

1993 KENTUCKY TIMOTHY VARIETY TEST REPORT

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Introduction

Timothy (*Phleum pratense*) is the fourth most widely grown 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. Management is similar to that for other cool season-grasses. Harvesting at the proper stage of maturity (mid- to late-boot) is needed to assure high forage quality; otherwise, 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. Table 1 lists other College of Agriculture publications related to the establishment, management, and utilization of timothy that are available from your local county extension office.

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 high quality, certified seed that has high germination and few other crop and weed seed. This information is shown on the label. The test date, which indicates when the germination was last tested, must be within the previous nine months. The blue tag, which must be attached to all bags of certified seed, assures that the genetics and performance you expect are in the bag. 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 timothy varieties under a hay management scheme.

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. Nitrogen was topdressed at 50 lb/A of actual N in March, May, and August. The tests were harvested using a sickle-type forage plot harvester leaving a 2" stubble to simulate a three cut hay (spring/summer/fall stockpile) management system. The first cutting was harvested when spring growth had reached the boot to head stage. Fresh weights were measured in the field and occasional subsamples were taken, weighed, dried, and reweighed to determine percent dry matter.

The soil at Lexington is a well-drained Maury silt loam. The test was managed according to University of Kentucky Cooperative Extension Service recommendations.

Results and Discussion

Weather data for the 1993 growing season at Lexington are presented in Table 2. Spring and fall were slightly cooler than normal, while July and August were warmer. Precipitation was below average for most of the growing season. In months with a surplus, rain tended to come in events of greater than 1".

Maturity ratings and dry matter yields are reported in Table 3. Yields are given by harvest date and as total annual production. In this table, varieties are listed by descending maturity rating taken 19 May, just before the first harvest. Most varieties were past the optimum stage of harvest for the timothy, which is late-boot/early-head (maturity rating=6.5-9.5); 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 3, the variety with the highest numerical dry matter yield in each column is marked with two asterisks (**). Those varieties with yields 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 compared very well to yields of other perennial forage crops across the state in 1993 (see 1993 Kentucky Alfalfa, Bluegrass, Orchardgrass, Red Clover, and Tall Fescue Variety Test Reports). While there was a difference in seedling vigor ratings in 1992, the stand density of most varieties was good before the first harvest was taken in 1993. Seasonal production varied greatly between varieties; this was apparently related to maturity. Early-maturing improved cultivars with high yields in the first cutting also produced well throughout the season, while the later maturing varieties produced well only in the second cutting. This later season production was high enough to give these varieties a total seasonal production for 1993 that was not different from the highest numerical value. The 'common' variety, although the highest yielder in the third cutting, was the only variety that was significantly lower in total production than the highest yielding cultivar.

Summary

Selecting a timothy variety is an important first step in establishing a productive stand. It is generally best to look at data from several years and locations when choosing a timothy variety rather than data from only one test year, as is the case in this report. The data given in Table 3 should, therefore, be considered as preliminary to additional data from this and other tests to be published in future years. Proper management, beginning with seedbed preparation and continuing throughout the life of the stand, is necessary for even the highest yielding variety to produce near its genetic potential. Table 4 lists the varieties included in the 1992 seeding and gives information about developers, distributors and characteristics that are specific to each variety.

TABLE 1. UNIVERSITY OF KENTUCKY AGRICULTURAL EXTENSION PUBLICATIONS RELATED TO TIMOTHY MANAGEMENT.

PUB	TITLE
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 2. TEMPERATURE AND RAINFALL IN LEXINGTON DURING 1993.

MONTH	TEMPERATURE		RAINFALL	
	F	DEP.	INCHES	DEP.
JAN	38	7	2.95	-0.62
FEB	33	-2	4.04	0.78
MAR	41	-3	4.15	-0.68
APR	53	-2	3.26	-0.75
MAY	65	1	2.48	-1.75
JUN	72	0	6.48	2.23
JUL	79	3	3.17	-1.78
AUG	76	1	4.65	0.69
SEP	66	-2	3.72	0.44
OCT	54	-2	4.08	1.82

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

AVERAGE FOR THE LOCATION.

TABLE 3. DRY MATTER YIELDS (TONS/ACRE), SEEDLING VIGOR, AND MATURITY RATINGS OF TIMOTHY VARIETIES SOWN 15 SEP 1992 AT LEXINGTON, KENTUCKY.

VARIETY	VIGOR ¹	1993 MATURITY ²			1993 HARVESTS			1993
	OCT26 92	MAY07	MAY15	MAY19	MAY20	JUL13	OCT28	TOTAL
KYEARLY	6.00*	5.00**	11.00**	12.00*	3.62**	1.11*	1.98	6.72*
KYLEAFY	7.75**	4.00*	9.50*	12.00*	3.27*	1.39*	2.07	6.73**
COMMON	1.00	2.00	7.50	11.50*	1.97	1.30*	2.44**	5.71
TILLER	3.00	3.00	10.50*	11.50*	3.21*	1.31*	2.10	6.62*
CLAIR	4.00	3.00	5.50	11.00*	3.34*	1.13*	2.00	6.48*
MOHAWK	5.25	1.50	1.00	4.50	3.00	1.42*	1.67	6.09*
TIMFOR	3.50	1.00	3.50	4.50	2.84	1.53**	1.74	6.12*
MEAN	4.36	2.79	6.93	9.57	3.04	1.31	2.00	6.35
C.V., %	13.33	41.70	32.07	18.71	9.85	30.89	9.68	9.86
L.S.D., 0.05	2.10	1.73	3.30	2.66	0.44	0.60	0.29	0.93

¹ SEEDLING VIGOR: 0=NO TOPGROWTH; 9=MAXIMUM GROUND COVER.

² MATURITY: 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

**HIGHEST NUMERICAL VALUE IN THE COLUMN.

*NOT SIGNIFICANTLY DIFFERENT FROM THE HIGHEST NUMERICAL VALUE IN THE COLUMN.

TABLE 4. CHARACTERIZATION OF TIMOTHY VARIETIES SOWN 15 SEP 1992 AT LEXINGTON, KENTUCKY.

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