AGRONOMIC Spotlight
Technology Development by MONSANTO

Managing Diplodia Ear Rot in 2010

This year has unfortunately been favorable for the development of ear rots, especially Diplodia. As we plan for 2010, it is time to evaluate management options.

Given the challenges of 2009, three common discussions regarding seed selection will likely revolve around yield, drydown and ear rot tolerance. Ironically, most hybrid characteristics that aid drydown can increase the risk of ear rots. It is important to remember to make seed selection and placement decisions based on several characteristics, and use management tools to help reduce the risk of Diplodia ear rot.

Diplodia: The Basics

Diplodia is recognized by a white to gray mold that usually begins at the base of the ear and develops toward the tip, growing between kernels. With severe infection, the entire ear turns gray-brown and rots (mummifies). Wet weather within 21 days after silking favors infection. Diplodia is not known to produce any mycotoxins that can harm humans or livestock.

Management

Here are some management options to evaluate and consider for your operation:

1. Crop Rotation. The only way to ensure Diplodia ear rot will not be a problem in 2010 is to rotate to soybeans (or other crop). Planting soybeans in 2010 can reduce the inoculum load, but will not guarantee Diplodia could not be a problem again in 2011, or whenever the field returns to corn. Diplodia ear rot management strategies should remain in place for fields with a history of severe Diplodia.
2. Tillage and Residue Decomposition. Diplodia overwinters on crop residue. Decomposing or burying infected residue can help reduce disease pressure. Consider the following:
   - Extra tillage in the fall or spring
   - Shredding or chopping stalks
   - Additional nitrogen (i.e. 20 pounds/acre from DAP or urea ammonium-nitrate (UAN)) may enhance microbial activity for residue decomposition
   - While strip-till and/or no-till production systems can be beneficial in several situations, they are not recommended for continuous corn fields with a history of Diplodia ear rot
3. Hybrid Selection. Hybrids vary in the level of tolerance to Diplodia ear rot. However, because of the erratic nature of the disease it can be difficult to firmly assess hybrid tolerance, as any hybrid can be infected given the right conditions. If you must grow continuous corn in a field with a history of Diplodia ear rot, consider a hybrid that tends to have better tolerance to Diplodia ear rot. Consult with your local seed representative for specific recommendations.
4. Plant a Package. By splitting a planter or a field with hybrids that have different relative maturities and/or different growing degree unit requirements to flowering, you can mitigate the risk of all of your corn flowering during the peak environmental conditions for Diplodia infection.
5. Limit Damage from Ear Feeding Insects. Damage from ear feeding larvae (such as corn ear worm), adult beetles (such as Japanese beetles) and even bird damage can encourage growth of Diplodia once infection has taken place. Protecting the husk coverage on the ear after pollination can help reduce disease severity.
6. Remove Stress. Issues such as compaction, lack of nitrogen, poor drainage, and poor fertility may not directly affect the amount of Diplodia inoculum or genetic tolerance of a hybrid, but may affect how the corn plant deals with the infection. Having adequate fertility and good soil conditions may help reduce the risk or severity of a Diplodia ear rot infection.

Diplodia Vs. Other Seed Selection Criteria

The goal is to maximize yield potential and your bottom line so remember to look at the big picture. Remember to rotate genetics and place hybrids that are more susceptible to ear rots in tilled, rotated fields. Consider other hybrid characteristics for selection and placement, and spread your maturity and your time to flowering. Plant health and stalk quality are critical characteristics to consider during selection and placement as well. Don't let a single issue dictate your decisions, utilize all available hybrid information to make management and placement decisions. The key is to do all you can to know what different hybrids have to offer and how to manage them to help reach the goal: maximizing yield potential and your bottom line.

Source: P. Lipps and D. Mills. Diplodia Ear Rot of Corn. Ohio State Univ. Ext. AC-0046-01.