

## 2002 Timothy Report

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### Introduction

Timothy (*Phleum pratense*) is the fourth most widely sown cool-season perennial grass used in Kentucky for forage after tall fescue, orchardgrass, and Kentucky bluegrass. It is a late-maturing bunchgrass that can be used for grazing or wildlife habitat. Timothy is mainly harvested as hay, particularly for horses.

Management is similar to that for other cool-season grasses. Harvesting at the mid- to late-boot stage is needed to assure good yields and high forage quality. Quality of timothy declines more rapidly after heading than other cool-season grasses. In Kentucky, timothy behaves like a short-lived perennial, with stands lasting five to seven years.

This report provides current maturity and yield data on timothy varieties included in yield trials in Kentucky as well as guidelines for selecting timothy varieties.

### Considerations in Selecting a Timothy Variety

**Local Adaptation and Seasonal Yield.** Choose a variety that is adapted to Kentucky as indicated by good performance across 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, whether for hay or grazing. Later maturity is desirable when timothy alone is to be grown for hay, while early maturity would help timothy grown in mixtures with legumes.

**Seed Quality.** Buy high-quality seed that is high in germination and purity and free from weed seed. Buy certified seed or proprietary varieties of seed of an improved variety. An improved variety is one that has performed well in independent trials such as are reported in this publication or others like it.

### Description of the Test

Data from two studies are reported. Timothy varieties were sown at Quicksand (2001) and Lexington (2001) as part of the University of Kentucky Forage Variety Testing Program. The soils at Quicksand (Pope) and Lexington (Maury) are well-drained silt loams and are well suited for timothy production. Cultivars were sown at the rate of 6 lb/A into a prepared seedbed with a disk drill. Plots were 5 ft x 15 ft arranged in a randomized complete block design with four replications. Nitrogen was topdressed at 60 lb/A of actual N in March, May, and

August. The test was harvested using a sickle-type forage plot harvester leaving a 2-inch stubble to simulate a hay management system. The first cutting was harvested when spring growth of most varieties had reached the mid- to late-boot stage. Subsequent harvests were taken when forage growth was adequate for harvest. Fresh weight samples were taken at each harvest to calculate dry matter production. Establishment, fertility, weed control, and harvest were managed according to University of Kentucky Cooperative Extension Service recommendations.

### Results and Discussion

Weather data for Lexington and Quicksand are presented in Table 1. After a wet spring, the 2002 summer was the fourth driest and hottest on record. As a result, total yield for 2002 was below average.

Maturity ratings and dry matter yields are reported in Tables 2 and 3. Yields are given by harvest date and as total annual production. Varieties are listed by descending total production. Experimental varieties, listed separately at the bottom of the tables, are not available commercially.

Statistical analyses were performed on all data to determine if the apparent differences are truly due to varietal differences. Varieties not significantly different from the top variety in the column are marked with one asterisk (\*). To determine if two varieties are significantly different, compare the difference between them to the LSD (Least Significant Difference) at the bottom of that column. If the difference is equal to or greater than the LSD, the varieties are significantly different when grown under those conditions. The Coefficient of Variation (CV) is a measure of the variability of the data and is included for each column of means. Low variability is desirable, and increased variability within a study results in higher CVs and larger LSDs.

Table 4 summarizes information about distributors and yield performance across locations for all varieties currently included in tests discussed in this report. Varieties are listed in alphabetical order, with the experimental varieties at the bottom. Remember that experimental varieties are not available for farm use. In Table 4, shaded areas indicate that the variety was not in that particular test (labeled at the top of the column), while clear blocks mean that the variety was in the test. A single asterisk (\*) means that the variety was not significantly different from the highest-yielding variety. It is best to choose a variety that has performed well over several years and locations.

## Summary

Selecting a good timothy 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 1. Temperature and rainfall at Quicksand and Lexington, Kentucky, in 2002.**

	Quicksand				Lexington			
	Temp		Rainfall		Temp		Rainfall	
	°F	DEP	IN	DEP	°F	DEP	IN	DEP
JAN	41	+10	3.84	+55	38	+7	2.12	-0.74
FEB	39	+6	1.27	-2.33	38	+3	1.28	-1.93
MAR	47	+6	7.81	+3.47	45	+1	7.93	+3.53
APR	60	+7	3.84	-.26	58	+3	4.19	+0.31
MAY	62	0	5.12	+64	61	-3	4.36	-0.11
JUN	74	+4	4.61	+79	74	+2	2.45	-1.21
JUL	77	+3	5.14	-.11	78	+2	1.10	-3.90
AUG	76	+3	1.83	-2.18	77	+2	0.95	-2.98
SEP	71	+5	6.26	+2.74	72	+4	4.90	+1.70
OCT	58	+4	6.47	+3.56	55	-2	5.61	+3.04
NOV	45	+3	3.81	-.07	43	-2	3.76	+0.37
<b>AVG</b>	<b>59.1</b>	<b>+4.6</b>	<b>4.6</b>	<b>+0.6</b>	<b>58.1</b>	<b>+1.6</b>	<b>3.5</b>	<b>-0.2</b>

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

**Table 2. Dry matter yields (tons/acre) and maturity ratings of timothy varieties planted September 18, 2001, at Quicksand, Kentucky.**

Variety	Maturity <sup>1</sup> May 16, 2002	2002 Harvests				Total 2002
		May 16	Jul 12	Aug 6	Nov 14	
<b>Commercial Varieties — Available for Farm Use</b>						
Clair	50	1.11	0.9	0.23	0.87	3.11*
Tuukka	32	0.93	1.04	0.16	0.58	2.71
<b>Experimental Varieties — Not Available for Farm Use</b>						
KYPP 9301	55	1.47	1.05	0.23	0.95	3.7*
TM 9702	48	1.34	0.94	0.24	0.73	3.25*
KY-Early	53	1.12	0.91	0.22	0.87	3.12*
TM 9703	50	1.21	0.86	0.25	0.74	3.06
Mean	48	1.20	0.95	0.22	0.79	3.16
CV, %	2.76	24.30	10.61	20.20	9.67	12.50
LSD, 0.05	1.98	0.44	0.15	0.07	0.12	0.60

<sup>1</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 shedding.

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

**Table 3. Dry matter yield (tons/acre), vigor, and maturity ratings of timothy varieties planted October 4, 2001, at Lexington, Kentucky.**

Variety	Seedling vigor <sup>1</sup> Nov 2, 2001	Maturity <sup>2</sup> May 6, 2002	2002 Harvests			Total 2002
			May 6	Jun 14	Nov 1	
<b>Commercial Varieties — Available for Farm Use</b>						
Common	4	34	2.03	0.83	0.05	2.91*
Clair	1	45	1.96	0.78	0.12	2.86*
Tuukka	4	34	2.16	0.61	0.05	2.81*
<b>Experimental Varieties — Not Available for Farm Use</b>						
HM4 (fescue) <sup>3</sup>	5	53	2.33	1.48	1.91	5.72
KY-Early	5	49	2.41	0.88	0.07	3.36*
TM 9501	3	46	2.41	0.74	0.09	3.24*
TM 9702	2	47	2.17	0.88	0.13	3.18*
TM 9703	2	45	2.3	0.77	0.08	3.15*
KYPP 9301	4	50	2.27	0.8	0.08	3.14*
Mean	3	43	2.21	0.79	0.08	3.08
CV, %	16.80	3.78	11.83	24.59	61.73	8.60
LSD, 0.05	0.78	2.42	0.39	0.28	0.08	0.39

<sup>1</sup> 0 to 5 scale with 5 being the most vigorous.

<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 shedding.

<sup>3</sup> HM4 (fescue) was not included in the statistical comparison with the timothy entries.

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

**Table 4. Performance of timothy varieties at two locations.**

Variety	Proprietor/KY Distributor	Quicksand	Lexington
		2001 <sup>1</sup>	2001
		2002 <sup>2</sup>	2002
<b>Commercial Varieties — Available for Farm Use</b>			
Clair	University of Kentucky	*	*
common	public		*
Tuukka	Ampac Seed Company		*
<b>Experimental Varieties — Not Available for Farm Use</b>			
KYPP 9301	University of Kentucky	*	*
KY-Early	University of Kentucky	*	*
TM 9501	Allied Seed, L.L.C.AA		*
TM 9702	Forage Genetics International	*	*
TM 9703	Forage Genetics International		*

<sup>1</sup> Establishment year.

<sup>2</sup> Harvest year.

\* Not significantly different from the highest value in the test.

Shaded boxes indicate 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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