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1993 KENTUCKY BLUEGRASS VARIETY TEST REPORT

L.M. Lauriault, A.J. Powell, T.D. Phillips, and J.C. Henning

Introduction

Kentucky bluegrass (*Poa pratensis*) is the third most prominent cool-season grass used in Kentucky for forage, behind tall fescue and orchardgrass. As with all cool-season grasses, Kentucky bluegrass does best in cooler weather, becoming dormant in hot, dry conditions. It is a high quality, long-lived, rhizomatous grass that is used for both turf and forage. Compared to other cool-season grasses, Kentucky bluegrass is slower to germinate (2-3 weeks) and generally is lower in seedling vigor and herbage yield. Most recent varieties of Kentucky bluegrass have been developed for turf use; therefore, primary emphasis has been placed on improving turf quality factors such as color and texture. Several of these varieties have also been used on horse farms because it is a low growing species that is tolerant of close grazing by horses. It is highly acceptable to horses and has no known toxicities. In horse pastures, Kentucky bluegrass grows well with white clover, a low growing, grazing-tolerant legume, that is also a favorite of horse pasture managers. While it is more suited for use by grazing animals Kentucky bluegrass may be harvested as hay. Management is similar to that for other cool season grasses.

Most Kentucky bluegrass sown in Kentucky pastures is either an unnamed variety, normally called 'common Kentucky bluegrass', or 'Kenblue', a cultivar jointly developed and released in the late 1960's by the University of Kentucky Agricultural Experiment Station and the USDA Agricultural Research Service. Almost no replicated field trials have been conducted since that time with establishment and yield param-

eters in mind. Since many improved Kentucky bluegrass varieties have been developed for turf, it was the intended purpose of this test to evaluate some selected varieties with potential as horse pastures and to provide that information to Kentucky bluegrass growers. Other College of Agriculture publications related to the establishment, management, and utilization of Kentucky bluegrass are listed in Table 1 and are available from your local county extension office.

Description of the Test

Kentucky bluegrass varieties were sown at the University of Kentucky Agricultural Experiment Station Farm at 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 yield, color, and texture of Kentucky bluegrass varieties under simulated grazing and hay management schemes in Central Kentucky.

Seedings were made at the rate of 10 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 spring hay cutting, summer grazing, and fall stockpile management system. The first cutting was harvested when most varieties were in the boot to heading stage. Fresh weights were measured in the field and occasional subsamples were taken and weighed, dried and reweighed to determine percent dry matter on an oven dry basis.

The soil was Maury silt loam, a well-drained soil with initial soil test levels of over 200 lbs P/ac, 437 lbs K/ac, and a water pH of 6.0. Plot fertilization and weed control for this study was according to University of Kentucky 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".

Turf quality and 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 5 May, just before the first harvest. Some varieties were past the optimum stage of harvest for Kentucky bluegrass, which is late boot/early head (maturity rating=6.5-9.5). Varieties that have high yields and fall within this maturity range should be chosen over those varieties that yield high but are more mature. The higher yield of more mature varieties was probably due to flowering stems and seedheads. Nutritive quality of this forage will be lower because stem tissue is lower in crude protein and digestibility and higher in fiber than leaf tissue.

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 within 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), 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.

As expected, dry matter yields of Kentucky bluegrass at Lexington in 1993 were somewhat lower than tall fescue and orchardgrass (see 1993 Kentucky Tall Fescue and Orchardgrass Variety Test Reports). While there was a difference in seedling vigor ratings in 1992, stands of most varieties were good before the first harvest was taken in 1993. It is noted that the varieties with 100% stand in April also had the highest total yields in 1993. Color differences observed in autumn 1993 are probably related to leaf diseases, particularly rust, and do not appear to be related to yield. Texture, which is determined by the width of the leaf blade, was also apparently not related to yield.

Summary

Selecting a good Kentucky bluegrass variety is an important first step in establishing a productive pasture. It is generally best to look at data from several years and locations when choosing a variety of Kentucky bluegrass rather than data from only one test year, as is the case in this report. The data in Table 3 should, therefore, be considered as preliminary to additional data from this or other tests to be published in future years. Table 4 lists the varieties included in the 1992 seeding and gives information about developers and distributors in addition to known characteristics. Be sure to buy only high quality, certified seed. Look for the blue tag that indicates certification. Also, read the label to make certain that the seed has a high germination (as tested within the last nine months) and few other crop and weed seeds. 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. Be sure to contact your county extension office for other information about management of Kentucky bluegrass.

TABLE 1. UNIVERSITY OF KENTUCKY EXTENSION PUBLICATIONS RELATED TO KENTUCKY BLUEGRASS MANAGEMENT.

PUB.	TITLE
AGR-134	KENTUCKY BLUEGRASS AS A FORAGE CROP
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-120	FORAGES FOR HORSES
AGR-81	HORSE PASTURE
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), MATURITY, AND QUALITY¹ RATINGS OF KENTUCKY VARIETIES SOWN 15 SEP 1992 AT LEXINGTON, KENTUCKY.

VARIETY	1992	1993			1993 MATURITY ⁵		1993 HARVESTS				1993 TOTAL
	VIGOR ²	% STAND	COLOR ³	TEXTURE ⁴	APR29	MAY05	MAY06	JUN07	JUL13	OCT28	
KENBLUE	4.50	100.00**	3.00*	1.00	10.50**	11.00**	1.10**	0.80	0.52**	1.44	3.87*
TROY	2.25	91.25	2.50	1.75	9.50*	11.00**	0.76	0.67	0.32	1.68**	3.44
HUNTSVILLE	3.75	97.50*	2.50	1.50	1.00	9.50	0.79	0.74	0.38*	1.59*	3.51
GEORGETOWN	2.50	95.00*	2.75	1.75	2.75	9.00	0.55	0.88	0.37*	1.26	3.05
1757	2.00	92.50*	2.75	2.50	1.00	8.50	0.58	0.81	0.43*	1.32	3.14
BRONCO	2.75	95.00*	2.00	4.00**	1.00	8.00	0.50	0.95	0.38*	1.46	3.29
FREEDOM	3.25	86.25	2.75	2.75	1.00	8.00	0.65	0.94	0.37*	1.38	3.35
LATO	5.50**	100.00**	1.00	4.00**	1.00	8.00	1.00*	1.11**	0.47*	1.62*	4.21**
BM-3	2.75	95.00*	3.00*	3.75*	1.00	7.50	1.01*	0.63	0.16	1.35	3.15
VOYAGER	3.75	96.25*	3.75**	2.50	1.00	7.50	0.75	0.76	0.31	1.29	3.11
MEAN	3.30	94.88	2.60	2.55	2.98	8.80	0.77	0.83	0.37	1.44	3.41
C.V., %	20.78	5.64	22.93	16.71	40.44	10.16	17.19	12.40	35.37	5.94	7.32
L.S.D., 0.05	1.00	7.77	0.87	0.62	1.75	1.30	0.19	0.15	0.19	0.12	0.36

¹ QUALITY RATINGS INCLUDE VIGOR, % STAND, COLOR, AND TEXTURE RATINGS.

² VIGOR: 0=NO EMERGENCE; 9=MAXIMUM COVER.

³ COLOR: 1=YELLOW; 5=DARK GREEN.

⁴ TEXTURE: 1=FINE; 5=COARSE.

⁵ 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 BASED ON THE L.S.D.

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

VARIETY	DEVELOPER\PROPRIETOR	DISTRIBUTOR	CHARACTERISTICS
1757	LOFTS SEED	LOFTS SEED	TURF TYPE
BM-3	PURE SEED TESTING	EXPERIMENTAL	TALL, LEAFY, EARLY MATURING
BRONCO	PICKSEED WEST	PICKSEED WEST	VIGOROUS TURF TYPE, LARGE SEEDED
FREEDOM	JACKLIN SEED	JACKLIN SEED	FAST ESTABLISHING TURF TYPE
GEORGETOWN	LOFTS SEED	LOFTS SEED	TURF TYPE
HUNTSVILLE	JACKLIN SEED	JACKLIN SEED	NATURALLY TALL GROWING
KENBLUE	KENTUCKY AGRIC. EXP. STA.	PUBLIC	LOW MANAGEMENT TURF AND PASTURE
LATO	PURE SEED TESTING	PURE SEED TESTING	LATE MATURING, PASTURE TYPE
TROY	MONTANA AGRIC. EXP. STA.	JACKLIN SEED	LEAFY, UPRIGHT, PASTURE TYPE
VOYAGER	PURE SEED TESTING	PURE SEED TESTING	TALL, LEAFY, EARLY MATURING, DROUGHT TOLERANT

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