

SITE QUALITY ASSESSMENT AND YIELD MODELS FOR *TECTONA GRANDIS* (LINN. F.) STANDS IN IBADAN METROPOLIS



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ABSTRACT

The study involved site quality assessment and development of yield models for *Tectona grandis* in Ibadan metropolis. Five stands of *Tectona grandis* selected for this study were located at University of Ibadan Second Gate (UISG), International School Ibadan (ISI), Agodi garden (AG), Oke Baba-agba (OKBA) and Obegimo (OBGM). Twenty seven temporary sample plots of size 25m×25m were proportionally allocated to the five stands with respect to their land areas; and the sample plots were randomly located within each stand. Ten plots in UISG, 2 plots in ISI, 5 plots each, in AG, OKBA and OBGM respectively. Measurement of tree growth variables (diameters at breast height, base, middle and top, crown diameter and length, total height, merchantable height and stem quality) of all the trees in each of the plots in the study area were taken. Ages of the five stands were noted. For the purpose of site quality estimation, seven largest trees were chosen from each of the plots as the dominant trees per plots. The measured variables were processed and used to compute basal areas and stem volume of trees at individual tree and whole-stand levels. The dominant height-age data set were used to construct site index equation. This was used to estimate site index values for each of the plots. In addition, volume computed from all the trees within each sample plot was used to construct yield models at individual tree and whole-stand levels. The site index equation obtained for site quality assessment in this study was:

$$SI = \text{Exp} \left[\ln H_d + 7.48 \left(A^{-1} - (.04) \right) \right]$$

The most suitable individual tree yield model found was $Ln SV = 1.59 + 0.02A + 1.05 \ln BA$ while the most suitable whole-stand yield model was $\ln SV = 1.83 - 11.89A^{-1} + 0.73 \ln BA + 0.07SI$.