ABSTRACT

CHOIRIDA EMA WARDASANTI. Tree Volume Estimation for Pinus (*Pinus merkusii* Jungh et de Vriese) at Gunung Walat Educational Forest Sukabumi, Jawa Barat. **Supervised by Ir. Ahmad Hadjib, MS dan Ir. Muhdin, M.Sc.**

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Forest management need information about standing stock that could be produced to meet a demand of wood. Tree volume estimation using tree volume table is a common way to describe the relation between tree volume and its estimation variables (tree diameters or heights).

Tree volume table is made from volume models are arranged by regression models. The best of regression models which usually it should be choosen from regression model which it should be tried to data used. Berkhout model \( V = aD^b \) (where: \( V \) = volume ; \( D \) = diameter breast height ; \( a, b \) = constanta), is a simple volume tree estimator because only use single variable which is tree diameter breast height (dbh). Berkhout model is a non linear model which usually it should be transformed to linear model using logarithmic transformation to find regression constanta.

This researchs aims are: (1) to find better accuracy for tree volume estimation using Berkhout model, by transformation or without transformation; and (2) to find the best tree volume model for Pinus at Gunung Walat Educational Forest.

Data used in this research give that Berkhout model by transformation to linear model \( (V = 0.0001259D^{2.5400}) \) has a better accuracy than Berkhout model without transformation. The best tree volume estimator of Pinus in Gunung Walat Educational Forest is Modified Geometric Fit which expressed by the equation \( V = 10.3265 \times e^{(1.9928-0.0339D)}. \)

**Keyword:** volume table, berkhout model, pinus, gunung walat