Leverage 360 Insecticide for Japanese Beetle Control in Soybean

**Trial Objective**
- The objective of this trial is to evaluate whether leaf defoliation by Japanese beetle negatively impacts soybean yield, and to determine if there is value to applying an insecticide earlier in-season (R1/R2 stage) instead of the customary R3 stage when insecticides are applied together with fungicide applications.

**Research Site Details**

<table>
<thead>
<tr>
<th>Location</th>
<th>Soil Type</th>
<th>Previous Crop</th>
<th>Tillage Type</th>
<th>Planting Date</th>
<th>Harvest Date</th>
<th>Potential Yield (bu/acre)</th>
<th>Seeding Rate (seeds/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williamsburg, IA</td>
<td>Silt Clay Loam</td>
<td>Corn</td>
<td>Conventional</td>
<td>4/26/2020</td>
<td>9/29/2020</td>
<td>60-70</td>
<td>140,000</td>
</tr>
</tbody>
</table>

- Four soybean products were used in this trial.
- This unreplicated demonstration trial consisted of a split plot design with insecticide application as the main plot treatment and variety as the sub-plot treatment.
- Trial was carried out on a 6-acre field with each treatment consisting of 0.75-acre plots.
- Leverage® 360 insecticide was applied at a rate of 2.8 oz/acre during the R1-R2 growth stage.
- Japanese beetle numbers were observed to be relatively high, and other pests minimal.

**Understanding the Results**
- Japanese beetles were present, and feeding was observed at the trial site (Figure 1).
- There was a 3.5 bu/acre positive yield response to when Leverage® 360 was applied at the R1/R2 stage (Figure 2) across the four varieties tested.
- There was a differential yield response of the four varieties to the application of Leverage® 360 insecticide in this trial. Insecticide application did not have a substantial yield impact in Variety 1 but a 9 bu/acre yield difference in Variety 3 (Figure 3).

*Figure 1. Japanese beetle infestation and feeding of a soybean field treated with Leverage® 360 insecticide (left) compared to an untreated block (right) of the same variety. Pictures were taken 11 days after the insecticide application.*
Figure 2. Average yield of soybean products with insecticide applied and untreated.

Figure 3. Average yield response of four soybean products to an insecticide treatment to control Japanese beetles.
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Key Learnings

- Japanese beetles emerge in mid-June and can feed on soybeans for one and a half to two months. University research suggests that the treatment threshold for Japanese beetle in soybeans is an average of 20% defoliation after bloom.\(^1\) Depending on the soybean product, R3 occurs 5 to 15 days after R2. Applying insecticides at R3 can allow an extended duration for feeding and defoliation.

- This trial suggests an overall 3.5 bu/acre yield advantage if applications are made early at the R1/R2 stage. At the current operation cost of $13.32 for Leverage\(^\circ\) 360 insecticide application and local cash price of $11.25/bu of soybeans, a 1.2 bu/acre yield increase is needed to cover insecticide costs and return an additional $25.88/acre profit. Waiting to include a beetle controlling insecticide with a fungicide application at R3 may have greater defoliation and yield reduction than if insecticide is applied earlier. An earlier application at R1/R2 can help provide a longer window of control.

- Leverage\(^\circ\) 360 insecticide offers two modes of action, both contact and translaminar activity for rapid knockdown and residual protection.

- Growers are advised to scout individual fields by soybean product to make best management decisions due to the sporadic and localized feeding nature of Japanese beetles.

Reference


Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower’s fields.

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