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2006 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 higher yields, quality, and long 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. New for 2006, Table11 shows a summary of all orchardgrass varieties tested in Kentucky for the last nine years. Go to the UK Forage Extension Web site at <www.uky.edu/Ag/Forage> to obtain 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 six studies are reported. Orchardgrass varieties were sown at Lexington (2003 and 2006), Quicksand (2003 and 2005), and Princeton (2002 and 2004). The soils at Lexington (Maury), Quicksand (Nolin), and Princeton (Crider) are well-drained silt loams and are well suited to orchardgrass production. Seedings were made at the rate of 20 lb/A into a prepared seedbed with a disk drill. Plots were 5 by 15 ft in a randomized complete block design, with four replications. 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/acre) are reported in Tables 4 through 9. Yields are given by cut-

Table 1. Temperature and rainfall at Lexington, Kentucky, in 2003, 2004, 2005, and 2006.

	2003				2004				2005				2006			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	26	-5	0.96	-1.90	30	-1	3.14	+0.28	37	+6	4.35	+1.49	42	+11	4.77	+1.91
FEB	32	-3	3.59	+0.38	36	+1	1.32	-1.89	39	+4	1.68	-1.53	36	+1	2.13	-1.08
MAR	47	+3	2.09	-2.31	47	+3	3.43	-0.97	41	-3	2.79	-1.61	44	0	3.05	-1.35
APR	57	+2	3.14	-0.74	55	0	3.06	-0.82	56	+1	3.30	-0.58	59	+4	3.52	-0.36
MAY	63	-1	6.68	+2.21	68	+4	9.79	+5.32	61	-3	1.78	-2.69	62	-2	2.99	-1.48
JUN	69	-3	4.85	+1.19	72	0	3.13	-0.53	75	+3	1.33	-2.33	70	-2	1.82	-1.84
JUL	74	-2	2.68	-2.32	73	-3	7.65	+2.65	77	+1	3.30	-1.70	76	0	5.13	+0.13
AUG	75	0	5.26	+1.33	71	-4	2.91	-1.02	78	+3	3.34	-0.59	76	+1	3.23	-0.70
SEP	65	-3	4.22	+1.02	68	0	2.61	-0.59	72	+4	0.59	-2.21	64	-4	9.27	+6.07
OCT	56	-1	1.61	-0.96	58	+1	5.65	+3.08	58	+1	0.92	-1.65	54	-3	4.88	+2.31
NOV	50	+5	4.63	+1.24	49	+4	6.29	+2.90	47	+2	1.54	-1.85	47	+2	1.78	-1.61
DEC	36	0	3.26	-0.72	36	0	3.20	-0.78	32	-4	2.19	-1.79				
Total			42.97	-1.58			52.18	+7.63			27.51	-17.04			42.57	+2.00

DEP is departure from the long-term average.

ting date and as total annual production. Stated yields are adjusted for percent weeds; therefore, value listed 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 10 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, while commercial varieties can be purchased through distributors. In Table 10, 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-yielding variety in that study. 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 4 through 9).

Table 2. Temperature and rainfall at Princeton, Kentucky, in 2004, 2005, and 2006.

	2004				2005				2006			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	36	+2	4.12	+0.32	41	+7	5.30	+1.50	46	+12	5.38	+1.58
FEB	39	+1	2.44	-1.99	43	+5	2.30	-2.13	38	0	2.66	-1.77
MAR	53	+6	4.28	-0.66	47	0	4.11	-0.83	51	+4	4.22	-0.72
APR	59	0	5.32	+0.52	60	+1	4.61	-0.19	63	+4	4.02	-0.78
MAY	72	+5	7.34	+2.38	65	-2	1.54	-3.42	66	-1	5.42	+0.46
JUN	74	-1	3.40	-0.45	76	+1	3.09	-0.76	75	0	3.39	-0.46
JUL	75	-3	4.87	+0.58	79	+1	2.39	-1.90	79	+1	3.79	-0.50
AUG	73	-4	3.02	-0.99	80	+3	11.54	+7.53	80	+3	2.58	-1.43
SEP	71	0	0.20	-3.13	74	+2	2.17	-1.16	67	-4	9.80	+6.47
OCT	64	+5	4.03	+0.98	60	+1	0.19	-2.86	57	-2	4.5	+1.45
NOV	53	+6	6.94	+2.31	50	+3	2.48	-2.15	49	+2	4.31	-0.32
DEC	37	-1	4.29	-0.75	35	-4	1.92	-3.12				
Total			50.25	-0.88			42.55	-8.58			50.07	+3.98

DEP is departure from the long-term average.

Table 11 is a summary of yield data from 1998-2006 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%—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 11, but these comparisons do help to identify varieties for further consideration. Varieties that have performed better then average over many years and at several locations have very stable performance, while 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 11 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.

Table 3. Temperature and rainfall at Quicksand, Kentucky, in 2003, 2004, 2005, and 2006.

	2003				2004				2005				2006			
	Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall		Temp.		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	31	0	2.63	-0.66	34	+3	4.48	+1.19	40	+9	4.45	+1.16	44	+13	4.48	+1.19
FEB	35	+2	8.01	+4.41	39	+6	3.45	-0.15	42	+9	3.01	-0.59	37	+4	1.56	-2.04
MAR	50	+9	1.34	-3.00	49	+8	3.84	-0.5	44	+3	2.86	-1.48	47	+6	1.74	-2.60
APR	60	+7	5.02	+0.92	51	+4	4.84	+0.74	58	+5	6.63	+2.53	60	+7	2.95	-1.15
MAY	64	+2	7.05	+2.57	68	+6	11.22	+6.74	63	+1	2.05	-2.43	63	+1	3.45	-1.03
JUN	68	-2	11.92	+8.10	71	+1	6.19	+2.37	75	+5	2.39	-1.43	71	+1	3.00	-0.82
JUL	74	0	3.36	-1.89	75	+1	2.3	-2.95	78	+4	2.58	-2.67	77	+3	3.85	-1.40
AUG	75	+2	6.34	+2.33	72	-1	1.37	-2.64	79	+6	3.51	-0.50	78	+5	3.55	-.046
SEP	66	0	3.12	-0.40	69	+3	6.8	+3.28	72	+6	0.27	-3.25	65	-1	5.56	-2.04
OCT	58	+4	2.93	+0.02	61	+7	4.19	+1.29	59	+5	0.68	-2.23	55	+1	6.00	+3.09
NOV	53	+11	5.95	+2.07	51	+9	3.56	-0.32	49	+7	1.30	-2.58	48	+6	2.32	-1.56
DEC	38	+5	4.02	-0.12	37	+4	3.59	-0.55	34	+1	2.39	-1.75				
Total			61.69	+14.35			55.83	+8.49			32.12	-15.22			38.46	-4.74

DEP is departure from the long-term average for that location.

The following is a list of University of Kentucky Cooperative Extension publications related to orchardgrass 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-26 *Renovating Hay and Pasture Fields*
AGR-58 *Orchardgrass*
AGR-64 *Establishing Forage Crops*

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Table 4. Dry matter yields, seedling vigor, maturity, and stand persistence of orchardgrass varieties sown Sept. 16, 2003, at Lexington, Kentucky.

Variety	Seedling Vigor[1] Oct 31, 2003	Maturity[2] May 13 2004	May12 2005	May17 2006	Percent Stand 2005 Apr 8	2005 Oct 28	2006 May 17	2006 Oct 17	Yield (tons/acre) 2004 Total	2005 Total	2006 May 17	2006 Jun 28	2006 Jul 26	2006 Oct 5	2006 Total	3-yr Total
Commercial Varieties—Available for Farm Use																
Persist	4.0	54.5	58.0	59.0	78	93	95	94	5.34	4.01	2.16	0.18	0.38	0.91	3.62	12.96*
Takena II	4.5	41.0	54.5	57.0	86	98	91	83	4.69	3.88	1.49	0.22	0.38	0.95	3.04	11.61*
Hallmark	2.0	59.5	57.5	59.0	95	70	75	64	4.43	3.97	1.16	0.15	0.32	0.72	2.35	10.76
Intensiv	5.0	38.0	51.5	34.5	85	95	80	78	5.14	3.20	1.14	0.15	0.30	0.81	2.41	10.75
Udder	2.0	51.0	55.5	57.3	91	90	86	71	4.76	3.56	0.95	0.20	0.35	0.73	2.23	10.56
Vision	3.5	52.0	56.0	55.0	33	28	25	11	3.89	1.65	0.67	0.07	0.12	0.21	1.08	6.62
Experimental Varieties																
KYDG9801	5.0	50.5	58.0	58.5	93	100	95	93	5.43	4.12	1.96	0.25	0.42	0.92	3.54	13.09*
CIS-OG4	4.8	44.5	56.0	57.5	90	98	95	91	5.28	4.08	1.71	0.31	0.34	1.16	3.51	12.86*
KYDG9303	4.5	43.0	57.5	59.5	90	98	95	85	4.89	4.14	2.14	0.28	0.41	1.00	3.83	12.85*
KYDG9701	3.0	57.0	55.5	57.0	95	98	94	91	5.15	4.25	2.07	0.22	0.35	0.81	3.45	12.85*
ECF30	4.5	53.5	58.0	59.5	94	98	94	86	5.13	4.03	1.73	0.21	0.43	1.05	3.41	12.57*
DP65-4928	3.5	39.8	56.0	54.3	54	71	60	51	5.04	2.93	0.77	0.15	0.26	0.84	2.01	9.99
Mean	3.9	48.7	56.2	55.7	81.9	86.2	82.1	74.8	4.93	3.65	1.50	0.20	0.34	0.84	2.87	11.46
CV,%	9.1	11.1	1.8	4.0	27.0	18.5	17.0	20.2	9.24	14.57	32.22	36.05	28.38	15.33	20.86	11.29
LSD,0.05	0.5	7.8	1.4	3.4	31.8	23.0	20.1	21.8	0.66	0.77	0.69	0.10	0.14	0.19	0.86	1.86

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

Table 5. Dry matter yields, seedling vigor, and stand persistence of orchardgrass varieties sown March 20, 2006, at Lexington, Kentucky.

Variety	Seedling Vigor[1] May 12	Percent Stand		2006 Yield (tons/acre)			
		May 12	Oct 17	Jun 21	Jul 26	Oct 6	Total
Commercial Varieties—Available for Farm Use							
Udder	3.5	91	95	1.02	0.95	1.30	3.27*
Icon	3.5	94	96	0.88	1.00	1.23	3.11*
Harvester	3.3	95	95	0.93	0.92	1.15	3.00*
Prairie	3.0	93	96	0.87	0.79	1.20	2.87*
Takena II	3.5	90	96	0.88	0.76	1.18	2.82*
Bounty	3.8	95	96	0.88	0.79	1.14	2.80*
Persist	3.0	93	96	0.78	0.81	1.20	2.79*
Haymaster	2.8	88	93	0.78	0.78	1.14	2.70
Tekapo	3.8	98	99	0.74	0.81	1.15	2.69
Benchmark Plus	4.3	96	98	0.77	0.88	1.01	2.66
Century	3.5	95	95	0.80	0.73	1.12	2.65
Experimental Varieties							
RAD-ECF26	3.3	98	98	0.87	0.96	1.22	3.04*
RAD-LCF21	3.5	100	99	0.79	0.89	1.23	2.91*
IS-OG39	3.8	96	98	0.84	0.94	1.10	2.89*
AGRDG101	3.5	98	98	0.78	0.74	1.17	2.70
Mean	3.5	94.5	96.4	0.84	0.85	1.17	2.86
CV,%	25.9	4.8	2.7	19.22	21.48	12.32	12.81
LSD,0.05	1.3	6.5	3.7	0.23	0.26	0.21	0.52

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

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

Table 6. Dry matter yields, seedling vigor, maturity, and stand persistence of orchardgrass varieties sown Sept. 1, 2004, at Princeton, Kentucky.

Variety	Seedling Vigor[1] Dec 21, 2004	Maturity[2] May 10 2005	Percent Stand				Yield (tons/acre)						
			2005		2006		2005	2006					2-yr
			Apr 15	Nov 3	Apr 5	Oct 30	Total	May 24	Jun 26	Jul 24	Oct 10	Total	Total
Commercial Varieties—Available for Farm Use													
Shiloh II	3.5	47.8	96	98	99	84	4.84	2.25	0.77	0.41	0.56	3.99	8.83*
Takena II	4.0	46.5	96	98	98	85	4.37	2.40	0.69	0.35	0.59	4.04	8.41*
Persist	4.3	50.8	100	99	99	95	4.42	1.89	0.51	0.25	0.54	3.19	7.61*
Extend	3.3	46.5	81	96	95	85	4.32	1.68	0.79	0.33	0.41	3.22	7.53
Hallmark	3.3	50.8	100	99	100	97	3.99	2.02	0.54	0.32	0.55	3.42	7.41
Ambassador	3.8	51.0	99	99	98	97	3.90	1.81	0.59	0.37	0.59	3.35	7.25
LG-31	3.3	36.5	80	96	95	84	3.21	2.24	0.87	0.34	0.49	3.95	7.16
Command	3.0	40.0	81	99	94	86	3.16	1.90	0.74	0.33	0.46	3.44	6.60
Experimental Varieties													
KYDG0101	3.5	45.0	91	99	96	96	4.58	2.17	0.67	0.33	0.63	3.80	8.38*
KYDG9801	4.5	53.0	100	100	100	98	4.64	1.91	0.67	0.33	0.64	3.56	8.20*
ECF27	3.8	52.5	98	100	100	93	4.65	1.98	0.64	0.36	0.53	3.50	8.15*
KYDG9303	5.0	47.5	100	100	100	95	3.94	1.49	0.65	0.34	0.50	2.97	6.91
94-100	4.0	42.5	91	99	98	95	3.81	1.61	0.67	0.35	0.41	3.03	6.84
Mean	3.8	46.9	93.4	98.5	97.7	91.3	4.14	1.95	0.68	0.34	0.53	3.50	7.64
CV,%	10.4	9.8	5.7	2.1	2.0	9.4	20.73	17.00	17.33	22.17	22.49	13.82	11.72
LSD,0.05	0.6	6.6	7.6	3.0	2.8	12.3	1.23	0.48	0.17	0.11	0.17	0.69	1.28

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

[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.

Table 7. Dry matter yields, maturity, and stand persistence of orchardgrass varieties sown Oct. 9, 2003, at Quicksand, Kentucky.

Variety	Maturity[1] May 11 2005	Percent Stand 2005 Apr 14	Percent Stand 2005 Nov 28	Percent Stand 2006 Apr 18	Percent Stand 2006 Nov 3	Yield (tons/acre) 2004 Total	Yield (tons/acre) 2005 Total	Yield (tons/acre) 2006 May 31	Yield (tons/acre) 2006 Jul 24	Yield (tons/acre) 2006 Oct 26	Yield (tons/acre) 2006 Total	Yield (tons/acre) 3-yr Total
Commercial Varieties—Available for Farm Use												
Persist	62.0	90	90	93	89	5.96	4.92	2.10	0.96	0.50	3.55	14.44*
Benchmark Plus	62.0	84	88	89	85	5.93	4.71	1.97	1.09	0.60	3.66	14.30*
Takena II	61.5	94	83	86	76	5.45	4.88	2.19	1.07	0.58	3.84	14.17*
Udder	62.0	88	65	70	59	5.52	4.99	2.05	1.02	0.52	3.59	14.11*
Tekapo	62.0	90	80	85	79	5.65	4.41	1.99	1.41	0.53	3.93	13.99*
Prairie	62.0	93	91	91	88	5.55	4.84	2.08	1.10	0.40	3.58	13.98*
Haymate	61.3	85	76	75	70	4.84	4.90	2.27	1.25	0.55	4.07	13.80*
Crown Royale Plus	62.0	93	83	86	84	5.45	4.14	1.93	0.98	0.46	3.37	12.96
Hallmark	62.0	96	88	91	83	4.62	4.82	1.97	0.98	0.51	3.45	12.89
Vision	62.0	15	5	4	3	5.77	1.87	0.94	0.31	0.09	1.33	8.97
Experimental Varieties												
ECF30	62.0	91	85	86	79	5.16	4.80	2.11	1.18	0.56	3.85	13.81*
KYDG 9701	61.5	91	79	81	81	5.10	4.74	2.00	0.85	0.49	3.34	13.18*
Mean	61.9	82.8	75.5	78.1	72.8	5.41	4.50	1.97	1.02	0.48	3.46	13.38
CV,%	0.4	9.3	8.7	8.3	9.0	9.22	12.50	19.25	20.31	36.85	16.02	7.03
LSD, 0.05	0.4	11.0	9.5	9.4	9.4	0.72	0.81	0.54	0.30	0.26	0.80	1.35

*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 8. Dry matter yields and stand persistence of orchardgrass varieties sown Sept. 31, 2005, at Quicksand, Kentucky.

Variety	Percent Stand Apr 18	Percent Stand Nov 3	2006 Yields (tons/acre) May 4	Jul 7	Oct 4	Total
Commercial Varieties—Available for Farm Use						
Prairie	96	96	2.48	2.34	1.42	6.24*
Takena II	89	91	2.40	2.13	1.57	6.10*
Benchmark Plus	94	92	2.49	2.11	1.41	6.02*
Harvester	81	90	2.22	2.30	1.46	5.98*
Bounty	96	94	2.58	1.97	1.24	5.79*
Persist	88	93	2.17	2.07	1.50	5.74*
Udder	89	91	2.20	2.09	1.43	5.71*
Icon	88	90	2.04	2.02	1.62	5.68*
Tekapo	95	94	2.31	2.05	1.28	5.65*
Century	94	94	2.40	1.91	1.28	5.60*
Haymaster	84	88	2.02	2.07	1.41	5.49*
Mean	90.2	91.9	2.30	2.10	1.42	5.82
CV,%	10.4	5.9	23.21	9.36	23.59	15.93
LSD,0.05	13.6	7.9	0.77	0.28	0.48	1.34

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

Table 9. Dry matter yields, maturity, and stand persistence of orchardgrass varieties sown Sept. 25, 2002, at Princeton, Kentucky.

	Maturity[1]		Percent Stand			Yield(tons/acre)			
	May 10	May 10	2005		2006	2003	2004	2005	3-yr
Variety	2004	2005	Apr 15	Nov 3	Apr 5	Total	Total	Total	Total
Commercial Varieties—Available for Farm Use									
Benchmark	59.5	56.5	81	89	90	4.46	4.21	3.57	12.24*
Crown Royale Plus	56.0	54.0	75	65	58	4.54	4.22	2.93	11.69*
Benchmark Plus	60.0	56.0	74	67	63	4.41	4.43	2.74	11.58*
Haymate	52.5	45.0	78	92	90	4.23	3.70	3.33	11.46*
Uncertified Potomac	57.0	54.7	80	84	83	4.14	4.16	2.84	11.30*
Prairie	57.5	56.0	73	70	57	4.25	4.33	2.69	11.27*
Hallmark	59.5	56.5	73	93	90	4.36	3.81	2.93	11.11*
Udder	57.5	50.0	75	65	60	4.05	3.84	2.69	11.01*
Crown	57.5	52.7	80	80	83	3.77	4.46	2.59	10.93*
Takena	48.5	47.3	75	80	79	4.64	3.76	2.44	10.84
Certified Potomac	56.5	56.0	78	83	88	4.05	3.90	2.97	10.59
Niva	49.5	39.0	46	43	40	3.47	3.59	1.65	8.71
Abertop	58.0	57.0	23	10	8	3.82	3.02	0.87	7.68
Experimental Varieties									
OG 9701	60.0	55.5	70	73	70	4.18	4.22	2.80	11.21*
OG-1	60.0	56.7	50	43	37	4.28	4.04	2.47	10.91*
Mean	56.6	53.0	69.9	70.5	67.5	4.18	4.01	2.68	10.93
CV,%	4.5	5.0	20.4	24.9	31.7	7.43	14.12	23.88	7.68
LSD,0.05	3.9	4.2	22.7	30.6	37.3	0.44	0.88	1.04	1.36

*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 10. Performance of orchardgrass varieties across years and locations.

Variety/Proprietor		Princeton					Lexington				Quicksand			
		2002[1]			2004		2003			2006	2003			2005
		03[2]	04	05	05	06	04	05	06	06	04	05	06	06
Commercial Varieties—Available for Farm Use														
Abertop	Pennington Seed, Inc.	x	x	x										
Ambassador	DLF International Seeds				*	*								
Benchmark Plus	FFR/Southern States	*	*	*						x	*	*	*	*
Benchmark	FFR/Southern States	*	*	*										
Bounty	Allied Seed									*				*
Century	Seed Research of Oregon									x				*
Command	Seed Research of Oregon				x	*								
Crown	Donley Seed	x	*	*										
Crown Royale Plus	Donley Seed	*	*	*							*	*	*	
Extend	Allied Seed				*	x								
Hallmark	James VanLeeuwen	*	*	*	*	*	x	*	x		x	*	*	
Harvester	Columbia Seeds									*				*
Haymaster	FFR/Southern States									x				*
Haymate	FFR/Southern States	*	*	*							x	*	*	
Icon	Seed Research of Oregon									*				*
Intensiv	Barenbrug USA						*	x	x					
LG-31	DLF International Seeds				x	*								
Niva	DLF-Jenks	x	*	x										
Persist	Smith Seed Services				*	x	*	*	*	*	*	*	*	*
Potomac, certified	public	*	*	*										
Potomac, uncertified	public	*	*	*										
Prairie	Turner Seed Company	*	*	*						*	*	*	*	*
Shiloh II	Proseeds Marketing				*	*								
Takena	Smith Seed Services	*	*	x										
Takena II	Smith Seed Services				*	*	x	*	*	*	*	*	*	*
Tekapo	Ampac Seed Company									x	*	*	*	*
Udder	Improved Forages, Inc	*	*	*			x	*	x	*	*	*	*	*
Vision	Cropmark Seeds LTD						x	x	x		*	x	x	
Experimental Varieties														
AGRDG101	AgResearch USA									x				
CIS OG-4	Cebeco International Seeds						*	*	*					
DP65-4928	DLF International Seeds						*	x	x					
ECF27	Radix Research, Inc				*	*								
ECF30	Radix Research, Inc						*	*	*		*	*	*	
GA OG-1	Pennington Seed, Inc.	*	*	x										
IS-OG39	DLF International Seeds									*				
KYDG0101	KY Agric. Exp. Station				*	*								
KYDG9303	KY Agric. Exp. Station				*	x	*	*	*					
KYDG9701	KY Agric. Exp. Station						*	*	*		*	*	*	
KYDG9801	KY Agric. Exp. Station				*	*	*	*	*					
OG 9701	Allied Seed	*	*	*										
RAD-ECF26	Radix Research, Inc									*				
RAD-LCF21	Lewis Seed Co.									*				
94-100	Agri-Food of Canada				*	x								

[1] Establishment year.

[2] Harvest year.

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

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.

Table 11. Summary of Kentucky Orchardgrass Yield Trials, 1999-2006 (yield shown as a percentage of the mean of the commercial varieties in the trial).

Variety/Proprietor		Lexington			Princeton			Quicksand			Mean[3] (# trials)
		1999[1,2] 2-yr[4]	2001 2-yr	2003 3-yr	1998 2-yr	2000 2-yr	2002 3-yr	1999 2-yr	2001 2-yr	2003 3-yr	
Abertop	Pennington						71				–
Albert	Univ. of Wis.		103						106		105(2)
Amba	DLF-Jenks		96						80		88(2)
Athos	DLF-Jenks		98						105		102(2)
Benchmark	FFR/Sou. St.	103			101	97	113	106			104(5)
Benchmark Plus	FFR/Sou. St.						107			107	107(2)
Boone	Public				103	104					104(2)
Bronc	Grassland West					98					–
Crown	Donley Seed	101			105		101	97			101(4)
Crown Royale	Donley Seed								110		–
Crown Royale Plus	Donley Seed						108			97	103(2)
Eastwood	Ampac Seed		86						86		86(2)
Hallmark	James VanLeeuwen		102	102			103		101	96	101(5)
Haymate	FFR/Sou. St.	106			93	100	106	108	104	103	103(7)
Intensiv	Barenbrug			102							–
Mammoth	DLF-Jenks		102						104		103(2)
Megabite	Turf-Seed	94	105					101			100(3)
Niva	DLF-Jenks						81				–
Persist	Smith Seed			123						108	116(2)
Potomac	Public	104					98	99			100(3)
Prairie	Turner Seed		101			95	104		102	105	101(5)
Renegade	Grassland West					95					–
Shiloh	Proseeds				109						–
Spanish Pink	International Seeds				82						–
Spanish Red	International Seeds	101						94			98(2)
Takena	Smith Seed		107				100		108		105(3)
Tekena II	Smith Seed			110						106	108(2)
Tekapo	Ampac Seed	88						94	92	105	95(4)
Udder	Improved Forages			100		102	102			106	103(4)
Vision	Cropmark Seeds			63						67	65(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 two years, so the final report would be "2001 Orchardgrass Report" archived in the Kentucky Forage Web site 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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