

BC Coastal Hem-Fir Initiative – 2012/13

Project	Regional Confirmation of Short-Rotation Hem-fir Wood Attributes Related to End-Product Potential
Project Number	R.01
Project Leader	Gerry R. Middleton
Project Team	Dave Munro
Total Budget	\$75,000

Need(s)

A recently completed study of 60 –year old short rotation hem-fir on Vancouver Island suggests wood quality is different than that of old growth and of older second-growth. As harvesting in the coastal region shifts increasingly to younger aged second growth, and because differences in wood attributes have a bearing on product performance and market value, and there is a need to confirm whether or not these results obtained from three stands on Vancouver Island are more generally applicable to the coastal forest region.

Objectives & Approach

To determine if wood attributes of 60 year-old hem-fir determined from comprehensive destructive testing of tree samples from three stands on Vancouver Island can be extrapolated to similar aged stands in the coastal forest region.

This broader regional assessment of hem-fir wood attributes will be based on x-ray densitometry of breast-height (BH) increment cores. Pith-to-bark cumulative growth rates, volumes and wood density profiles will be generated and compared to those obtained in the recently completed tests. These tests showed that wood density determined from (BH) increment cores provides reliable estimates of whole stem density. Wood density is one of the most important indicators of wood quality for structural applications. A minimum of three additional hem-fir stands will be sampled in the coastal forest region with locations to be determined in consultation with industry and the BCMFLNRO.

Benefits

This study will confirm for the broader coastal hem-fir region product potential data obtained for hem-fir stands of approximately 70, 60 and 50 years of age and will give policy makers added confidence in decisions regarding rotation age. These decisions are needed to accelerate the coastal industry's transition from a dependence on unprofitable old growth hem-fir forests of declining quality to a reliance on high quality second-growth utilization that is both economically and environmentally sustainable.

Results from the recently completed study show that wood quality at younger ages is quite uniform and less affected by differences in growth rate than that of older second growth. This greater uniformity could allow more efficient methods of manufacturing and suggests that this younger aged hem-fir can be sorted for value instead of by species.

The completed study provided data that can be used to calibrate and verify computer simulations of stand management and harvest options. Specific data were collected to incorporate amabilis fir in the stand and tree growth model TASS. Regional confirmation of results will increase confidence in the more general application of these models.

The completed study showed that J grade hem-fir logs (the majority of the resource) can produce high modulus-of-elasticity (MOE) veneer for use in engineered wood applications including cross-laminated timber (CLT) which promises to open new markets in higher level multiple story buildings. In BC and world markets, building code revisions allow 6 story wood constructions. Use of J grade hem-fir for veneer has the potential for doubling the value of 50 percent of the second-growth hem-fir resource and adding up to \$12 million a year to the coastal forest sector. Broader confirmation of these results will encourage new investment.

Confirmation of technical wood properties data for second-growth hem-fir will contribute toward making amabilis and hemlock more marketable and profitable to harvest.

Project Tasks and Outputs – Current fiscal year

Tasks / Outputs	Expected Delivery Date
Determine in consultation with industry and the BCMFLNRO the most suitable locations for sampling to confirm short-rotation hem-fir wood attributes.	April 2012
Complete field sampling and obtain increment cores representative of short rotation hem-fir in at least three other stands representative of the broader coastal region.	September 2012
Complete x-ray densitometry	December 2012
Analyze results and report findings.	March 2013

Status and Major Accomplishments – Previous year

A comprehensive study of the attributes of second growth coastal hem-fir was recently completed based on sampling of three stands on Vancouver Island as described above, and a final report is in progress.

This project will provide essential broader confirmation of those results and greater confidence in their general applicability for forest management and policy decisions.

Performance Measures

Key Success Factor	Key Performance Indicator	Target	How the outcome of the Project supports the Program objectives
Obtain broader confirmation of the wood attributes of short-rotation hem-fir.	Comparable breast-height wood density values obtained for hem-fir sampled in other regions.	No statistically significant difference in wood density between regions for trees of the same age.	Industry and government have essential confirmation that wood attributes determined for short-rotation hem-fir on Vancouver Island can be extrapolated to the coastal forest region as a whole.

Communication Strategy for Information Dissemination

A report will be provided to BCMFLNRO and to FPInnovations industry supporters in the coastal forest region.

Collaboration – Research Partners

Peter Kofoed, Western Forest Products and Jim Goudie, BCMFLNRO will be consulted for advice on determining the most appropriate regions and stand types for tree sampling.