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Evaluation of Warm-Season Forage Legume (*Lablab purpureus* L.) Germplasm for Dry Matter Yield

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Summary

Adapted warm-season forage legumes such as hyacinth bean (*Lablab purpureus* L. Sweet) have the potential for extending the South Texas grazing season with high-quality forage. Dry matter production of seven *Lablab* accessions was assessed for the 1991 growing season at Kingsville, Texas, on a predominantly fine sandy loam soil. Dry matter yield among the accessions differed ($P < 0.05$) at each harvest period. Although accessions #164302 and #288467 from India produced 6,838 and 6,545 lb/A dry matter, respectively, during the August harvest, accessions #288467 from India and #388006 from Australia were the best forage producers, providing total dry matter yields of 13,563 and 12,222 lb/A per season, respectively.

Introduction

Lack of productive forage legumes is a serious problem for pasture improvement in South Texas. Many native legumes are poor forage producers. Other plant sources are needed to meet the nutritional requirements of livestock in this region. Hyacinth bean, an important warm-season annual legume (Fribourg et al., 1984), has shown potential for establishment in and adaptation to South Texas (Gonzalez, 1987). We evaluated dry matter production of selected *Lablab* accessions during 1991 as part of a breeding program to develop high-quality forage legume cultivars.

Procedure

Seven accessions of *Lablab* from different countries were compared. Entries were accessions #164302, #212998, and #288467 from India; accession #284802 from China; accession #338431 from Zambia; accession #345687 from Russia; and

accession #388006 from Australia. Seeds were obtained from the USDA Plant Introduction Experiment Station, Tifton, Georgia, through the South Texas Plant Materials Center at Texas A&I University.

The study was conducted at the Texas A&I University Research Farm in Kingsville on Willacy fine sandy loam soil. Seeds were inoculated with cowpea *Rhizobium* strain before planting. Planting date was March 30, 1991, and the seeding rate was 2.8 lb/A. The experimental design was a randomized complete block with three replications. Plots consisted of three 12-inch rows, 18 ft long. Plots were irrigated as needed throughout the growing season. Fertilizer was not used and weed control was done by hand. No major insect problems occurred, and chemical insect control was not used. Plants in 3 ft of the central row of three row-plots were harvested monthly in June, July, and August at ground level. Regrowth from these plots in September and October was not harvested for analysis. All harvested plants were oven-dried at 176 °F for 72 hours and weighed for dry matter yield.

Results and Discussion

Variation in yield was observed among the accessions for each harvest date (Table 1). Yields of accessions #288467 and #164302 increased as the harvest season progressed, and the highest yields ($> 6,000$ lb/A) were obtained for these two accessions during the August harvest. Accessions #288467 from India and #388006 from Australia were the best forage producers, providing total dry matter yields of 13,563 and 12,222 lb/A per season, respectively. Even though the dry matter yields in this study were based on 1 year of data, preliminary results indicate existence of genetic variability among the seven *Lablab* accessions tested so far. This study needs to be repeated for several years to establish adaptability of the elite *Lablab* accessions in South Texas.

Keywords: *Lablab purpureus* / dry matter yield / South Texas / warm season.

Table 1. Dry matter yields of seven accessions of *Lablab purpureus* during the 1991 growing season at Kingsville.

Accession#	Origin	Dry matter*							
		June		July		August		Total	
	lb/A							
164302	India	406	c	1,312	c	6,838	a	8,556	e
212998	India	1,280	b	6,548	a	4,137	b	11,965	b
284802	China	2,420	a	5,365	a	3,861	bc	11,646	b
288467	India	1,716	ab	5,302	a	6,545	a	13,563	a
338341	Zambia	1,962	a	4,920	a	3,316	c	10,197	c
345607	Russia	2,253	a	3,504	b	3,242	c	9,000	d
388006	Australia	2,091	a	5,981	a	4,151	b	12,222	b

*Means followed by the same letter within a column are not statistically different ($P = 0.05$) by Duncan's multiple range test.

Literature Cited

Fribourg, H.A., J.R. Overton, W.W. McNeil, E.W. Culverhouse, M.J. Montgomery, M. Smith, R.J. Carlisle, and N.W. Robinson. 1984. Evaluation of

the potential of hyacinth bean as a warm-season forage in mid-south. *Agron. J.* 76: 905-910.

Gonzalez, C.L. 1987. Screening and establishment of forage legumes in South Texas. *J. Rio Grande Valley Hort. Soc.* 40: 39-53.