SIROCOCCUS TIP BLIGHT ON BAREROOT ENGELMANN SPRUCE SEEDLINGS AT THE CLIFTY VIEW NURSERY, BONNERS FERRY, IDAHO

by

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ABSTRACT

Sirococcus strobilinus was confirmed on bareroot Engelmann spruce seedlings at the Clifty View Nursery, Bonners Ferry, Idaho for the first time during the fall of 1984. The disease caused tip and lateral branch dieback and some mortality to scattered seedlings throughout several seedbeds. Chlorothalonil treatments plus hand sanitation did not completely control the disease. Diseased seedlings should be removed from the nursery rather than discarded on the ground near seedbeds. Other fungicides which may be useful in controlling this disease are listed.

During the fall of 1984, a tip blight of 2-0 Engelmann spruce (Picea engelmanni Parry) seedlings was investigated at the Clifty View Nursery, Bonners Ferry, Idaho. The disease occurred throughout several different seedbeds with affected trees being scattered rather than grouped (figure 1).

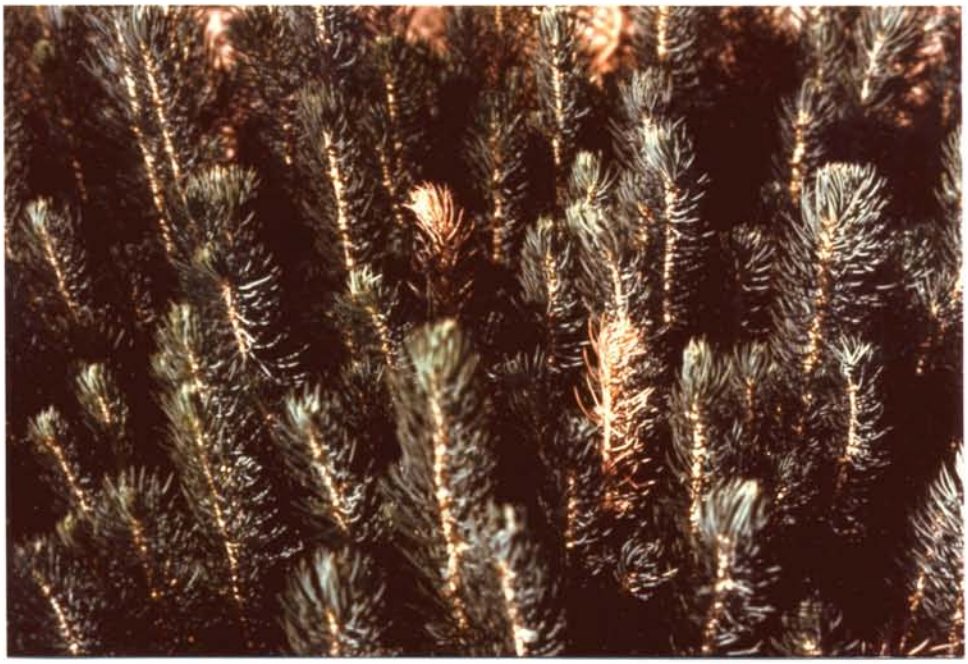

Figure 1.--Sirococcus tip blight of 2-0 Engelmann spruce seedlings at the Clify View Nursery, Bonners Ferry, Idaho. Note scattered pattern of blighted seedlings.

Necrosis was evident on the tips and lateral branches of affected seedlings. As the disease progressed, necrosis extended downward, resulting in mortality. Small black pycnidia were often located on necrotic tissues. Examination of pycnidia under magnification (100-450 X) and isolations from necrotic tissues indicated that the major associated organism was Sirococcus strobilinus Preuss. This pathogen has previously been identified as causing severe damage to 1-0

ponderosa pine (Pinus ponderosa Laws.) at the Clifty View Nursery (Schwandt 1981). The fungus has also been reported on containerized Engelmann spruce seedlings at the USDA Forest Service Nursery in Coeur d'Alene (James 1983; James and Gilligan 1985), however, this is the first report of its occurrence on bareroot spruce in Idaho.

Infection of the spruce at Clifty View may have been related to a late frost that occurred near the end of May. The frost caused damage to several lateral and terminal branch tips; damaged tips could have provided infection courts for S. strobilinus. Fungal inoculum probably initially came from infected pine seedlings or the large conifer trees that surround the nursery.

Once disease symptoms were noticed, affected spruce beds were sprayed with chlorothalonil (Bravo®), the fungicide used to control the disease in pine beds and one with proven efficacy against the pathogen (Kliejunas et al. 1983; Nicholls and Robbins 1984). To reduce inoculum, the fungicide was applied at least three times with periodic hand removal of symptomatic seedlings. Unfortunately, many of these symptomatic seedlings were not removed from the nursery, but were discarded on the ground between beds. Therefore, they probably served as secondary inoculum sources for seedling infection.

Although spruce losses from S. strobilinus were not severe, growers at Clifty View were quite concerned that the disease may increase to levels experienced in pine beds. However, properly timed fungicide treatments and removal of as many infected seedlings as possible from the nursery should help keep losses low. Other fungicides which have proven effective against this disease include tridimefon (Bayleton®), ectaconazole (Vangard®), captafol (Difolatan®), and Dithane® (Kliejunas et al. 1983; Smith 1972). Because of the nearness of large conifer trees which probably provide initial Sirococcus inoculum and the cool, wet conditions that prevail at the nursery during much of the growing season, this disease will continue to cause problems, particularly to ponderosa pine. Careful monitoring and timely control treatments should help keep losses within acceptable limits.

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