Predicting the mechanical performance of Nordic softwoods using acoustic velocity

***H. Heräjärvi, J. Antikainen, P. Anttonen, and V. Möttönen**

Joensuu Unit, Finnish Forest Research Institute, Finland.

*Corresponding author: Henrik.Herajarvi@metla.fi

A number of studies have been carried out at the Finnish Forest Research Institute with a purpose of assessing the possibilities to apply acoustic velocity for predicting the stiffness or strength of Nordic softwoods (*Pinus sylvestris, Picea abies*) or selected wood products made of them. Here, we review the results, and show the potential of using these tools in strength grading of standing trees, utility poles, or chemically treated and non-treated fencing posts. The sound velocity in the butt sections of standing trees somehow characterize the strength grade of boards sawn from the butt logs. Sound velocity reading for the entire length of 8-15 m long *P. sylvestris* made utility poles is not a good enough predictor for the pole strength. In case of smaller fencing posts with 2-3 m length and 5-10 cm diameter, the strength can be quite reliably predicted based on acoustic velocity.

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