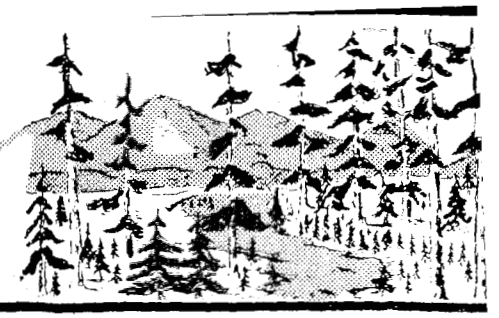
CANADA

Timber Talks



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A FOREST NURSERY PROBLEM No. 78

Nematodes are common in forest nurseries, and at least one plant parasitic form, Xiphinema bakeri, causes corky root disease of Douglas-fir seedlings. Three nurseries in coastal British Columbia were examined to determine the type and number of nematodes present, and to elucidate the association between Xiphinema bakeri and corky root disease and compare the nematode populations on diseased seedlings with those on healthy ones.

Soil samples from nursery seedbeds were processed in the laboratory and the nematodes extracted, counted, preserved and identified. In specific nursery areas, 4 month and 14 month seedlings were sampled for corky root disease and for the Xiphinema bakeri nematode. Populations of this nematode were determined on 4 month seedlings from the number removed from the intact root system after it had been immersed in water; soil cores, obtained by pushing down a soil sampling tube over the root collar of seedlings whose stems had been removed, were processed and number of nematodes per 100 g of soil calculated to evaluate populations on the older seedlings.

Nematode populations that were predominant were similar at Duncan and Green Timbers nurseries but differed from those at the younger Kosilah nursery. Included in the former were large populations of Xiphinema bakeri, but this species was not detected at Kosilah. Conspicuous seedling abnormalities were observed only in nurseries where Xiphinema bakeri was present and, in these locations, only where there was evidence of corky root disease of the Douglas-fir seedlings. Diseased seedlings were much more heavily populated with nematodes than healthy seedlings. In all nurseries, fewer parasitic nematodes were observed on western hemlock than on other tree species.

Populations of several other species of nematodes are of sufficient magnitude to adversely affect plant growth, but the association between Xiphinema bakeri and the corky root disease of Douglas-fir seedlings is the most immediate serious problem. Knowledge of the association is incomplete, but it seems evident that the disease only occurs when the population of the nematode is high. The nematode is indigenous at low levels in coastal forests of British Columbia. The population increases rapidly when forested areas are converted for seedling production and the increase can probably be attributed to the change in environment and, in some instances, to the introduction of nematode infested soil as fill for establishment of the nursery.

REPORT: Nematodes in Coastal British Columbia Forest Nurseries and the association of Xiphinema bakeri with a root disease of Douglas-fir seedlings. J. R. Sutherland and T. G. Dunn, Forest Research Laboratory, Victoria, B.C.