

Rhizoctonia Root Rot

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Rhizoctonia root rot (RRR) is a common fungal disease caused by various species in the genus *Rhizoctonia*. This plant pathogen is global and has an extensive host range including agricultural and ornamental plants, especially groundcovers and some annuals and perennials. It typically affects young, recently propagated plants (Figure 1) and is rarely a significant concern of established, mature trees and shrubs.

Description

RRR is a significant concern in nursery production but can lead to problems in landscapes as well. If left unmanaged, *Rhizoctonia* can amass a significant amount of inoculum (fungal spores and other diseased material that can start new infections) in the soil, making it difficult to remove without extensive intervention. This disease is usually introduced by infected plants or reused, contaminated containers or soil media.

Rhizoctonia is found in most soil types, but warm and wet conditions favor fungal growth and infection. The fungus persists through unfavorable conditions within protected structures in the soil (sclerotia) that remain viable for many years.

Distinguishing between root rot diseases requires microscopic examination. *Rhizoctonia* can be identified by several features, one of which is the unique right-angle branching of its filaments, called hyphae (Figure 2).

Symptoms

Various organisms, including fungi, nematodes, and oomycetes (water molds) can cause root disease in the landscape. Symptoms are often similar among the different pathogens due to where the damage is occurring. When the root system is compromised, plants are unable to take up sufficient resources and symptoms develop

Figure 1: Dead roots and stem discoloration on peony caused by Rhizoctonia root rot



Figure 2: Right-angle branching indicative of Rhizoctonia root rot



throughout the entire canopy. General decline symptoms such as foliage yellowing (chlorosis), dieback, or wilting are common.

Specific symptoms of RRR vary by host but include wilting and decay of seedlings (referred to as damping off disease), rotting of developed roots or crowns, and death or blighting of foliage. Stems associated with active root rot are often discolored and brown to black. When groundcover beds are affected, it may appear as a radially spreading blight.

Management

Accurate identification of suspected root rot pathogens is critical when developing management programs. Products used to treat oomycete diseases, like *Phytophthora*, may be ineffective against *Rhizoctonia* and vice versa. Field identification is unreliable given the breadth of hosts affected and similarity in symptom appearance among pathogens. Samples of symptomatic tissue should be submitted to a diagnostic clinic for confirmation as one or more pathogens may be present.

Management programs should focus on sanitation and cultural practices. Recommended sanitation practices include the removal of dead and dying plant material, disposal of contaminated containers and soil, and maintaining proper soil moisture conditions. Purchasing high-quality plants from nurseries that carefully monitor and protect plants from *Rhizoctonia* and other diseases is also important to avoid introducing the pathogen into the landscape.

Fungicidal products are widely available for nursery production but are of limited use in the landscape. Where infested material and soil has been removed, certain products may be applied as a soil drench to reduce the risk of further spread and reinfection. However, where the disease is active and spreading, fungicidal treatment alone will not cure the disease nor adequately kill the resilient sclerotia in the soil. Please contact your Bartlett Arborist Representative to learn about management strategies.



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