



# Results of fine tuning sweet music for sawmills

FORESTRY INNOVATION INVESTMENT

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MOUNTAIN PINE BEETLE

Researchers have found that using the right equipment at the right settings makes all the difference in processing mountain pine beetle-killed wood through the sawmill.

It's a critical issue in British Columbia, where enormous volumes of dead wood demand that mills increase the volume and speed of output right away, without suffering undue loss of value recovery. The key is to increase production speeds while reducing the costs associated with wood that is drier and more brittle, containing harder resin and increased grit content.

The researchers note that many mills processing beetle-killed wood find it difficult to maintain existing production speeds, let alone increase them.

Testing of beetle-killed wood took place at the FPInnovations-Forintek laboratory in Vancouver and at various mill sites. The research project focused on setting parameters that would help sawmills increase their production and reduce loss of equipment availability and product.

Logs were cut using circular saws with different numbers of teeth, clearances, and saw tooth materials to determine the wear on equipment, effect of misalignment and power requirements. Investigation of each parameter is presented in its own separate section of the report with recommendations included at the end.



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Forintek staff studied the performance of 0.070" thick circular blades with 30, 40, 50 and 60 teeth, at a variety of feed and blade speeds. The blades with 30 teeth performed the best, running satisfactorily at feed speeds of 650 feet per minute and with only a 0.005" side clearance - which allows for better volume recovery. Cutting accuracy was the same at blade speeds of 3,000 RPM and 3,600 RPM.

Laboratory tests using 19" circular blades with 32 teeth and a thickness of 0.075" were conducted to demonstrate the effect of equipment misalignment on cutting accuracy. Detailed results are provided in the research report.

When comparing stainless and standard circular saws, the mill tests showed a 6.3% lower total sawing

deviation for the stainless blades. Differences in rate of wear were not significant.

When assessing the power needed to cut wet and dry MPB wood, researchers again found that blades with fewer teeth (30 being optimum) required less power to cut wood without sawdust spillage and friction caused by trapped sawdust. Cutting dry wood required 9% more power than the wet material.

When wear rates for tips made of tungsten carbide, ceramics and Stellite™ were compared, it was noted that the Stellite™ tips showed the most wear and cermet the least. However, Stellite™ offers improved sawing accuracy and fewer saw changes.

The accuracy of swaged compared to hard tipped or Stellite™ band saws was measured at a commercial sawmill. After 25,000 cuts over four days, it appeared there was no clear difference between blades. The report discusses some reasons why this surprising result may have occurred.

FOR THE FULL REPORT GO TO [WWW.BCFII.CA/MPB/](http://WWW.BCFII.CA/MPB/)  
AND DOWNLOAD THE REPORT "MPB-07-017:  
IMPROVED PROCESSING EFFICIENCY OF MPB WOOD."



*Forestry Innovation Investment is a British Columbia government corporation investing in initiatives to help market BC forest products and promotes our sustainable forest practices to the world. FII's Mountain Pine Beetle Program supports the government's Mountain Pine Beetle Action Plan and its objective to maximize the economic value of mountain pine beetle wood. FII does this through marketing activities and research into new products and manufacturing processes for mountain pine beetle wood.*

For more information, go to [www.bcfii.ca](http://www.bcfii.ca) or contact

**Michael Loseth**  
Vice-President International Marketing  
(604) 685-7507

