

**FORAGE-LIVESTOCK  
FIELD DAY REPORT - 1998**

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## PREFERENCE OF WARM-SEASON ANNUAL FORAGE SPECIES BY NON-NATIVE DEER

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**Background.** Most of the non-native deer breeds used for venison production are seasonal breeders. Fawns are born from late May to mid-July and weaned in autumn. Nutritional requirements of does nursing fawns during the summer are high with an estimated minimum 14% protein and 62% digestible dry matter. Year-old fawns that have not reached a minimum slaughter weight of about 110 lb must also have high quality summer pastures to achieve satisfactory weight gains. Warm-season perennial grasses used in the southeastern US, such as bermudagrass and bahiagrass, are considered to be of marginal quality for these two classes of non-native deer. Warm-season annual forages are higher quality than warm-season perennial grasses and might better meet the summer nutritional requirements of non-native deer.

A cafeteria style grazing study of warm-seasonal annual grasses and legumes was established at the Overton Center on May 19, 1997. Entries and their respective seeding rates are reported in Table 1. Experimental design was a randomized complete block with four replications. Soil analysis of the study site reported a pH of 6.1 and high levels of nitrogen, phosphorus, and potassium. No fertilizer was applied to the study except for 68 lb nitrogen/acre to the three grass entries on May 30, 1997. Seedling densities were determined on June 4 by counting the number of seedlings in a 12 x 14 in. quadrat at two random locations in each plot. Two fallow and two axis bucks were placed on the study for 3 days beginning June 27 and 8 days beginning July 20. Percent defoliation was visually estimated on June 30, July 22, and July 28.

**Research Findings.** Satisfactory stands were obtained of all entries except lablab and phaseybean (Table 1). However, there were sufficient plants of both to provide selective grazing by deer. Leaves, petioles, and stem tips were completely consumed by the deer of the Iron and Clay cowpea, hay-type soybean, and lablab plants (Table 2). Alyceclover and phaseybean were the least preferred legumes by deer. Of the grass entries, deer preferred Sweetstem forage sorghum which has the brown midrib in the leaf which is associated with higher digestibility. None of the millet was eaten by the deer which may be due to alkaloid content and/or rigid hairs on the leaf margins. Two days after initiation of the second grazing period, soybean and cowpea were completely defoliated with 68% of the lablab being utilized. By the end of the 8 day grazing period lablab and phaseybean had been completely defoliated. All grass entries were avoided during this second grazing period. Grass plots were not mowed off after the first grazing period and this resulted in more mature forage which may account for the lack of defoliation.

**Application.** There was a strong preference by non-native deer for legumes over grasses. Preferred legume species were cowpea, soybean, and lablab. Considering seed costs, cowpea and soybean would be more economical. Cowpea do very well on sandy soils while soybeans are better adapted to well drained loam and clay soils. Of the warm-season annual grasses in the study, Sweetstem forage sorghum with the brown midrib in the leaf was the deer's first choice. If planted for deer, annual grasses should be kept in a young vegetative stage by mowing if necessary.

Table 1. Forage species, seeding rates, and plant densities of entries in cafeteria type grazing study with non-native deer.

Forage species	Seeding rate	Plant density
	lb/acre	plants/ft <sup>2</sup>
<b>Grasses</b>		
Teafleaf II millet	20	22
4 Evergreen forage sorghum	35	11
Sweetstem forage sorghum (brown midrib)	35	12
<b>Legumes</b>		
Iron and clay cowpea	70	7
Hay-type soybean (PA BU 2-2)	100	7
Alyceclover	20	33
Aeschynomene	15	23
Lablab	50	2
Phaseybean	15	6

Table 2. Visual estimate of summer annual forage species consumed by fallow and axis bucks.

Forage species	Grazing period began		
	27 June	20 July	
	30 June	22 July	28 July
	-----percent defoliation-----		
<b>Grasses</b>			
Teafleaf II millet	0	0	0
4 Evergreen forage sorghum	58	0	0
Sweetstem forage sorghum	80	0	8
<b>Legumes</b>			
Iron and clay cowpea	100	93	100
Hay-type soybean	100	100	100
Alyceclover	23	23	35
Aeschynomene	50	33	43
Lablab	100	68	100
Phaseybean	38	3	93