

1994 KENTUCKY TIMOTHY VARIETY TEST REPORT

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Introduction

Timothy (*Phleum pratense*) is the fourth most widely sown cool-season perennial grass used in Kentucky for forage, ranking behind tall fescue, orchardgrass, and Kentucky bluegrass. It is a late-maturing bunchgrass that can be used for grazing but is mainly harvested as hay, particularly for horses. For hay production, timothy can be sown with alfalfa or red clover, while white clover or birdsfoot trefoil make good mixtures with timothy for grazing. 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 than other cool-season grasses as it over-matures. In Kentucky, timothy behaves like a short-lived perennial with stands lasting for 2-3 years.

Considerations in Selecting a Timothy Variety

Local Adaptation and Seasonal Yield. Choose a variety that is adapted to Kentucky as indicated by good performance in replicated yield trials, such as is presented in this publication. Also, look for varieties that are productive in the desired season of use, whether for hay or grazing.

Seed Quality. Buy either certified or Plant Variety Protected (PVP) seed, which will ensure that the genetics and performance you are paying for are in the bag. Look for the blue tag, which must be attached to all bags of certified seed or look for Plant Variety Protection labelling, which is the proprietor's guarantee. Other information on the label will include the test date, which must be within the previous nine months, and the level of germination and content other crop and weed seed. Order seed well in advance of seeding time to assure that it will be available when needed.

Description of the Test

Timothy varieties were sown in Lexington in the late summer of 1992 as part of the Kentucky Forage Variety Testing Program. The objective of this study was to compare dry matter yields and maturities of two experimental lines under development at the University of Kentucky ('KYearly' and 'KYearly') with a common timothy and selected improved varieties ('Clair', 'Mowhawk', 'Tiller, and 'Timfor'). 'KYearly' and 'KYearly' are selections out of 'Clair'. Table 1 lists the varieties included in the 1992 seeding and gives information about developers, distributors and characteristics that are specific to each variety.

Cultivars were sown at the rate of 6 lb/A into a prepared seedbed with a disk drill. Plots were 4' x 15' arranged in a randomized complete block design with four replications. The soil at Lexington was a well-drained Maury silt loam. Management was according to University of Kentucky Cooperative Extension Service recommendations. Table 2 lists other College of Agriculture publications related to the establishment, management, and utilization of timothy that are available from your local county extension office. Nitrogen was topdressed at 50 lb/A of actual N in March, May, and August. The test was harvested using a sickle-type forage plot harvester leaving a 2" stubble to simulate a hay management system with fall stockpiling. The first cutting was harvested when spring growth had reached the boot to head stage. Fresh weights were measured in the field and converted to dry matter production using long-term averages for dry matter percents of timothy.

Results and Discussion

Weather data for the 1994 growing season at Lexington are presented in Table 3. With the exception of May, the spring months were warmer than normal and precipitation was above average. The summer and fall were cooler and much drier than normal.

Maturity ratings and dry matter yields are reported in Table 4. Yields are given by harvest date and as total annual production. In this table, varieties are listed by descending maturity rating taken May 25, just before the first harvest. Most varieties were past the optimum stage of harvest for timothy,

which is late-boot/early-head. However, some were still in the very early-boot stage.

Statistical analyses were performed on all data to test the significance of varietal differences. In Table 4, the variety with the highest numerical value in each column is marked with two asterisks (**) and those varieties that are not significantly different from that variety 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), 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 CV's and larger LSD's.

Dry matter yields of timothy were considerably lower (2.5 tons/acre) in 1994 than in 1993. There was a difference in the seasonal production among the varieties that produced well across the season in 1994. 'Common' produced well early and had lower yields later. 'Tiller' and 'Clair' spread yields out more evenly across the season and 'KYearly' and 'KYearly' produced better later in the season. This is in contrast to 1993 when 'KYearly' produced high yields early and 'Common' yielded more later.

The 2-year total indicates that 'Clair', 'Tiller', 'KYearly' and 'KYearly' were superior in yield than 'Timfor', 'Mowhawk', or 'Common'. The two experimentals ('KYearly' and 'KYearly') have not been released as yet by the University of Kentucky but do appear to be promising as new timothy varieties for Kentucky.

TABLE 1. CHARACTERIZATION OF TIMOTHY VARIETIES SOWN 15 SEP 1992 AT LEXINGTON, KENTUCKY.

<u>VARIETY</u>	<u>DEVELOPER/PROPRIETO</u>	<u>KY</u>	<u>DISTRIBUTOR</u>	<u>CHARACTERISTICS</u>
CLAIR	KY. AGRIC. EXP.		PUBLIC	EARLY MATURING, VIGOROUS GROWTH, GOOD AFTERMATH
COMMON	FARMER ECOTYPE		PUBLIC	UNIMPROVED
KYEARLY	KY. AGRIC. EXP.		EXPERIMENTAL	EARLIER THAN CLAIR, WIDE LEAVES
KYLEAFY	KY. AGRIC. EXP.		EXPERIMENTAL	EARLIER THAN CLAIR, MORE BASAL LEAF PRODUCTION
MDHAWK	FFR		SOUTHERN	MEDIUM-LATE MATURING, LATER THAN CLAIR
TILLER	VAN DER HAVE		ADVANTA SEEDS	EARLIER THAN CLAIR
TIMEOR	NORTHRUP KING		NORTHRUP KING	MEDIUM MATURING, FAST RECOVERY, DISEASE RESISTANCE

TABLE 2. UNIVERSITY OF KENTUCKY AGRICULTURAL EXTENSION PUBLICATIONS RELATED TO TIMOTHY MANAGEMENT.

<u>PUB</u>	<u>TITLE</u>
AGR-64	ESTABLISHING FORAGE CROPS
-----	SEED TAGS: WHAT THEY REVEAL
AGR-26	RENOVATING HAY AND PASTURE FIELDS
AGR-18	GRAIN AND FORAGE CROP GUIDE FOR KENTUCKY
AGR-1	LIME AND FERTILIZER RECOMMENDATIONS
AGR-103	FERTILIZATION OF COOL-SEASON GRASSES
ASC-16	BEEF: GRASS TETANY IN BEEF CATTLE

TABLE 3. TEMPERATURE AND RAINFALL IN LEXINGTON DURING 1994.

<u>MONTH</u>	<u>TEMPERATURE</u>		<u>RAINFALL</u>	
	<u>F</u>	<u>DEP.</u>	<u>INCHES</u>	<u>DEP.</u>
JAN	25	-6	3.60	+0.03
FEB	36	+1	3.41	+0.15
MAR	43	-1	5.95	+1.12
APR	58	+3	6.02	+2.01
MAY	61	-4	4.05	-0.18
JUN	74	+2	2.01	-2.24
JUL	76	0	2.62	-2.33
AUG	72	-3	5.86	-1.90
SEP	65	-3	1.43	-1.85
OCT	57	0	1.71	-0.55

TEMPERATURES ARE IN DEGREES FAHRENHEIT. DEP. IS DEPARTURE FROM THE 30-YEAR AVERAGE FOR THE LOCATION.

TABLE 4. 1994 DRY MATTER YIELDS (TONS/ACRE) AND MATURITY RATINGS OF TIMOTHY VARIETIES SOWN 15 SEP 1992 AT LEXINGTON, KENTUCKY.

VARIETY	MATU-	1993	1994 HARVESTS				1994	2-YR
	MAY25	TOTAL	MAY25	JUL14	AUG11	OCT24	TOTAL	TOTAL
CLAIR	11.00**	6.48*	2.51*	0.19*	0.35*	1.08*	4.13**	10.61*
COMMON	11.00**	5.71	2.56**	0.22**	0.26*	0.96*	4.00*	9.72
KYEALRY	11.00**	6.72*	2.47*	0.21*	0.40**	1.05*	4.12*	10.84**
KYLEAFY	11.00**	6.73**	2.49*	0.13*	0.25	1.19**	4.06*	10.78*
TILLER	11.00**	6.62*	2.49*	0.17*	0.34*	0.95*	3.95*	10.57*
TIMFOR	6.50	6.12*	2.12	0.16*	0.35*	0.80	3.43	9.56
MDWHAWK	2.50	6.09*	1.99	0.12*	0.27*	0.68	3.05	9.14
MEAN	9.14	6.35	2.38	0.17	0.32	0.96	3.82	10.17
CV, %	19.24	9.86	6.61	44.30	32.71	21.44	5.04	6.05
LSD, 0.05	2.61	0.93	0.23	0.11	0.15	0.30	0.29	0.91

MATURITY RATING SCALE: 1=VEGETATIVE 11=FULL HEAD
 3=EARLY BOOT 13=EARLY BLOOM
 5=MID BOOT 15=FULL BLOOM
 7=LATE BOOT 17=SEED (DOUGH)
 9=EARLY HEAD 19=MATURE SEED

1993 TOTAL INCLUDES 3 HARVESTS DATED MAY20, JUL13, AND OCT28.

**HIGHEST NUMERICAL VALUE IN THE COLUMN.

*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL VALUE IN THE COLUMN BASED ON THE 5% LSD.