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Wet fields prone to seedling diseases

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Wet fields prone to seedling diseases

Abstract

The frequent rains this spring are having an impact on corn seedlings, as many fields contain standing water for days at a time. The ability of corn seeds and seedlings to withstand periods under water is influenced by the activity of pathogenic fungi. The standing water aids dispersal of fungi, especially *Pythium*, which produces swimming spores. Damage due to *Pythium* typically is worse when soils are cooler, but it can still function in warmer soils. Also, other fungi are capable of attacking seedlings under current soil condition.

Keywords

Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

INTEGRATED CROP MANAGEMENT

Wet fields prone to seedling diseases

The frequent rains this spring are having an impact on corn seedlings, as many fields contain standing water for days at a time. The ability of corn seeds and seedlings to withstand periods under water is influenced by the activity of pathogenic fungi. The standing water aids dispersal of fungi, especially *Pythium*, which produces swimming spores. Damage due to *Pythium* typically is worse when soils are cooler, but it can still function in warmer soils. Also, other fungi are capable of attacking seedlings under current soil conditions.



Stand loss in corn due to seedling disease.

[Enlarge](#) [1]



Uneven plant height can be caused by seedling pathogens.

[Enlarge](#) [2]

Pythium and *Fusarium* are the most common fungi associated with seed rot and seedling blight (or damping-off) of corn. Wet soils are particularly favorable for *Pythium*. Several species of *Pythium* can rot the seed prior to germination or attack the young seedling before or after emergence. When these seedlings are examined, dark, slimy lesions can be found on the roots or mesocotyl. Or the root system may be very reduced in size with a general dark color. *Fusarium* symptoms tend to be tan-to-reddish brown lesions that cause the root or mesocotyl to shrivel. *Fusarium*, too, can cause a general darkening and reduction in size of the young root system. Other fungi such as *Rhizoctonia*, *Penicillium*, *Colletotrichum*, and *Diplodia* also are common seedling pathogens. Some of these fungi can be seedborne, but fungi in the soil cause the majority of problems. It is very difficult, if not impossible, to identify these different fungi in the field because their symptoms are very similar and more than one fungus can be found on the same plant. Anthracnose leaf blight (*Colletotrichum graminicola*) frequently accompanies other seedling diseases and contributes to the death of plants by killing off what little leaf tissue the plant has left. This fungus causes brown or tan oval leaf lesions with a dark brown border. Laboratory identification is needed to pin down the specific fungi involved, but the management practices differ very little among fungi.

It is important to determine whether the problem is related to a disease or some other cause. Above ground, the symptoms of seedling diseases are a failure to emerge or emergence of

plants with poor color, slow growth, wilting, and withering of the leaves, followed by collapse of the plant. Symptoms are worse in areas that are wet, compacted, or have heavier soil. Symptoms may be on scattered plants or in small-to-large patches. Other pests and problems may mimic these symptoms, so it is important to dig up seedlings and examine them for the symptoms described above or for symptoms of herbicide injury or insect feeding.

At this point, management of affected fields is mainly a decision of whether to replant. We are reaching the point at which corn yields will be less than optimal due to the late planting and producers should consider the trade-off between keeping the existing stand versus the cost and yield potential of a replanted stand. Seedling diseases can have lingering effects because height of infected but surviving plants is uneven, resulting in reduced yields. Unfortunately, this effect is difficult to quantify for the replant decision. One practice that can help during the early corn growth stages is careful cultivation to promote nodal root development and dry the surface soil. Other seedling disease management practices were described in the April 9, 2001, ICM article, [Corn seed treatments in 2001](#) [3].

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<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2001/5-21-2001/wetfields.html>

Links:

[1] <http://www.ent.iastate.edu/imagegal/plantpath/corn/seedtreat/0796.66cornseeddismv.html>

[2] <http://www.ent.iastate.edu/imagegal/plantpath/corn/uneven/0796-66.html>

[3] <http://www.ipm.iastate.edu/ipm/icm/2001/4-9-2001/cornseedtreat.html>

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