



# 2000 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.

## Important Considerations in Selecting an Orchardgrass Variety

**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 high-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 three studies are reported. Orchardgrass varieties were sown in Princeton (1998), Lexington (1999), and Quicksand (1999). The soils at Princeton (Crider), Lexington (Maury), and Quicksand (Pope) 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 ft x 15 ft in a randomized complete block design with

four replications. Nitrogen was topdressed at 80 lb/A of actual N in March (60 lb/A for newly seeded stands) and 60 lb/A of actual N after the first cutting and again in late summer. 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 Princeton, Lexington, and Quicksand are presented in Table 1. Temperature and rainfall during 2000 were closer to normal than in recent years.

Ratings for maturity and dry matter yields (tons/acre) are reported in Tables 2 through 4. Yields are given by cutting date and as total annual production. Varieties are listed by descending total yield. Experimental varieties are listed separately at the bottom of the tables and 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 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 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 5 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 dealerships. In Table 5, a shaded area indicates that the variety was not in that particular test (labeled at the top of the column), while a clear block means that the variety was in the test. 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 2-4).

## 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 Agricultural Extension Publications related to orchardgrass management. They are available from your local 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
- AGR-103 Fertilization of Cool-Season Grasses

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**Table 1. Temperature and rainfall at Princeton, Lexington, and Quicksand in 2000.**

MON	Princeton				Lexington				Quicksand			
	Temp		Rainfall		Temp		Rainfall		Temp		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	38	+4	5.86	+2.06	32	+1	3.48	+0.62	34	+3	2.25	-1.04
FEB	47	+9	5.36	+0.93	43	+8	4.97	+1.76	44	+11	3.12	-0.48
MAR	54	+7	4.23	-0.71	48	+4	3.47	-0.93	51	+10	2.16	-2.18
APR	59	0	5.77	+0.97	53	-2	4.10	+0.22	55	+2	4.55	+0.45
MAY	70	+3	5.03	+0.07	67	+3	2.96	-1.51	68	+6	7.79	+3.31
JUN	76	+1	3.07	-0.78	73	+1	3.22	-0.44	73	+3	8.86	+5.04
JUL	78	0	4.51	+0.22	74	-2	3.42	-1.58	73	-1	4.16	-1.09
AUG	80	+3	1.99	-2.02	74	-2	3.38	-0.55	73	0	6.24	+2.23
SEP	71	0	4.13	+0.80	66	-2	5.47	+2.27	67	+1	3.84	+0.32
OCT	64	+5	1.15	-1.90	59	+2	0.92	-1.65	59	+5	0.43	-2.48
NOV	47	0	4.01	-0.62	43	-2	1.59	-1.80	46	+4	1.11	-2.77

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

**Table 2. Dry matter yields (tons/acre) of orchardgrass varieties sown 12 October 1998 at Princeton, Kentucky.**

Variety	1999 Total	Maturity <sup>1</sup> 15 May 2000	2000 Harvests			2000 Total	2-yr Total
			May 15	Jun 22	Jul 21		
<b>Commercial varieties—available for farm use</b>							
Shiloh	3.88 *	64.7 *	2.77 *	0.99 *	0.43	4.19 *	8.07
Hallmark 1970 <sup>2</sup>	3.62	65.0 *	2.88 *	0.89	0.42	4.19 *	7.81
Crown	3.71	62.7 *	2.79 *	0.84	0.43	4.06	7.77
Boone	3.35	65.2 *	2.93 *	0.78	0.55 *	4.26 *	7.61
Hallmark 1996 <sup>2</sup>	3.52	65.0 *	2.77 *	0.83	0.45	4.05	7.57
Benchmark	3.33	63.0 *	2.89 *	0.82	0.41	4.12	7.45
Haymate	2.71	56.7 *	2.77 *	0.99 *	0.39	4.15	6.86
Spanish Pink	2.08	52.3	2.57	0.82	0.59 *	3.97	6.05
<b>Experimental varieties—not available for farm use</b>							
Ampac pp2	4.46 *	62.0 *	3.07 *	0.84	0.68 *	4.59 *	9.05 *
KYOG 9303	3.39	63.2 *	3.16 *	1.11 *	0.41	4.67 *	8.06
KY07G23-335	3.43	63.7 *	2.76 *	1.14 *	0.45	4.36 *	7.78
Iowa OG 6	3.39	60.3	2.95 *	0.81	0.42	4.19 *	7.57
OG 8703	3.19	63.7 *	2.88 *	0.90	0.59 *	4.37 *	7.56
OG 9501	3.2	62.0 *	2.96 *	0.85	0.48	4.29 *	7.49
Iowa OG 1	3.39	58.5	2.74 *	0.89	0.34	3.98	7.37
Mean	3.38	61.9	2.86	0.90	0.47	4.23	7.61
CV, %	12.26	4.4	10.17	16.50	29.06	8.60	8.38
LSD, 0.05	0.59	3.9	0.42	0.21	0.20	0.52	0.91

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

<sup>1</sup> Maturity rating scale: 37 = flag leaf emergence 45 = boot swollen 50 = beginning of inflorescence 58 = complete emergence of inflorescence 62 = beginning of pollen shedding.

<sup>2</sup> Seed for this test came from fields planted on dates indicated.

**Table 3. Dry matter yields (tons/acre) of orchardgrass and Kentucky bluegrass (KBG) varieties sown 23 September 1999 at Lexington, Kentucky.**

Variety	Maturity <sup>1</sup> 9 May 2000	2000 Harvests						2000 Total
		May 9	Jun 14	Jul 27	Aug 28	Oct 18	Nov 29	
<b>Commercial varieties—available for farm use</b>								
Hallmark 1996 <sup>2</sup>	51.8 *	2.51 *	1.47 *	1.90 *	1.32 *	1.44 *	0.39 *	9.02 *
Potomac	49.5 *	2.65 *	1.42 *	1.85 *	1.24 *	1.48 *	0.30 *	8.94 *
Hallmark 1970 <sup>2</sup>	52.0 *	2.43 *	1.36	2.02 *	1.30 *	1.45 *	0.36 *	8.90 *
Benchmark	51.0 *	2.74 *	1.35	1.88 *	1.19 *	1.40 *	0.33 *	8.89 *
Haymate	46.3	3.08 *	1.55 *	1.64	1.14	1.23	0.21	8.84 *
Crown	51.8 *	2.30 *	1.40 *	2.04 *	1.26 *	1.38 *	0.33 *	8.72 *
Wp 300	46.8	2.95 *	1.33	1.89 *	1.00	1.08	0.30 *	8.54 *
ISI Spanish Red	46.8	2.42 *	1.40 *	1.85 *	1.06	1.28	0.36 *	8.37 *
Tekapo	49.3	2.28 *	1.35	1.71	1.09	1.23	0.32 *	7.99
Megabite	51.0 *	1.47	1.48 *	1.98 *	1.16	1.17	0.19	7.46
Sidekick (KBG)	47.3	2.33 *	1.30	1.46	0.72	0.86	0.23	6.90
<b>Experimental varieties—not available for farm use</b>								
KYO7G23-335	49.3	2.52 *	1.51 *	2.10 *	1.38 *	1.56 *	0.32 *	9.39 *
OG 8703	53.0 *	2.91 *	1.48 *	1.82 *	1.19 *	1.40 *	0.31 *	9.11 *
BAR Dgl 9 BTR G	51.5 *	2.72 *	1.36	1.85 *	1.18 *	1.18	0.34 *	8.63 *
BAR Dgl 9 BTR F	51.3 *	2.57 *	1.38 *	1.87 *	1.19 *	1.22	0.27	8.50 *
ISI OG 10	45.8	2.51 *	1.31	1.87 *	1.09	1.19	0.37 *	8.34 *
WX9-400	53.0 *	2.60 *	1.30	1.75	1.15	1.24	0.29 *	8.32 *
Mean	49.8	2.53	1.40	1.85	1.16	1.28	0.31	8.52
CV, %	5.01	27.60	8.95	13.01	12.23	13.82	21.72	8.88
LSD, 0.05	3.55	0.99	0.18	0.34	0.20	0.25	0.10	1.08

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

<sup>1</sup> Maturity rating scale: 37 = flag leaf emergence 45 = boot swollen 50 = beginning of inflorescence 58 = complete emergence of inflorescence 62 = beginning of pollen shedding.

<sup>2</sup> Seed for this test came from fields planted on dates indicated.

**Table 4. Dry matter yields (tons/acre) of orchardgrass and Kentucky bluegrass (KBG) varieties sown 13 September 1999 at Quicksand, Kentucky.**

Variety	Vigor <sup>1</sup> 26 Oct 1999	Maturity <sup>2</sup> 26 May 2000	2000 Harvests				2000 Total
			May 26	Jun 30	Aug 17	Dec 11	
<b>Commercial varieties—available for farm use</b>							
Benchmark	4.25 *	66.0 *	2.40 *	0.91 *	0.89 *	0.96 *	5.16 *
Hallmark 1970 <sup>3</sup>	4.50 *	61.0 *	2.60 *	0.93 *	0.80 *	0.83 *	5.16 *
Potomac	3.75 *	61.0 *	2.34 *	0.88 *	0.92 *	0.81	4.94 *
Haymate	3.75 *	47.3	2.24 *	1.04 *	0.92 *	0.67	4.87 *
Hallmark 1996 <sup>3</sup>	3.75 *	65.8 *	2.15	0.77	0.95 *	0.90 *	4.77 *
Megabite	3.00	62.8 *	2.34 *	0.87 *	0.85 *	0.68	4.74 *
ISI Spanish Red	3.25	46.0	2.23 *	0.89 *	0.81 *	0.80	4.73 *
Crown	4.00 *	65.5 *	2.06	0.77	0.88 *	0.88 *	4.60 *
Tekapo	3.75 *	55.3	2.04	0.84 *	0.81 *	0.90 *	4.59 *
Sidekick (KBG)	2.00	39.0	0.78	0.45	0.86 *	0.52	2.62
<b>Experimental varieties—not available for farm use</b>							
KYO7G23-335	3.75 *	44.0	2.12	0.94 *	0.88 *	0.98 *	4.92 *
BAR 9 Dgl BTR F	4.00 *	64.8 *	2.39 *	0.91 *	0.75 *	0.68	4.73 *
BAR 9 Dgl BTR G	3.25	63.8 *	2.22 *	0.72	0.83 *	0.61	4.38
Mean	3.62	57.07	2.15	0.84	0.86	0.79	4.63
CV, %	20.09	12.81	14.63	18.28	24.49	13.90	11.54
LSD, 0.05	1.04	10.48	0.45	0.22	0.30	0.16	0.77

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

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

<sup>2</sup> Maturity rating scale: 37 = flag leaf emergence 45 = boot swollen 50 = beginning of inflorescence 58 = complete emergence of inflorescence 62 = beginning of pollen shedding.

<sup>3</sup> Seed for this test came from fields planted on dates indicated.

Table 5. Performance of orchardgrass and Kentucky bluegrass (KGB) varieties across years and locations.		Princeton		Lexington	Quicksand
		1998 <sup>1</sup>		1999	1999
Variety	Proprietor/KY Distributor	99 <sup>2</sup>	00	00	00
<b>Commercial varieties—available for farm use</b>					
Benchmark	FFR/Southern States			*	*
Boone	University of Kentucky/Public Variety		*		
Condor	Hansford Seed Co.				
Crown	Previously by Scott Seed Co./Sphar Seed Co.			*	*
Hallmark 1996 <sup>3</sup>	James VanLeeuwen			*	*
Hallmark 1970 <sup>3</sup>	James VanLeeuwen		*	*	*
Haymate	FFR/Southern States			*	*
ISI Spanish Red	International Seeds, Inc.			*	*
Megabyte	Turf-Seed Inc.				*
Potomac	USDA/Public			*	*
Shiloh	Previously by Green Seed Co.	*	*		
Sidekick (KGB)	Ampac Seed Company				
Spanish Pink	International Seeds, Inc.				
Tekapo	Ampac Seed Company				*
Wp 300	Western Productions Inc.			*	
<b>Experimental varieties—not available for farm use</b>					
Ampac pp2	Ampac Seed Co.	*	*		
BAR Dgl 9 BTR G	Barenbrug USA			*	
BAR Dgl 9 BTR F	Barenbrug USA			*	*
Iowa OG 1	International Seeds, Inc.				
Iowa OG 6	International Seeds, Inc.		*		
ISI OG 10	International Seeds, Inc.			*	
KYO7G23-335	KY Agric. Exp. Sta/Experimental		*	*	*
KYOG 9303	KY Agric. Exp. Sta/Experimental		*		
OG 8703	Fine Lawn Research/Geo.W. Hill		*	*	
OG 9501	FFR Cooperative		*		
WX9-400	AgriBioTech			*	
<sup>1</sup> Establishment year. <sup>2</sup> Harvest year. <sup>3</sup> Seed for this test came from fields planted on dates indicated. * Not significantly different from the highest-yielding variety in the test. Shaded boxes indicate that the variety was not in the test. Open boxes indicate the variety was in the test but yielded significantly less than the top-ranked variety in the test.					

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