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## **SEED ROT, DAMPING-OFF, AND SEEDLING BLIGHTS OF ALFALFA AND CLOVERS**

Seed rot, damping-off, and seedling blights, caused by species of *Pythium*, *Rhizoctonia*, *Fusarium*, *Phytophthora*, *Phoma* (*Ascochyta*), *Mycoleptodiscus*, *Sclerotinia*, and other fungi occur wherever alfalfa and clovers are grown. Sometimes the diseases reduce the stand, especially when alfalfa or clovers are grown in acid, poorly-drained soils with a high content of organic matter, or when prolonged, wet weather follows planting.

### **SYMPTOMS**

Three types of injury occur.

1. With preemergence damping-off, seed may decay or seedlings may become blighted and be killed before they emerge. The stand is thin and "patchy," especially in low, wet areas of fields.
2. With postemergence damping-off, infection commonly occurs as the seedling emerges, and the disease develops slowly afterward. The seedlings emerge, only to wilt, collapse, dry up, and die from a rot at the oil line and below.
3. Young roots and stems decay, causing varying degrees of stunting, but the infected plants survive the early seedling stage. Later, some plants may turn yellow, wither, and die while the remainder recover.

### **DISEASE CYCLE**

Some organisms (species of *Pythium*, *Fusarium*, *Rhizoctonia*, and *Phytophthora*) are soil inhabitants and persist in and on plant residues as oospores and sporangia (*Pythium*, *Phytophthora*), dark sclerotia (*Rhizoctonia*, *Sclerotinia*), chlamydospores and mycelium (*Fusarium*) for two years or longer without a suitable host plant. When conditions are favorable, the fungi attack the seed and young seedlings—especially when germination and emergence are delayed. Other fungi (*Phoma* and *Mycoleptodiscus*) invade the soil and survive in crop debris only until the plant crowns, stems, and leaves become decayed. A rotation that excludes clovers and alfalfa and closely related legumes for at least two years will eliminate the *Phoma* and *Mycoleptodiscus* fungi from the soil. Several seed-decay, damping-off, and seedling-blight fungi are seed-borne diseases. These include the fungi that cause yellow leaf blotch (*Leptotrochila medicaginis*) and spring black stem (*Phoma medicaginis* var. *medicagnis*). The sowing of certified, fully-mature seed produced in an arid climate should eliminate these fungi as a source of infection.

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## CONTROL

1. Sow **high-quality, certified, fully-mature seed produced in arid areas**. Plant the varieties recommended for your area. Avoid seed grown in the southern states or in foreign countries. See Illinois Agricultural Pest Management Handbook for alfalfa varieties recommended for Illinois.
2. **If possible, plant in a fertile, well-prepared seedbed where soil drainage is good**. Acid soils should be limed to get a pH of 6.5 or 7.0. Practice balanced soil fertility based on a soil test.
3. Treating alfalfa and clover seed with a seed protectant fungicide or mixture will often reduce the amount of decay and preemergence damping-off in soils infested with *Pythium*, *Phytophthora*, *Rhizoctonia*, and certain other fungi. The final stand may be somewhat improved in some cases. The results of numerous field tests, however, indicate that treating alfalfa and clover seed rarely increases the yield of forage or hay. A fungicide treatment of small-seeded legumes is not justified in Illinois under normal conditions. A seed treatment may help control seed rot and damping-off where the soils are wet and poorly-drained, or where stands fail consistently. The seed-treatment fungicides cleared by the federal EPA for treating alfalfa and clover seed are given in Illinois Agricultural Pest Management Handbook. All seed-treatment fungicides should be used strictly according to label directions.