



Timber Talks



Department of Fisheries and Forestry

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SEEDLING DAMAGE FROM NEMATODES

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The growing of forest tree seedlings in nurseries to provide stock for future merchantable forests is an integral part of sound forest management. Maximum return from such practices can only be attained if seedling survival is high and growth optimum. Seedlings within nurseries are subject to various diseases and vigilance must be maintained to identify and control them. Some diseases emanate from infection from fungi, others from nematodes or from the combination of both causal agents. Nematodes in coastal British Columbia nurseries were identified and their association with corky root rot investigated.

Most plants are hosts for at least one species of nematode. These small, almost colorless worm-like animals may be free-living or parasites on plants or animals. They move through the soil causing such abnormalities as galls on tree roots, needle discoloration, root diseases, root growth retardation, seedling injury and sometimes mortality.

Samples of soil from Duncan, Koksilah and Green Timbers coastal nurseries, and 1- and 2-year-old seedlings growing in corky root diseased and healthy areas at Duncan and Green Timbers, were brought to the laboratory for examination.

The predominant plant parasitic nematodes were the same at Duncan and Green Timbers but different in the younger nursery at Koksilah. They were associated with seedlings of white spruce, Sitka spruce, Douglas fir and western hemlock, fewest being on the hemlock. Corky root disease was found only in the two older nurseries and where the population of a specific dagger-type nematode (Xiphinema bakeri) was high; greater numbers of this nematode were found associated with diseased 1- and 2-year-old Douglas-fir seedlings than with those that were healthy.

Many kinds of plant parasitic nematodes are common in British Columbia coastal nurseries, some being sufficiently populous to affect adversely seedling growth. The association of a specific nematode with corky root disease is important, but it is not clear whether the nematode is solely responsible for the disease or if it must interact with an identified fungus. There is evidence that the disease does not occur when the nematode is absent and that it can be controlled by a pre-planting application of a nematocide. Low populations of this nematode, which commonly occur in Douglas-fir stands, rapidly increase when the area is converted to seedling production.

Progress has been made on controlling the disease but further study is necessary, and a better understanding is required of the relationship between the host and the parasite and its interaction with other organisms.

REPORT: Xiphinema bakeri and other Nematodes in coastal British Columbia Forest Nurseries. Jack R. Sutherland and T. G. Dunn, Forest Research Laboratory, Victoria, B. C.