



### Stress Mitigation from use of Fungicide and Corn Rootworm Traits in Corn

Corn plants face multiple stresses throughout the growing season which can reduce yield potential. Taking preventative steps to mitigate, or lessen, stress can help maintain or increase yield potential. A research study was conducted at the Monmouth Learning Center to evaluate the use of a foliar fungicide and corn rootworm traits to mitigate stress caused by foliar diseases and corn rootworm feeding in corn.

#### Study Guidelines

A demonstration trial was conducted at the Monsanto Learning Center near Monmouth, IL to assess corn yield response to Headline® fungicide. As another form of stress mitigation, corn yield response to corn rootworm protection with and without Headline® fungicide treatment was also evaluated.

Three corn products with 111 day relative maturity (RM) and the same base genetics were selected for the trial. All products were planted at a population of 36,000 plants/acre on April 14, 2010. Corn products included in the trial were: Genuity® SmartStax® corn, YieldGard VT Triple® corn, Roundup Ready® Corn 2 treated with Force® 3G soil insecticide and Roundup Ready Corn 2. Field history included fall chisel plowing followed by a soil finisher in the spring and four years of a continuous corn.

rate of 2.5 quarts/acre. Roundup PowerMAX® herbicide was the post-emergence weed control applied at a rate of 22 ounces/acre.

Two identical sets of corn products were planted, with one set receiving a foliar application of Headline® fungicide applied at the R2 growth stage at a rate of 9 ounces/acre with 1% crop oil concentrate. Yield comparisons of the corn products treated with Headline® fungicide compared to the untreated products are shown in Figure 1. Figure 2 shows the effect of Headline® fungicide and corn rootworm protection on corn yield.

#### Results and Conclusions

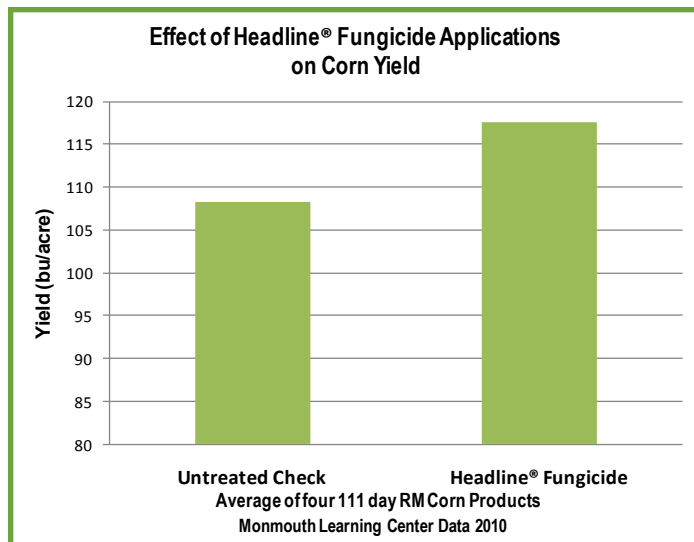


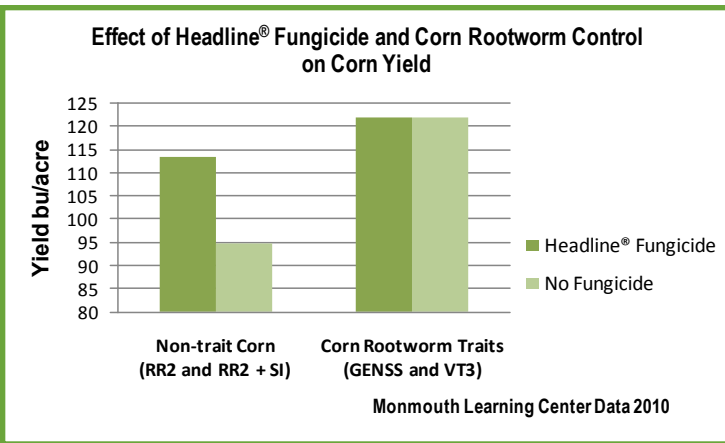
Figure 1. Yield of corn products with Headline® fungicide application compared to the untreated check (UTC) at the Monsanto Learning Center near Monmouth, IL in 2010.

- Foliar fungal disease pressure on corn was low in 2010, however one application of foliar fungicide helped protect yield.
- One application of Headline® fungicide greatly increased yield in the corn products without corn rootworm protection possibly by mitigating stress caused by low levels of foliar diseases on plants already stressed due to a lack of corn rootworm protection.
- An application of Headline® fungicide to the corn products with corn rootworm control did not increase yield, possibly due to low disease pressure and low corn rootworm pressure in the plot.
- On the Monmouth Learning Center farm in 2010, stalk quality was consistently better in plots that received the Headline® fungicide application, as seen in Figures 3-6. However, the improved stalk quality did not result in a yield improvement in each case.

Both pre- and post-emergence herbicides were used for consistent weed control in this study. Harness® Xtra 5.6L herbicide was the pre-emergence weed control applied at a

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◀ **Figure 2.** Effect of Headline® fungicide and corn rootworm protection on corn yield. The non-trait corn products were Roundup Ready® Corn 2 (RR2) and Roundup Ready® Corn 2 treated with Force® 3G soil insecticide (RR2 + SI). These were compared to the corn rootworm traits: Genuity® SmartStax® corn (GENSS) and YieldGard VT Triple® corn (VT3). Monsanto Learning Center near Monmouth, IL in 2010.

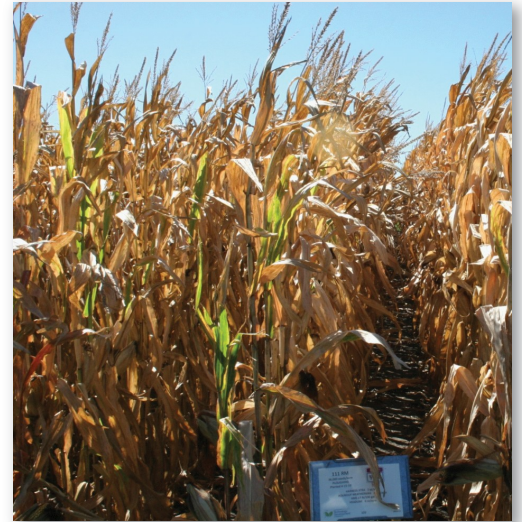


◀ **Figure 4.** Genuity® SmartStax® corn with NO Headline® fungicide treatment. Monsanto Learning Center near Monmouth, IL in 2010.

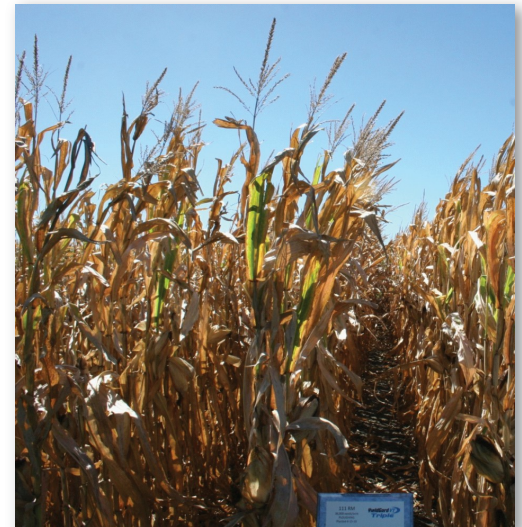


◀ **Figure 6.** YieldGard VT Triple® corn with NO Headline® fungicide treatment. Monsanto Learning Center near Monmouth, IL in 2010.

**Figure 3.** ▶ Genuity® SmartStax® corn treated with Headline® fungicide. Monsanto Learning Center near Monmouth, IL in 2010.



**Figure 5.** ▶ YieldGard VT Triple® corn treated with Headline® fungicide. Monsanto Learning Center near Monmouth, IL in 2010



*The information discussed in this report is from a single site, non-replicated, one-year 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.*

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