

## **Cytospora canker**

The fungus *Leucostoma kunzei* (sexual stage) or *Leucocytospora* (*Cytospora*) *kunzei* (asexual stage) causes Cytospora canker of spruce and several other conifers.

### **Host Plants:**

Cytospora canker is most common on *Picea* species such as Colorado (*Picea pungens*), black (*P. mariana*), Engelmann (*P. engelmannii*), Oriental (*P. orientalis*), red (*P. rubens*), and white spruces (*P. glauca*). In addition, hemlock (*Tsuga canadensis*), Douglasfir (*Pseudotsuga menziesii*), balsam fir (*Abies balsamea*), Fraser fir (*A. fraseri*), European larch (*Larix deciduas*), and tamarack (*L. laricina*) are susceptible to infection.

### **Description:**

Symptomatic faded green, brown to dead branches/needles often appear first on the lower portion of affected trees but the canker seldom progresses to the point where it infects the main stem or kills the entire tree. Nonetheless, Cytospora canker disfigures trees and the dead branches persist for many years. A cankered branch frequently oozes resin at the margins of lesions and when this dries it forms a whitish crust.



**Early symptoms of Cytospora canker disrupting water and mineral transport**



**Bark cut away from cankered branch to show small, black fruiting structures**

Photos: E. M. Dutky, *Diseases of Woody Ornamentals and Trees*. APS Press.

It typically takes several years from the initial infection for the fungus to girdle branches or at least disrupts water and mineral transport sufficiently to cause discoloration and loss of needles.

### **Disease Cycle:**

Cytospora canker survives for several years in infected branches as mycelia or as fruiting structures. Cankers expand along stems more readily than around them. The fruiting structures release spores during moist periods in the spring, summer and into the fall. Splashing water, insects and wind disperse spores. Cracks in the bark due strong wind, heavy snow load, hail damage and other wounds provide sites vulnerable to infections. Older branches are more susceptible to infection than younger ones.

### **Management Strategies:**

The best way to prevent Cytospora canker is to maintain tree vitality. The fungus infects trees weakened by water shortage and heat stress more extensively than healthy trees. Deeply soak soil (wet to a depth 10-12 inches down from the soil surface or apply about 1 inch of water) in the root zone once or twice a week during extended dry periods. Maintain a 2-3 inch layer of thoroughly composted mulch over as much of the root zone as possible. Composted mulch cools the roots, maintains uniform moisture content in the soil, and impedes competing vegetation from growing in the mulched area. Prune cankered branches when the bark is dry.

Dispose of the debris away from the trees to remove sources of inoculum. Avoid unnecessary damage to the bark because the fungus disperses infectious spores throughout the growing season.

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