



Sphaeropsis (Diplodia) blight

Sphaeropsis sapinea causes tip blight, cankers on branches and stem, branch dieback, and occasionally tree death of weakened two- and three-needle pines and several other conifers.

Host plants:

Sphaeropsis blight commonly afflicts Austrian (*Pinus nigra*), Scotch (*P. sylvestris*), red (*P. resinosa*), ponderosa (*P. ponderosa*) and mugo (*P. mugo*) pines. In addition, *Sphaeropsis sapinea* is known to colonize other conifers growing under unfavorable environmental conditions including Douglasfir (*Pseudotsuga menziesii*) as well as Colorado (*Picea pungens*), Norway (*P. abies*), and white spruces (*P. glauca*).

Description:

The most conspicuous symptom of *Sphaeropsis* blight is brown, stunted new shoots with short, brown needles.



Left: *Sphaeropsis* shoot blight and canker on red pine.



Right: *Sphaeropsis* tip blight on Austrian pine.

Photos: (left) G. Stanosz and (right) M. Daughtrey, *Woody Ornamentals and Trees, Diseases of Woody Ornamentals and Trees*. APS Press.

New shoots throughout the crown may be infected, although damage is generally first evident in the lower crown. Vigorous trees confine infections to the new shoots. Severely weakened trees can have entire branches dieback. Repeated infection reduces growth, deforms trees, and ultimately kills them.

Although *Sphaeropsis sapinea* infects undamaged new shoots, it can infect both current-year and older tissues through wounds. Wounds caused by hail, insect feeding, pruning or shearing operations, and wind damage are typical infection sites.

Disease Cycle:

Sphaeropsis sapinea spores develop in small, black fruiting structures that form on needles, fascicle sheaths, scales of second-year seed cones, and bark. Fruiting structures disperse spores when rainfall is frequent via wind and water splash from March to October. New shoots of Austrian, mugo, ponderosa, red, and Scotch pines are most susceptible when buds begin to open until needles are fully elongated. Spores require wet conditions to germinate and penetrate needles and shoots. Once the fungus penetrates needles, tissues are rapidly destroyed resulting in stunted shoots and needles. *Sphaeropsis sapinea* survives the winter in fruiting structures that develop on infected second-year cones, blighted needles, shoots, and cankers.

Management strategies:

In vigorous trees, *Sphaeropsis* blight kills only emerging shoots and buds. However, pines weakened by water shortage, soil compaction, root damage, shading, and other stressors sustain extensive damage to older branches. Enhance tree vitality with irrigation during dry periods, maintenance of 2-3 inches of composted mulch over as much of the root zone as possible, deep-root fertilization as needed, and soil aeration. Remove infected shoots, branches and second-year cones to reduce inoculum levels. If only branches and shoots are removed that improves the appearance of the tree, but not the inoculum levels because there are numerous fruiting structures on second-year cones. Prune and shear only when conditions are dry. Infection of new shoots can be reduced significantly by applying fungicide to pines beginning when buds swell and reapply at labeled intervals until needles are fully elongated, or until dry conditions prevail.

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