

Foliar Fungicides and Disease Management for Ontario Seed Corn Production

Purpose:

Over the past few years, the promotion of foliar fungicides has increased in North America and most of this information has been generated for commercial corn and soybeans. Very little work has been done in Ontario to investigate inbred-specific responses to fungicides; therefore, a multi-year study was started in 2008 in order to identify factors that would increase the probability a seed corn grower would have in achieving a profit from a fungicide application. Seed Corn Growers in Ontario would benefit from local data to assist in profitable and accurate decisions when it comes to disease management thereby maintaining or increasing the competitiveness of the Ontario seed corn industry.

Methods:

Commercial seed corn fields were selected in the Chatham area in southwestern Ontario which represents the primary seed corn production area in the province. At each location, various treatments were established which included fungicides (Headline, Proline, Quadris and Quilt) and an untreated control in which no fungicides were used. Fungicides were applied with the high clearance John Deere Field Research Sprayer maintained by the University of Guelph Ridgetown Campus. Plots were allowed to be naturally infected and disease ratings were recorded pre and post fungicide application.

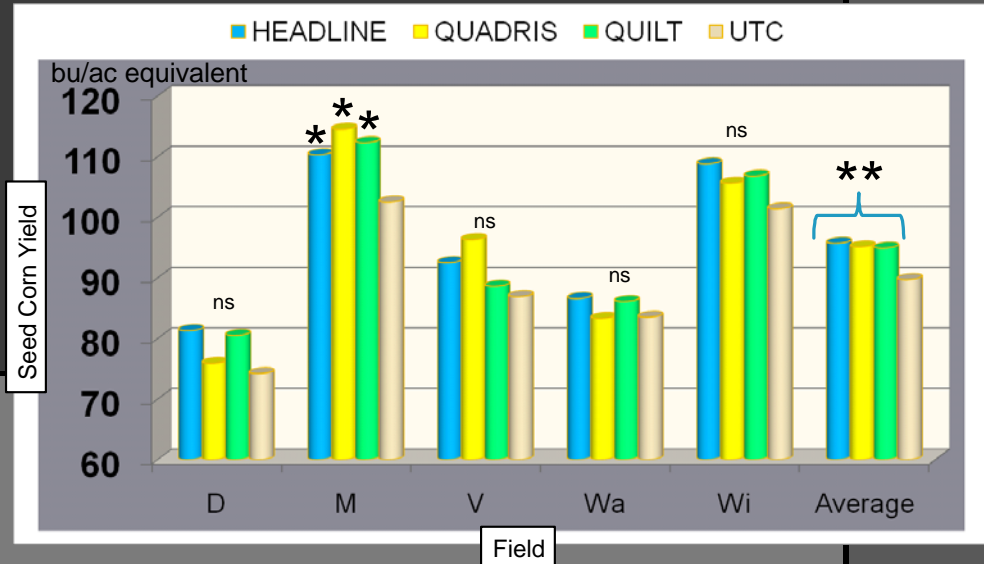
Results:

Yield increases were observed in 2008 and 2009 when the fungicides were compared to the untreated control. All three fungicides resulted in a significant yield increase in 2008 and 2009 when the data from all locations were combined as compared to the untreated control. Although the difference between the fungicide treatment and untreated control was significant there was no significant difference between the three fungicides in 2008 whereas in 2009 Headline and Quilt were statistically more significant than Quadris but again all three fungicides were significantly better than the untreated control in 2009 as was the case in 2008. In 2010, the situation was very different in 2010 where no significant yield differences were observed between the fungicide and untreated control.

Summary:

Many of the corn inbreds used in commercial seed corn production are prone to many of the common foliar diseases found in the province. The use of fungicides has been utilized for many of these inbreds and in many incidences these products can limit disease and potentially increase yields thereby increasing the competitiveness of the Ontario seed corn industry.

Fungicide Impact on Seed Corn Yields

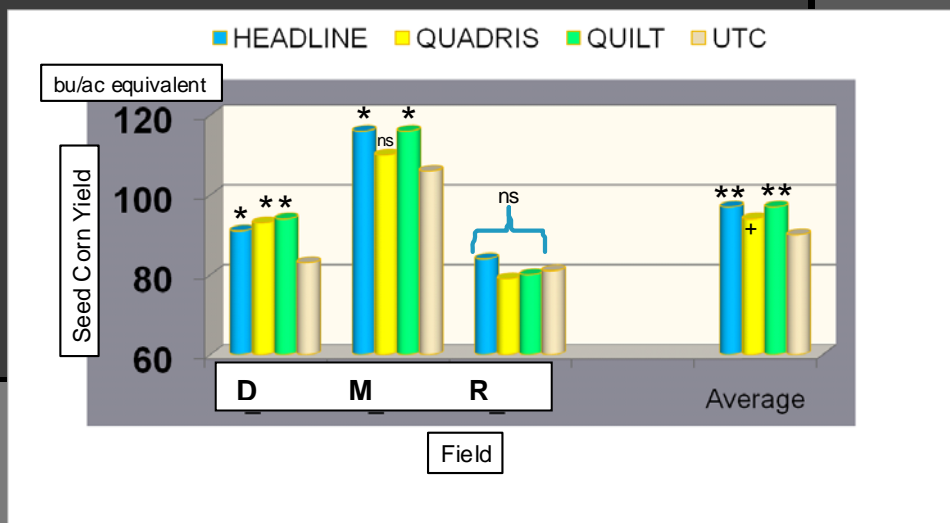


*, ** = statistically different than the untreated checks (UTC) at $p=0.05$ and 0.01 , respectively
 ns = not statistically significant at $p = 0.05$.

Source: Tenuta and Hooker (2009)
 OMAFRA/UofG Ridgetown

Figure 1 – Fungicide Impact on 5 Commercial Fields in 2008

Fungicide Impact on Seed Corn Yields 2009



+, * , ** = individual fungicides statistically different than the untreated checks (UTC) at $p=0.10$, 0.05 and 0.01 , respectively
 ns = not statistically significant at $p = 0.10$

Source: Tenuta and Hooker (2010)
 OMAFRA/UofG Ridgetown

Figure 2 – Fungicide Impact from 3 Commercial Seed Corn Fields in 2009

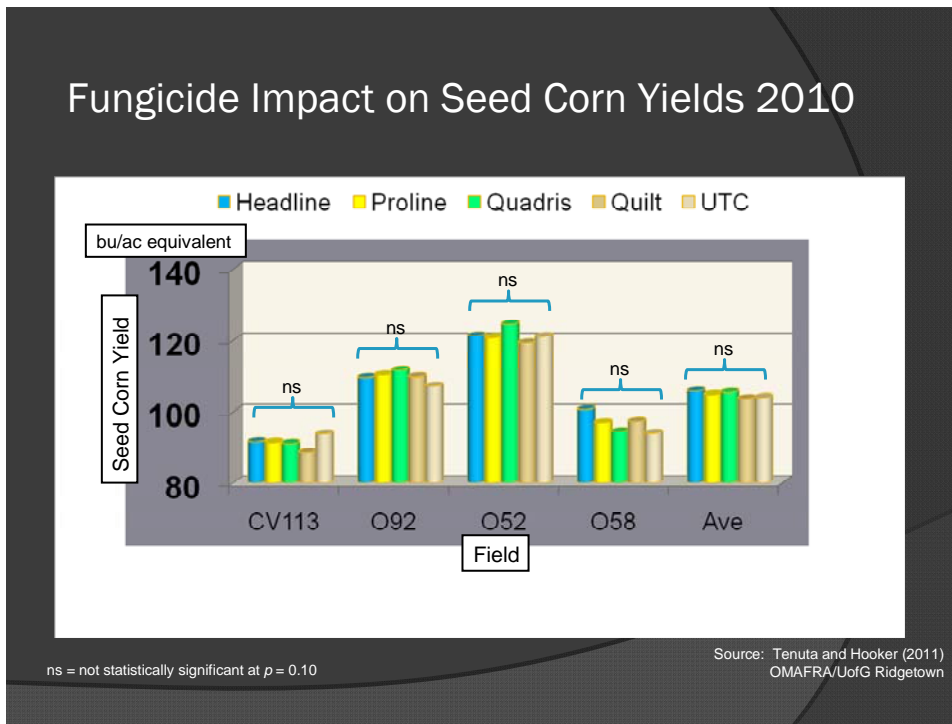


Figure 3 – Fungicide Impact in 4 Commercial Seed Corn Fields in 2010

Next Steps:

OMAFRA and the University of Guelph, Ridgetown Campus, plan to test inbred responses to fungicides in 2011.

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