21. Scleroderris Canker

Darroll D. Skilling

Hosts

Scleroderris canker, caused by the fungus Gremmeniella abietina, affects numerous conifers. Two strains of the fungus are known in North America.

The European strain infects all pine species. Hard pines are most susceptible. Douglas-fir and most species of fir, spruce, larch, and hemlock also are infected to varying degrees.

The North American strain infects Scotch, red, and jack pines in the United States. In Canada, it also infects western white pine, lodgepole pine, white spruce, and black spruce.

Distribution

Figure 21-1 shows the distribution of the two strains of G. abietina. The European strain has been found in New York, Vermont, New Hampshire, Maine, Ontario, Quebec, New Brunswick, and Newfoundland. The North American strain has been found in the Lake States, New York, and New England. In Canada, the North American strain is widely distributed in Ontario, Quebec, and New Brunswick and has occasionally been found in British Columbia, Alberta, and Nova Scotia.

Damage

The disease can cause significant mortality to susceptible hosts in the nursery. Further, because of quarantine regulations, detection of seedlings infected with Scleroderris canker may result in curtailment of seedling shipments into uninfested areas and destruction of all nursery stock. Outplanting of pine seedlings infected with either strain may result in heavy losses in the field.

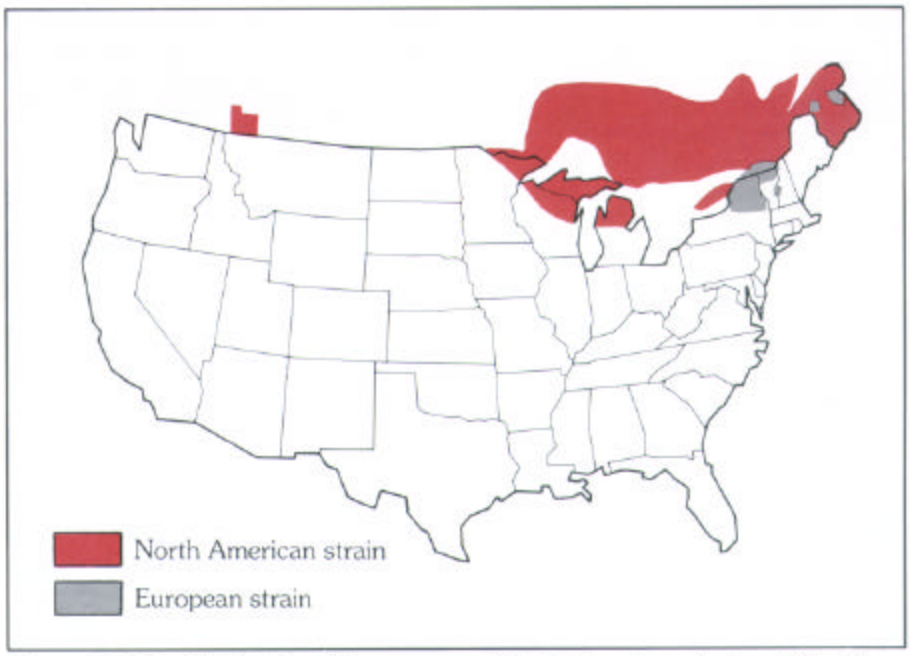

Figure 21-1—Distribution of European and North American strains of *G. abietina* in the United States and Canada.

Diagnosis

Look for an orange discoloration at the base of the infected needles (fig. 21-2). These needles are loose and can easily be removed from the seedlings even before the orange color appears. Later the entire needle turns brown. Infected buds die and, therefore, do not expand in the spring. A yellow-green discoloration is sometimes observed in the cambial zone of recently killed tissue (fig. 21-3).

Figure 21-2—Orange discoloration at base of needles infected with *G. abietina*.

Small, black pycnidia are produced at the base of infected needles (fig. 21-4). Conidia are hyaline, curved to sickle shaped, up to three-septate, 25-50 x 3-4 microns.

The strains of G. abietina cannot be distinguished by their morphological characteristics; positive identification requires a complicated serology test.

Biology

The fungus is spread by airborne or rain-splashed spores. Infection can take place throughout the entire year but occurs primarily from May to July. Infected nursery stock frequently shows no symptoms

Figure 21-3—Yellow-green discoloration beneath the bark of dead branches.

Figure 21-4—Pycnidia of *G. abietina* at base of infected needles.

until the following spring. Thus the risk of spreading the disease through nursery shipments is high.

Control

To prevent infection, apply approximately 7 to 12 sprays of chlorothalonil. Begin treatment as soon as new growth appears in the spring. Sprays should be repeated at 2-week intervals until the first of July, then at 4-week intervals until September. One or two extra sprays may be needed if rainfall is unusually heavy during early summer. The European strain may require spraying every 2 weeks until late October because of a longer spore dispersal period.

Selected References

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