

2009 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 very 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 10 shows a summary of all orchardgrass varieties tested in Kentucky for the past ten 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 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 that is 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.

Seed Quality. Buy premium-quality seed that is 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) and the level of germination and other crop and weed seed. Order seed well in advance of planting time to assure that it will be available when needed.

Description of the Tests

Data from five studies are reported. Orchardgrass varieties were sown at Lexington (2006 and 2007), Quicksand (2005), and Princeton (2006 and 2008). The soils at Lexington (Maury), Quicksand (Nolin), and Princeton (Crider) are well-drained silt loams and are well suited to orchardgrass production. Seedlings were made at the rate of 20 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 harvest plot area of 5 by 15 feet. Nitrogen was topdressed at 60 lb/A of actual N in March, after the first cutting, and again in late summer, for a total of 180 lb/A 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, weed control, and harvest timing were in accordance with University of Kentucky recommendations.

Results and Discussion

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

Ratings for maturity and stand and dry matter yields (tons/A) are reported

in Tables 4 through 8. Yields are given by cutting date and as total annual production. Stated yields are adjusted for percent weeds; therefore, tonnage given is for crop only. Varieties 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 varieties 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 9 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 9, 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

Table 1. Temperature and rainfall at Lexington, Kentucky in 2006, 2007, 2008 and 2009.

	2006				2007				2008				2009 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	42	+11	4.77	+1.91	37	+6	2.93	+0.07	33	+2	4.60	+1.74	28	-3	2.45	-0.41
FEB	36	+1	2.13	-1.08	27	-8	1.83	-1.38	36	+1	5.37	+2.16	38	+3	2.86	-0.35
MAR	44	0	3.05	-1.35	52	+8	1.97	-2.43	45	+1	6.28	+1.88	48	+4	2.19	-2.21
APR	59	+4	3.52	-0.36	53	-2	3.87	-0.01	55	0	5.72	+1.84	55	0	4.48	+0.60
MAY	62	-2	2.99	-1.48	68	+4	1.45	-3.02	62	-2	4.88	+0.41	64	0	5.05	+0.58
JUN	70	-2	1.82	-1.84	74	+2	1.77	-1.89	74	+2	3.30	-0.36	74	+2	5.41	+1.75
JUL	76	0	5.13	+0.13	74	-2	6.90	+1.90	76	0	2.54	-2.46	71	-5	5.89	+0.89
AUG	76	+1	3.23	-0.70	80	+5	2.56	-1.37	75	0	1.08	-2.85	73	-2	5.38	+1.45
SEP	64	-4	9.27	+6.07	72	+4	1.15	-2.05	72	+4	1.21	-1.99	68	0	5.37	+2.17
OCT	54	-3	4.88	+2.31	63	+6	5.28	+2.71	57	0	1.35	-1.22	54	-3	4.83	+2.26
NOV	47	+2	1.78	-1.61	46	+1	2.86	-0.53	43	-2	2.28	-1.11	49	+4	0.94	-2.45
DEC	42	+6	2.45	-1.53	40	+4	5.29	+1.31	35	-1	4.76	+0.78				
Total			45.02	+0.47			37.86	-6.69			43.37	-1.18			44.85	+4.28

¹ DEP is departure from the long-term average.

² 2009 data is for eleven months through November.

of yield across the growing season when evaluating productivity of orchardgrass varieties (Tables 4 through 8).

Table 10 is a summary of yield data from 1998 to 2009 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 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 footnote in Table 10 to determine which yearly report to refer to.

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.

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 on the web at www.uky.edu/Ag/Forage:

- AGR-1—Lime and Fertilizer Recommendations
- AGR-18—Grain and Forage Crop Guide for Kentucky
- AGR-26—Renovating Hay and Pasture Fields
- AGR-58—Orchardgrass
- AGR-64—Establishing Forage Crops
- AGR-175—Forage Identification and Use Guide

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Table 2. Temperature and rainfall at Princeton, Kentucky in 2006, 2007, 2008 and 2009.

	2006				2007				2008				2009 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	46	+12	5.38	+1.58	40	+6	4.89	+1.09	37	+3	2.40	-1.40	33	-1	0.94	-2.86
FEB	38	0	2.66	-1.77	34	-4	2.99	-1.44	39	+1	6.76	+2.33	42	+4	3.28	-1.15
MAR	51	+4	4.22	-0.72	58	+11	1.85	-3.09	48	+1	7.55	+2.61	53	+6	2.89	-2.05
APR	63	+4	4.02	-0.78	58	-1	3.95	-0.85	58	-1	6.56	+1.76	58	-1	5.35	+0.55
MAY	66	-1	5.42	+0.46	71	+4	2.29	-2.67	65	-2	6.19	+1.23	67	0	6.14	+1.18
JUN	75	0	3.39	-0.46	76	+1	4.32	+0.47	78	+3	1.24	-2.61	77	+2	7.97	+4.12
JUL	79	+1	3.79	-0.50	77	-1	1.77	-2.52	79	+1	5.12	+0.83	74	-4	7.45	+3.16
AUG	80	+3	2.58	-1.43	85	+8	0.87	-3.14	77	0	0.69	-3.32	75	-2	2.44	-1.60
SEP	67	-4	9.80	+6.47	75	+4	3.52	+0.19	74	+3	0.61	-2.72	71	0	4.61	+1.28
OCT	57	-2	4.5	+1.45	65	+6	5.84	+2.79	60	+1	2.21	-0.84	55	-4	9.08	+6.03
NOV	49	+2	4.31	-0.32	49	+2	2.31	-2.32	46	-1	2.59	-2.04	52	+5	1.50	-3.13
DEC	44	+5	4.76	-0.28	42	+3	10.83	+5.79	39	0	6.49	+1.95				
Total			54.82	+3.69			47.92	-3.21			48.95	-2.18			51.62	+5.33

¹ DEP is departure from the long-term average.

² 2009 data is for eleven months through November.

Table 3. Temperature and rainfall at Quicksand, Kentucky in 2006, 2007, 2008 and 2009.

	2006				2007				2008				2009 ²			
	Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall		Temperature		Rainfall	
	°F	DEP ¹	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP1	IN	DEP
JAN	44	+13	4.48	+1.19	38	+7	2.70	-0.59	34	+3	2.07	-1.22	30	-1	4.81	+1.52
FEB	37	+4	1.56	-2.04	31	-2	0.61	-2.99	38	+5	3.52	-0.08	40	+7	1.23	+2.37
MAR	47	+6	1.74	-2.60	54	+13	2.70	-1.64	46	+5	3.62	-0.72	49	+8	3.61	-0.73
APR	60	+7	2.95	-1.15	55	+2	1.71	-2.39	56	+3	3.99	-0.11	56	+3	3.34	-0.76
MAY	63	+1	3.45	-1.03	69	+7	1.82	-2.66	63	+1	3.69	-1.79	66	+4	8.81	+4.33
JUN	71	+1	3.00	-0.82	75	+5	1.95	-1.87	75	+5	3.96	+0.14	72	+2	4.84	+1.02
JUL	77	+3	3.85	-1.40	76	+2	4.00	-1.25	76	+2	5.88	+0.63	71	-3	4.02	-1.23
AUG	78	+5	3.55	-0.46	82	+9	2.41	-1.60	74	+1	1.16	-2.85	73	0	1.86	-2.15
SEP	65	-1	5.56	+2.04	73	+7	2.49	-1.03	72	+6	0.64	-2.88	69	+3	4.08	+0.56
OCT	55	+1	6.00	+3.09	63	+9	3.80	+0.89	58	+4	1.28	-1.63	54	0	3.97	+1.06
NOV	48	+6	2.32	-1.56	47	+5	1.80	-2.08	44	+2	2.71	-1.17	48	+6	0.96	-1.67
DEC	43	+10	1.55	-2.59	42	+8	4.44	+0.30	37	+4	4.81	+0.67				
Total			40.07	-7.27			30.43	-16.91			36.33	-11.01			41.53	-1.67

¹ DEP is departure from the long-term average.

² 2009 data is for eleven months through November.

Table 4. Dry matter yields and stand persistence of orchardgrass varieties sown September 31, 2005 at Quicksand, Kentucky.

Variety	Percent Stand								Yield (tons/A)							4-year Total
	2006		2007		2008		2009		2006	2007	2008	2009				
	Apr 18	Nov 3	Apr 12	Oct 17	Apr 10	Nov 5	Apr 8	Oct 16	Total	Total	Total	May 20	Jul 6	Nov 6	Total	
Commercial Varieties—Available for Farm Use																
Prairie	96	96	98	96	96	97	96	96	6.24	3.44	3.27	1.81	1.03	0.66	3.51	16.46*
Takena II	89	91	94	90	93	93	93	93	6.10	3.39	3.00	1.80	1.07	0.62	3.49	15.99*
Century	94	94	94	93	94	95	95	96	5.60	3.62	3.28	1.74	1.12	0.58	3.43	15.92*
Benchmark Plus	94	92	93	91	94	96	96	96	6.02	2.96	3.14	2.11	0.84	0.61	3.56	15.67*
Persist	88	93	91	93	95	96	93	94	5.74	2.80	3.49	1.80	1.00	0.62	3.41	15.45*
Harvestar	81	90	93	90	90	91	88	91	5.98	3.05	2.79	1.79	1.09	0.64	3.52	15.34*
Udder	89	91	92	89	86	91	93	94	5.71	3.70	2.43	1.83	0.94	0.50	3.27	15.12*
Icon	88	90	93	93	93	95	95	93	5.68	3.49	2.56	1.76	0.99	0.52	3.26	14.99*
Bounty	96	94	95	93	93	93	93	95	5.79	3.10	2.90	1.95	0.76	0.47	3.19	14.97*
Haymaster	84	88	91	88	90	93	92	93	5.49	3.26	2.75	1.89	1.00	0.54	3.43	14.94*
Tekapo	95	94	95	94	95	94	93	93	5.65	2.43	2.59	1.68	1.01	0.60	3.28	13.95*
Mean	90.2	91.9	93.5	91.7	92.4	93.9	93.2	93.7	5.82	3.20	2.93	1.83	0.99	0.58	3.40	15.34
CV,%	10.4	5.9	4.5	4.8	5.0	3.0	3.7	2.8	15.90	18.40	22.00	15.22	32.11	17.28	16.02	14.49
LSD,0.05	13.6	7.9	6.0	6.3	6.6	4.0	4.9	3.7	1.34	0.85	0.93	0.40	0.46	0.14	0.79	3.21

* 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 orchardgrass varieties sown March 20, 2006 at Lexington, Kentucky.

Variety	Seedling Vigor ¹ May 12, 2006	Maturity ²						Percent Stand						Yield (tons/A)						4-year Total		
		2007		2008		2009		2007		2008		2009		2006		2007		2008			2009	
		May 10	May 6	May 13	May 12	May 13	May 12	Oct 17	Mar 26	Oct 11	Mar 27	Oct 21	Apr 24	Oct 30	Total	Total	Total	Total	Total		Total	Total
Commercial Varieties—Available for Farm Use																						
Udder	3.5	55.0	47.5	48.5	91	95	94	89	88	85	83	78	78	3.27	3.22	1.83	0.64	0.49	0.62	0.51	2.26	10.58*
Prairie	3.0	57.0	55.5	54.0	93	96	95	94	96	96	96	90	90	2.87	3.05	2.09	0.78	0.49	0.66	0.58	2.51	10.52*
Icon	3.5	55.5	51.5	53.0	94	96	95	93	93	93	90	90	90	3.11	2.95	2.06	0.48	0.57	0.66	0.56	2.27	10.39*
Persist	3.0	57.5	55.5	57.5	93	96	97	94	95	95	93	94	94	2.79	3.22	2.10	0.68	0.39	0.61	0.57	2.25	10.35*
Takana II	3.5	48.0	48.0	49.8	90	96	96	91	88	89	88	86	86	2.82	3.05	1.98	0.65	0.49	0.56	0.48	2.18	10.03*
Bounty	3.8	58.0	55.0	56.5	95	96	94	95	95	93	90	90	90	2.80	3.07	2.20	0.53	0.37	0.52	0.46	1.88	9.95*
Benchmark Plus	4.3	56.5	54.5	57.0	96	98	97	97	96	94	94	91	91	2.66	2.72	2.05	0.72	0.48	0.58	0.56	2.35	9.77*
Century	3.5	57.0	52.5	56.7	95	95	95	94	94	93	91	91	91	2.65	2.92	1.90	0.71	0.43	0.62	0.41	2.17	9.64*
Haymaster	2.8	53.5	46.3	45.0	88	93	90	89	86	89	85	84	84	2.70	2.70	1.89	0.40	0.42	0.63	0.51	1.96	9.24
Harvestar	3.3	34.8	36.0	46.7	95	95	95	86	86	88	66	58	58	3.00	2.71	1.70	0.36	0.35	0.51	0.38	1.60	9.01
Tekapo	3.8	57.0	52.5	56.0	98	99	96	95	93	91	65	75	75	2.69	2.20	1.73	0.44	0.41	0.61	0.56	2.02	8.96
Experimental Varieties																						
RAD-LCF21	3.5	42.5	33.0	49.7	100	99	94	93	88	90	60	76	76	2.91	2.65	2.70	0.43	0.41	0.51	0.49	1.84	10.72*
RAD-ECF26	3.3	56.5	56.0	56.5	98	98	97	95	93	95	88	85	85	3.04	3.08	2.21	0.52	0.47	0.59	0.58	2.15	10.49*
IS-OG 39	3.8	55.0	51.0	55.0	96	98	95	95	95	96	91	93	93	2.89	2.67	1.88	0.51	0.54	0.67	0.55	2.27	9.71*
Mean	3.5	53.1	49.6	53.0	94.2	96.3	94.8	92.6	91.7	91.7	84.5	84.5	84.5	2.87	2.87	2.02	0.57	0.45	0.60	0.51	2.13	9.96
CV%	26.0	11.3	5.1	4.5	4.9	2.7	2.0	3.1	4.0	4.2	9.3	11.1	13.12	13.12	10.26	33.72	35.57	18.40	26.02	12.68	16.94	9.72
LSD/0.05	1.3	8.6	3.6	3.4	6.6	3.7	2.7	4.2	5.2	5.5	11.4	13.6	13.6	0.54	0.42	0.98	0.30	0.12	0.23	0.10	0.53	1.42

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 6. Dry matter yields, seedling vigor, maturity and stand persistence of orchardgrass varieties sown September 6, 2006 at Princeton, Kentucky.

Variety	Seedling Vigor ¹ Oct 30, 2006	Maturity ²						Percent Stand						Yield (tons/A)									
		2007		2008		2009		2007		2008		2009		2007		2008		2009		2009		3-year Total	
		May 8	May 21	May 11	Oct 30	Apr 3	Oct 18	Apr 17	Oct 31	Apr 17	Nov 4	Nov 4	May 11	Jun 22	Aug 21	Nov 4	Total	Total	Total				
Commercial Varieties—Available for Farm Use																							
Benchmark Plus	4.8	49.3	62.0	56.5	100	100	99	95	97	94	94	99	95	97	94	2.35	2.34	1.39	0.96	0.39	0.39	3.14	7.83*
Harvester	4.5	31.5	45.0	55.0	98	100	98	96	91	83	98	98	96	91	83	2.57	2.23	1.34	0.97	0.35	0.37	3.03	7.82*
Endurance	4.5	31.5	62.8	54.5	99	100	100	97	99	97	100	99	97	99	97	2.22	2.28	1.38	1.02	0.37	0.41	3.18	7.68*
Prairie	5.0	44.5	61.5	57.5	100	100	99	97	99	93	98	99	97	99	93	2.19	2.21	1.50	0.86	0.33	0.25	2.94	7.34
Tekapo	3.3	36.5	61.5	55.5	100	100	98	96	95	96	100	98	96	95	96	2.00	2.16	1.25	0.93	0.42	0.41	3.01	7.18
Tucker	5.0	34.8	61.5	54.0	100	100	98	97	96	89	98	98	97	96	89	2.11	2.13	1.17	0.90	0.41	0.31	2.79	7.03
Ambrosia	4.5	34.5	53.8	57.0	100	100	97	95	95	90	98	97	95	95	90	2.00	1.81	1.00	0.98	0.43	0.39	2.80	6.61
Experimental Varieties																							
OG-0204G	4.5	33.3	55.0	56.5	99	100	99	97	97	90	99	99	97	97	90	2.44	2.29	1.52	1.06	0.36	0.42	3.36	8.09*
IS-OG39	4.8	40.5	62.0	53.0	97	99	98	95	95	94	98	99	95	95	94	2.44	2.23	1.26	1.04	0.46	0.41	3.17	7.84*
NFOG101	2.8	50.5	61.5	54.0	100	99	99	93	88	46	99	97	93	88	46	1.45	1.35	1.00	0.66	0.34	0.20	2.21	5.01
Mean	4.4	38.7	58.7	55.4	99.2	99.6	98.3	95.8	95.2	87.2	98.2	98.3	95.8	95.2	87.2	2.18	2.10	1.28	0.94	0.39	0.36	2.96	7.24
CV%	11.6	15.6	4.8	21.8	1.5	1.1	1.5	2.0	3.0	13.9	1.5	2.0	2.5	3.0	13.9	10.27	7.15	21.80	11.53	24.50	33.18	14.31	6.74
LSD _{0.05}	0.7	8.8	4.1	0.4	2.1	1.5	2.1	2.9	3.4	4.1	17.5	2.9	3.4	4.1	17.5	0.32	0.22	0.41	0.16	0.14	0.17	0.62	0.71

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

Variety	Seedling Vigor ¹ Oct 25, 2007	Maturity ²		Percent Stand					Yield (tons/A)					2-year Total	
		2008	2009	2007	2008		2009		2008	2009					
		May 12	May 15	Oct 25	Mar 26	Oct 21	Apr 6	Oct 30	Total	May 15	Jun 24	Aug 10	Oct 20		Total
Commercial Varieties—Available for Farm Use															
Benchmark Plus	4.0	56.5	58.0	100	100	100	100	100	2.36	2.42	1.13	0.89	0.72	5.16	7.52*
Paiute2	3.0	57.5	57.0	99	99	100	100	99	2.26	2.56	1.05	0.93	0.66	5.21	7.47*
Profit	3.5	51.8	55.5	100	100	100	100	100	2.20	2.21	1.11	1.00	0.79	5.11	7.31*
Persist	4.0	57.0	58.0	100	100	100	100	100	2.18	2.21	0.97	0.98	0.73	4.89	7.07*
Checkmate	3.3	53.0	54.5	99	100	100	100	100	2.08	2.45	1.09	0.88	0.57	4.99	7.07*
Prairie	4.0	57.0	57.0	98	100	100	100	100	2.14	2.22	1.06	0.79	0.61	4.68	6.81*
Harvestar	3.8	46.3	53.0	100	99	100	95	93	2.11	1.84	1.03	0.90	0.67	4.45	6.56
Vailliant	2.8	34.8	43.8	100	100	100	88	90	2.15	1.37	1.13	0.99	0.76	4.25	6.40
Christoss	4.3	30.0	34.5	100	100	100	94	95	2.21	1.33	1.06	0.99	0.63	4.01	6.22
Tekapo	4.5	55.0	55.5	100	100	100	93	98	1.78	1.39	0.94	0.74	0.56	3.63	5.41
Experimental Varieties															
9007238	2.5	55.0	57.5	98	98	99	99	100	1.06	1.95	1.03	0.95	0.64	4.58	5.64
Mean	3.6	50.3	53.1	99.4	99.4	99.7	97.0	97.5	2.05	2.00	1.06	0.91	0.67	4.63	6.68
CV,%	17.7	9.5	7.1	1.4	1.0	0.5	2.0	2.3	10.47	13.46	9.76	16.91	17.67	9.97	8.87
LSD,0.05	0.9	6.9	5.5	2.0	1.4	0.8	2.8	3.3	0.31	0.39	0.15	0.22	0.17	0.67	0.86

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 8. Dry matter yields, seedling vigor, maturity and stand persistence of orchardgrass varieties sown September 29, 2008 at Princeton, Kentucky.

Variety	Seedling Vigor ¹ Oct 30, 2008	Maturity ²		Percent Stand			Yield (tons/A)				
		2009	2008	2009		2009					
		May 11	Oct 30	Apr 17	Nov 4	May 11	Jun 22	Aug 21	Nov 4	Total	
Commercial Varieties—Available for Farm Use											
Lazuly	4.5	38.3	96	81	80	1.18	1.69	0.83	0.91	4.62*	
Crown	3.3	55.5	95	99	98	1.52	1.52	0.68	0.69	4.41*	
Prairie	3.8	51.8	98	99	97	1.49	1.48	0.63	0.71	4.31*	
Survivor	2.8	57.5	95	93	94	1.28	1.49	0.83	0.65	4.25*	
Tucker	3.8	50.3	97	98	97	1.48	1.41	0.68	0.64	4.21*	
Potomac	3.8	57.0	97	100	99	1.48	1.49	0.61	0.58	4.16*	
Profit	3.5	50.3	96	97	96	1.33	1.45	0.67	0.70	4.14*	
Elsie	2.8	52.8	95	97	96	1.40	1.45	0.60	0.60	4.05	
Benchmark Plus	3.8	56.5	96	99	98	1.35	1.49	0.64	0.53	4.01	
Megabite	3.8	55.5	97	97	98	1.26	1.32	0.66	0.59	3.82	
Shawnee	2.0	34.8	93	84	89	0.90	1.52	0.74	0.56	3.71	
Tekapo	2.8	48.3	95	68	83	0.71	1.26	0.80	0.57	3.34	
Experimental Varieties											
ADG 1002	3.5	50.3	96	99	100	1.49	1.63	0.61	0.58	4.31*	
8SS	3.0	55.5	95	95	93	1.23	1.51	0.72	0.72	4.18*	
B-8.0707	2.8	57.0	97	98	97	1.19	1.57	0.71	0.59	4.06	
ADG 1001	3.3	49.3	97	94	96	1.33	1.48	0.63	0.55	4.00	
Mean	3.3	51.3	95.8	93.4	94.3	1.29	1.49	0.69	0.64	4.10	
CV,%	19.1	11.5	2.1	9.8	6.4	16.93	10.12	13.58	15.42	9.06	
LSD,0.05	0.9	8.4	2.8	13.0	8.5	0.31	0.21	0.13	0.14	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 9. Performance of orchardgrass varieties across years and locations.

Variety	Proprietor/KY distributor	Princeton				Lexington						Quicksand			
		2006 ¹			2008	2006				2007		2005			
		07 ²	08	09	09	06	07	08	09	08	09	06	07	08	09
Commercial Varieties—Available for Farm Use															
Ambrosia	American Grass Seed Producers	x ³	x	*											
Benchmark Plus	FFR/Southern States	*	*	*	x	x	x	*	*	*	*	*	*	*	*
Bounty	Allied Seed					*	*	*	x			*	*	*	*
Century	Seed Research of Oregon					x	*	*	*			*	*	*	*
Checkmate	Seed Research of Oregon									*	*				
Christoss	ProSeeds Marketing									*	x				
Crown	Donley Seed				*										
Elsie	Rose-AgriSeed				x										
Endurance	DLF International Seeds	*	*	*											
Harvestar	Columbia Seeds	*	*	*		*	x	x	x	*	x	*	*	*	*
Haymaster	FFR/Southern States					x	x	*	x			*	*	*	*
Icon	Seed Research of Oregon					*	*	*	*			*	*	*	*
Lazuly	ProSeeds Marketing				*										
Megabite	Rose-AgriSeed				x										
Paiute 2	DLF International Seeds									*	*				
Persist	Smith Seed Services					*	*	*	*	*	*	*	*	*	*
Potomac	Public				*										
Prairie	Turner Seed Company	x	*	*	*	*	*	*	*	*	*	*	*	*	*
Profit	Ampac Seed Company				*					*	*				
Shawnee	Rose-AgriSeed				x										
Survivor	Caudill Seed				*										
Takena II	Smith Seed Services					*	*	*	*			*	*	*	*
Tekapo	Ampac Seed Company	x	*	*	x	x	x	x	*	x	x	*	x	*	*
Tucker	Oregro Seeds, Inc.	x	*	*	*										
Udder	Improved Forages, Inc					*	*	*	*			*	*	x	*
Vaillant	Proseeds Marketing									*	x				
Experimental Varieties															
8SS	Rose-AgriSeed				*										
9007238	USDA/NRCS									x	*				
ADG 1001	ProSeeds Marketing				x										
ADG 1002	ProSeeds Marketing				*										
AGRDG101	AgResearch USA					x	x	x							
B-8.0707	Blue Moon Farms				x										
ECF27	Radix Research, Inc														
IS-OG39	DLF International Seeds	*	*	*		*	x	*	*						
NFOG101	Noble Foundation, Inc.	x	x	x											
OG 0204G	Seed Research of Oregon	*	*	*											
RAD-ECF26	Radix Research, Inc					*	*	*	*						
RAD-LCF21	Lewis Seed Co.					*	x	*	x						

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 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.

Variety	Proprietor	Lexington						Princeton						Quicksand			Mean ³ (#trials)	
		1999 ^{1,2} 2-yr ⁴	2001 2-yr	2003 3-yr	2006 4-yr	1998 2-yr	2000 2-yr	2002 3-yr	2004 3-yr	2006 3-yr	1999 2-yr	2001 2-yr	2003 3-yr	2005 4-yr				
Abertop	Pennington																	
Albert	Univ. of Wis.		103									71			106			105(2)
Amba	DLF International Seeds		96											80				88(2)
Ambassador	DLF International Seeds												95					
Ambrosia	American Grass Seed Prod.																	
Athos	DLF International Seeds		98												105			
Benchmark	FFR/Sou. St.	103				101	97	113							106			102(2)
Benchmark Plus	FFR/Sou. St.				100			107								107		104(5)
Boone	Public					103	104											104(2)
Bronc	Grassland West							98										
Bounty	Allied Seed				101												98	100(2)
Century	Seed Research of Oregon				98												104	101(2)
Command	Seed Research of Oregon											87						
Crown	Donley Seed	101				105		101							97			
Crown Royale	Donley Seed										110							101(4)
Crown Royale Plus	Donley Seed							108								97		103(2)
Eastwood	Ampac Seed		86											86				86(2)
Endurance	DLF International Seeds												104					
Extend	Allied Seed								100									
Hallmark	James VanLeeuwen		102	102				103	98						101	96		100(6)
Harvestar	Columbia seeds				91								106				100	99(3)
Haymaster	FFR/Sou. St.				94												97	96(2)
Haymate	FFR/Sou. St.	106				93	100	106							108	104	103	103(7)
Icon	Seed Research of Oregon				105												98	102(2)
Intensiv	Barenbrug																	
LG-31	DLF International Seeds											92						
Mammoth	DLF International Seeds													104				103(2)
Megabite	Turf-Seed	94	105												101			100(3)
Niva	DLF International Seeds							81										
Persist	Smith Seed				123	105						101						
Potomac	Public	104															108	101
Prairie	Turner Seed		101					98							99			100(3)
Renegade	Grassland West							104										103(8)
Shiloh	Proseeds Marketing																	
Shiloh II	Proseeds Marketing											117						
Spanish Pink	DLF International Seeds																	
Spanish Red	DLF International Seeds	101													94			98(2)
Takana	Smith Seed		107					100							108			105(3)
Tekena II	Smith Seed				110								109				106	104
Tekapo	Ampac Seed	88															91	106(5)
Tucker	Oregro Seeds															94	92	105
Udder	Improved Forages																	96
Vision	Cropmark Seeds																102	106
																	63	67

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 Orchardgrass 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 Number of years of data.



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