

INTEGRATED CROP MANAGEMENT

Crown rot affecting corn development

The spring weather obviously was very challenging for corn seedlings, resulting in a record number of replanted acres in the state. The effects of the wet spring are not over yet, even though we have experienced a dry period. In many fields, plants that survived the wet conditions are suffering from lingering fungal infections of the root and crown tissue.

These infections usually are caused by *Fusarium* species but *Colletotrichum* (the fungus that causes anthracnose) can sometimes be isolated from decayed crowns. Several species of *Fusarium* can commonly be isolated from crowns of corn plants at any growth stage. Normally, the crown tissue of healthy corn plants is slightly darker than surrounding tissue. With a mild *Fusarium* infection, there is a tan-to-brown discoloration in the crown that may not appear much different from a healthy plant. With a more severe infection, the discoloration is darker brown and the crown tissue can become substantially rotted. Extensive decay of this part of the plant cuts off the connection between leaves and roots or directly destroys the growing point. Severely affected plants also can exhibit various external symptoms, including stunting, leaf discoloration (yellowing or purpling), wilting, and even death. In a field, the first indication may be patches of uneven plant growth, probably in areas where the soil remained wet for a long time during the spring.

Stressful growing conditions cause the plants to become more susceptible to this type of infection. These stresses can include wet soils, cold temperatures, soil compaction, fertility problems, or herbicide injury. In previous years, such problems were most evident when a wet spring was followed by an extended dry period. When the water-conducting tissues of the plant are disrupted and soil moisture is depleted, it is difficult for the plants to supply the leaves with adequate water.



Dissected corn plant showing symptoms of *Fusarium* crown rot.

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Crown infections can persist even longer, eventually resulting in stalk rot. If you have observed crown rot problems in a field, watch for stalk rot later.

Because *Fusarium* species are so common in crop residue and soil, and resistance to this type of infection is not available, there are few practical control measures. Fungicidal seed treatments do not persist long enough to help in this situation. Crown rot is always associated with some type of stress and the plant symptoms are due to a combination of factors, not just

the fungal infection. If predisposing stresses can be identified, alleviating them can reduce losses to *Fusarium*. If plants are stunted but the crowns are not totally destroyed, cultivation may promote nodal root system development and help the plants recover.

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<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2001/7-16-2001/crownrot.html>

Links:

[1] <http://www.ent.iastate.edu/imagegal/plantpath/corn/fusarium/0796.71fuscrownrot.html>

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