

Developing browse-resistant western redcedar

The unique wood properties of western redcedar make it one of the most valuable timber species in BC. However, as a preferred browse species for ungulates, particularly deer, the cost of protecting newly-planted seedlings is very high in many areas. With over 6 million planted annually on the coast, this is an expensive problem that both adds cost to stand establishment and reduces timber supply through delayed regeneration.

Observed differences in the preference by deer for individual trees led Dr. John Russell (MFLNRO Tree Improvement Branch) to begin research on the inherent degree to which individual trees are preferred and avoided by deer. Studies show that high monoterpene levels are the primary reason for browse avoidance. These levels vary substantially between trees and research has shown that it is a highly heritable trait (passed from parent to offspring). In addition, monoterpene levels are not correlated with growth rate. By selecting trees with high monoterpene levels, there is strong evidence that deer will shift their browsing to other plants that are more palatable. This research is currently in a field-testing phase to better understand how selection for browse resistance will impact stand establishment under normal plantation conditions.

As a result of this innovative research, the prospect for developing seed orchards which will produce operational seedlots with higher levels of browse-resistance is very promising. The seed is unlikely to stop all browsing in areas with large deer populations, but it will improve the rate at which planted trees are able to grow past the height where they are susceptible to browsing. This research is adding another tool for silviculturists to reduce costs and improve success in coastal forest operations.



Photos:

Top: Western redcedar in the Cowichan Valley (*J. Wood*)

Lower left: Mule deer (*J. Woods*)

Lower right: Deer in a fenced enclosure planted with redcedar that has varying levels of browse resistance (*J. Russell*)

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