

Rhizosphaera Needle Cast

Rhizosphaera needle cast is a fungal disease affecting spruce trees, notably the Colorado blue spruce (*Picea pungens*) and other spruce varieties. The disease causes needles to turn brown and fall off, leading to a thinning canopy. Trees stressed from factors like drought or poor planting practices are more susceptible. Proper identification is crucial, as several other fungi can cause similar symptoms.

Signs & Symptoms

- In spring or early summer, new needles are green, while older needles turn brown to purple.
- Use a magnifying glass to observe tiny black bumps arranged in rows on infected needles, indicating spore-producing structures of Rhizosphaera fungi.
- Discolored needles fall off in late summer to fall.
- Infected trees appear thin with few needles near the trunk.
- Damage usually starts on lower branches and progresses upward.
- If the majority of needles are infected for 3 to 4 years consecutively, the branch may die.

Life Cycle

- Rhizosphaera needle cast is caused by the fungus Rhizosphaera kalkhoffii.
- The fungus survives winter on living and recently killed needles.
- Spores spread from spring to early autumn via splashing water within the tree or to neighboring trees.
- Needle infection is most common in young, still-growing needles.
- Older needles can become infected under highly favorable environmental conditions, especially during warm, wet weather.

Management

- Plant disease tolerant trees.
- Maintain good air circulation.
- Mulch under trees.
- Prevent sprinklers from spraying needles.
- Spray fungicides: Apply in spring or early summer when new needles are half mature length, make a second application 3 to 4 weeks later. Fungicides with chlorothalonil, copper hydroxide, or mancozeb protect new needles. (Chlorothalonil-based fungicides may be phytotoxic to spruce trees and permanently discolor the needles.)



Photo University of Minnesota Extension