

# 2014 Orchardgrass Report

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## Introduction

Orchardgrass (*Dactylus glomerata*) is a high-quality, productive, cool-season grass that is well-adapted to Kentucky conditions. This grass is used for pasture, hay, green chop, and silage, but it requires better management than tall fescue for greater yields, higher quality, and longer stand life. It produces an open, bunch-type sod, making it compatible with alfalfa or red clover as a pasture and hay crop or as habitat for wildlife.

This report provides current yield data on orchardgrass varieties included in yield trials in Kentucky as well as guidelines for selecting orchardgrass varieties. Table 11 shows a summary of all orchardgrass varieties tested in Kentucky for the last 15 years. The UK Forage Extension Web site at [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage) contains electronic versions of all forage variety testing reports from Kentucky and surrounding states and from a large number of other forage publications.

## Important Selection Considerations

**Maturity.** Orchardgrass varieties will range in maturity from early to late, based on the date of heading. In this report, early-maturing varieties will in general have higher first-cutting yields than later-maturing varieties because they are more mature at the date of first cutting. Orchardgrass typically matures earlier in the spring than red clover or alfalfa.

Later-maturing varieties are preferred for use with red clover or alfalfa because they are at a more optimal stage of maturity when the legume is ready for cutting.

### Local adaptation and seasonal yield.

Choose a variety adapted to Kentucky, as indicated by good performance across years and locations in replicated yield trials such as those presented in this publication. Also, look for varieties that are productive in the desired season of use.

**Table 1. Temperature and rainfall at Lexington, Kentucky in 2011, 2012, 2013 and 2014.**

	2011				2012				2013				2014 <sup>2</sup>			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	29	-2	2.10	-0.76	38	+7	4.80	+1.94	38	+7	4.50	+1.64	25	-6	2.28	-0.58
FEB	39	+4	6.34	+3.13	40	+5	5.39	+2.18	36	+1	1.78	-1.43	30	-5	5.47	+2.26
MAR	47	+3	4.76	+0.36	56	+12	5.64	+1.24	39	-5	5.47	+1.07	39	-5	3.08	-1.32
APR	58	+3	12.36	+8.48	56	+1	3.26	-0.62	55	0	4.46	+0.58	58	+3	5.27	-1.89
MAY	64	0	6.72	+2.25	69	+5	4.02	-0.45	65	+1	5.23	+0.76	66	+2	5.72	+1.25
JUN	74	+2	2.61	-1.05	73	+1	2.42	-1.24	72	0	7.32	+3.66	75	+3	2.93	-0.73
JUL	80	+4	6.29	1.29	81	+5	2.50	-2.50	72	-4	9.33	+4.33	74	-2	3.18	-1.82
AUG	75	0	2.89	-1.04	75	0	1.68	-2.25	72	-3	3.68	-0.25	76	+1	6.53	+2.60
SEP	66	-2	5.52	+2.32	67	-1	6.40	+3.20	67	-1	2.21	-0.99	69	+1	3.63	+0.43
OCT	55	-2	4.10	+1.53	55	-2	2.00	-0.57	55	-2	7.02	+4.45	57	0	5.55	+2.98
NOV	50	+5	9.53	+6.14	43	-2	1.81	-0.65	41	-4	3.06	-0.33				
DEC	41	+5	5.58	+1.60	42	+6	9.57	+4.94	36	0	4.19	+0.21				
Total			68.80	+24.25			49.49	+4.94			58.25	+13.70			44.14	+6.96

<sup>1</sup> DEP is departure from the long-term average.

<sup>2</sup> 2014 data is for the ten months through October.

**Table 2. Temperature and rainfall at Princeton, Kentucky in 2012, 2013 and 2014.**

	2012				2013				2014 <sup>2</sup>			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	40	+6	3.01	-0.79	38	+4	6.31	+2.51	30	-4	1.70	-2.10
FEB	54	+6	1.73	-2.70	39	+1	3.09	-1.34	32	-6	4.75	+0.32
MAR	60	+13	3.27	-1.67	42	-5	4.34	-0.60	43	-4	7.43	-0.51
APR	60	+1	0.62	-4.18	57	-2	5.72	+0.92	59	0	8.5	+3.70
MAY	71	+4	1.36	-3.60	66	-1	4.26	-0.70	68	+1	1.96	-3.00
JUN	74	-5	2.38	-1.47	74	-1	7.55	+3.70	76	+1	3.25	-0.60
JUL	83	+5	1.40	-2.89	75	-3	4.44	+0.15	73	-5	1.56	-2.73
AUG	77	0	4.27	+0.26	75	-2	5.59	+1.58	78	0	9.33	+5.32
SEP	69	-2	5.45	+1.82	71	0	5.37	+2.04	69	-2	0.97	-2.36
OCT	57	-2	2.94	-0.11	59	0	4.04	+0.99	59	0	4.36	+1.31
NOV	45	-2	2.11	-2.52	44	-3	1.37	-3.26				
DEC	45	+6	4.77	-0.27	38	-1	5.41	+0.37				
Total			33.01	-18.12			57.49	+6.36			40.81	-0.65

<sup>1</sup> DEP is departure from the long-term average.

<sup>2</sup> 2014 data is for the ten months through October.

**Table 3. Temperature and rainfall at Quicksand, Kentucky in 2013 and 2014.**

	2013				2014 <sup>2</sup>			
	Temp		Rainfall		Temp		Rainfall	
	°F	DEP <sup>1</sup>	IN	DEP	°F	DEP	IN	DEP
JAN	38	+7	5.61	+2.37	29	-2	2.66	-0.63
FEB	38	+5	1.81	-1.79	36	+3	4.52	+0.92
MAR	40	-1	4.55	+0.21	43	+2	5.68	+1.34
APR	56	+3	3.55	-0.55	58	+5	5.12	+1.02
MAY	64	+2	3.98	-0.50	65	+3	2.71	-1.77
JUN	73	+3	6.44	+2.62	75	+5	1.81	-2.01
JUL	75	+1	5.24	-0.01	72	-2	7.14	+1.89
AUG	73	0	5.85	+1.84	74	+1	7.94	+3.93
SEP	68	+2	1.71	-1.81	69	+3	1.93	-1.59
OCT	58	+4	2.07	-0.84	57	+3	6.36	+3.45
NOV	43	+1	3.05	-0.83				
DEC	40	+7	6.84	+2.70				
Total			50.70	+3.36			45.87	+6.55

<sup>1</sup> DEP is departure from the long-term average.

<sup>2</sup> 2014 data is for the ten months through October.

**Seed quality.** Buy premium-quality seed high in germination and 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 past nine months), the level of germination, and the percentage of other crop and weed seed. Order seed well in advance of planting time to assure it will be available when needed.

## Description of the Tests

Data from five studies are reported. Orchardgrass varieties were sown at Lexington (2011, 2012 and 2013), Princeton (2012), and Quicksand (2013). The soils at Lexington (Maury), Princeton (Crider), and Quicksand (Nolin) are well-drained silt loams and are well suited to orchardgrass production. Seedlings were made at the rate of 20 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 harvest plot area of 5 feet by 15 feet. Nitrogen was top-dressed at 60 pounds per acre of actual nitrogen in March, after the first cutting, and again in late summer, for a total of 180 pounds per acre per season. The tests were harvested using a sickle-type forage plot harvester to simulate a spring cut hay/summer grazing/fall stockpile management system. Fresh weight samples were taken at each harvest to calculate percent dry matter production. Management practices for establishment, fertility (P, K and lime based on regular soil tests), weed control, and harvest timing were in accordance with University of Kentucky recommendations.

## Results and Discussion

Weather data for Lexington, Princeton and Quicksand are presented in Tables 1, 2, and 3.

Ratings for maturity (see Table 4 for maturity scale), stand persistence, and dry matter yields (tons per acre) are reported in Tables 5 through 10. Yields are given by cutting date for 2014 and as total annual production. Stated yields are adjusted for percent weeds; therefore, tonnage given is for crop only. Varieties

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

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

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

are listed by descending total yield. Experimental varieties, listed separately at the bottom of the tables, are not available commercially.

Statistical analyses were performed on all data (including experimentals) to determine if the apparent differences are truly due to varietal differences or just to chance. In the tables, the variet-

ies not significantly different from the top variety in that 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), which is a measure of the variability of the data, is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

Table 11 summarizes information about distributors and yield performance across locations for all varieties currently included in tests discussed in this publication. Varieties are listed in alphabetical order, with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use; commercial varieties can be purchased through distributors. In Table 11, 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-yielding variety in that study, 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 distribution of yield across the growing season when evaluating productivity of orchardgrass varieties (Tables 5 through 10).

Table 9 is a summary of yield data from 1998 to 2014 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 Table 9, 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 footnote in Table 9 to determine to which yearly report to refer.

**Table 5. Dry matter yields, seedling vigor, maturity, disease rating and stand persistence of orchardgrass varieties sown September 14, 2011 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 11, 2011		Maturity <sup>2</sup>		Disease <sup>3</sup>		Percent Stand						Yield (tons/acre)						3-year Total			
			2013 May 23	2014 May 12	2014 June 12	2014 Oct 11	2012 Mar 21	2012 Oct 24	2013 Mar 22	2013 Oct 22	2014 Apr 17	2014 Oct 28	2012 Total	2013 Total	2014 Aug 7	2014 Jun 16	2014 May 12	2014 Oct 24	2014 Total	2014 Total	2014 Total	
			Commercial Varieties—Available for Farm Use																			
Persist	4.8	4.8	62.5	58.0	3.5	100	100	100	100	100	93	94	2.83	5.86	0.20	0.59	0.87	1.54	3.20	11.89*	3.20	11.89*
Extend	5.0	5.0	61.5	55.0	4.0	100	100	100	100	81	93	2.94	5.13	0.28	0.69	0.74	1.54	3.26	11.32*	3.26	11.32*	
Benchmark Plus	4.6	4.6	62.5	56.0	4.0	100	100	100	100	87	94	2.65	5.34	0.24	0.61	0.76	1.61	3.22	11.21*	3.22	11.21*	
Prairie	5.0	5.0	62.0	56.5	3.0	100	100	100	100	95	96	2.67	5.33	0.20	0.66	0.86	1.47	3.18	11.18*	3.18	11.18*	
Haymaster	5.0	5.0	62.0	55.0	3.3	100	100	100	100	88	91	2.70	5.05	0.28	0.62	0.72	1.41	3.03	10.78*	3.03	10.78*	
Profit	4.9	4.9	58.0	54.5	3.8	100	100	100	100	75	85	2.91	4.67	0.13	0.57	0.51	1.54	2.75	10.33*	2.75	10.33*	
Tucker	4.8	4.8	62.0	56.0	3.8	100	100	100	100	83	92	2.68	4.59	0.21	0.60	0.90	1.23	2.94	10.22*	2.94	10.22*	
Potomac	5.0	5.0	62.0	57.0	4.0	100	100	100	100	90	95	2.65	4.68	0.16	0.56	0.78	1.32	2.81	10.14*	2.81	10.14*	
Tekapo	4.5	4.5	59.5	51.8	1.8	100	100	100	100	24	33	2.23	4.19	0.33	0.28	0.33	1.07	1.85	8.27	1.85	8.27	
<b>Experimental Varieties</b>																						
XLFOG	4.4	4.4	62.0	57.5	3.3	100	100	100	100	83	93	2.77	5.50	0.31	0.60	0.95	1.45	3.31	11.58*	3.31	11.58*	
PPG-OG102	5.0	5.0	59.5	54.0	3.5	100	100	100	100	84	91	3.11	5.44	0.18	0.63	0.76	1.45	3.02	11.58*	3.02	11.58*	
PPG-OG103	4.8	4.8	58.0	47.3	2.5	100	100	100	100	70	80	3.00	4.76	0.14	0.53	0.55	1.33	2.55	10.31*	2.55	10.31*	
PPG-OG101	5.0	5.0	62.0	55.5	3.8	100	100	100	100	89	93	2.74	4.72	0.14	0.66	0.55	1.38	2.73	10.19*	2.73	10.19*	
Mean	4.8	4.8	61.0	54.9	3.4	100	100	100	100	80	87	2.76	5.02	0.20	0.58	0.72	1.41	2.91	10.69	2.91	10.69	
CV/%	7.0	7.0	1.5	4.6	24.9	0	0	0	0	10	7	9.92	15.97	21.39	28.10	51.21	17.60	18.70	13.15	18.70	13.15	
LSD,0.05	0.5	0.5	1.3	3.6	1.2	0	0	0	0	12	9	0.39	1.15	0.22	0.23	0.15	0.36	0.78	2.02	0.78	2.02	

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

<sup>2</sup> Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 4 for complete scale.

<sup>3</sup> Disease score based on a scale of 1 to 9 with 9 being almost all leaves affected.

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

## Summary

Selecting a good orchardgrass variety is an important first step in establishing a productive stand of grass. Proper management, beginning with seedbed

preparation and continuing throughout the life of the stand, is necessary for even the highest-yielding variety to produce to its genetic potential.

**Table 6. Dry matter yields, seedling vigor, maturity, disease rating and stand persistence of orchardgrass varieties sown September 7, 2012 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 15, 2012	Maturity <sup>2</sup>		Disease <sup>3</sup>	Percent Stand					Yield (tons/acre)					2-year Total	
		2013	2014	2014	2012	2013		2014		2013	2014					
		May 20	May 12	Jun 16	Oct 15	Mar 20	Oct 22	Apr 9	Oct 30	Total	May 12	Jun 16	Aug 6	Oct 29		Total
<b>Commercial Varieties—Available for Farm Use</b>																
Prairie	4.1	60.5	56.0	4.5	100	100	100	92	92	5.46	1.00	0.67	0.35	1.07	3.08	8.54*
Checkmate	4.1	57.5	52.5	4.5	100	100	100	82	90	5.37	0.91	0.69	0.36	1.16	3.12	8.49*
Persist	3.4	62.0	56.5	5.0	100	100	100	97	94	5.13	0.97	0.62	0.28	1.17	3.04	8.17*
Profit	4.0	57.0	49.8	4.3	100	100	100	80	84	5.25	0.81	0.63	0.25	1.15	2.85	8.09*
Prodigy	2.8	57.0	55.5	4.0	100	100	100	95	95	4.76	0.83	0.56	0.26	1.02	2.66	7.42*
Benchmark Plus	3.1	62.0	56.0	5.8	100	100	100	89	87	4.72	0.70	0.53	0.28	1.09	2.60	7.33*
Potomac	4.3	62.0	56.0	4.8	100	100	100	95	93	4.59	0.85	0.57	0.22	0.90	2.54	7.13*
Elise	3.4	55.0	51.5	3.5	99	98	99	50	68	4.17	0.55	0.47	0.25	0.89	2.15	6.33
Tekapo	3.0	56.0	53.3	3.3	100	100	100	35	53	4.20	0.46	0.43	0.25	0.94	2.08	6.28
<b>Experimental Varieties</b>																
PPG-OG101	3.8	60.5	55.5	5.0	100	100	100	75	83	5.33	0.82	0.62	0.28	1.06	2.78	8.11*
OG 0201	4.0	58.5	54.0	4.3	100	100	100	93	94	5.16	0.88	0.61	0.19	1.01	2.69	7.86*
PPG-OG103	3.9	55.5	48.5	3.5	100	100	100	50	81	5.02	0.56	0.58	0.32	1.00	2.47	7.49*
PPG-OG102	3.6	56.0	50.8	4.5	100	100	100	86	90	4.80	0.73	0.58	0.30	1.05	2.65	7.44*
PPG-OG106	3.5	54.5	50.5	3.8	100	100	100	35	70	4.61	0.54	0.47	0.34	0.92	2.28	6.88*
Mean	3.6	58.1	53.3	4.3	100	100	100	75	84	4.90	0.76	0.57	0.28	1.03	2.64	7.54
CV,%	27.0	2.7	5.8	14.9	1	1	1	22	12	16.15	30.73	25.31	36.45	27.27	24.51	17.28
LSD,0.05	1.4	2.3	4.4	0.9	1	2	1	23	14	1.13	0.33	0.21	0.15	0.40	0.93	1.86

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

<sup>2</sup> Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.

<sup>3</sup> Disease score based on a scale of 1 to 9 with 9 being almost all leaves affected.

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

The following is a list of University of Kentucky Cooperative Extension publications related to orchardgrass management. They are available from your county Extension office and are listed in the “Publications” section of the UK For-

age Web site, [www.uky.edu/Ag/Forage](http://www.uky.edu/Ag/Forage):

- Lime and Fertilizer Recommendations (AGR-1)
- Grain and Forage Crop Guide for Kentucky (AGR-18)
- Renovating Hay and Pasture Fields (AGR-26)
- Orchardgrass (AGR-58)
- Establishing Forage Crops (AGR-64)
- Forage Identification and Use Guide (AGR-175)
- Rotational Grazing (ID-143)

**Table 7. Dry matter yields, seedling vigor, maturity, disease rating and stand persistence of orchardgrass varieties sown September 5, 2013 at Lexington, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 14, 2013	Maturity <sup>2</sup>	Disease <sup>3</sup>	Percent Stand			Yield (tons/acre)				
		2014	2014	2013	2014		2014				
		May 7	Jun 16	Oct 14	Apr 2	Oct 30	May 7	Jun 16	Aug 6	Oct 30	Total
<b>Commercial Varieties—Available for Farm Use</b>											
Prairie	3.5	52.0	6.8	99	94	97	1.14	1.07	0.48	1.65	4.33*
Benchmark Plus	3.3	53.0	7.8	100	91	96	0.99	1.04	0.40	1.60	4.03*
Prodigy	5.0	50.5	7.5	100	98	99	1.04	1.04	0.37	1.37	3.83
Potomac	4.3	51.8	7.0	99	97	97	1.04	0.97	0.40	1.24	3.65
Harvestar	3.4	36.8	5.5	100	75	95	0.63	0.96	0.40	1.63	3.63
Persist	3.4	52.0	6.8	100	95	98	0.86	0.90	0.45	1.39	3.60
Profit	3.9	50.0	6.3	100	96	100	0.83	0.98	0.41	1.35	3.57
Tekapo	3.4	36.5	4.3	100	36	64	0.34	0.72	0.41	1.48	2.95
<b>Experimental Varieties</b>											
OG62	3.6	49.8	5.5	99	75	94	0.72	1.05	0.55	1.38	3.69
OG61M2	3.0	37.0	4.8	99	73	90	0.58	1.02	0.41	1.62	3.62
Mean	3.7	46.9	6.2	100	83	93	0.82	0.97	0.43	1.47	3.69
CV,%	14.4	10.8	15.0	1	16	9	24.41	8.10	19.99	14.85	9.13
LSD,0.05	0.8	7.4	1.3	2	20	12	0.29	0.11	0.12	0.31	0.49

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

<sup>2</sup> Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.

<sup>3</sup> Disease score based on a scale of 1 to 9 with 9 being almost all leaves affected.

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

**Table 8. Dry matter yields, seedling vigor, maturity and stand persistence of orchardgrass varieties sown September 12, 2012 at Princeton, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 29, 2012	Maturity <sup>2</sup>		Percent Stand					Yield (tons/acre)				2-year Total
		2013	2014	2012	2013		2014		2013	2014		Total	
		May 14	May 20	Oct 29	Mar 19	Oct 25	Apr 4	Oct 22	Total	May 20	Jun 18		
<b>Commercial Varieties—Available for Farm Use</b>													
Benchmark Plus	3.5	59.0	62.0	99	98	98	96	89	6.62	1.22	0.63	1.85	8.47*
Profit	5.0	55.5	58.0	100	100	100	98	91	6.37	1.09	0.59	1.68	8.05*
Checkmate	3.4	56.5	59.5	100	100	100	97	89	6.41	1.07	0.56	1.63	8.04*
Prairie	3.4	59.0	62.0	100	99	99	98	94	6.17	1.26	0.61	1.87	8.04*
Persist	3.6	58.0	62.0	100	100	100	100	85	6.09	1.37	0.53	1.90	7.99*
Prodigy	4.1	58.0	62.0	100	99	99	98	90	6.23	1.14	0.51	1.65	7.88*
Potomac	4.1	59.0	62.0	99	99	99	97	95	6.08	1.05	0.51	1.56	7.64
Elise	2.6	54.5	59.0	98	96	96	83	86	6.08	0.90	0.63	1.53	7.60
Tekapo	2.9	55.5	60.0	98	97	97	65	78	4.99	0.82	0.52	1.35	6.33
<b>Experimental Varieties</b>													
PPG-OG 102	4.1	55.5	59.5	98	98	98	91	91	6.97	1.07	0.60	1.67	8.64*
PPG-OG 103	3.4	53.0	56.0	100	100	100	92	89	6.83	1.03	0.61	1.64	8.48*
PPG-OG 101	3.8	56.5	61.5	100	100	100	97	93	6.41	1.18	0.60	1.78	8.19*
OG 0201	3.6	56.0	57.0	100	100	100	98	81	6.36	1.13	0.63	1.76	8.12*
PPG-OG 106	2.9	53.0	58.0	100	97	97	80	81	6.31	0.75	0.63	1.38	7.69
Mean	3.6	56.4	59.9	99	99	99	92	88	6.28	1.07	0.58	1.66	7.94
CV,%	19.6	2.5	4.0	1	2	2	5	12	8.25	16.39	16.37	13.03	7.92
LSD,0.05	1.0	2.0	3.4	2	2	2	6	15	0.74	0.25	0.14	0.31	0.90

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

<sup>2</sup> Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.

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

## About the Authors

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**Table 9.** (continued)

Variety	Proprietor	Lexington								Princeton								Quicksand						Mean <sup>3</sup> (#trials)	
		1999 <sup>1,2</sup> 2-yr <sup>4</sup>	2001 2-yr	2003 3-yr	2006 4-yr	2007 3-yr	2009 3-yr	2011 3-yr	2012 2-yr	1998 2-yr	2000 2-yr	2002 3-yr	2004 3-yr	2006 3-yr	2008 3-yr	2010 3-yr	2012 2-yr	1999 2-yr	2001 2-yr	2003 3-yr	2005 4-yr	2010 3-yr			
Shiloh	Proseeds Marketing								109																
Shiloh II	Proseeds Marketing								82			117													
Spanish Pink	DLF International Seeds																94								
Spanish Red	DLF International Seeds	101																							
Takana	Smith Seed		107								100								108					98(2)	
Tekena II	Smith Seed			110	102							109												105(3)	
Tekapo	Ampac Seed	88			91	81	82	78	83				98	86	92	81	94	92	106	105	104	81	85	106(5)	
Tucker	Oregro Seeds							96					96	102	96									88(15)	
Udder	Improved Forages			100	107																			95(5)	
Vailliant	Proseeds Marketing									102	102													103(6)	
Vision	Cropmark Seeds																			63					65(2)

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

<sup>2</sup> Use this summary table as a guide in making variety decisions, but refer to specific yearly reports to determine statistical differences in forage yield between varieties. To find actual yields, look in the yearly report for the final year of each specific trial. For example, the Lexington trial planted in 1999 was harvested 2 years, so the final report would be "2001 Orchardgrass Report" archived in the KY Forage website at <www.uky.edu/Ag/Forage>.

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

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

**Table 10. Dry matter yields, seedling vigor and stand persistence of orchardgrass varieties sown August 29, 2013 at Quicksand, Kentucky.**

Variety	Seedling Vigor <sup>1</sup> Oct 3, 2013	Percent Stand			Yield (tons/acre)				
		2013		2014	2014				
		Oct 3	Mar 27	Nov 3	May 6	Jul 2	Sep 17	Oct 27	Total
<b>Commercial Varieties—Available for Farm Use</b>									
Potomac	4.5	100	100	100	1.84	1.45	0.97	0.97	5.24*
Prairie	3.9	100	100	100	1.68	1.40	1.06	0.73	4.87*
Harvestar	2.3	99	97	97	1.22	1.49	1.25	0.75	4.70
Benchmark Plus	4.5	100	100	99	1.54	1.22	0.99	0.91	4.66
Profit	4.0	100	100	100	1.41	1.29	0.95	0.87	4.51
Prodigy	3.5	100	100	100	1.34	1.17	1.04	0.69	4.24
Persist	1.8	100	98	98	1.12	1.27	1.05	0.70	4.13
Tekapo	3.4	100	99	98	1.28	1.12	0.87	0.66	3.92
<b>Experimental Varieties</b>									
OG62	3.5	100	98	98	2.05	2.08	1.22	0.79	6.14*
OG61M2	2.5	98	96	97	1.08	1.59	1.24	0.82	4.73
Mean	3.4	100	99	99	1.46	1.41	1.06	0.79	4.72
CV,%	28.2	1	2	2	31.21	23.56	20.44	20.67	18.57
LSD,0.05	1.4	1	2	3	0.66	0.48	0.32	0.24	1.27

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

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

**Table 11. Performance of orchardgrass varieties across years and locations.**

Variety	Proprietor/KY Distributor	Lexington						Princeton		Quicksand
		2011 <sup>1</sup>			2012		2013	2012		2013
		12 <sup>2</sup>	13	14	13	14	14	13	14	14
<b>Commercial Varieties—Available for Farm Use</b>										
Benchmark Plus	FFR/Southern States	x <sup>3</sup>	*	*	*	*	*	*	*	x
Checkmate	Seed Res. of Oregon/Pickseed				*	*		*	*	
Elise	PureSeed				x	x		x	x	
Extend	Farm Service Genetics/Allied	*	*	*						
Harvestar	Columbia Seeds						x			x
Haymaster	FFR/Southern States	x	*	*						
Persist	Smith Seed Services	*	*	*	*	*	x	*	*	x
Potomac	Public	x	x	*	*	*	x	*	*	*
Prairie	Turner Seed Company	x	*	*	*	*	*	*	*	*
Prodigy	Caudill Seed				*	*	x	*	*	x
Profit	Ampac Seed Company	*	x	*	*	*	x	*	*	x
Tekapo	Ampac Seed Company	x	x	x	x	x	x	x	x	x
Tucker	Oregro Seeds, Inc.	x	x	*						
<b>Experimental Varieties</b>										
OG 0201	BrettYoung Seed				*	*		*	*	
OG62	DLF International						x			*
OG61M2	DLF International						x			x
PPG OG 101	Mountain View Seeds	*	*	*	*	*		*	*	
PPG-OG 102	Mountain View Seeds	*	*	*	*	*		*	*	
PPG-OG 103	Mountain View Seeds	*	*	*	*	*		*	*	
PPG-OG-106	Mountain View Seeds				*	*		*	x	
XLF OG	ProSeeds Marketing	*	*	*						

<sup>1</sup> Establishment year.

<sup>2</sup> Harvest year.

<sup>3</sup> x in the box indicates the variety was in the test but yielded significantly less than the top ranked variety in the test. Open box indicates the variety was not in the test.

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



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