

## Needle Diseases of Conifers

Bruce R. Fraedrich, PhD, Plant Pathology

Needlecast and needle blight are terms applied to a variety of foliage disorders of many coniferous species. These diseases are usually more severe on young trees or on trees growing outside of their natural range. Disease severity and corresponding defoliation vary from year to year depending on climatic conditions. Although few trees die as a result of infection and defoliation, these diseases are considered serious because of the unsightly condition and loss of vigor of affected trees.

### Cause

At least forty different species of fungi are known to cause needle diseases, but only seven genera are of major importance. These are *Rhabdocline* on **Douglas fir** and *Rhizosphaera*, *Phaeocryptopus*, *Ploiderma*, *Bifusella*, *Mycosphaerella*, and *Lophodermium* on other conifers including **pine, spruce, fir, larch and juniper**.

### Symptoms

One- and two-year old needles of infected conifers (except larch) may develop spots and become yellowish-brown to red by early spring (Figures 1 and 2). Early discoloration symptoms rarely involve an entire needle. By early to mid-summer most of the infected needles have dropped or cast, leaving only the current season needles. On spruce and larch, however, the diseased needles remain attached beyond the normal time.

### Signs

In most cases, fruiting bodies of the causal fungus erupt through the surface of the infected needle area before defoliating (Figure 3). During moist weather, the mature fruiting bodies discharge spores, which may be carried to nearby unaffected needles (Figure 4).

**Figure 1: Needle spotting of Douglas fir infected with the needlecast fungus *Rhabdocline***



**Figure 2: Symptoms of Dothistroma needle blight (*Mycosphaerella*) on Austrian pine.**



**Figure 3: Black fungal fruiting structures of *Phaeocryptopus* (Swiss needlecast) on the underside of Douglas fir needles**



**Figure 4: Spruce needle infected with the needlecast fungus *Rhizosphaera*. Creamy colored spore masses ooze from the black fungal fruiting bodies**



## Management

Needlecast and needle blight diseases can be managed by making protective applications of a properly registered fungicide when the needles are half-grown and again when fully developed.



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