	3.69	1.22	0.30	0.17	1.69	5.37
Mean	2.4	44.1	51.4	54.6	95	97	97	95	81	23	4.12	1.17	0.36	0.22	1.75	5.86
CV,%	22.7	9.5	11.5	4.0	3	13	5	11	20	9	9.29	25.10	21.90	33.99	20.08	9.36
LSD,0.05	0.8	5.9	8.4	3.1	4	17	7	15	23	3	0.56	0.42	0.11	0.11	0.50	0.80

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. See Table 2 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, plant height, and stand persistence of festulolium varieties sown September 14, 2011, at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 11, 2011	Maturity ²			Percent Stand			Height (in)	Yield (tons/acre)			
		2012			2011	2012		2012	2012			
		Apr 10	Apr 30	May 20	Oct 11	Mar 21	Oct 19	Apr 10	Apr 10/30 ³	May 24	Oct 22	Total
Commercial Varieties-Available for Farm Use												
Perseus	3.3	32.8	45.0	49.5	100	100	100	15	2.20	0.90	0.66	3.75*
Perun	3.0	32.5	48.5	46.8	100	100	97	14	1.95	0.91	0.61	3.47*
Lofa	3.0	32.8	49.3	49.3	100	100	100	15	2.07	0.79	0.58	3.44*
Spring Green	3.0	32.5	56.0	52.0	100	100	100	17	2.07	0.72	0.57	3.36*
Duo	4.3	48.8	-	62.0	100	100	98	26	1.78	0.85	0.27	2.90
Barfest	2.6	32.0	43.5	44.0	100	100	100	12	1.66	0.65	0.54	2.85
Gain	4.6	50.0	-	62.0	100	100	56	25	1.70	0.74	0.16	2.60
Bonus	4.5	50.0	-	62.0	100	100	10	25	1.76	0.70	0.01	2.48
Hykor	1.8	31.5	55.5	29.0	100	100	100	11	0.99	0.64	0.67	2.31
Sweet Tart	3.0	31.8	50.3	38.8	100	100	100	14	1.37	0.48	0.37	2.22
Fojtan	1.0	30.8	53.0	29.0	100	100	100	9	0.81	0.48	0.59	1.88
Felina	1.3	30.8	54.5	29.0	100	100	100	9	0.57	0.50	0.66	1.74
Experimental Varieties												
KYFA1016	2.6	32.3	39.0	51.5	100	100	100	12	1.66	0.61	0.49	2.77
KYFA1015	2.3	32.3	39.0	51.5	100	100	100	12	1.59	0.58	0.54	2.71
XLF FL	4.3	48.8	-	62.0	100	100	4	25	1.77	0.78	0.00	2.55
KYFA9819	2.0	32.0	40.5	52.0	100	100	100	12	1.46	0.55	0.42	2.42
Mean	2.9	36.3	47.8	48.1	100	100	85	16	1.59	0.68	0.45	2.72
CV,%	15.3	2.9	5.5	9.2	0	0	6	10	17.50	12.33	18.73	11.73
LSD,0.05	0.6	1.5	3.8	6.3	0	0	8	2	0.40	0.12	0.12	0.45

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. See Table 2 for complete scale.

³ Due to earlier maturity, for the first harvest Duo, Gain, Bonus and XLF FL were harvested April 10. The remaining varieties were harvested April 30.

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

Table 13. Performance of annual ryegrass varieties sown in 2011 at Lexington.¹

Variety	Type	Proprietor/KY Distributor	Lexington	
			2011 ²	2012
Commercial Varieties—Available for Farm Use				
AE110	Westerwold tetraploid	Pickseed USA, Inc	x ⁴	
Big Daddy	Westerwold tetraploid	Smith Seed Services	x	
Bruiser	Westerwold diploid	Ampac Seed	*	
DH3	Westerwold diploid	Oregro Seeds	x	
Feast II	Italian tetraploid	Ampac Seed	x	
Fria	Westerwold diploid	Allied Seed	x	
Gulf	Westerwold diploid	Public	x	
Jackson	Westerwold diploid	The Wax Company	*	*
Marshall	Westerwold diploid	The Wax Company	x	*
Maximo	Intermediate tetraploid	Pickseed USA, Inc	x	
MX 108	Westerwold tetraploid	Pickseed USA, Inc	*	
Nelson	Westerwold tetraploid	The Wax Company		*
Primecut	Westerwold brand	Oregro Seeds	x	
TAMTBO	Italian tetraploid	Texas Ag Exp Sta	*	
TillageRootMax	Westerwold diploid	Cover Crop Solutions	x	
TillageMax-Bristol	Westerwold diploid	Cover Crop Solutions	x	
TillageMax-INDY	Westerwold diploid	Cover Crop Solutions	x	
Winterhawk	Westerwold diploid	Oregro Seeds	*	
Experimental Varieties				
ME4	Westerwold diploid	The Wax Company		*
ME-94	Westerwold diploid	The Wax Company		x
M2CVS	—	The Wax Company		x
PS-AR-09-1	Westerwold tetraploid	Pickseed USA, Inc	*	
PS-Lm-09-2	Westerwold tetraploid	Pickseed USA, Inc	*	
XLFDARG	Westerwold diploid	ProSeeds Marketing	x	
XLFLOLHY	Intermediate	ProSeeds Marketing	x	
07-2 AR	Westerwold tetraploid	Pickseed USA, Inc	*	

¹ See Table 16 for summary of yield data on named varieties from 1999-2012.

² Establishment year.

³ Harvest year.

⁴ x in the box indicates the variety was in the test but yielded significantly less than the top yielding variety. Open boxes indicate the variety was not in the test.

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

Table 14. Performance of perennial ryegrass across years.

Variety	Type	Proprietor/KY Distributor	Lexington					
			2009 ¹			2010		2011
			2010 ²	2011	2012	2011	2012	2012
Commercial Varieties—Available for Farm Use								
BG34	diploid	Barenbrug USA				x ³	x	
Boost	tetraploid	Allied Seed	*	*	*	*	*	*
Calibra	tetraploid	DLF International	x	*	*	x	x	x
Granddaddy	tetraploid	Smith Seed Services	x	x	x	x	x	x
Impressario	tetraploid	DLF International	*	*	x			
Kentaur	tetraploid	DLF International						*
Lactal	tetraploid	Brett Young	x	*	*			
Linn	diploid	Public	*	x	*	x	x	x
Orantas	diploid	DLF International	x	x	x			
Polim	tetraploid	DLF International				*	x	
Power	tetraploid	Ampac Seed Company	x	*	x	x	x	*
Tonga	tetraploid	Kings AgriSeeds	*	*	*			
Experimental Varieties								
AGRLP 135	diploid	AgResearch				x	x	
AGRLP 136	diploid	AgResearch				x	x	
AGRLP 137	diploid	AgResearch				x	x	
AGRLP 138	diploid	AgResearch				x	x	
AGRLP 140	diploid	AgResearch				x	x	
AGRLP 141	diploid	AgResearch				x	x	
IS-FLPD4	diploid	DLF International				x	x	
IS-FLPT3	tetraploid	DLF International				*	x	
KRC 6576	tetraploid	AgResearch				x	x	
PPG-FPRT 103	tetraploid	Mountain View				x	x	
PPG-LHT 104	tetraploid	Mountain View				*	x	
RAD-ERF214	diploid	Radix Research	x	*				
XLFTETPRG	tetraploid	ProSeeds Marketing						*

¹ Establishment year.

² Harvest year.

³ x in the box indicates the variety was in the test but yielded significantly less than the top yielding variety. Open boxes indicate the variety was not in the test.

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

Table 15. Performance of festulolium varieties at Lexington.

Variety	Type ²	Proprietor/KY Distributor	2009 ¹			2010		2011
			2010 ³	2011	2012	2011	2012	2012
Commercial Varieties—Available for Farm Use								
Agula	MF x IR	Allied Seed				x ⁴	x	
Barfest	MF x PR	Barenbrug USA				x	*	x
Duo	MF x PR	Ampac Seed	*	*	*	x	*	x
Felina	TF x IR	DLF International				x	*	x
Gain	MF x IR	Allied Seed				x	x	x
Fojtan	TF x IR	DLF International				x	x	x
Hykor	TF x IR	DLF International				x	*	x
Lofa	MF x IR	DLF International				x	x	*
Perseus	MF x IR	DLF International				*	*	*
Perun	MF x IR	DLF International				*	x	*
Spring Green	MF x PR	Turf Seed	*	*	*	x	x	*
Bonus	MF x IR	Allied Seed				x	x	x
Sweet Tart	MF x IR	ProSeeds Marketing				x	x	x
Experimental Varieties								
KYFA1015	MF x IR	KY Agric. Exp. Station						x
KYFA1016	MF x IR	KY Agric. Exp. Station						x
KYFA9819EF	MF x IR	KY Agric. Exp. Station				x	x	x
KYFA9819E1	MF x IR	KY Agric. Exp. Station				x	*	
KYFA9819E2	MF x IR	KY Agric. Exp. Station				x	*	
KYFA9819E3	MF x IR	KY Agric. Exp. Station				x	x	
XLF FL	–	ProSeeds Marketing						x

¹ Establishment year.

² MF = meadow fescue, TF = tall fescue, IR = Italian ryegrass, PR = perennial ryegrass.

³ Harvest year.

⁴ x in the box indicates the variety was in the test but yielded significantly less than the top yielding variety. Open boxes indicate the variety was not in the test.

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

Table 16. Summary of Kentucky festulolium yield trials 1999-2012 (yield shown as a percentage of the mean of the commercial varieties in the trial).¹

Variety	Proprietor	Lexington								Princeton	Quicksand		Mean ⁴ (#trials)
		1999 ^{2,3}	2001	2003	2005	2007	2008	2009	2010	2000	2001	2003	
		2yr ⁵	3yr	2yr	3yr	3yr	3yr	3yr	2yr	2yr	2yr	2yr	
Agula	Allied Seed								90				–
Barfest	Barenbrug USA								107				–
Bonus	Allied Seed								86				–
Duo	Ampac Seed	104			84		103	99	93				97(5)
Felina	DLF International		101						101				101(2)
Fojtan	DLF International								84				–
Gain	Allied Seed								94				–
Hykor	DLF International			98					100			98	99(3)
Lofa	DLF International								106				–
Perseus	DLF International								129				–
Perun	DLF International								117				–
Spring Green	Turf-Seed		88		105	100	114	101	106		97		102(7)
Sweet Tart	ProSeeds Marketing						88		88				88(2)
Vorage	Improved Forages									99			–

¹ The festuloliums were in fescue trials from 1999-2005.

² Year trial was established.

³ Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in 1999 was harvested two years, so the final report would be “2001 Tall Fescue Report” archived in the KY Forage Web site at <www.uky.edu/Ag/Forage>.

⁴ Mean only presented when respective variety was included in two or more trials.

⁵ Number of years of data.

Table 18. Summary of Kentucky perennial ryegrass yield trials 1999-2012 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Type	Proprietor	Lexington										Bowling Green		Mean ^{3,4} (#trials)		
			99 ^{1,2} 2yr ⁵	01 2yr	03 2yr	04 3yr	05 3yr	06 2yr	07 3yr	08 3yr	09 3yr	10 2yr	00 2yr	02 3yr		03 2yr	
Aires	diploid	Ampac Seed	95														94(2)
Amazon	tetraploid	AgriBioTech	108			99											104(3)
Anaconda	tetraploid	Caudill Seed	113											95	103		104(3)
Aubisque	tetraploid	Seed Research of OR			144											99	122(2)
Bandit	tetraploid	Grassland West												106	114		110(2)
Bastion C-2	tetraploid	Seed Research of OR				91											-
Bestfor	tetraploid	Improved Forages												113	107	120	113(3)
Best for Plus	hybrid tetraploid	Improved Forages			116	108	118									136	120(4)
BG-34	diploid	Barenbrug USA					83	85			86						85(3)
Bison	hybrid tetraploid	International Seeds														140	-
Boost	tetraploid	Allied Seed						130	125	120	143						130(4)
Boxer	tetraploid	AgriBioTech	121									106					114(2)
Calibra	tetraploid	DLF International							96	109	81				112		99(4)
CAS MP64	diploid	Cascade International	97														-
Citadel	tetraploid	Ag Canada	101										94	113	103		103(4)
Derby		Public													74		-
Eurostar	tetraploid	Seed Research of OR						112									-
Feeder	diploid	Seed Research of OR						76									-
Granddaddy	tetraploid	Smith Seed	118					101	109	76	92				111		101(6)
Green Gold	tetraploid	Grasslands Oregon						96									-
Herbal	tetraploid	ProSeeds Marketing								77							-
Impressario	tetraploid	DLF International								107							-
Lactal	tetraploid	Brett Young								102							-
Lasso	diploid	DLF International	98														-
Linn	diploid	Public	87	98	98	102		98	85	84	101	92	87	88	77		91(12)
Manhattan	diploid																-
Mara	diploid	Barenbrug USA													85		-
Matrix	diploid	Cropmark seeds			77											64	-
Maverick Gold	hybrid tetraploid	Ampac Seed			97									71			84(2)
Orantas	diploid	DLF International								82							-
Ortet	tetraploid	Oregro Seeds								114							-
Polly II	tetraploid	FFR/Sou. St.	104										110		125		113(3)
Polly Plus	hybrid tetraploid	Allied Seed			64											60	62(2)
Power	tetraploid	Ampac Seed							110	103	102	100					104(4)
Polim	tetraploid	DLF International															-
Quartermaster	tetraploid	Radix Research					122										-
Quartet	tetraploid	Ampac Seed					56	46									-
RAD-CPS212	hybrid tetraploid	Radix Research					134										78(4)
RAD-M1125	hybrid tetraploid	Mountain View Seeds						120									-
Sampson	diploid	International Seeds	87														-
Sierra	diploid	Lewis Seed Co.					89										-
Tonga	tetraploid	Kings AgriSeeds					96				103						100(2)
Yatsyn	diploid	Barenbrug USA	80										89				85(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.

3 To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in 1999 was harvested two years, so the final report would be "2001 Annual and Perennial Ryegrass Report" archived in the KY Forage Web site at <www.uky.edu/Ag/Forage>.

4 Mean only presented when respective variety was included in two or more trials.

5 In perennial ryegrass, low yielding varieties usually result from winterkill or summer mortality.

6 Number of years of data.



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