

CHAPTER SEVENTEEN

Sirococcus Tip Blight

Jack R. Sutherland

Sirococcus tip blight is caused by the fungus *Sirococcus strobilinus*. In bareroot nurseries the disease has been recorded on white and Sitka spruce; lodgepole, Jeffrey, sugar, and ponderosa pine; and Douglas-fir. It occurs primarily in British Columbia, California, Idaho, and Montana nurseries, with infrequent occurrences reported in Oregon and Washington.

Sirococcus tip blight can affect up to 15 percent of any host species. Occurrence and losses are highest in nurseries with cool, moist, overcast conditions in mid- to late summer.

Sirococcus tip blight affects western hemlock in the forest but has not yet caused damage to that host in nurseries. The disease appears on bareroot seedlings from the last half of the first growing season to early in the second growing season.

Sirococcus tip blight affects random individual seedlings or small patches of seedlings. On all hosts the disease kills the current year's leader, usually from the tip downward (Figure 17-1). The desiccated tip of the terminal may assume a crozier shape. Foliage on the killed terminal dies from the base outward and turns straw-brown in color. Progression of the disease normally stops at the first one or two uppermost whorls of branches. The following spring one of the lateral branches turns upward as the leader. This may result in seedlings with multiple leaders.

Pycnidia form on the killed tissues, most abundantly at the bases of needles (Figure 17-2). They are initially butterscotch-brown, then dark brown at maturity. Spindle-shaped, multiseptate conidiospores ooze from pycnidia. They are the only known spores of *S. strobilinus*. Pycnidia also frequently form on old cones of various spruces and possibly pines. Conidiospores are disseminated to young, susceptible shoots of host seedlings via wind-borne water droplets or fog.

Sirococcus tip blight may be confused with:
Frost damage
Pesticide damage
Tip blight of pine

Cool, moist, overcast conditions favor both infection by conidia and predisposition of the host to infection. Seedlings growing under low light intensity are more prone to infection. Once established in seedbeds, the disease can intensify by spreading to other seedlings. Irrigation further enhances the spread of *Sirococcus* and aggravates the conditions for infection.



A



B

Figure 17-1. *Sirococcus* tip blight on a 2+0 Douglas-fir (A) and a 2+0 lodgepole pine (B).



Figure 17-2. Pycnidia of *Sirococcus strobilinus* on killed Douglas-fir tissue.

The disease is rare in nurseries with dry, bright summer and fall days. Growing susceptible species in nurseries in drier areas might prevent losses from *Sirococcus* tip blight.

tered on windbreak trees or forest trees adjacent to the nursery. One outbreak of the disease in California was traced to inoculum from diseased cones that fell into nursery beds from nearby forest trees. It may be worthwhile to remove such trees if they are not too abundant or valuable.

**Sirococcus tip blight
symptoms appear:**

1+0

Late summer and fall

2+0

Late spring

Fungicides such as chlorothalonil may be applied during the infection period. Applications should be frequent if rainfall is heavy, especially when seedlings are growing rapidly.

If the disease is controlled by fungicides, or if the diseased seedlings are removed from the nursery, the disease is not carried over from one seedling crop to the next. Thus each new disease outbreak must originate from inoculum overwin-

Selected references

- Smith, R.S., Jr.; Nicholls, T.H. 1989. *Sirococcus* shoot blight. In: Cordell, C.E.; Anderson, R.L.; Hoffard, W.H.; Landis, T.D.; Smith, R.S., Jr.; Toko, H.V., tech. coords. Forest nursery pests. Agric. Handb. 680. Washington, DC: U.S. Department of Agriculture, Forest Service: 71-72.
- Sutherland, J.R.; Shrimpton, G.M.; Sturrock, R.N. 1989. Diseases and insects in British Columbia forest seedling nurseries. FRDA Report, ISSN 0835-0752; 065. 85 p.