



Aphanomyces root rot in alfalfa

Because of wet conditions this spring, many newly seeded alfalfa fields may show poor growth in wet or slowly drained fields which may be due to several diseases. Seedling diseases should be suspected when emergence is poor or there are stunted, discolored, or dead seedlings.

Aphanomyces root rot can cause death and stunting of seedlings as well as more subtle disease of established plants that can result in significant yield reduction. Other diseases that occur in wet or poorly drained soils include Phytophthora root rot and Pythium seed and root rot.

Plants infected with Aphanomyces usually become stunted and chlorotic (yellow) before they wilt and die, whereas Phytophthora and Pythium tend to kill seedlings quickly before plants become severely chlorotic. Another clue to a problem with Aphanomyces is root rot of an alfalfa cultivar that is highly resistant to Phytophthora.

Although not much is known about Aphanomyces root rot in Michigan, it is known to be a serious problem in nearby states including Wisconsin, Indiana, and Iowa. We suspect this disease is also a problem in some Michigan fields. This disease is caused by the soil-borne fungal-like pathogen Aphanomyces euteiches. Perhaps because alfalfa disease that occurred in wet soil was attributed to Phytophthora, Aphanomyces root rot of alfalfa was not recognized as a serious problem until the early 1980s.

Aphanomyces root rot is best managed by avoiding poorly drained soils and using Aphanomyces-resistant alfalfa varieties. However, this year, even well drained fields have been water saturated due to abnormally high rainfall in May. Fungicides are not available for control of Aphanomyces root rot of alfalfa. Phytophthora and Pythium root rots of seedlings can be controlled with fungicidal seed treatments, such as Allegiance-FL, ApronXL, or Apron-FL, but these seed treatments are not effective against Aphanomyces.

Alfalfa varieties rated highly resistant (HR) or resistant (R) to Aphanomyces root rot should be planted where slowly drained soils occur and where Aphanomyces may be a problem. A list of varieties and their disease resistance can be found at the Michigan State University Forage Information Systems web site at <http://www.msue.msu.edu/fis/> and clicking on the Extension bar and then the Perennial Forage Legume and Grass Varieties for Michigan. Control of Aphanomyces root rot became more challenging when different races of this pathogen were discovered. Many commercial alfalfa cultivars are now available that have resistance to race 1, the first race discovered. Another race (race 2) of Aphanomyces was identified in the early 1990s that overcomes race 1 resistance. Alfalfa cultivars developed for resistance to race 1 are killed by the aggressive race 2 isolates. Race 2 isolates have been identified in a number of states including Wisconsin, Iowa, and Kentucky. Race 2 has not yet been confirmed in Michigan. Alfalfa varieties with resistance only to race 1 may be genetically vulnerable to Aphanomyces root rot in many regions due to the presence of race 2. Several commercial alfalfa varieties are now available that have resistance to both races of Aphanomyces. If resistance to race 2 is not specified for an Aphanomyces-resistant alfalfa cultivar, then you can assume it is resistant only to race 1.

The overall distribution and impact of races 1 and 2 of Aphanomyces are uncertain, but Aphanomyces root rot should be considered as a potential problem in many parts of Michigan.

If you have an alfalfa seeding that has failed this spring, it should be safe to replant with alfalfa again this year since compounds which cause autotoxicity do not accumulate in seedlings. A Phytophthora- and Aphanomyces-resistant varieties (treated with Apron XL) are recommended for replanting failed seedings. However, timing is a factor because alfalfa seedings that are done too late in the spring may fail because of inadequate moisture. If this occurs, one may wait until late summer for re-seeding alfalfa fields.

For a photo of Aphanomyces symptoms on alfalfa, please look at the following web site.

<http://www.ent.iastate.edu/imagegal/plantpath/alfalfa/aphanomyces/0093.7aphan-symp.html>

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