

NON-DESTRUCTIVE INDICES TO ESTIMATE BIOMASS
OF MICHELIA CHAMPACA L. (SAPU) SEEDLINGS

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Use of indirect methods of estimating biomass is important for cost reduction and in increasing efficiency of experiments. This is especially so, with longlived species and with species which are difficult to regenerate.

We attempted to develop an index to predict biomass, based on non-destructive parameters, of 10-month old Michelia champaca L. (MAGNOLIACEAE) seedlings. Root weight (g) and shoot weight (g) of seedlings were regressed on collar diameter (mm) and plant height (cm). Linear regression techniques were used to generate models and the best were selected using adjusted R^2 , residual plots and Durbin-Watson statistic.

Root biomass could not be predicted well with either collar diameter or with plant height. Shoot biomass could be predicted well with collar diameter but not with plant height. We also tried seedling volume index (Hatchell et al., 1985) on normal and log-log basis, square root and log transformations. But these were inferior to first order quadratic model based on the collar diameter. The best index we found was, Shoot wt (g) = $0.089 CD^2$ (mm) - $0.132 CD$ (mm) (Adj $R^2 = 0.992$)

Reference

Hatchell, G.E., Berry, C.R. & Muse, H.D. (1985). Nondestructive Indices Related to Aboveground Biomass of Young Loblolly and Sand Pines on Ectomycorrhizal and Fertilizer Plots. Forest Science 31 (2): 419 - 427

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