EFFECTS OF FUNGICIDE APPLICATION TIMING IN HAIL-DAMAGED CORN

TRIAL OVERVIEW

• There have been previous field reports from farmers regarding hail-damaged crops benefiting from a fungicide application.
• Foliar diseases such as gray leaf spot, leaf blights, and rusts, which may be managed by fungicide application, do not require plant wounds (such as from hail) for plant infection.
• Diseases such as Goss’s wilt, common smut, and stalk rots, which are favored by plant wounds, are not controlled with fungicide application.
• A previous 2011 study at the Monsanto Learning Center at Monmouth, IL evaluating fungicide application on undamaged corn during vegetative growth stages did not produce a consistent yield response.

RESEARCH OBJECTIVE

• The objective of the trial was to evaluate yield response to three different fungicide application timings on corn damaged by hail at two different growth stages.

<table>
<thead>
<tr>
<th>Location</th>
<th>Soil</th>
<th>Previous Crop</th>
<th>Tillage Type</th>
<th>Planting Date</th>
<th>Harvest Date</th>
<th>Potential Yield/Acre</th>
<th>Planting Rate/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monmouth, IL</td>
<td>Silt loam</td>
<td>Corn</td>
<td>Conventional</td>
<td>09/29/2016</td>
<td></td>
<td>36,000 seeds</td>
<td></td>
</tr>
</tbody>
</table>

SITE NOTES:
• Two plots with the same corn seed product (105 day RM SmartStax® RIB Complete® corn blend) at the Monsanto Learning Center at Monmouth, IL were damaged by hail on June 22, 2016.
• One plot was at V4 (4 leaf collars) growth stage and one plot was at V7 (7 leaf collars) growth stage when the hail event occurred.
• Treatments applied to both hail-damaged plots included the following:
  - Fungicide applied at vegetative growth stage on June 28.
  - Fungicide applied at R1 (silking) growth stage.
    - August 9 application on V4 hail damaged plot.
    - August 5 application on V7 hail damaged plot.
  - Fungicide applied at vegetative growth stage on June 28 followed by an application at R1 growth stage on:
    - August 9 for the V4 hail damaged plot.
    - August 5 for the V7 hail damaged plot.
• There were 2 replications.

UNDERSTANDING THE RESULTS

Figure 1. Average Yield From Timing of Fungicide Treatments
• **Hail-damaged corn at V4**
  - Fungicide application at vegetative growth stage did not result in a positive yield response compared to the untreated control.
  - Fungicide application at silking (R1) or in a combination with a vegetative growth stage application resulted in higher average yields compared to the untreated control.

• **Hail-damaged corn at V7**
  - All fungicide timing applications did not result in a positive economic yield response compared to the untreated control.

• **Comparing V4 and V7 hail-damaged corn plots**
  - Yield response of the two applications (Veg fb R1) treatment was less than the R1 only application in both hail damaged plots.
  - The hail-damaged V4 growth stage plot had a higher yield response from fungicide applications compared to the hail-damaged V7 growth stage plot.
  - The larger yield response at V4 growth stage may have been due to ear development taking place when hail damaged occurred.

**WHAT DOES THIS MEAN FOR YOUR FARM?**

• Fungicide applications cannot recover lost yield potential due to hail damage.
• Fungicides protect yield potential by reducing disease infestations.
• Incidence of some corn diseases are not affected by fungicide application.
• Under these conditions the results of the fungicide application at vegetative growth stages indicated no return on investment, which is similar to previous results at the Monsanto Learning Center, at Monmouth IL.
• Corn yield response to fungicide application is highly variable due to seed product disease resistance, disease pressure, environment and other factors.

**SOURCES**

**LEGAL STATEMENT**
For additional agronomic information, please contact your local brand representative.

Developed in partnership with Technology, Development & Agronomy by Monsanto.

The information discussed in this report is from a single site, replicated 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.

Monsanto Company is a member of Excellence Through Stewardship® (ETS). Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto’s Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship. B.t. products may not yet be registered in all states. Check with your Monsanto representative for the registration status in your state. IMPORTANT IRM INFORMATION: RIB Complete® com blend products do not require the planting of a structured refuge except in the Cotton-Growing Area where corn earworm is a significant pest. SmartStax® RIB Complete® corn blend products are not allowed to be sold for planting in the Cotton-Growing Area. See the IRM/Grower Guide for additional information. Always read and follow IRM requirements. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready technology contains genes that confer tolerance to glyphosate, an active ingredient in Roundup® brand agricultural herbicides. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate. Monsanto and Vine Design®, RIB Complete®, Roundup Ready 2 Technology and Design®, Roundup Ready®, Roundup® and SmartStax® are trademarks of Monsanto Technology LLC. LibertyLink® and the Water Droplet Design® is a registered trademark of Bayer. Herculex® is a registered trademark of Dow AgroSciences LLC. All other trademarks are the property of their respective owners. ©2016 Monsanto Company. 161107090114. 111716DLB