Bayer CropScience
Cucurbit Vegetables/Transplant Tray & Drench Application Efficacy
Beaumont, TX
2007

Agronomic and Cultural Information

Planting: 5 ft wide beds were pulled on Morey silt loam soil on May 2. Beds were cultivated on May 18 and tilled and shaped into broad flat beds with a 5 ft tiller just prior to the first set of transplants. Plot size: 2 rows, 5 ft wide, 42 ft long with 15 transplants per row spaced 3 ft apart Experimental design: Randomized complete block, 7 treatments and 4 replications Variety: Hale's Best Jumbo from Guinn's Plant Farm in Jacksonville, TX

Herbicide: 0.67 oz/A Permit with 0.25% v/v Penetrator Plus was applied (post-directed) on Jun 20 with a hand-held spray boom (3- 11003 nozzles, 23 gpa). Morningglory was the main weed problem early season. 8 oz/A Select 2EC with 1 qt/A Penetrator Plus was applied as above on Jun 29 for grasses (mainly broadleaf signalgrass).

Treatments: Treatments 3, 4 and 5 (drench application prior to transplanting): On Jun 8, transplant trays for each treatment were placed in 1 ft x 3 ft bins. Each transplant consisted of at least one, but sometimes two, individual seedlings. Appropriate gram weights of AMSI0334 for each treatment were dissolved in 170 ml water and evenly sprayed over the transplants for that treatment using a small spray bottle with a misting nozzle. All transplants for each treatment were then rinsed with 60 ml water using the same spray bottle. Transplants remained in the bins for three days prior to being transferred to the field on Jun 11.
Treatments 6 and 7 (application at transplanting): On Jun 11, appropriate gram weights of AMSI0334 for each treatment were dissolved in 6 liters of water. Small holes were dug for each transplant and 200 ml of this solution was poured into each hole. Transplants (previously untreated) were transferred into these watered holes.
Treatment 2 (foliar spray): Pressure from Lepidoptera larvae never materialized so Treatment 2 (foliar spray) was not applied.

Fertilizer: On Jun 7, prior to the drench applications, all transplants were watered with a solution of Miracle-Gro (24-8-16), 1 large scoop dissolved in 1.5 gal of water. At transplanting in the field on Jun 11, all transplants received 37 g of 13-13-13 fertilizer.

Irrigation: Early season, all transplants were hand-watered as needed. All plots became well established, rainfall was adequate, and furrow irrigation was not needed.
Field Notes:

a. On Jun 28 (17 days after transplanting), plots within each replication were rated most and least vigorous based on growth, vitality, color, disease, and damage to leaves.

b. On Jul 26, plots were given a rating of high, medium or low based on the amount of chlorotic mottling and leaf senescence present. There were no specific trends among treatments with this rating. Most plots received a high or medium rating and the ratings were variable within treatments. These ratings are not presented in the discussion.

c. On Aug 8, number of fruits in each plot (2 rows) were counted. There were some fruits exceptionally larger than the average-sized fruit. These "large" fruits also were counted in each plot.

Discussion

Bed preparation for this experiment went very well. Soil and moisture conditions were perfect for transplanting. The pre-transplant drench application method worked very well. Transplant trays for treatments 3, 4 and 5 were in contact with the AMSI0334 for 3 days prior to being transferred to the field. Watering the transplant holes for treatments 6 and 7 with the AMSI0334 solutions also worked very well. The transplants established readily and probably less than 10 transplants were lost across the entire test (total of 840 transplants).

Early season (17 days after transplanting), plots within each replication were selected as most and least vigorous. Coincidentally, treatments 3 and/or 4 (3 days exposure to low and mid rate of AMSI0334) were rated as most vigorous in every replication. However, treatment 5 (3 days exposure to the high rate) was never rated as most vigorous. On Jul 16, cantaloupes were about 5-6 inches long and 3-4 inches in diameter. At this time, there was about 0-5% defoliation in all plots probably due to Diabrotica sp. At maturity, there were no statistical differences among treatments with respect to number of cantaloupes and number of "large" cantaloupes per plot (Table 1). The experiment produced a mean of 87 fruits/plot (2 rows, 42 ft long). Unfortunately, Lepidoptera pressure never developed and treatment 2 (foliar spray) was deleted. Future research with an earlier planting date would probably be conducive to more insect pressure and a much more meaningful experiment.

Table 1. Cantaloupe research at Beaumont, TX. 2007

<table>
<thead>
<tr>
<th>Trt. No.</th>
<th>Description</th>
<th>Rate mg (Al)/plant</th>
<th>Timing</th>
<th>No. fruits/plot</th>
<th>No. large(^a) fruits/plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated</td>
<td>---</td>
<td>---</td>
<td>95</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>AMSI0334</td>
<td>3</td>
<td>3 DPT(^b)</td>
<td>83</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>AMSI0334</td>
<td>5</td>
<td>3 DPT</td>
<td>91</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
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<td>10</td>
<td>3 DPT</td>
<td>89</td>
<td>2</td>
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<tr>
<td>6</td>
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<td>At transplant</td>
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<td>7</td>
<td>AMSI0334</td>
<td>20</td>
<td>At transplant</td>
<td>90</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NS</td>
<td>NZ</td>
</tr>
</tbody>
</table>

\(^a\)Exceptionally large compared to average sized fruits  
\(^b\)DPT = days prior to transplant