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Evaluation of Warm-Season Forage Legume
(\textit{Lablab purpureus} L.) Germplasm for Dry Matter Yield

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\textbf{Summary}

Adapted warm-season forage legumes such as hyacinth bean (\textit{Lablab purpureus} L. Sweet) have the potential for extending the South Texas grazing season with high-quality forage. Dry matter production of seven \textit{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.

\textbf{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 \textit{Lablab} accessions during 1991 as part of a breeding program to develop high-quality forage legume cultivars.

\textbf{Procedure}

Seven accessions of \textit{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 \textit{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.

\textbf{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 \textit{Lablab} accessions tested so far. This study needs to be repeated for several years to establish adaptability of the elite \textit{Lablab} accessions in South Texas.
Table 1. Dry matter yields of seven accessions of *Lablab purpureus* during the 1991 growing season at Kingsville.

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

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

**Literature Cited**


**Sorghum-Sudangrass Performance Trial at Stephenville, 1991**

M.A. Sanderson, R.M. Jones, J. Ward, and R. Wolfe

**Summary**

Twelve commercial sorghum-sudangrass hybrids were evaluated for dry matter (DM) yield, morphological composition, and forage quality at the Texas A&M University Research and Extension Center at Stephenville in 1991. Each hybrid was harvested four times. At harvests 1 and 2, plants were separated into leaf blades and stalks, and crude protein (CP) and acid detergent fiber (ADF) were determined on whole plants. Total DM yield for the season ranged from 9,300 to 11,800 lb DM/A and averaged 10,494 lb DM/A. The hybrids ‘Greentreat II’, ‘Greentreat III’, ‘Grazex’, ‘Grazex II’, and ‘8096G’ were highest yielding. Differences in CP and ADF among hybrids were few.

**Introduction**

Sorghum-sudangrass hybrids are widely used for grazing and hay production in Texas. We evaluated 12 commercial hybrids for yield, leaf and stalk proportions, and forage quality during 1991 at Stephenville.

**Keywords:** summer-annual grasses / hay yields / forage quality.

**Procedures**

The performance trial was conducted at the Texas A&M University Research and Extension Center at Stephenville. The soil at the site is a Windthorst fine sandy loam.

Entries were solicited from various seed companies and a $100 fee was charged for each entry. There were 12 entries from 7 companies. Entries were planted at 8 lb of seed/A on April 29 in two-row plots 30 ft long with 36 in. between rows. Each entry was planted in four replicate plots. Plots received 180 lb nitrogen (N), 70 lb phosphate (P2O5), and 10 lb zinc sulfate (ZnSO4)/A before planting. An additional 75 lb N/A was applied after the first harvest. Rainfall was 2.3 in. in April, 4.4 in May, 3.0 in June, 0.9 in July, 6.6 in August, and 4.8 in September. No rain fell between harvest 1 and harvest 2 (June 17 to July 23).

Plots were harvested on June 17, July 23, August 20, and September 26, when plants were near boot stage. At each harvest, a 10-ft section of each row was hand-cut at a 4-in. height and weighed. A subsample of five plants was chewed in a garden mulcher, and a 1-lb sample of the chopped material was dried at 140 °F for 48 hours. A second subsample of eight plants was separated...