

A warm soak and a slower pace improve quality of strands for OSB

FORESTRY INNOVATION INVESTMENT LTD.

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Uppodate
MOUNTAIN PINE BEETLE

Researchers are finding ways for oriented strandboard (OSB) manufacturers to reduce the amount of unwanted fines created when processing dry mountain pine beetle-killed trees.

The major problem in processing such dry wood for OSB is that it tends to produce more fines – small wood particles not suitable for producing good quality strandboard.

Researchers at the University of British Columbia, with support from Ainsworth and Carmanah, and under contract to Forest Innovation Investment Ltd., have investigated methods to overcome this problem by moisture conditioning, or re-hydrating, beetle-killed logs for OSB production.

The four-phase project quantifies the effects of soaking time, soaking depth, soaking temperature and soaking of split logs on re-hydration of dry dead (“grey stage”) logs and on the reduction of fines for OSB stranding. The effect of different knife speeds was also studied in the lab using a ring strander.

In Phase I of the study, researchers found that after conditioning logs for 16 hours under water at 20° C, the average sapwood moisture content was boosted to 51.2 per cent from 24.5%, which is a 19.6% improvement from the control condition – though the average heartwood moisture content did not show any significant increase. Soaking is considered



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more practical than sprinkling for log volumes required by OSB mills, and for sub-zero air temperatures during the winter.

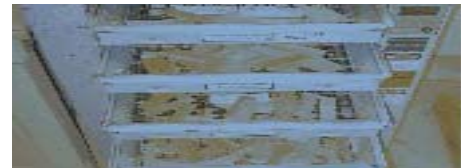
Phase II, a stranding study, used only the best results from Phase I to find the optimal conditions for reducing fines. Generally, fines from the logs were reduced by 4% when temperature was increased from 20° C to 35° C.

Phase III found that splitting the logs had no effect on increasing moisture content in the heartwood. In fact, splitting logs into smaller pieces for stranding could yield more fines since smaller logs generally yield higher amounts of fines.

Finally, researchers studied the effects of cutting speed on fines generation. Five beetle-killed logs and five green logs were soaked for six hours, on the

The largest decrease in fines occurred when knife speed was reduced by only 5m/s from the normal 40 m/s. This change in speed decreased the fines in both green pine and beetle infected logs by approximately 8%, while fines generation for the dead logs was reduced by 17.2 % when the cutting speed was reduced from 40 m/s to 25 m/s.

These results suggest there is high potential for reduced fines generation and increased strand yield through slower cutting speeds. However, an increase in strander capacity may be required to maintain mill production rates and promote higher efficiency throughout the mill.



FOR THE FULL REPORT GO TO WWW.BCFII.CA/MPB/ AND DOWNLOAD THE REPORT "MPB 2006-10: INNOVATIVE METHODS FOR MOISTURE CONDITIONING MPB LOGS FOR OSB PRODUCTION".

surface of water at 20° C. The logs were stranded with a knife with a counter angle of 40 degrees and a knife projection of 0.66 mm. Knife speeds examined were 40, 35, 30, 25 metres/second (m/s).



Forestry Innovation Investment Ltd. is a British Columbia government corporation investing in initiatives to help market BC forest products, and promote our sustainable forest practices to the world. FII's Mountain Pine Beetle Program supports 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, contact Dan Alexander, Director, MPB Program, (604) 685 7507

