

THE SEARCH FOR RESISTANCE IN LODGEPOLE PINE TO COMANDRA BLISTER RUST IN THE CENTRAL INTERIOR OF BRITISH COLUMBIA

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Comandra blister rust (*Cronartium comandrae* Peck) although indigenous to North America may result in severe epidemic levels of infection on lodgepole pine (*Pinus contorta* var. *latifolia* Engelm. ex. S. Watson). Proximity to the alternate host plant, bastard toadflax [*Geocaulon lividum* (Richardson) Fern] may act as a significant confounding factor in the evaluation of resistance in field trials. Incidence and severity of comandra was assessed at age 15 in a 130 seedlot (family) progeny trial (referred to as the Chief Lake site) designed to identify families with superior growth and wood quality traits within the tree improvement program in British Columbia, Canada. The distribution of the alternate host was mapped and individual plant stems counted to evaluate the degree of local infection gradients. The incidence and severity of other pine stem rust pathogens and Elytroderma foliage and shoot disease [*Elytroderma deformans* (Weir) Darker] was assessed to evaluate the degree of cross resistance to other pathogens. The cumulative incidence of comandra was 52 percent, with cumulative family incidence ranging between 2 and 95 percent. The cumulative severity of infection was 2.37 infections per tree, and the mean family severity ranged between 0.02 and 11.95 infections per tree (a difference of over 500 times between least susceptible and most susceptible family). The results of the Chief Lake site was contrasted with a previously reported upon assessment of a different 130 seedlot (family) comandra screening trial, which was replicated on three sites. Although the previous study showed that the majority of families in that trial appeared to be highly susceptible, the set of families tested at the Chief Lake site appeared to contain a considerably higher proportion of families with low susceptibility. As a result, it may now be possible to identify a sufficient number of families from this subsequent trial to establish a comandra resistant orchard.

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