

## Cytospora Canker



A tree with lots of branch dieback from *Cytospora* canker.

*Cytospora* canker is a fungal disease that attacks and kills individual branches of primarily mature spruce trees, in particular the Colorado Blue Spruce. One by one the branches begin to discolor from the bottom of the tree upward until the otherwise striking pyramidal form of the tree is compromised.

*Cytospora* is caused by the organism *Cytospora kunzei* (imperfect form) or *Valsa kunzei* (perfect form). This fungus naturally occurs as a saprophyte on the dead bark of many conifers. The fungus only causes a problem when the health and vigor of the tree has been weakened by other causes such as drought or poor nutrition.

Trees which are susceptible to *Cytospora* include Black, Colorado Blue, Engelmann, Norway, Oriental, Red and White Spruces; Douglas-fir; Balsam fir; Eastern Hemlock; Eastern, European and Japanese Larch; and Eastern and White Pines. Infection in Wisconsin is most severe on Colorado Blue Spruce where it kills branches and results in excessive resin production.

As previously indicated, initial symptoms appear on the lower branches and progress upward. Occasionally however, symptoms may begin on the upper branches. Affected branches become off-color, taking on a purple cast which later fades to brown as the needles drop.

The fungus overwinters as fruiting bodies on the bark of infected tissue or as vegetative mycelium in cankers. Infection is suspected to occur during late winter and early spring. The site of infection may be natural wounds such as leaf scars or manmade pruning wounds. The spores of the fungus are dispersed to potential host trees through splashing rain.

The resulting lesions begin at the base of the branch near the branch collar and spread distally along the branch in an elliptical fashion. The cankers are reddish brown and slightly sunken. There is often an excessive amount of resin covering the cankers. Removal of the bark will disclose sapwood which appears normal in color. Upon close examination, one may find tiny, black, pimple-like pycnidia which represent the fruiting structures of the fungus. It is in these black pycnidia that spores are produced which will continue the disease cycle.



Close-up of a bleeding branch.

*Cytospora* canker will not result in sudden death of the infected tree but rather, several years or decades will pass before the trunk is girdled and an affected tree will die. Dead twigs may remain on the tree for many years. Typically, trees less than 15-20 years old are not affected. However, the fungus may attack small branches of young seedlings in nursery beds.

Because *Cytospora* normally attacks trees under stress, it is important to prevent or eliminate any stresses on susceptible trees. Selecting the proper location when planting spruce in the landscape may be the deciding factor as to whether or not a tree will succumb to *Cytospora* at maturity. Avoid overcrowding and drought. Take precautions not to injure the root system and do not prune except during dry weather. Disinfecting pruning tools in a 10% chlorox solution or 70% alcohol between cuts will prevent the spread of the disease to healthy trees or branches.

– Karen Delahaut, University of Wisconsin - Madison

Photos courtesy of Brian Hudelson, Plant Disease Diagnostics Clinic, UW-Madison

---

#### **Additional Information:**

- [Cytospora Canker – UW Garden Fact Sheet X1003 at www.uwex.edu/ces/wihort/gardenfacts/XHT1003.pdf](http://www.uwex.edu/ces/wihort/gardenfacts/XHT1003.pdf)
- [Cytospora Canker of Spruce – Ohio State University Extension Fact Sheet HYG-3033-96 at ohio-line.osu.edu/hyg-fact/3000/3033.html](http://ohio-line.osu.edu/hyg-fact/3000/3033.html)
- [Cytospora Canker of Spruce – University of Minnesota Yard & Garden Brief at www.extension.umn.edu/projects/yardandgarden/ygbriefs/P422cytospora.html](http://www.extension.umn.edu/projects/yardandgarden/ygbriefs/P422cytospora.html)
- [Spruce: lower branches die \(cytospora\) – UW-Extension Infosource article at /infosource.uwex.edu/recorddetail.cfm?messageid=101052&heading=Garden%20and%20Landscape&headingid=2](http://infosource.uwex.edu/recorddetail.cfm?messageid=101052&heading=Garden%20and%20Landscape&headingid=2)