

## Cytospora Canker of Spruce

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Cytospora (Valsa) canker, caused by the fungus *Cytospora kunzei*, is the most destructive disease of spruce. This stem and branch disease is most common on Colorado blue spruce and Norway spruce but will also infect other spruce species. As the disease progresses from lower to higher branches, affected trees become unsightly and lose their ornamental or screening value. Cytospora canker is most common in dense plantings and on trees over fifteen years old but occasionally affects younger trees as well.

### Symptoms and Signs

The first noticeable symptoms of Cytospora canker are the browning of needles and dying of lower branches (Figure 1). A heavy resin exudation usually occurs at the cankered area leaving white, encrusted deposits or resin on the bark (Figure 2). Branch dieback and defoliation may also occur due to infection by needlecast fungi or due to infestation by spruce bud scale insect, but the white resin on the bark is characteristic of Cytospora infection.

If the thin outer layer of bark in the infected area is carefully removed, very small, black fruiting bodies of the fungus (Figure 3) may be found. These fruiting

bodies contain minute spores that ooze out onto the bark surface during wet weather. These spores can be spread by rain, wind, or pruning tools and cause new infections.

Figure 2: Oozing resin typical of Cytospora infection



Figure 1: Defoliation and branch dieback due to Cytospora canker typically starts in the lower canopy.



Figure 3: Fungal fruiting bodies



## Control

Infected branches should be removed at the trunk and the pruning tool should be sterilized before pruning other spruce trees. Pruning should be done only when the branches and foliage are dry to reduce the chance of spreading spores.

Since weakened trees are considered to be more susceptible to Cytospora canker, proper irrigation and soil management to promote vigorous growth is recommended. Research in the mid-western US has shown some reduction in Cytospora infection in spruce treated with a type-2 plant growth regulator (Paclobutrazol). Heavy mulching around spruce to conserve moisture may also be beneficial. Fungicide applications are generally ineffective and not recommended.

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