

Plant Pathology Fact Sheet

Alfalfa Diseases Caused by *Rhizoctonia* Fungi

by Paul Vincelli

Rhizoctonia fungi, particularly *Rhizoctonia solani*, are found in most agricultural soils in Kentucky. These fungi are natural soil inhabitants that colonize and live on dead organic matter. Under the right environmental conditions, the *Rhizoctonia* organisms are often able to attack living plants, including alfalfa.

When warm, wet conditions prevail, *Rhizoctonia* fungi can cause just about every conceivable type of alfalfa disease. Important examples are listed below.

SYMPTOMS

Seed rot and seedling damping-off

Seedlings can be very susceptible to infection by *Rhizoctonia* spp., and may die and wither away quickly.

Root canker and rot

Taproots may exhibit brown to black cankers when invaded by *Rhizoctonia solani*. Another species, *Rhizoctonia crocorum*, causes



FIGURE 1. RHIZOCTONIA STEM CANKER

decayed roots to appear cinnamon brown to violet in color.

Crown rot

Rhizoctonia solani can invade crowns and cause a fatal crown rot. Infected tissues appear dark brown to black.

Stem canker

Discrete light brown cankers, similar to anthracnose lesions, can result from infection of lower stems (FIGURES 1 and 2). Leaves



FIGURE 2. STEM CANKER LESIONS

on infected stems wilt and turn yellow, sometimes with reddening.

Web blight

Initially, necrotic areas may be evident on infected foliage (FIGURE 3) and stems. However, if the weather remains warm and humid, infections spread rapidly to encompass entire leaves. The leaves and stems collapse in a water-soaked mass, which becomes light brown when it dries (FIGURE 4).

Characteristically, dead leaves stick to neighboring leaves and stems because hyphal strands hold them in place. During morning dews, these cobwebby fungal strands may be evident on infected tissues.



FIGURE 3. EARLY FOLIAR INFECTIONS DUE TO *RHIZOCTONIA*

DISEASE DEVELOPMENT

Rhizoctonia diseases of alfalfa are quite common in Kentucky, as our warm, humid climate is very favorable for these fungi. Poor drainage and excessive top growth can also encourage disease development. Undecomposed organic matter, particularly if it is high in nitrogen, is another factor which may promote Rhizoctonia diseases. For example, these diseases are sometimes more severe where sod is plowed under or where manure is spread during warm, humid weather.



FIGURE 4. SYMPTOMS CHARACTERISTIC OF WEB BLIGHT

DISEASE MANAGEMENT

Grow adapted, improved varieties

Pay attention to the UK Department of Plant and Soil Sciences variety trials. Commercial alfalfa varieties are not specifically bred for *Rhizoctonia* resistance. However, the varieties that consistently yield well during the warm, humid conditions common in Kentucky will likely tolerate occasional outbreaks of Rhizoctonia diseases.

Site selection and preparation

Plant into a fine, well-drained, but firm seedbed. Refer to the UK Extension publication "Alfalfa - Queen of the Forages" (AGR-76) for information on site selection and preparation. Note that Apron and

Allegiance seed treatment fungicides do not have any activity against *Rhizoctonia* fungi.

Harvest management

Harvest no later than first flower. Postponing cutting creates a more humid environment where *Rhizoctonia* fungi can thrive. Also, remove hay promptly, as the swath may trap moisture that activates this pathogen. In circumstances where the hay has not cured completely but warm, wet weather is expected, it may be best to treat with a hay preservative and bale early. The UK Extension publication “Hay Preservatives” (ID-46) contains additional information on this topic.

Minimize crown injury

Injuries to the crown provide infection sites for *Rhizoctonia* pathogens. Use caution with practices that injure crowns, such as grazing or using heavy equipment when the soil is wet.

ADDITIONAL RESOURCES

Disease management and crop production advice can be found in the following University of Kentucky publications available at County Extension offices, as well as on the Internet.

- Alfalfa-The Queen of Forage Crops, ID-76
<http://www.ca.uky.edu/agc/pubs/agr/agr76/agr76.pdf>

- An Alfalfa Disease Calendar, PPA-44 (2000)
<http://www.ca.uky.edu/agc/pubs/ppa/ppa44/ppa44.pdf>
- Hay Preservatives, ID-46 (1980)
<http://www.ca.uky.edu/agc/pubs/id/id46/id46.htm>
- Kentucky Integrated Crop Management Manual for Field Crops: Alfalfa, IPM-1 (2006)
<http://www.uky.edu/Ag/IPM/manuals/ipm1alf.pdf>
- Kentucky Plant Disease Management Guide for Forage Legumes, PPA-10d (1995)
<http://www.ca.uky.edu/agc/pubs/ppa/ppa10d/ppa10d.pdf>
- Managing Diseases of Alfalfa, ID-104 (1991)
<http://www.ca.uky.edu/agc/pubs/id/id104/id104.htm>
- UK Plant and Soil Sciences Forage Variety Trials
<http://www.uky.edu/Ag/Forage/ForageVarietyTrials2.htm>

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Photos by Paul Vincelli (Figures 1 & 3) and Cheryl Kaiser (Figure 4), University of Kentucky