

Mycoleptodiscus Crown and Root Rot on Alfalfa in Minnesota and Wisconsin

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Mycoleptodiscus crown and root rot, caused by *Mycoleptodiscus terrestris*, was identified causing severe disease in seven commercial production fields in southeastern Minnesota and southwestern Wisconsin during the summer of 2009. Both newly seeded fields and established fields were affected. In the field, symptoms consisted of patches of stunted and yellowed plants with poor forage production. Plants from these patches had few lateral and fibrous roots and many of the remaining lateral roots were black and rotted. On many plants crown branches were rotted off, reducing shoot production. In older plants, a V-shaped region of brown decayed material, sometimes with a darker margin, was observed in the crown. In some cases, decay extended into the taproot. Black microsclerotia were found on the crown surface and in rotted crown and root tissues.

Although the disease has been known on red clover since the 1950s, it has not previously been reported to cause severe problems in alfalfa production fields. The fungus is highly pathogenic on many legumes including bird's-foot trefoil, white clover, alsike clover, red clover, crimson clover, and soybean, as well as alfalfa (Verma and Charudattan, 1993). It is a weak pathogen of tomato and cabbage. It also is a pathogen of water milfoil and has been tested as a biological control agent for this lake weed. On bird's-foot trefoil the symptoms are root decay, plant wilting followed by plant death (Carroll and Whittington, 1991). The fungus causes post-emergence damping-off of soybean seedlings characterized by reddish brown to black cortical decay of crown and root tissues (Gray, 1978). It also causes a dark decay of the lateral root system and taproot of older plants similar to that caused by *Rhizoctonia* root and stem rot. The disease has been reported on soybean in Wisconsin south and central Illinois (Smith et al., 1998) for many years but has not been considered to be of major importance.

No disease management measures for Mycoleptodiscus crown and root rot have been reported. At this point there are no known resistant alfalfa cultivars. A standard assay is under development so that cultivars can be tested for resistance and for use in a selection and breeding program. A test was established in 2010 at the University of Minnesota Rosemount Research and Outreach Center in a field with high incidence of the disease to evaluate disease resistance and fungicide efficacy.

References

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