**CELEY** *Apium graveolens* L.
Beet armyworm; *Spodoptera exigua* (Hübner)  
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Texas Agricultural Experiment Station  
Weslaco, TX 78596

**CELEY, BEET ARMYWORM CONTROL, HIDALGO COUNTY, TEX., 1986:** Celery seedlings were transplanted 19 Sep into double-row beds (10-inch rows, 40-inch beds) at the Texas Agricultural Experiment Station, Weslaco, Tex. Soil type was Hidalgo sandy clay loam. Plots measured 25 ft by 2 beds and were replicated 4 times in a randomized complete block design. Insecticide treatments were applied on 5 Mar through a CO₂-powered boom sprayer calibrated to deliver 10 gal/acre (40 psi, two 83077 flat-fan nozzles per plot, 2 mph). Three to 5 h following the treatment application, 10 second- and third-instar beet armyworm larvae were caged on each of 2 randomly selected plants within each plot. Efficacy was evaluated 7 days following each application by counting larvae that remained alive in the cage.

The flowable formulation of UC-84572 without the adjuvent provided numerically superior control compared with methomyl. The EC formulation with or without the adjuvent and the flowable formulation of UC-84572 with adjuvent were less efficacious than methomyl. It was noticed that the adjuvent affected the spray pattern of the flat-fan nozzles, and adjustments in spray boom height were made to compensate and allow for full coverage over the plant canopy. BAW larval mortality in untreated plots averaged 80%.

**Treatment and lb (AI)/acre Pretreatment** | Leaf wash technique | Mean no. BAW larvae/replicate (standard error) | Direct leaf counts |
--- | --- | --- | --- |
Capture 2E | 0.06 | 1.0a | Treatment and lb (AI)/acre | Mean adult mites/trifoliate  |
MK-936 | 0.02 | 2.3a | | 15 DAT |
(Abamectin) 0.15E | 0.01 | 1.0a | Untreated | 2.75 (1.50) |
MK-936 | 0.02 | 2.3a | UC-84572 F + adjuvent | 0.10 | 1.0 (0.70) | 64% |
(Abamectin) 0.15E | 0.01 | 1.0a | UC-84572 EC | 0.10 | 1.25 (0.48) | 55% |
MK-936 | 0.02 | 2.3a | UC-84572 EC + adjuvent | 0.10 | 1.0 (0.41) | 64% |
(Abamectin) 0.15E | 0.01 | 1.0a | Untreated | — | 2.75 (1.50) | — |
Selecron 6EC | 0.15 | 0.5b | methomyl 1.8 | 0.45 | 0.50 (0.50) | 82% |
Cygon 4E | 0.25 | 1.0a | UC-84572 F | 0.10 | 0.25 (0.25) | 91% |
Vydate 2L | 0.5 | 1.0a | UC-84572 F + adjuvent | 0.10 | 1.0 (0.70) | 64% |
Thiodan 3E | 1.0 | 33a | UC-84572 EC | 0.10 | 1.25 (0.48) | 55% |
Untreated | 2.75 (1.50) | 19.0a | UC-84572 EC + adjuvent | 0.10 | 1.0 (0.41) | 64% |

*Means with a common letter are not significantly different within a column, DNMRT (P = 0.05).

**COLLARDS** *Brassica oleracea* L. (Acephala group) 'Blue Max'  
Imported cabbageworm; *Artogeia rapae* (L.)  
Diamondback moth; *Platella xylostella* (L.)  
Cabbage looper, *Trichoplusia ni* (Hübner)  
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**EFFICACY OF DIPEL AND ASANA AGAINST LEPIDOPTEROUS DEFOILIATORS ON COLLARDS, 1987:** Collards were planted in greenhouse flats 9 Apr then transplanted to a field location 7 May. Experimental design was a randomized complete block arrangement with 4 replicates. Plot size was 1 row of 25 plants spaced 12 inches apart. Treatments were applied weekly from 15 May through 19 Jun with a CO₂-powered backpack sprayer set to deliver 25 gal/acre at 30 psi. Efficacy was determined from periodic larval and pupal counts. On each sampling date, 3 randomly selected plants from each plot were cut at ground level, leaves were removed and examined individually in the field, and all lepidopterous larvae and pupae were recorded.
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Imported cabbageworm and diamondback moth larvae were present on all 3 sampling dates; however, the 2 species were not distinguished 10 Jun, so those data are not presented. Cabbage loopers were found on the 2 latter sampling dates. Estimates of defoliation were based on visible holes and skeletonized areas in leaves, which reflect primarily the damage of the cabbage looper and imported cabbageworm.

<table>
<thead>
<tr>
<th>Treatment and rate form/acre</th>
<th>Mean no. larvae + pupae/plant</th>
<th>Defoliation Estimates (%)</th>
<th>Mean head weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Imported cabbageworm</td>
<td>Diamondback moth</td>
<td>Cabbage looper</td>
</tr>
<tr>
<td>Dipel 2X + Asana 1.9E</td>
<td>0.25 lb + 0.85 oz</td>
<td>1.1a**</td>
<td>0.6a**</td>
</tr>
<tr>
<td>Dipel 2X</td>
<td>0.50 lb</td>
<td>0.9a</td>
<td>0.4a</td>
</tr>
<tr>
<td>Asana 1.9E</td>
<td>0.85 oz</td>
<td>1.70 oz</td>
<td>0.8a</td>
</tr>
<tr>
<td>Control</td>
<td>—</td>
<td>0.8a</td>
<td>0.1a</td>
</tr>
</tbody>
</table>

Means in each column followed by the same letter are not significantly different (P < 0.05, DMRT).

*F-value significant at P < 0.05 (ANOVA).

**F-value significant at P < 0.01 (ANOVA).

COLLARDS: Brassica oleracea 'Vates'
Cabbage looper; Trichoplusia ni (Hiibner)
Imported cabbageworm; Artogeia rapae L.
Diamondback moth; Plutetella xylostella L.

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CONTROL OF CABBAGE LOOPER, DIAMONDBACK MOTH, AND IMPORTED CABBAGEWORM ON COLLARDS, 1987: 'Vates' collards were direct seeded in 4-row plots 35 ft long on 30 Jul. Plants were spaced 4 inches apart in the row with 36 inches between rows. Each 2-row plot was buffered by a guard row. The treatments were arranged in a randomized complete block design with 4 replications. The soil was a Norfolk A loamy sand. All spray treatments were mixed in 10 gal of water and applied with a custom-built row crop sprayer. Each row was covered by 3 drop nozzles delivering 50 gal/acre at 90 psi. Treatments were applied on 26 Aug and 2, 9, 15, 23, and 30 Sep. Foliage injury ratings ranged from 1-5 and were indexed as follows: 1, 0-3% damage—odd holes on leaves; 2, 4-10% damage—few leaves with holes; 3, 11-25% damage—moderate number of leaves with holes; 4, 26-50% damage—most leaves with holes; and 5, 51-100% damage—crown damage and/or all leaves with holes.

None of the products was phytotoxic. Insect pressure was medium. All treatments gave significantly better control than the untreated check.

<table>
<thead>
<tr>
<th>Treatment and lb (AI)/acre</th>
<th>Mean # Larvae/10 Plants*</th>
<th>Mean foliage injury* rating (0.5/10 plants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diamondback moth</td>
<td>Cabbage looper</td>
</tr>
<tr>
<td></td>
<td>17 Sep</td>
<td>2 Oct</td>
</tr>
<tr>
<td>Untreated check</td>
<td>—</td>
<td>5.50c</td>
</tr>
<tr>
<td>Lannate 1.8L</td>
<td>0.45</td>
<td>0.75ab</td>
</tr>
<tr>
<td>Ambush 2.0EC</td>
<td>0.05</td>
<td>1.50ab</td>
</tr>
<tr>
<td>Cymbush 3.0EC</td>
<td>0.06</td>
<td>2.50b</td>
</tr>
<tr>
<td>Asana 1.9EC</td>
<td>0.03</td>
<td>1.00ab</td>
</tr>
<tr>
<td>SAN 415 F</td>
<td>0.45</td>
<td>0.00a</td>
</tr>
</tbody>
</table>

*Means followed by the same letter are not significantly different (P = 0.05, DMRT).