Non-destructive Evaluation of Standing Tree of *Acacia mangium* Using An Ultrasonic Method

Lina Karlinasari
Laboratorium of Wood Engineering
Department of Forest Products Technology
Faculty of Forestry, Bogor Agricultural University

ABSTRACT

Non-destructive testing (NDT) techniques method using ultrasonic wave propagation was carried out for evaluating standing trees. The objective of this study was to investigate the usefulness of an ultrasonic wave technique for evaluating wood strength and stiffness of *Acacia mangium* in standing trees on small, clear specimen shape which denotes the real wood strength. *Acacia mangium* came from Parung Panjang, West Java. Several sites based on planting years were used in this study (1993, 1994, and 1996), and the number of trees per site were ten trees selected on the basis of good and health trees criteria. It can be concluded that standing trees behave can not be yet used to predict of wood strength. There was a poor relationship between velocity of tree and small, clear specimens and MOEd of tree and MOEd and MOEs of small, clear specimens. However, close correlations were found between MOEd and MOEs small, clear specimen and MOEd and MOR small, clear wood specimen. Therefore, MOEd small, clear wood specimen using ultrasonic wave propagation is useful as a NDE for predicting MOEs and MOR small, clear wood specimen.

Keywords: Non-destructive testing (NDT), ultrasonic wave propagation, *Acacia mangium*, velocity, modulus of elasticity (MOE), modulus of rupture (MOR)