Comparison of Stalk Borer Damage in Treated and Untreated Energy Cane Plots
Alternate Crops Field No. 2
Beaumont, TX
2008 – 2009

Planting: Beds pulled and ditched Sep 25 (2008) and opened just prior to planting; soil type = Morey Silt Loam
All stalks were cut for planting Oct 9 – 11 (2008): stalks cut from 2007 Nursery in Beaumont
Prior to planting, tops and leaves removed from plant cane stalks
Rows were covered and field edges bladed after planting on Oct 11 (2008)
Rows rolled with levee packer on Oct 13 (2008)
Plot size = 1 row, 5.25 ft row spacing, 180 ft long, no alleys
Plots paired and separated by 2 fallow rows (9 rows total)
Emergence on Nov 5 (2008)

Herbicide: Prowl 3.3EC @ 1 gal/A and Atrazine 4L @ 1 gal/A applied on Oct 14 (2008) with a 3 nozzle spray boom (110°04 nozzles with 50 mesh screens) for pre-emergence control of grasses and broadleaves, respectively

Fertilizer: Urea @ 100 lb N/A and cultivated on Apr 6 (2009)

Treatment: Karate Z @ 0.04 lb ai/A applied with 3 nozzle boom spray rig (80067 tips) on southern half of 4 western rows on May 15 (2009)
Karate Z @ 0.03 lb ai/A on southern half of 4 western rows on Jun 16 (2009)

Sampling: Counted dead tops in southern half of western four rows on Jun 4 (2009)
10 stalks from each plot were removed, weighed and dissected for locations of bored internodes, total number of internodes and number of stalk borers per stalk on Dec 11 (2009).

Data analysis: Percent data was transformed using arc sine; all data analyzed by ANOVA and means separated by LSD.

Discussion

The purpose of this experiment was to compare stalk borer damage in treated (Karate Z applied 2 times – May 15 and Jun 16) and untreated plots of 4 different energy cane varieties (72-114, 06-9002, 06-9001 and 02-147). One half of each row (one plot) planted with 1 of the above varieties was treated; the other half remained untreated.

No sugarcane borer larvae and only one Mexican rice borer larva were found during dissection. There were no significant differences in wet weight of treated stalks compared to
untreated stalks. The number of deadtops was significantly higher in untreated plots than in treated plots. Untreated plots had significantly fewer internodes per stalk than treated plots. Although not significant, untreated plots had a higher percentage of stalks with borer damage. The percent damaged internodes per stalk was significantly lower in treated compared to untreated plots. There were no meaningful significant differences in the breakdown of damaged internodes on each stalk (Table 2). The 2 insecticide treatments helped reduce borer damage, but treatments should be better timed and/or the number of applications increased. Also, data suggest energy cane varieties may benefit from properly timed stalk borer insecticide treatments.

Table 1. Wet weight and stalk damage data for energy cane regional seed increase. Beaumont, TX. 2009.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>No. deadtops /100 ft</th>
<th>Wet weight (lb/10 stalks)</th>
<th>No. internodes / stalk</th>
<th>% stalks with borer damage</th>
<th>% damaged internodes / stalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>3.3 b</td>
<td>12.2</td>
<td>19.1 a</td>
<td>65.0</td>
<td>7.5 b</td>
</tr>
<tr>
<td>U</td>
<td>31.3 a</td>
<td>12.0</td>
<td>17.5 b</td>
<td>82.5</td>
<td>14.3 a</td>
</tr>
<tr>
<td>NS</td>
<td>NS</td>
<td></td>
<td>NS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All data collected from 10 stalks per plot.
Means in a column followed by the same or no letter are not significantly (NS) different (P = 0.05, ANOVA and LSD); P = 0.1 for No. internodes/stalk

Table 2. Bored internode data for energy cane regional seed increase. Beaumont, TX. 2009.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>1 - 5</th>
<th>6 - 10</th>
<th>11 - 15</th>
<th>16 - 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>20.0</td>
<td>37.5</td>
<td>25.0</td>
<td>12.5 a</td>
</tr>
<tr>
<td>U</td>
<td>55.0</td>
<td>52.5</td>
<td>37.5</td>
<td>2.5 b</td>
</tr>
<tr>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

a % out of 10 stalks per plot
b internodes in ascending order [e.g. internode 1 = lowest on stalk (next to soil); internode 20 = highest on stalk]
Means in a column are not significantly (NS) different (P = 0.05 and ANOVA); P = 0.1 for 16 – 20