

AGRONOMIC ALERT



CROWN ROT IN CORN

Early-season seedling diseases have caused some stalk rot issues in area corn fields. Fields that endured wet growing conditions this spring may have been infected by *Fusarium* species. This infection may have developed into crown rot, which is currently being observed as stalk lodging.

Disease Development & Symptoms

Crown rot infections are usually caused by *Fusarium* species, but the fungus that causes anthracnose (*Colletotrichum*) may also be a factor.¹ While the crown of a healthy plant should be a fleshy, white-green color, a tan-to-brown crown is observed with a *Fusarium* infection. The discoloration is affected by the level of infection. More severe infections are darker brown, and the crown tissue becomes quite rotted. This extensive infection disrupts the “plumbing” of the plant and may cause stunting, leaf yellowing, wilting, and even death. Stalk cannibalization occurs when the corn plant is not able to complete ear fill without remobilizing nutrients and energy from lower leaves and stalks to meet the demand from the developing kernels.

The stress of wet soils this spring were conducive for disease infection. Other stresses may include cold temperatures, soil compaction, fertility issues, or herbicide injury.² In previous years, the stress combination of a wet spring followed by an extended dry period led to crown rot infection.

While crown rot infections have their beginnings in early-season plant infections, they can persist much longer, eventually resulting in stalk rot and potential yield loss.

Harvest Concerns & Yield Impact

A crown rot infection that results in stalk rot may also lead to lodging. Typical symptoms of *Fusarium* stalk rot include whitish-pink to salmon discoloration of tissue at the nodes, while plants infected with anthracnose tend to have shiny black blotches or streaks on the outer stalk. Monitor fields closely to schedule harvest while there is still enough stalk strength left to help facilitate harvest.

Fields with considerable lodging should be harvested early to minimize the risk of increased lodging. Although drying cost is a concern when harvesting wet grain, this expense will likely be a better option compared to potential yield loss from lodging.

Test weights may be lighter due to the impact from crown rot and/or lodging on the ability of corn to finish transporting carbohydrates to the kernel.

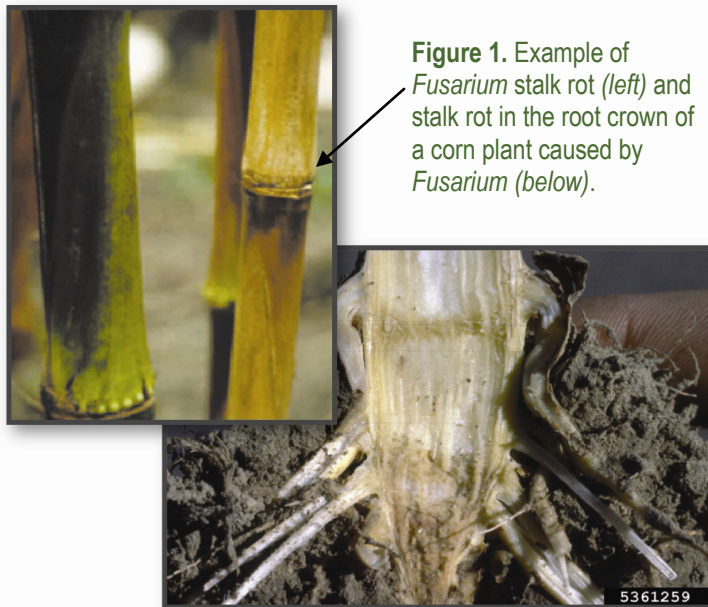


Figure 1. Example of *Fusarium* stalk rot (left) and stalk rot in the root crown of a corn plant caused by *Fusarium* (below).

Disease Management

Fusarium is a pathogen commonly found in crop residue and soil. Resistance to *Fusarium* crown rot is not available in current corn products. While fungicide seed treatments do protect against *Fusarium*, the treatment does not persist long enough to protect corn from crown rot. Because crown rot is associated with various stresses in addition to a fungal infection, identifying and alleviating any stresses may help reduce loss from *Fusarium* crown rot. For example, early in the season stunted plants with crowns that are not completely discolored and rotted may benefit from cultivation. Bringing the soil up around the crown may promote nodal root development and help the plants recover.

Sources:

¹ G. Munkvold. *Crown rot symptoms common in corn*. Integrated Crop Management. Iowa State University Extension. IC-488(15), July 1, 2002.

² G. Munkvold. *Crown rot affecting corn development*. Integrated Crop Management. Iowa State University Extension. IC-486(18), July 16, 2001.

Photo Citation: R.L. Croissant, Bugwood.org (viewed 8/8/2011) *Fusarium* image 5361259.

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. Technology Development by Monsanto and Design® is a registered trademark of Monsanto Technology LLC. ©2011 Monsanto Company. 08/08/11 BSM