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# TREE FACTS

## RHIZOSPHAERA NEEDLE CAST

Rhizosphaera needle cast infects only certain conifer species. Colorado blue spruce is the most common host. Other spruce species susceptible to the disease are Engelmann, black, Servian and Sitka.

spore germination are around 77 degrees. Germination takes place over about 48 hours, in humid or rainy conditions that allow a film of water to remain on the susceptible area.

### SYMPTOMS and EFFECTS

Rhizosphaera needle cast starts from the bottom of the host tree and progresses upward. Second-year needles on the lowest branches are infected first. These needles take on a yellow mottled appearance then turn brown and drop from the stem. After several years of continued infection, only current-season needles may remain attached to lower branches. Even these younger needles eventually become infected, and the branch ultimately dies.

While the disease does not usually kill the tree, the tree's appearance deteriorates. The top of the tree remains green while the lower branches become bare. Sometimes these dead branches will be interspersed with living, green branches.

You can usually diagnose Rhizosphaera needle cast with a 10X-hand lens. Each needle has parallel rows of stomata (pores), which appear white when healthy. When infected with the fungus, small black pycnidia (spore-bearing structures) protrude through many, if not all, of the stomata. They look like little columns of pepper grains along the needle. These are sometimes capped by a white, waxy discharge that is pushed from the pore as the pycnidia form.

Do not confuse Rhizosphaera needle cast with mite injury, which is very common and can cause considerable damage. You may also find saprophytic (non-disease) fungal growth on spruce needles. While such growth does not cause injury to the tree, it can confuse the diagnosis.

The source of this infection is a fungus. Soon after needles have elongated in the spring, the pycnidia on the infected needles open and release spores. Winds and splashing rain carry the spores from one branch to another and from tree to tree. If favorable weather conditions prevail, this process will continue throughout the summer and into fall. The temperatures most favorable for

### CONTROL

#### CULTURAL

Before planting a blue spruce, make certain that other blue spruce in the area are not already infected. If you find an infected tree, remove and destroy any diseased branches immediately. Do not allow spruce trees to undergo drought stress. Water when necessary by setting a hose-end under the tree that will run for one-half to one hour. Don't water with a sprinkler that sprays water on the needles.

#### CHEMICAL

Two - three well timed applications each year of a professional fungicide will stop the spread of rhizosphaera. This application will protect the tree for one growing season and should be repeated annually for at least 2-3 years. After this period the tree should be reevaluated by a certified arborist to make sure the fungus is gone and then monitored on an annual basis.

### Quick Facts

- ◆ Colorado blue spruce is the most common host for Rhizosphaera needle cast in Wisconsin.
- ◆ Rhizosphaera needle cast starts from the bottom of the tree and progresses upward.
- ◆ Infected needles take on a yellow mottled appearance then turn brown and drop from the stem.