Sugarcane Research at the Beaumont Research Center
2006-07

Project Investigators:
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Jorge da Silva – TAES, Weslaco, TX
Robert Cobill and Tom Tew – USDA, Houma, LA

Introduction

In the fall of 2006, six cane varieties from a research plot in Chambers Co. were cut, transported to Beaumont and planted. This work is being done in cooperation with Robert Cobill, USDA at Houma, LA. The plot at Beaumont will serve as seed increase material for future research.

Agronomics and Cultural Information

2006
Aug 22 Pulled 24 beds in a League clay field (beds are 5 ft wide and 170 ft long) (pH 5.5, sand 3.2%, silt 32.4%, clay 64.4%, and organic matter 3.8 - 4.8%)
Sep 5 Cobill planted four rows on east end of test
Sep 7 Cut 15-20 stalks each from 6 varieties at Chambers Co. plot
Sep 8 Planted next 8 rows west with 6 varieties (4 replications)
2 border rows of HoCP 01-523 planted on west end of test
6 ft of HoCP 01-523 planted as border cane on south and north end of test
Plot size = 2 rows, 5 ft wide, 20 ft long with 4 ft alleys between plots
Sep 25 A few plots beginning to emerge
Oct 13 Applied Prowl @ 2.5 pt, Weedar 64 (2,4-D) @ 2.0 pt and Treflan @ 2.0 pt/acre + COC @ 1% v/v with a CO2-pressurized spray tank and boom (spray was post-directed down furrows @ 20 gpa for grasses and broadleaves)

2007
Mar 22 Same as on Oct 13, 2006
Apr 24 Applied urea @ 100 lb N/acre and cultivated (Fig. 1)
Jun 4 Applied Confirm 2F @ 16 oz/acre and COC @ 1 qt/acre with a single nozzle (11003) boom (24 gpa)
Jun 21 Prowl @ 2.5 pt, Weedar 64 @ 2.0 pt, Treflan @ 2.0 pt, Asulox @ 3.0 pt with Agridex @ 1% v/v post directed spray ~ 15 gpa
Aug 15 Stalk counts and plant

Figure 1. Replicated Seed Increase Test after cultivation on Apr 24, 2007.
heights in Robert Cobill’s Seed Increase Test

Oct 5  Planted sugarcane—Robert Cobill’s Variety Test
Nov 14 Cut 10 stalks/plot in Replicated Seed Increase Test recorded green weight and transported stalks to Dr. Jorge da Silva at TAES Weslaco, TX for processing (Fig. 2).
Nov 27 Stalk counts in Replicated Seed Increase Test (10 ft of east row of each 2-row plot)

PLOT PLAN

\[ \text{North} \]

<table>
<thead>
<tr>
<th>4 rows (Cobill)</th>
<th>2 rows HoCP 01-523</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-113</td>
<td>03-19</td>
</tr>
<tr>
<td>99-51</td>
<td>85-384</td>
</tr>
<tr>
<td>85-384</td>
<td>99-58</td>
</tr>
<tr>
<td>99-58</td>
<td>99-51</td>
</tr>
<tr>
<td>03-19</td>
<td>02-113</td>
</tr>
<tr>
<td>03-48</td>
<td>03-48</td>
</tr>
</tbody>
</table>

6 ft HoCP 01-523

Standard sugarcane cultivar: LCP 85-384

Discussion

Plant stands were not ideal due to insufficient planting stock—unable to overlap all pieces of seed cane. Regardless, highest stands were produced by US 02-113; lowest by US 03-48 (Table 1). Weed control was excellent throughout the season. In 2007, rainfall (inches) was: Jan = 5.54, Feb = 2.87, Mar = 4.38, Apr = 4.82, May = 5.24, Jun = 4.07, Jul = 7.85, Aug = 5.79, Sep = 4.60 and Oct = 1.16. So, the summer months, Jul and Aug, were abnormally wet with relatively mild temperatures. Hurricane Humberto, which made landfall on Sep 13, caused extensive lodging. Although an application of insecticide was applied to control stem borers (a combination of sugarcane and Mexican rice borer), stem borer damage was evident in the plots. Wet weight yields were not significantly different among the entries but US 99-51 averaged 61.8 tons wet weight/A and possessed the highest fiber content (24.5%). LCP 85-384, a conventional, popular sugarcane cultivar, produced the highest sugar/ton and the lowest fiber content. In summary, results show three entries produced greater than 20% fiber and greater than 46 tons wet weight/A.

Figure 2. Sugarcane just after removal of stalks for processing on Nov 14

<table>
<thead>
<tr>
<th>Variety</th>
<th>Stand (plants/10 ft)</th>
<th>Yield&lt;sup&gt;a&lt;/sup&gt; (tons/A)</th>
<th>Sugar / ton&lt;sup&gt;bd&lt;/sup&gt;</th>
<th>Sugar in juice&lt;sup&gt;d&lt;/sup&gt; (%)</th>
<th>Extractables in juice&lt;sup&gt;d&lt;/sup&gt; (%)</th>
<th>Fiber&lt;sup&gt;cd&lt;/sup&gt; (%)</th>
<th>Ash in juice&lt;sup&gt;d&lt;/sup&gt; (mMhos)</th>
<th>Stalk wt&lt;sup&gt;d&lt;/sup&gt; (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 02-113</td>
<td>81.5 a</td>
<td>46.4</td>
<td>105.6 cd</td>
<td>9.7 bc</td>
<td>69.3 abc</td>
<td>24.0 a</td>
<td>6.3 a</td>
<td>0.6 c</td>
</tr>
<tr>
<td>US 03-19</td>
<td>59.0 b</td>
<td>51.4</td>
<td>152.5 b</td>
<td>11.8 ab</td>
<td>73.1 ab</td>
<td>13.6 c</td>
<td>6.3 a</td>
<td>1.1 b</td>
</tr>
<tr>
<td>US 03-48</td>
<td>40.0 c</td>
<td>54.9</td>
<td>123.8 c</td>
<td>9.1 c</td>
<td>67.6 bc</td>
<td>17.9 b</td>
<td>6.1 a</td>
<td>1.6 a</td>
</tr>
<tr>
<td>US 99-51</td>
<td>61.8 b</td>
<td>66.4</td>
<td>80.8 e</td>
<td>7.9 c</td>
<td>61.7 c</td>
<td>24.5 a</td>
<td>6.7 a</td>
<td>1.2 ab</td>
</tr>
<tr>
<td>US 99-58</td>
<td>65.0 b</td>
<td>59.3</td>
<td>93.2 de</td>
<td>8.9 c</td>
<td>66.1 bc</td>
<td>23.5 a</td>
<td>6.5 a</td>
<td>1.0 bc</td>
</tr>
<tr>
<td>LCP 85-384</td>
<td>58.3 b</td>
<td>51.3</td>
<td>206.3 a</td>
<td>13.1 a</td>
<td>78.4 a</td>
<td>12.0 c</td>
<td>4.8 b</td>
<td>1.1 b</td>
</tr>
</tbody>
</table>

<sup>a</sup>Yield (wet weight) estimated from 10 stalks per plot; weights include all material above ground (leaves, stalks and tops).

<sup>b</sup>Only 3 replications used for varieties US 03-48 and LCP 85-384.

<sup>c</sup>Only 3 replications used for variety US 99-51.

<sup>d</sup>Data in columns 4 – 9 provided by Dr. Jorge da Silva at TAES, Weslaco, TX.

Means in a column followed by the same or no letter are not significantly different (NS, $P > 0.05$, ANOVA and LSD).