Cool temperatures favor corn seedling diseases

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Abstract
Corn planting is well underway and estimates from Iowa State University Extension field crop specialists suggest 50 to 80 percent of the crop has been planted in most areas. Although some of the corn is beginning to emerge, the cold, wet weather that has occurred over the past 10 days has slowed emergence. These weather conditions can increase the prevalence of corn seedling diseases; one of the many problems that can result in reduced stands.

Keywords
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![Darkened roots and lesion on mesocotyl due to fungal infection.](image)

Seed rot and seedling blight (damping off) of corn are caused by a variety of fungi that are seedborne or soilborne. The most common genera are *Fusarium* and *Pythium*. Wet soils are particularly favorable for *Pythium*, because this fungus produces swimming spores. *Pythium* can rot the seed prior to germination, or attack the young seedling soon after emergence, resulting in dark, slimy lesions on the root or mesocotyl. *Fusarium* infection results in tan to reddish brown lesions that cause the roots and mesocotyl to shrivel. A general darkening and reduced young root system is common with both *Pythium* and *Fusarium* infection (see photo).

Other fungi that are common seedling pathogens are *Rhizoctonia*, *Penecillium*, *Diplodia*, and *Colletotrichum*.

It is not vital to determine what specific fungus is responsible for seed rot and/or seedling blight because management options are essentially the same for each seedling disease. However, it is important to determine if your problem is due to disease or another cause, for example, herbicide injury or insect damage. Always look for evidence of insect feeding or abnormal plant development, which indicates herbicide damage. Seedling diseases prevail when soil conditions are cool and wet, and emergence is delayed. Other clues that imply seedling disease include patches of poor stands especially in low or poorly drained areas of the field or healthy seedlings interspersed with dead seedlings. Neither of these patterns would be expected from herbicide injury.

To reduce the prevalence of corn seedling diseases, use high quality, fungicide-treated seed, and plant when soil temperatures are above 50° F and soil moisture is adequate but not excessive. This year most corn seed has been treated with a combination of two or more fungicides. Some fungicides work by attacking a specific class of pathogen; for example,
seed treatments containing mefenoxam or metalaxyl are most effective against Pythium, while those containing fludioxonil adequately control Fusarium and Rhizoctonia. Other fungicides are broader spectrum, for example, the active ingredient azoxystrobin is effective against Fusarium, Penicillium, Pythium, and Rhizoctonia. Regardless of the active ingredient(s), seed treatments usually are most effective for only two to three weeks after planting.

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