

# **PUBLICATIONS**

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## CATTLE GRAZING ACCEPTANCE OF SUMMER FORAGE LEGUMES

G. R. Smith and F. M. Rouquette, Jr.

**Background.** Warm-season perennial grass pastures in East Texas are at their lowest quality level during mid- to late-summer. Summer forage legumes such as cowpea and lablab can provide a source of high protein forage from mid-July to frost (mid-November). The specific length of grazing season depends on planting date, utilization intensity, flowering date of the legume cultivar, and climatic conditions. Cattle, small ruminants (non-native deer and goats) and white-tailed deer can all benefit from these high quality forages. Our objective was to evaluate cattle acceptance and preference for a wide range of both cowpea and lablab germplasm.

**Research Findings.** Twenty-four cowpea lines were planted 13 May 1996 in a randomized complete block design with two replications. Each entry was planted in a 6-ft. row plot with 4-ft. borders between rows. Cowpea entries were planted at 25 lbs/acre and seed were inoculated with the appropriate Rhizobium inoculant. Fertilizer and lime were not required according to soil test. Cowpea germplasm in these experiments included breeding lines, plant introductions, and cultivars 'Whippoorwill' and 'Iron and Clay'. Vegetable cowpea cultivars 'Texas Pinkeye' and 'Champion Cream' were also included.

Cowpea entries were grazed with 4 steers on 8-11 July 1996 and 12-15 Aug. 1996. Nine of the 24 cowpea entries were flowering during the early July grazing period, and 13 of the 24 cowpea entries were flowering during the August grazing period. Steers did not graze any of the cowpeas during the test. Immature plants of pigweed, evening primrose, and other weeds were selectively grazed in preference to the cowpeas.

Fifty-two lablab germplasm lines, 'Tecomate' lablab, Iron and Clay cowpea, and TX288L cowpea were planted 22 May 1997. The germplasm lines were not replicated due to seed supply availability. The other legume entries were replicated four times in a randomized complete block design. Lablab and cowpea entries were planted in 5-ft. row plots with 10-ft. borders between rows. Each lablab plot was planted with 9 seed per plot and the cowpea plots were planted at 25 lbs/acre. The seed were inoculated with the appropriate Rhizobium inoculant. Fertilizer and lime were not required according to soil test.

Ten lablab entries were not evaluated due to stand establishment failure. Lablab and cowpea entries were grazed with 5 heifers on 22-24 July 1997. No defoliation was noted on any of the summer legumes during the first 24 hours (Table 1). At 32 hours, 20 lablab entries were partially defoliated but no utilization was noted on any of the cowpeas. At 48 hours, all lablab entries had been

grazed with about 100% defoliation of leaves, and cattle were initiating consumption of lablab stems. At 48 hours post-initiation of grazing, the cowpea entries averaged 4% defoliation.

**Application.** Both cowpea and lablab are high quality forage crops that can be productive under East Texas summer conditions (see associated reports). Cattle avoid grazing cowpeas due to unpalatability, but lablab is quickly accepted and readily grazed by cattle. These initial experiments suggest that lablab may be useful as a supplemental protein source for summer grazing by cattle. More research is needed to develop forage management systems for livestock that includes lablab.

Table 1. Cattle utilization of cowpea and lablab.

Summer Legume	Grazing Period	% Leaf Defoliation
Cowpea	8-11 July 96	0
	12-15 Aug 96	0
Cowpea	22-24 July 97	
	@ 24 hrs	0
	@ 32 hrs	0
	@ 48 hrs	4
Lablab	22-24 July 97	
	@ 24 hrs	0
	@ 32 hrs	32
	@ 48 hrs	95