

2008 Annual and Perennial Ryegrass 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. There is also increased interest in this crop for high quality baleage. There are two main types of annual ryegrasses. 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 there is little regrowth 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 there will be no or few seed heads that summer (vernalization is required). Spring planting of Italian ryegrass is common in northern states (e.g., Wisconsin, Minnesota, etc.) for 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. There are both diploid (two sets of chromosomes) and tetraploid (four sets of chromosomes) varieties of perennial ryegrass. 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 but is higher yielding than perennial ryegrass and more persistent and winter hardy than Italian ryegrass. Its uses would be similar to 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 9 and 10 show summaries of all annual and perennial ryegrass varieties tested in Kentucky for the last seven 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 a listing 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 of perennial ryegrass. 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.

Table 1. Temperature and rainfall at Lexington, Kentucky in 2005, 2006, 2007 and 2008.

	2005				2006				2007				2008 ²			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	37	+6	4.35	+1.49	42	+11	4.77	+1.91	37	+6	2.93	+0.07	33	+2	4.60	+1.74
FEB	39	+4	1.68	-1.53	36	+1	2.13	-1.08	27	-8	1.83	-1.38	36	+1	5.37	+2.16
MAR	41	-3	2.79	-1.61	44	0	3.05	-1.35	52	+8	1.97	-2.43	45	+1	6.28	+1.88
APR	56	+1	3.30	-0.58	59	+4	3.52	-0.36	53	-2	3.87	-0.01	55	0	5.72	+1.84
MAY	61	-3	1.78	-2.69	62	-2	2.99	-1.48	68	+4	1.45	-3.02	62	-2	4.88	+0.41
JUN	75	+3	1.33	-2.33	70	-2	1.82	-1.84	74	+2	1.77	-1.89	74	+2	3.30	-0.36
JUL	77	+1	3.30	-1.70	76	0	5.13	+0.13	74	-2	6.90	+1.90	76	0	2.54	-2.46
AUG	78	+3	3.34	-0.59	76	+1	3.23	-0.70	80	+5	2.56	-1.37	75	0	1.08	-2.85
SEP	72	+4	0.59	-2.21	64	-4	9.27	+6.07	72	+4	1.15	-2.05	72	+4	1.21	-1.99
OCT	58	+1	0.92	-1.65	54	-3	4.88	+2.31	63	+6	5.28	+2.71	57	0	1.35	-1.22
NOV	47	+2	1.54	-1.85	47	+2	1.78	-1.61	46	+1	2.86	-0.53	43	-2	2.28	-1.11
DEC	32	-4	2.19	-1.79	42	+6	2.45	-1.53	40	+4	5.29	+1.31				
Total			27.51	-17.04			45.02	+0.47			37.86	-6.69			38.61	-1.96

¹ DEP is departure from the long-term average.
² 2008 data is for eleven months through November.

Description of the Tests

Data from five studies are reported. In the fall of 2007, two annual ryegrass tests were established at Lexington. Perennial ryegrass tests were established at Lexington in the fall of 2005, 2006 and 2007. The soil at Lexington is a well-drained silt loam (Maury) and is well suited for ryegrass production.

Seedlings were made at the rate of 25 lb/A 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, June, 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.

Results and Discussion

Weather data for Lexington are presented in Table 1.

Ratings for maturity and dry matter yields (tons/A) are reported in Tables 2 through 6. Yields are given by cutting date and as total annual production. Stated yields are adjusted for percent weeds; therefore, the tonnage given is for crop only. Varieties are listed by total yield in descending order. Experimental varieties, listed separately at the bottom of the tables, are not available commercially.

Table 2. Dry matter yields, seedling vigor, maturity and stand persistence of annual ryegrass varieties sown September 6, 2007 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 25, 2007	Maturity ²			Percent Stand		Yield (tons/acre)					
		2008			2007	2008	2008					
		Apr 23	May 17	Jun 11	Oct 25	Mar 27	Dec 18	Apr 23	May 17	Jun 11	Jul 1	Total
Commercial Varieties-Available for Farm Use												
Jackson	4.3	32.8	45.0	62.0	100	98	0.61	1.58	0.74	0.68	0.13	3.74*
Marshall	3.5	33.0	46.3	61.5	100	100	0.39	1.56	0.81	0.75	0.13	3.63*
DH-3	3.3	32.8	52.0	61.5	100	95	0.55	1.17	0.77	0.68	0.13	3.30
Striker	4.3	32.3	52.5	61.0	98	89	0.54	1.03	0.83	0.70	0.16	3.26
Fantastic	2.3	33.3	46.8	62.0	97	99	0.30	1.47	0.68	0.53	0.07	3.06
Gulf	4.0	31.5	58.0	61.5	100	66	0.63	0.55	0.62	0.54	0.10	2.45
Graze-N-Gro	3.5	31.8	54.5	61.0	99	63	0.53	0.54	0.70	0.51	0.15	2.43
Experimental Varieties												
LM5005B	2.8	31.0	48.8	60.0	96	75	0.28	0.75	0.89	0.79	0.24	2.94
Mean	3.5	32.3	50.5	61.3	98.6	85.5	0.48	1.08	0.75	0.65	0.14	3.10
CV,%	31.6	2.1	4.7	1.4	2.6	12.4	31.0	15.1	10.5	8.4	30.2	8.2
LSD,0.05	1.6	1.0	3.5	1.3	3.8	15.5	0.22	0.24	0.12	0.08	0.06	0.37

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

Table 3. Dry matter yields, seedling vigor, maturity and stand persistence of annual ryegrass varieties sown September 13, 2007 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 25, 2007	Maturity ²			Percent Stand			Yield (tons/acre)				
		2008			2007	2008	2007	2008				
		Apr 23	May 17	Jun 11	Oct 25	Mar 27	Dec 18	Apr 23	May 17	Jun 11	Jul 1	Total
Commercial Varieties-Available for Farm Use												
Marshall	3.3	32.8	46.3	61.5	99	100	0.12	1.78	0.72	0.76	0.17	3.55*
Jackson	3.3	32.3	47.5	62.0	100	100	0.12	1.75	0.72	0.64	0.19	3.42*
Experimental Varieties												
ME-4	4.0	32.8	45.0	61.5	100	100	0.18	1.83	0.78	0.74	0.16	3.69*
WMN-97	3.3	32.8	45.0	60.5	100	100	0.07	1.81	0.75	0.70	0.13	3.46*
ME-94	3.0	33.0	47.5	61.0	98	100	0.11	1.75	0.74	0.67	0.18	3.45*
Mean	3.4	32.7	46.3	61.3	99.5	99.8	0.12	1.78	0.74	0.70	0.17	3.51
CV,%	38.6	1.8	5.0	1.7	1.1	0.7	44.9	8.9	8.7	9.7	33.0	8.6
LSD,0.05	2.0	0.9	3.6	1.6	1.7	1.0	0.08	0.25	0.10	0.10	0.08	0.47

¹Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth.
²Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.
 *Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

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.

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.

Tables 7 and 8 summarize information about distributors and yield performance for all annual and perennial ryegrass varieties currently included in tests discussed in this report. Varieties are listed in alphabetical order by species,

Table 4. Dry matter yields, seedling vigor, maturity and stand persistence of perennial ryegrass varieties sown September 12, 2005 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Nov 7, 2005	Maturity ²			Percent stand						Yield (tons/acre)					3-yr Total
		2006	2007	2008	2006		2007		2008		2006	2007	2008			
		May 17	May 11	May 23	Apr 17	Oct 17	Mar 26	Oct 11	Mar 27	Nov 17	Total	Total	May 23	Jun 24	Total	
Commercial Varieties-Available for Farm Use																
RAD-CPS212	4.8	45.5	35.8	55.0	99	93	86	50	9	6	6.01	0.76	0.63	0.33	0.96	7.73*
Quartermaster	4.3	53.0	32.0	53.5	99	94	93	61	49	41	5.20	0.80	0.89	0.16	1.05	7.05*
BestforPlus	5.0	56.0	47.5	58.0	100	90	58	13	1	0	5.96	0.71	0.08	0.06	0.14	6.81*
Tonga	4.5	56.5	52.5	58.0	99	96	94	65	61	56	3.70	0.80	0.93	0.07	1.01	5.51
Sierra	3.5	58.0	55.0	60.0	98	96	92	66	66	65	3.27	0.85	1.01	0.01	1.03	5.15
BG34	3.5	48.8	29.0	45.0	96	96	96	71	74	63	3.32	0.61	0.77	0.10	0.87	4.80
Quartet	4.8	34.0	28.3	-	99	99	18	4	1	0	3.09	0.15	0.00	0.00	0.00	3.24
Experimental Varieties																
SWER3579	4.8	48.8	31.5	47.5	100	100	98	90	88	75	4.73	1.01	1.06	0.14	1.20	6.93*
SWER3575	3.8	45.0	31.3	49.8	99	98	96	84	81	73	4.18	0.82	1.10	0.15	1.25	6.24
SWER3508FRI	3.3	34.0	29.5	36.3	98	96	95	85	84	75	3.83	0.58	0.88	0.13	1.01	5.43
Mean	4.2	48.0	37.2	51.1	98.5	95.8	82.4	58.9	51.3	45.4	4.33	0.71	0.74	0.12	0.85	5.89
CV,%	13.4	11.6	5.7	7.2	2.8	4.6	14.1	24.3	26.8	24.5	12.3	26.8	30.7	45.8	27.2	12.2
LSD,0.05	0.8	8.1	3.1	5.7	3.9	6.4	16.9	20.7	19.9	16.8	0.77	0.28	0.33	0.08	0.34	1.04

¹Vigor score based on scale of 1 to 5 with 5 being the most vigorous seedling growth.
²Maturity rating scale: 37=flag leaf emergence, 45=boot swollen, 50=beginning of inflorescence emergence, 58=complete emergence of inflorescence, 62=beginning of pollen shed.
 *Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.

Table 5. Dry matter yields, seedling vigor, maturity and stand persistence of perennial ryegrass varieties sown September 7, 2006 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 25, 2006	Maturity ²		Percent Stand					Yield (tons/acre)				2-yr Total
		2007	2008	2006	2007		2008		2007	2008		Total	
		May 9	May 23	Oct 25	Mar 26	Oct 11	Apr 3	Nov 18	Total	May 23	Jul 1		
Commercial Varieties-Available for Farm Use													
RAD-MI125	4.5	32.8	46.3	100	98	97	94	74	3.46	1.71	0.35	2.06	5.53*
Granddaddy	3.8	32.0	54.5	100	100	75	98	70	2.90	1.65	0.11	1.77	4.67
Linn	3.8	52.5	59.5	100	100	100	100	86	2.67	1.73	0.11	1.84	4.51
GreenGold	3.3	32.3	47.0	100	100	98	98	79	3.04	1.16	0.20	1.36	4.40
BG34	3.8	32.3	44.8	100	100	97	99	65	2.83	0.86	0.21	1.07	3.90
Experimental Varieties													
ORTET-05	3.8	33.0	52.0	100	100	99	100	91	3.51	2.06	0.18	2.24	5.75*
GO-ABE	4.5	52.0	57.5	100	96	83	45	23	2.97	1.40	0.38	1.78	4.74
KRC-6576	4.8	32.3	47.3	100	100	99	99	86	3.05	1.30	0.29	1.59	4.64
KRC-6577	3.3	31.3	32.0	100	100	98	96	88	3.24	0.93	0.34	1.27	4.51
KRC-6578	4.3	31.8	36.3	100	98	98	95	85	3.02	1.02	0.30	1.32	4.34
GO-ABD	4.3	32.3	52.5	100	98	97	94	84	2.66	1.08	0.26	1.34	4.00
KRC-6579	3.3	31.0	33.0	100	100	98	95	83	2.72	0.92	0.28	1.19	3.91
KRC-6554	2.8	31.0	39.0	100	100	77	98	75	2.59	0.79	0.23	1.02	3.61
GO-ABA	3.5	31.8	40.5	100	100	97	93	90	2.54	0.77	0.24	1.01	3.55
KRC-6575	4.0	31.3	32.5	100	100	97	98	69	2.27	0.87	0.19	1.06	3.33
Mean	3.8	34.6	45.0	100.0	99.3	93.8	93.3	76.4	2.90	1.22	0.24	1.46	4.36
CV,%	15.5	1.9	10.8	0.0	1.3	17.0	5.7	14.1	10.0	11.6	19.5	10.3	7.8
LSD,0.05	0.8	1.0	6.9	0.0	1.8	22.7	7.6	15.4	0.41	0.20	0.07	0.21	0.49

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

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

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

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 7 and 8, an open block indicates that the variety was not in that particular test (labeled at the top of the column); an (x) in the block means that the variety was in the test but yielded significantly less than the top-yielding variety. A single asterisk (*) means that the variety was not significantly different from the top variety. It is best to choose a variety that has performed well over several years and locations. Remember to consider the relative spring maturity and the distribution of yield across the growing season when evaluating productivity of ryegrass varieties (Tables 2 through 6).

Tables 9 and 10 are summaries of yield data from 1999 to 2008 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 summary Tables 9 and 10, 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; 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 footnotes in Tables 9 and 10 to determine which yearly report to refer to.

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 at <www.uky.edu/Ag/Forage>.

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

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Table 6. Dry matter yields, seedling vigor, maturity and stand persistence of perennial ryegrass and festulolium (FL) varieties sown September 6, 2007 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 25, 2007	Maturity ² 2008 May 13	Percent stand			Yield (tons/acre)		
			2007	2008		2008		
			Oct 25	Mar 26	Oct 21	May 13	Jul 1	Total
Commercial Varieties-Available for Farm Use								
SpringGreen (FL)	2.8	51.0	98	100	97	4.13	0.72	4.85*
Boost	3.3	50.3	98	99	97	3.91	0.58	4.50
Power	1.8	46.3	98	100	98	3.69	0.41	4.10
Eurostar	1.8	37.8	97	99	98	3.46	0.44	3.90
Granddaddy	2.3	51.5	98	100	99	3.23	0.37	3.60
Linn	3.0	56.0	100	100	100	2.89	0.29	3.18
Feeder	1.8	36.3	100	100	97	2.84	0.33	3.17
Quartet	4.3	32.8	100	73	80	1.80	0.63	2.43
Experimental Varieties								
GO-ABV	3.3	46.3	97	100	96	4.08	1.10	5.18*
KYFA0236 (FL)	3.0	46.3	99	100	100	3.71	1.12	4.83*
KYFA9819 (FL)	1.8	49.8	93	99	97	4.12	0.64	4.76*
GO-ABS	3.5	51.0	100	100	100	3.10	0.46	3.55
GO-ABM	3.5	46.0	97	98	98	2.95	0.35	3.30
GO-ABZ	2.0	50.5	100	100	98	2.51	0.32	2.82
LP2006DA	4.0	43.3	100	31	56	1.71	0.89	2.60
Mean	2.8	46.3	98.4	93.0	93.9	3.21	0.58	3.78
CV,%	23.0	9.4	2.1	13.9	9.2	11.1	20.1	9.8
LSD,0.05	0.9	6.2	2.9	18.4	13.4	0.51	0.17	0.53

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.

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

Table 7. Performance of annual ryegrass varieties at Lexington.

Variety	Type	Proprietor/KY Distributor	Lexington	
			2007 ¹	2008 ²
			Commercial Varieties-Available for Farm Use	
DH-3	Westerwold diploid	Allied Seed	x ³	
Fantastic	Westerwold diploid	Ampac Seed	x	
Graze-N-Gro	Westerwold diploid	Seed Research of Oregon	x	
Gulf	Westerwold diploid	Public	x	
Jackson	Westerwold diploid	The Wax Company	*	*
Marshall	Westerwold diploid	The Wax Company	*	*
Striker	Westerwold tetraploid	Seed Research of Oregon	x	
Experimental Varieties				
LM5005B	Westerwold tetraploid	Cropmark Seeds Ltd	x	
ME4	Westerwold diploid	The Wax Company		*
ME-94	Westerwold diploid	The Wax Company		*
WMN 97	Westerwold diploid	The Wax Company		*

¹ Establishment year.

² Harvest year.

³ Open box indicates the variety was not in the test, while an "x" in the box indicates the variety was in the test but yielded significantly less than the top yielding variety.

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

Table 8. Performance of perennial ryegrass across years.							
Variety (ploidy)	Proprietor/KY Distributor	Lexington					
		2005¹			2006		2007
		2006²	2007	2008	2007	2008	2008
Commercial Varieties-Available for Farm Use							
Bestfor Plus (hybrid tetraploid)	Smith Seed Services	*	x ³	x			
BG 34 (diploid)	Barenbrug USA	x	x	x	x	x	
Boost (tetraploid)	Allied Seed						x
Eurostar (tetraploid)	Seed Research of Oregon						x
Feeder (diploid)	Seed Research of Oregon						x
Granddaddy (tetraploid)	Smith Seed Services				x	x	x
Green Gold (tetraploid)	Grasslands Oregon				x	x	
Linn (diploid)	Public				x	x	x
Power (tetraploid)	Ampac Seed Company						x
Quartermaster (tetraploid)	Radix Research, Inc.	x	*	*			
Quartet (tetraploid)	Ampac Seed Company	x	x	x			x
RAD-CPS212 (hybrid tetraploid)	Radix Research, Inc.	*	*	*			
RAD-MI125 (hybrid tetraploid)	Mountain View Seeds				*	*	
Sierra (diploid)	Lewis Seed Co.	x	*	*			
Tonga (tetraploid)	Kings AgriSeeds	x	*	*			
Experimental Varieties							
GO-ABA[Aberavon] (diploid)	Grassland Oregon				x	x	
GO-ABD[Aberdart] (diploid)	Grassland Oregon				x	x	
GO-ABE (tetraploid)	Grassland Oregon				x	x	
GO-ABM (diploid)	Grassland Oregon						x
GO-ABS (diploid)	Grassland Oregon						x
GO-ABV (tetraploid)	Grassland Oregon						*
GO-ABZ (diploid)	Grassland Oregon						x
KRC-6554 (tetraploid)	Ag Research USA				x	x	
KRC-6575 (tetraploid)	Ag Research USA				x	x	
KRC-6576 (tetraploid)	Ag Research USA				x	x	
KRC-6577 (tetraploid)	Ag Research USA				*	x	
KRC-6578 (tetraploid)	Ag Research USA				x	x	
KRC-6579 (tetraploid)	Ag Research USA				x	x	
LP2006DA (tetraploid)	Cropmark Seeds						x
ORTET-05 (tetraploid)	Oregro Seeds, Inc.				*	*	
SW ER3508FRI	SW Seed Ltd.	x	x	*			
SW ER3575	SW Seed Ltd.	x	*	*			
SW ER3579	SW Seed Ltd.	x	*	*			
¹ Establishment year. ² Harvest year. ³ Open box indicates the variety was not in the test, while an "x" in the box indicates the variety was in the test but yielded significantly less than the top yielding variety. *Not significantly different from the highest yielding variety in the test.							

Table 9. Summary of Kentucky Annual Ryegrass Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor	Lexington ¹					Princeton			Bowling Green		Mean ^{4,5} (#trials)	
		1999 ^{2,3}	2001	2003	2004	2005	2007	2000	2002	2004	2000		2003
All trials are 1 year yields													
Andy	DLF International	112	105					99					105(3)
Angus I	DLF International									80			-
Aurelia	Forage Genetics		120							130			125(2)
Avance	DLF International	113						109					111(2)
Barextra	Barenbrug								117				-
Big Daddy	FFR/Sou. St.	87	86					90	85		104		90(5)
Common	Public							85	85		95	87	88(4)
DH-3	Allied Seed						106						-
Domino	DLF International								121				-
Fantastic	Ampac Seed	83					98	90			97		92(4)
Feast	Ampac Seed		90										-
Feast II	Ampac Seed		98						123				111(2)
Graze-N-Gro	Seed Research of OR			105			78			94		107	96(4)
Gulf	Public		72				78	81	77	57	86		75(6)
Hercules	Barenbrug	114						110					112(2)
Jackson	The Wax Co.				80	100	120		87			96	97(5)
Jeanne	DLF International		124										-
Jumbo	Barenbrug			103								104	104(2)
King	Lewis Seed		92										-
Marshall	The Wax Co.	87		92	120	100	116	102	97		114	106	104(9)
Monarque	Seed Research of OR									117			-
Passerel Plus	Pennington Seed								100				-
Rio		88						100	97		102		97(4)
Spark	DLF International	87									83		85(2)
Striker	Seed Research of OR						104						-
Tam 90									85				-
Tetrelite II	DLF International									122			-
Winter Star	Ampac Seed		87						96				92(2)
Zorro	DLF International	120	127					135	130		118		126(5)

¹ Due to severe winterkill, the results of the 2006 planting are not shown. See Table 2 for yield and stand data.

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 1 year, so the final report would be "2000 Annual and Perennial Ryegrass Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

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

⁵ In annual ryegrass, low yielding varieties usually result from winterkill.

Table 10. Summary of Kentucky Perennial Ryegrass Yield Trials 1999-2008 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety	Proprietor	Lexington						Princeton		Bowling Green		Mean ^{3,4} (#trials)
		1999 ^{1,2}	2001	2003	2004	2005	2006	2000	2002	2000	2003	
		2yr ⁵	2yr	2yr	3yr	3-yr	2-yr	2yr	3yr	2yr	2yr	
Aires	Ampac Seed		95						93			94(2)
Amazon	AgriBioTech	108			99				107			104(3)
Anaconda	Caudill Seed	113						95		103		104(3)
Aubisque	Seed Research of OR			144							99	122(2)
Bandit	Grassland West							106		114		110(2)
Bastion C-2	Seed Research of OR				91							-
Bestfor	Improved Forages							113	107	120		113(3)
Bestfor Plus	Improved Forages			116	108	118					136	120(4)
BG-34	Barenbrug					83	85					84(2)
Bison	International Seeds										140	-
Boxer	AgriBioTech	121						106				114(2)
Calibra	DLF International								112			-
CAS MP64	Cascade International		97									-
Citadel	Ag Canada	101						94	113	103		103(4)
Derby	Public									74		-
Granddaddy	Smith Seed		118				101		111			110(3)
GreenGold	Grasslands Oregon						96					-
Lasso	DLF International		98									-
Linn	Public	87	98	98	102		98	87	88	77		92(8)
Manhattan									85			-
Mara	Barenbrug									85		-
Matrix	Cropmark seeds			77							64	-
Maverick Gold	Ampac Seed		97						71			84(2)
Polly II	FFR/Sou. St.	104						110		125		113(3)
Polly Plus	Allied Seed			64							60	62(2)
Quartermaster	Radix Research					122						-
Quartet	Ampac Seed		97			56			113			88(3)
RAD-CPS212	Radix Research					134						-
RAD-MI125	Mountain View Seeds						120					-
Sampson	International Seeds	87										-
Sierra	Lewis Seed Co.					89						-
Tonga	Kings AgriSeeds					96						-
Yatsyn	Barenbrug	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. 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 Annual and Perennial Ryegrass Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

³ Mean only presented when respective variety was included in two or more trials.

⁴ In perennial ryegrass, low yielding varieties usually result from winterkill or summer mortality.

⁵ Number of years of data.



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