

2005 Annual and Perennial Ryegrass Report

G.L. Olson, S.R. Smith, T.D. Phillips, G.D. Lacefield and B. Sleugh

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 grow throughout 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 a biennial or a short-lived perennial, 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 (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. 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. Both forage and turf types are available, so plant only forage types for grazing, hay or silage. All turf types are infected with a fungal endophyte.

Intermediate or hybrid ryegrass (*Lolium hybridum*, Hausska.) is the result of a cross between Italian ryegrass and perennial ryegrass. It is less winter hardy but higher yielding than perennial ryegrass and more persistent and winter hardy than Italian ryegrass. Its uses would be similar to perennial ryegrass.

This report provides current yield data on annual and perennial ryegrass varieties in trials in Kentucky as well as guidelines for selecting varieties. Go to the UK Forage Extension Web site at www.uky.edu/AG/Forage to obtain electronic versions of all forage variety testing reports as well as 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 high-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.

Description of the Tests

Data from six studies are reported. In the fall of 2004, annual ryegrass tests were established at Princeton and Lexington. Perennial ryegrass tests were established at Lexington (in the fall of 2003 and 2004), Bowling Green (in the fall of 2003), and Princeton (in the fall of 2002). The soils at Lexington, Bowling Green, and Princeton are well-drained silt loams (Maury, Pembroke, and Crider, respectively) and are well suited for ryegrass production.

Seedings were made at the rate of 20 lb/A into a prepared seedbed with a disk drill. Plots were 5 by 15 feet in a randomized complete block design with four replications. Nitrogen was topdressed at 60 lb/A of actual N in March, 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, Bowling Green, and Princeton are presented in Tables 1 through 3.

Ratings for maturity and dry matter yields (tons/acre) are reported in Tables 4 through 9. Yields are given by cutting date and as total annual production. Stated yields are adjusted for percent weeds; therefore, the value listed 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 two or more growing seasons.

The perennial ryegrass tests contained several festuloliums that are hybrids of meadow fescue and perennial ryegrass, having 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 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

Table 1. Temperature and rainfall at Lexington, Kentucky in 2004 and 2005.

	2004				2005			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	30	-1	3.14	+0.28	37	+6	4.35	+1.49
FEB	36	+1	1.32	-1.89	39	+4	1.68	-1.53
MAR	47	+3	3.43	-0.97	41	-3	2.79	-1.61
APR	55	0	3.06	-0.82	56	+1	3.30	-0.58
MAY	68	+4	9.79	+5.32	61	-3	1.78	-2.69
JUN	72	0	3.13	-0.53	75	+3	1.33	-2.33
JUL	73	-3	7.65	+2.65	77	+1	3.30	-1.70
AUG	71	-4	2.91	-1.02	78	+3	3.34	-0.59
SEP	68	0	2.61	-0.59	72	+4	0.59	-2.21
OCT	58	+1	5.65	+3.08	58	+1	0.92	-1.65
NOV	49	+4	6.29	+2.90	47	+2	1.54	-1.85
DEC	36	0	3.20	-0.78				
Total			52.18	+7.63			25.32	-15.25

DEP is departure from the long-term average.

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 10 and 11 summarize information about distributors and yield performance for all varieties currently included in tests discussed in this report. Varieties are listed in alphabetical order by species, with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use, while commercial varieties can be purchased from agricultural distributors. In Tables 10 and 11, an open block indicates that the variety was not in that particular test (labeled at the top of the column), while 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

Table 2. Temperature and rainfall at Princeton, Kentucky in 2003, 2004 and 2005.

	2003				2004				2005			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	-3	2.19	-1.61	36	+2	4.12	+0.32	41	+7	5.30	+1.50
FEB	35	-3	7.45	+3.02	39	+1	2.44	-1.99	43	+5	2.30	-2.13
MAR	50	+3	2.46	-2.48	53	+6	4.28	-0.66	47	0	4.11	-0.83
APR	60	+1	6.99	+2.19	59	0	5.32	+0.52	60	+1	4.61	-0.19
MAY	67	0	4.81	-0.15	72	+5	7.34	+2.38	65	-2	1.54	-3.42
JUN	71	-4	5.05	+1.20	74	-1	3.40	-0.45	76	+1	3.09	-0.76
JUL	79	+1	4.75	+0.46	75	-3	4.87	+0.58	79	+1	2.39	-1.90
AUG	79	+2	2.05	-1.96	73	-4	3.02	-0.99	80	+3	11.54	+7.53
SEP	69	-2	6.17	+2.84	71	0	0.20	-3.13	74	+2	2.17	-1.16
OCT	60	+1	3.73	+0.68	64	+5	4.03	+0.98	60	+1	0.19	-2.86
NOV	53	+6	5.85	+1.22	53	+6	6.94	+2.31	50	+3	2.48	-2.15
DEC	40	+1	2.39	-2.65	37	-1	4.29	-0.75				
Total			53.89	+2.76			50.25	-0.88			39.72	-6.37

DEP is departure from the long-term average.

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 4 through 9).

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.

- AGR-1 Lime and Fertilizer Recommendations
- AGR-18 Grain and Forage Crop Guide for Kentucky
- AGR-64 Establishing Forage Crops
- AGR-179 Annual Ryegrass

Authors

- G.L. Olson, Research Specialist, Forages, UK Department of Plant and Soil Sciences
- S.R. Smith, Extension Associate Professor, Forages, UK Department of Plant and Soil Sciences
- T.D. Phillips, Associate Professor, Tall Fescue Breeding, UK Department of Plant and Soil Sciences
- G.D. Lacefield, Extension Professor, Forages, UK Department of Plant and Soil Sciences
- B. Sleugh, Associate Professor, Western Kentucky University

Table 3. Temperature and rainfall at Bowling Green, Kentucky in 2004 and 2005.

	2004				2005			
	Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	35	+1	2.96	-0.86	41	+7	4.77	+0.95
FEB	39	+1	2.74	-1.39	43	+5	3.11	-1.02
MAR	51	+5	4.03	-1.07	45	-1	3.52	-1.58
APR	57	0	5.66	+1.34	58	+1	5.79	+1.47
MAY	71	+5	8.69	+3.75	64	-2	2.45	-2.49
JUN	74	-1	3.82	-0.35	76	+1	1.87	-2.30
JUL	76	-2	5.46	+0.72	79	+1	4.32	-0.42
AUG	73	-4	4.52	+1.01	80	+3	7.94	+4.43
SEP	70	0	1.09	-2.63	73	+3	0.47	-3.25
OCT	62	+4	5.69	+2.67	59	+1	0.28	-2.74
NOV	52	+6	5.50	+1.07	51	+1	3.26	-1.17
DEC	38	0	4.94	-0.09				
Total			55.10	+4.17			37.78	-8.12

DEP is departure from the long-term average.

Table 4. Dry matter yields (tons/acre), seedling vigor, maturity and stand rating of annual ryegrass varieties sown September 1, 2004 at Princeton, Kentucky.

Variety ³	Seedling Vigor ¹ Dec. 21, 2004	Percent Stand Apr 15, 2005	Maturity ²			2005 Yields (tons/acre)					
			Apr 27	May 24	Jun 13	Apr 27	May 24	Jun 13	Jun 27	Jul 29	Total
Commercial Varieties—Available for Farm Use											
Aurelia	3.3	100	45.3	45.0	56.5	2.86	1.80	0.37	0.17	0.30	5.51*
Tetrelite II	4.3	100	45.0	45.0	56.5	2.80	1.39	0.43	0.20	0.34	5.17*
Monarque	3.8	100	45.0	49.8	57.5	2.49	1.63	0.43	0.24	0.16	4.95
Graze-N-GRO	4.8	95	45.0	50.5	56.5	2.37	1.36	0.19	0.04	0.00	3.96
Angus 1	4.0	88	50.5	56.0	58.5	2.11	1.14	0.16	0.00	0.00	3.40
Gulf	4.8	58	47.5	56.0	57.0	1.28	0.93	0.18	0.01	0.00	2.40
Experimental Varieties											
M01	4.3	100	45.0	48.8	55.5	2.91	1.48	0.21	0.06	0.00	4.66
FLX2000(New)ER	5.0	86	52.0	56.0	59.5	2.01	1.01	0.16	0.01	0.00	3.19
Mean	4.3	90.8	46.9	50.9	57.2	2.35	1.34	0.27	0.09	0.10	4.15
CV,%	9.9	8.9	2.4	5.4	2.1	11.86	8.64	36.03	43.34	41.69	7.97
LSD,0.05	0.6	11.9	1.7	4.1	1.8	0.41	0.17	0.14	0.06	0.06	0.49

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

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.

³ See Table 10 for classification as Westerwold, Italian or Intermediate ryegrass.

Table 5. Dry matter yields (tons/acre), seedling vigor, maturity and stand rating of annual ryegrass varieties sown September 13, 2004 at Lexington, Kentucky.										
Variety	Seedling Vigor ¹ Nov. 8, 2004	2005 Maturity ²		2005 Percent Stand		2005 Yields (tons/acre)				
		Apr 25	Jun 7	Mar 17	Apr 28	Apr 25	May 18	Jun 7	Jul 5	Total
Commercial Varieties—Available for Farm Use										
Marshall	5	45	59.0	83	95	1.91	0.92	1.26	0.33	4.42*
Jackson	5	45	61.5	21	70	0.85	0.79	1.08	0.22	2.93
Experimental Varieties										
ME-94	5	45	59.0	53	90	1.66	1.05	1.23	0.29	4.22*
WMN 97	5	45	59.5	40	90	1.40	0.97	1.13	0.33	3.82
Mean	5	45	59.8	49	86	1.45	0.93	1.17	0.29	3.85
CV,%	0	0	2.0	27	8	15.21	21.72	8.46	37.08	4.64
LSD,0.05	0	0	1.9	21	12	0.35	0.32	0.16	0.17	0.29
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.										
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.										

Table 6. Dry matter yields (tons/acre), maturity and stand rating of perennial ryegrass, festulium (FL) and Kentucky bluegrass (BG) varieties sown September 25, 2002 at Princeton, Kentucky.										
Variety	Maturity ¹ May 10, 2005	2005 Percent Stand		Yield (tons/acre)						
		Apr 13	Nov 3	2003 Total	2004 ² Total	2005			3-yr Total	
						May 10	Jun 13	Total		
Commercial Varieties—Available for Farm Use										
Citadel	31.5	91	36	7.52	1.36	0.88	0.65	1.53	10.41*	
Quartet	29.0	18	18	8.66	1.04	0.16	0.56	0.71	10.41*	
Calibra	29.0	90	39	7.60	1.07	1.03	0.57	1.60	10.26*	
Granddaddy	36.3	91	36	7.84	1.07	0.93	0.39	1.32	10.23*	
Bestfor	38.0	3	3	7.30	1.64	0.38	0.54	0.91	9.86*	
Amazon	54.5	58	13	6.96	1.01	1.41	0.46	1.87	9.84*	
Duo(FL)	47.8	93	31	6.23	1.29	1.27	0.43	1.70	9.22	
Aires HD	50.3	35	18	6.43	0.91	0.82	0.35	1.17	8.51	
Linn	55.5	93	25	5.36	0.63	1.75	0.35	2.11	8.09	
Manhattan	40.3	85	33	5.74	0.92	0.80	0.34	1.13	7.80	
Maverick Gold	40.7	2	0	5.10	1.10	0.05	0.32	0.36	6.56	
Experimental Varieties										
EC 410	55.5	63	26	6.54	0.95	1.00	0.35	1.35	8.84	
KYLP 9801	57.0	74	15	6.05	0.73	1.18	0.45	1.63	8.41	
S-22(BG)	62.0	90	75	5.72	0.86	1.17	0.46	1.63	8.22	
Barberia	48.3	5	4	5.15	0.78	0.19	0.37	0.56	6.49	
VB 5649 (BG)	60.0	84	78	4.30	0.87	0.71	0.32	1.03	6.19	
Mean	46.0	61	28	6.41	1.01	0.86	0.43	1.29	8.71	
CV,%	14.9	14	60	11.85	23.68	50.41	32.25	39.05	9.15	
LSD,0.05	10.0	12	24	1.08	0.34	0.62	0.20	0.72	1.14	
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.										
¹ 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.										
² This study was inadvertently mowed in late April, so there was no Spring harvest.										

Table 7. Dry matter yields (tons/acre), seedling vigor, maturity and stand rating of perennial ryegrass varieties sown September 16, 2003 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Oct 31, 2003	2005 Maturity ²		2005 Percent Stand		Yield(tons/acre)						2-yr Total
		May 18	Jun 9	Apr 8	Oct 18	2004 Total	2005					
							May 18	Jun 9	Jul 5	Oct 18	Total	
Commercial Varieties—Available for Farm Use												
Aubisque	4.0	46.5	58.0	26	68	5.32	1.44	0.66	0.20	0.23	2.53	7.86*
Bestfor Plus	5.0	56.0	59.5	0	0	5.74	0.20	0.27	0.13	0.00	0.59	6.34
Linn	3.8	56.0	62.0	9	8	4.50	0.42	0.30	0.12	0.01	0.84	5.34
Matrix	4.0		60.0	6	1	4.12	0.00	0.01	0.08	0.00	0.09	4.21
Polly Plus	5.0	56.0	61.0	0	1	3.36	0.03	0.08	0.03	0.01	0.15	3.51
Experimental Varieties												
Kentaur B	4.5	40.5	56.5	21	70	5.87	1.17	0.77	0.13	0.27	2.33	8.20*
LPROM 99	3.5	41.5	51.7	50	75	5.31	1.31	0.55	0.26	0.18	2.30	7.61*
EFP 122	4.0	45.5	62.0	6	1	3.91	0.09	0.14	0.06	0.00	0.29	4.21
Mean	4.2	46.1	58.5	15	28	4.77	0.58	0.35	0.13	0.09	1.14	5.91
CV,%	8.4	12.7	4.8	88	57	17.16	93.64	55.71	81.89	62.15	64.87	21.00
LSD,0.05	0.5	14.0	5.5	19	23	1.20	0.80	0.28	0.15	0.08	1.09	1.82

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

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.

Table 8. Dry matter yields (tons/acre), maturity and stand rating of perennial ryegrass and festulium (FL) varieties sown October 2, 2003 at Bowling Green, Kentucky.

Variety	2005 Maturity ¹		2005 Percent Stand		Yield (tons/acre)					2-yr Total
	May 12	Jun 14	Apr 18	Nov 3	2004 Total	2005				
						May 12	Jun 14	Jul 7	Total	
Commercial Varieties-Available for Farm Use										
Bison	45.0	61.5	81	25	5.38	1.88	0.90	0.14	2.92	8.30*
Bestfor Plus	53.5	66.0	68	0	5.21	1.57	1.13	0.11	2.81	8.03*
Duo (FL)	52.5	55.0	99	45	3.96	2.01	0.69	0.17	2.87	6.83
Aubisque	50.3	49.5	91	40	3.38	1.65	0.69	0.13	2.47	5.85
Matrix	54.0	58.0	70	21	2.51	0.74	0.44	0.07	1.25	3.76
Polly Plus	57.0	63.0	1	0	3.28	0.05	0.19	0.00	0.25	3.53
Experimental Varieties										
Kentaur B	45.0	49.0	98	60	4.47	1.41	0.91	0.13	2.45	6.92
EFP 122	58.0	56.5	51	6	3.00	0.94	0.27	0.07	1.28	4.28
Mean	52.4	58.4	57	20	3.55	1.08	0.57	0.08	1.74	5.29
CV,%	4.6	5.9	26	59	10.73	48.35	35.95	61.14	35.31	12.58
LSD,0.05	4.2	5.0	22	17	0.55	0.76	0.30	0.08	0.89	0.96

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

¹ 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.

Table 9. Dry matter yields (tons/acre), seedling vigor, maturity and stand rating of perennial ryegrass varieties sown September 13, 2004 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ Nov. 8, 2004	2005 Maturity ²		2005 Percent Stand		Yield (tons/acre)					
		May13	Jun 7	Mar 17	Oct 28	May 13	Jun 7	Jul 5	Aug 16	Oct 18	Total
Bestfor Plus	5.0	47.5	58	5	63	2.02	1.18	0.47	0.18	0.21	4.06*
Amazon	3.0	45.8	45	100	99	2.29	0.76	0.27	0.22	0.29	3.82*
Linn	3.3	54.5	58	100	99	2.57	0.59	0.31	0.12	0.20	3.80*
Bastion C-2	3.0	49.0	56	100	98	1.98	0.75	0.28	0.16	0.19	3.36*
Mean	3.6	49.2	54.3	76	89	2.22	0.82	0.33	0.17	0.22	3.76
CV,%	7.0	7.0	0.0	0	6	17.50	11.54	27.39	63.65	45.51	14.94
LSD,0.05	0.4	5.5	0.0	0	8	0.62	0.15	0.15	0.17	0.16	0.90

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

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.

Table 10. Performance of annual ryegrass varieties across locations.

Variety	Type	Proprietor/KY Distributor	Lexington 2004 ¹ 2005 ²	Princeton 2004 2005
Commercial Varieties—Available for Farm Use				
Angus 1	Westerwold	DLF International Seeds, Inc.		x
Aurelia	Italian	Seed Research of Oregon		*
Graze-N-Gro	Westerwold	Seed Research of Oregon		x
Gulf	Westerwold	Public		x
Jackson	Westerwold	The Wax Company	x	
Marshall	Westerwold	The Wax Company	*	
Monarque	Italian	Seed Research of Oregon		x
Tetrelite II	Intermediate	DLF International Seeds, Inc.		*
Experimental Varieties				
FLX2000(New)ER	Westerwold	DLF International Seeds, Inc.		x
ME-94	Westerwold	The Wax Company	*	
M01	Westerwold	University of Missouri		x
WMN 97	Westerwold	The Wax Company	x	

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

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.

¹ Establishment year.

² Harvest year.

Table 11. Performance of perennial ryegrass, festulolium (FL) and Kentucky bluegrass (BG) varieties across years and locations.

Variety (ploidy)	Proprietor/KY Distributor	Lexington			Bowling Green		Princeton		
		2003 ¹		2004	2003		2002		
		2004 ²	2005	2005	2004	2005	2003	2004	2005
Commercial Varieties—Available for Farm Use									
Aires HD (diploid)	Ampac Seed Company						X	X	X
Amazon (tetraploid)	ProSeeds Marketing			*			X	X	*
Aubisque (tetraploid)	SeedResearch of Oregon	*	*		X	*			
Bastion C-2 (tetraploid)	SeedResearch of Oregon			*					
Bestfor (tetraploid)	Improved Forages						X	*	X
Bestfor Plus (hybrid tetraploid)	Smith Seed Services	*	X	*	*	*			
Bison (hybrid tetraploid)	International Seeds				*	*			
Calibra (tetraploid)	DLF-Jenks						X	X	*
Citadel (tetraploid)	Ag Canada						X	*	*
Duo (FL)	Ampac Seed Company				X	*	X	X	*
Granddaddy (tetraploid)	Smith Seed Services						X	X	X
Linn (diploid)	Public	X	X	*			X	X	*
Manhattan (diploid)							X	X	X
Matrix (diploid)	Cropmark Seeds LTD	X	X		X	X			
Maverick Gold (hybrid diploid)	Ampac Seed Company						X	X	X
Polly Plus (hybrid tetraploid)	Allied Seed, L.L.C.	X	X		X	*			
Quartet (tetraploid)	Ampac Seed Company						*	X	X
Experimental Varieties									
Barberia	Barenbrug USA						X	X	X
EC 410	Emerald Commodities, Inc.						X	X	X
EFP 122 (diploid)	Radix Research, Inc.	X	X		X	X			
Kentaur B	DLF Internatiional Seeds	*	*		X	*			
KYLP 9801	KY Agric. Exp. Station						X	X	*
LPROM99	Barenbrug USA	*	*						
S-22 (BG)	Barenbrug USA						X	X	*
VB 5649 (BG)	Barenbrug USA						X	X	X
<p>*Not significantly different from the highest yielding variety in the test. Open box indicates that 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. ¹ Establishment year. ² Harvest year.</p>									



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