

ACOUSTIC TECHNOLOGY FOR FORESTRY APPLICATIONS - LATEST PRACTICAL DEVELOPMENTS

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Abstract: *Assessment of the quality of raw wood materials has become a crucial issue in the operational value chain as forestry and the wood processing industry are under increasing economic pressure to maximize the value of harvested trees. Substantial efforts have been devoted toward developing robust non-destructive evaluation (NDE) technologies capable of predicting the intrinsic wood properties of individual trees and stems and assessing forest value.*

Acoustic technology, among others, has been successfully implemented and widely used as a non-destructive technique for assessing the mechanical quality of various wood products (structural lumber, veneer, poles, pulp logs, decay detection, etc.), sample dimensions (whole trees, logs, veneer sheets, etc.), and species based on stiffness. Research has shown that a range of wood and fibre properties can be predicted even in standing trees suggesting that this technology can be used through the entire operational value chain, from timberlands through processing to finished wood products.

Results suggest successful applicability of this technology in tree breeding programs. Acoustic velocity of pulp logs is a good predictor of pulp strength for pulp and paper segregation. Acoustic velocity can be used as an indicator for changes in moisture content. Resonance log velocity can be an indicator for relative log value of pest-infested hardwood logs.