

9-14-1998

## Corn plants dying prematurely

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### Recommended Citation

Munkvold, Gary P., "Corn plants dying prematurely" (1998). *Integrated Crop Management News*. 2248.  
<http://lib.dr.iastate.edu/cropnews/2248>

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# Corn plants dying prematurely

## **Abstract**

During the last 2 weeks, the appearance of many cornfields has begun to deteriorate, and many plants are now dead. Although we expect plants to be maturing about this time of year, clearly some plants are dying early. Statewide, we reached 50 percent silking by about July 19, which means theoretically, the average corn plant should reach physiological maturity by about September 14. We are well ahead of that pace for a number of reasons, but regardless of the reason, when corn plants don't live for the full season, they don't achieve maximum potential yields. Even though the kernels on prematurely dead plants display a black layer, the lack of kernel plumpness indicates they reached this stage too soon.

## **Keywords**

Plant Pathology

## **Disciplines**

Agricultural Science | Agriculture | Plant Pathology

# INTEGRATED CROP MANAGEMENT

## Corn plants dying prematurely

During the last 2 weeks, the appearance of many cornfields has begun to deteriorate, and many plants are now dead. Although we expect plants to be maturing about this time of year, clearly some plants are dying early. Statewide, we reached 50 percent silking by about July 19, which means theoretically, the average corn plant should reach physiological maturity by about September 14. We are well ahead of that pace for a number of reasons, but regardless of the reason, when corn plants don't live for the full season, they don't achieve maximum potential yields. Even though the kernels on prematurely dead plants display a black layer, the lack of kernel plumpness indicates they reached this stage too soon.

Why are plants dying prematurely this year? Every field is a little different, and there is almost always more than one factor involved. Some reasons for premature death that I have seen (in no particular order) include anthracnose top-dieback, stalk rot, nitrogen loss, moisture stress, gray leaf spot, and wind damage.

**Anthracnose top-dieback.** This is a phase of the anthracnose disease that is less common than the typical stalk rot that occurs at the stalk base. With top-dieback, the plant dies from the top down, with the upper leaves turning yellow or reddish purple, then drying out. When these leaves are removed or fall off, typical black anthracnose lesions can often be seen on the outside of the upper stalk. If the stalk is split, the pith appears rotted in the upper internodes. The fungus (*Colletotrichum graminicola*) infects through the whorl earlier in the season and remains dormant in the stalks until late in the season, or it infects through leaf sheaths. Late-season stress triggers the development of disease symptoms.



[1]

**Anthracnose symptoms may appear at the stalk base or on the upper stalk.**

**Stalk rot.** Some plants are dying because the base of their stalk is rotted by *C. graminicola*, *Gibberella*, or *Fusarium*. The onset of these stalk rots is also stress related. When the stalk base is rotted, the whole plant wilts and dies rather suddenly. To see the symptoms, you may need to split the stalk all the way the base, below the soil line.



[2] **Decay of stalk base caused by *Fusarium*.**

**Nitrogen loss.** Some plants are showing obvious symptoms of nitrogen deficiency before they die. Wet conditions have resulted in the loss of nitrogen in many fields or parts of fields and plants prematurely die because of a severe nitrogen deficiency.

**Moisture stress.** In general, corn root development was not good this year because of early season wetness. During grain fill, the plant needs a lot of water, especially during some of the hot periods experienced this summer. Shallow, poorly developed, partially decayed root systems now can't provide enough moisture to keep the plant going. This scenario is particularly noticeable in places where there was standing water earlier in the season.

**Gray leaf spot.** In some areas of southern Iowa, gray leaf spot has become severe in the last two weeks. Corn plants in some fields have had most of their leaves killed by gray leaf spot. When plants are thoroughly defoliated, they die prematurely; often a stalk rot kicks in and finishes them off.

**Wind damage.** Plants that were damaged by wind earlier in the season are vulnerable to a number of problems that may show up now. Because of the physical damage to leaves, stalks, and roots, these plants are especially likely to suffer from stalk rot or a moisture-stress-related death.

Obviously there is nothing that can be done now to prevent premature death. It might pay off, however, to have the combine ready to go a little early this year to prevent additional losses from occurring.

This article originally appeared on page 169 of the IC-480(22) -- September 14, 1998 issue.

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