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SUMMER FORAGE LEGUMES FOR NON-NATIVE DEER

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Background. Warm-season perennial grass pastures in East Texas are at their lowest quality level during late summer. Annual summer legumes such as cowpeas and lablab can provide a source of high protein and quality forage from mid-July to frost. The specific length of grazing season depends on planting date, utilization intensity and flowering date of the legume cultivar. Ruminants such as cattle, sheep, goats, and deer can all benefit from these high quality forages. Phasey bean is another summer legume that may have potential as forage crop.

Our objectives were to evaluate acceptance and preference of non-native deer for a wide range of both cowpea, lablab and phasey bean germplasm and to evaluate regrowth of the legume germplasm after grazing.

Research Findings. Twenty-four cowpea lines were planted 13 May 1996 in a randomized complete block (RCB) design with two replications. Fourteen phasey bean plant introductions were also planted the same date in a RCB design with two replications. Each entry was planted in a 6-ft. row plot with 4-ft. borders between rows. The cowpea entries were planted at 25 lbs/acre and the phasey bean entries planted at 12 lbs/acre. The seed were inoculated with the appropriate *Rhizobium* inoculant. Fertilizer and lime were not required, according to soil test. The cowpea germplasm in these experiments included breeding lines, plant introductions and the cultivars 'Whippoorwill' and 'Iron and Clay'. The vegetable cowpea cultivars 'Texas Pinkeye' and 'Champion Cream' were also included as checks.

The cowpeas and phasey beans were grazed with two axis and two fallow bucks. The 1996 grazing periods for the cowpeas were 1-5 July, 19-23 July, 12-14 August, and 9-12 September. The 1996 grazing periods for the phasey beans were 1-5 July, 19-25 July, 7-9 August, 12-14 August, and 9-18 September. Notes were taken on percent leaf utilization for each cowpea and phasey bean line after each grazing period and each cowpea line was rated for regrowth on 8 August and 30 September.

The axis and fallow bucks readily grazed the cowpeas but not the phasey beans (Table 1). Regrowth of all cowpea entries was acceptable except on the early flowering vegetable types. The deer generally avoided the phasey beans when given a choice between the two legume species. Deer consumption of phasey bean increased when they were excluded from the cowpeas (24-25 July and 7-9 August) except for the 13-18 September grazing period.

Fifty lablab germplasm lines, 'Tecomate' lablab, Iron and Clay cowpea, and TX288L cowpea were planted 29 May 1997. The germplasm lines were not replicated due to seed supply. The other

entries were replicated twice in a randomized complete block design. The lablab and cowpea entries were planted in 5-ft. row plots with 5-ft. 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.

The lablab and cowpea entries were grazed with two axis and two fallow bucks from 20 to 26 August 1997. Percent defoliation was noted on 22 August and 26 August. The cowpea entries were selectively grazed first. After 2 days of deer grazing the lablab entries were 12% defoliated compared to 77% for the cowpea entries (Table 1). After 4 additional days of deer grazing, both lablab and cowpea were 95% defoliated. No differences in deer preference among lablab entries were noted. All lablab and cowpea entries had acceptable regrowth and could have been grazed again in 3 weeks.

Application. Both cowpea and lablab are excellent summer legume forage crops that are readily utilized by axis and fallow deer. Phasey bean is not well accepted by axis or fallow deer.

Table 1. The utilization of summer forage legumes by non-native deer.

| Summer Legume | Grazing Period | % Utilization |
|------------------|----------------|---------------|
| Cowpea (96) | 1-5 July | 55 |
| | 19-23 July | 92 |
| | 12-14 Aug. | 53 |
| | 9-12 Sept. | 90 |
| Phasey bean (96) | 1-5 July | 5 |
| | 19-25 July | 45 |
| | 7-9 Aug. | 13 |
| | 12-14 Aug. | 11 |
| | 9-18 Sept. | 1 |
| Lablab (97) | 20-22 Aug. | 12 |
| | 23-26 Aug. | 95 |
| Cowpea (97) | 20-22 Aug. | 77 |
| | 23-26 Aug. | 95 |