PREFERENCE OF SUMMER ANNUAL FORAGES BY RED DEER

G. W. Evers. T. J. Butler. M. J. Parsons. D. A. Neuendorff. and R. D. Randel

Summary

Five legumes and five grasses were planted in a small plot study and grazed for four and three days by red deer (Cervus elephus) yearlings. Hay type soybean was the preferred summer annual forage by yearling red deer fawns. Cowpea, lablab, and brown midrib forage sorghum were also readily eaten. Phasey bean was eaten after all other desirables were eaten , and pearl millet and brown top miller were avoided by the red deer yearlings even when there was nothing else to graze.

Introduction

Farming of non-native deer is a new and expanding agricultural enterprise in the United States. One of the species being farmed is red deer, which is native to Europe. The first known U.S. introduction of red deer was in Texas in the 1930's. Red deer are a popular choice for deer farming due to their adaptability to various grazing systems, their strong herding instincts and their large size, which results in a relatively large carcass. Red deer farming has increased considerably in the U.S. for venison production, velvet antler production, and specialized breeding programs, including cross-breeding. An exotic hoofstock survey taken in 1996 reported 20.743 red deer and red deer hybrids in Texas. Production cost for raising red deer and other non-native deer are reduced anytime pasture can be substituted for purchased feed to meet the nutritional requirements

of the deer. There is no available information on which forages adapted to the southeastern U.S. are preferred by red deer.

Procedure

Forage species and planting rate are reported in Table 1. The study was planted on a Kirvin very fine sandy loam (clayey, mixed, thermic, Typic Hapludults) at the Texas A&M University Agricultural Research and Extension Center at Overton. Plots were *5* by 15 ft and arranged in a randomized complete block with four replications. Legume seed were inoculated with their appropriate inoculant strain immediately before planting. Seed were drilled in 7-in, rows into a prepared seedbed on May 1, 1999. All plots were fertilized with 0-60-120 prior to planting. The grass plots were fertilized with an additional 50-0-0 after the grasses emerged and again at defoliation. Yearling red deer fawns grazed the study for 4 days in June and 3 days in July 1999. Visual estimates on the percent of defoliation were made each day of the grazing period red deer yearlings. Means reported in Table 2 are averages of two estimators and four replications.

Table 1. Summer annual forage entries in cafeteria grazing trial.

Entry	Variety	Seeding rate
Brown midrib sorghum	SS 200 BMR	35
Browntop millet	common	20
Cowpea	Iron and Clay	80
Crabgrass	Red river	3
Forage sorghum	Green grazer V	50
Hay type soybean	Donegal	70
Lablab	Tecomate	50
Lablab	Ray's selection	*
Pearl millet	Teafleaf II	20
Phaseybean	PI276183	15

* Transplanted in rows

Results and Discussion

The first grazing period was from June 14 to June 18. After one day (June 15) the hay type soybean was the first choice with 98% defoliation (Table 2). By the second day one half or more of the soybean, lablab, brown midrib sorghum, and cowpea were consumed. These four entries were completely defoliated by the third day. At that point the red deer began eating the regular forage sorghum, phaseybean, and crabgrass. By the fourth and last day of the first grazing period the red deer were eating everything except the pearl millet and browntop millet. Regrowth was grazed from July 27 to July 30, After one day the initial preference was for hay type soybean, lablab, brown midrib forage sorghum, and cowpea which was similar to the first grazing period. By the last day essentially all the soybean, lablab, cowpea, and brown midrib forage sorghum had been defoliated. The regular forage sorghum, phaseybean, and the crabgrass were also being eaten. As in the first grazing period, the red deer avoided the pearl millet and browntop millet.

Table 2. Defoliation of summer annual forages by red deer.

	Date			
	15 June	16 June	17 June	18 June
	% Defoliation			
Species				
Brown midrib sorghum	14.6 b	64.4 bc	93.1 a	99.5 a
Browntop millet	0.0 f	1.3 f	1.6 f	2.3 d
Cowpea	2.5 def	48.8 cd	99.5 a	99.5 a
Crabgrass	5.8 cde	13.1 ef	26.3 c	51.3 c
Forage sorghum	7.5 cd	26.3 de	66.9 b	87.5 b
Hay type soybean	96.8 a	99.5 a	99.5 a	99.5 a
Lablab (Tecomate)	10.5 bc	85.0 ab	99.5 a	99.5 a
Lablab (selection)	0.6 ef	60.0 c	99.5 a	99.5 a
Pearl millet	0.1 f	0.5 f	0.8 d	1.5 d
Phaseybean	0.0 f	0.6 f	7.6 d	53.8 c

	Date		
	28 July	29 July	30 July
Species	% Defoliation		
Brown midrib sorghum	27.5 b*	71.3 b	91.8 a
Browntop millet	0.0 d	0.0 e	0.0 d
Cowpea	15.0 c	69.4 b	95.3 a
Crabgrass	1.3 d	1.3 de	31.3 c
Forage sorghum	2.1 d	22.1 c	60.0 b
Hay type soybean	58.1 a	89.0 a	97.0 a
Lablab (Tecomate)	31.3 b	66.9 b	95.4 a
Lablab (selection)	34.2 b	89.0 a	96.3 a
Pearl millet	0.0 d	0.0 e	0.0 d
Phaseybean	0.0 d	17.5 cd	35.0 c

*Means within a column followed by the same letter do not differ at the 0.05 level

Conclusion.

Hay type soybean was obviously the preferred summer annual forage by yearling red deer fawns. Cowpea, lablab, and brown midrib forage sorghum were also readily eaten. Cowpea, soybean, and lablab are large seeded legumes with seed size equal to, or slightly larger, than the eatable green pea or black-eyed pea. Their large seed size makes them relatively easy to establish. Preference for these large seeded legumes is probably due to two factors. They have large wide leaves that resemble forbs, which are preferred by all deer. The second reason is that legumes are higher in protein, phosphorus, calcium, and digestibility than grasses. The brown midrib characteristic in the forage sorghum is associated with lower lignin concentration, which results in higher digestibility. Phaseybean, a small seeded legume, and regular forage sorghum would also be eaten by red deer if it were planted in a pure stand. There is no question that red deer do not care for pearl millet or browntop millet.