

ESTIMATION OF STANDING TREE VOLUME OF *Gmelina arborea* Roxb.

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Gmelina arborea is a native species to Sri Lanka. It is identified as a multipurpose tree with the variety of uses mainly timber and medicinal products. It has a potential to establish in homegardens as well as plantations in the intermediate and dry zone areas. Estimation of standing timber volume of *G. arborea* was conducted at Kurunagala, Puttalam and Matale Districts. Spiegel Relaskop was used to measure the upper diameter at 3 m intervals. Diameter tape and Clinometer were used to measure the diameter at breast height (dbh) and tree height (ht), respectively. A number of non-linear models were used to identify the best-fitted model for volume estimation using STATISTICA software. Coefficient of determination (R^2) and residual plots were used to identify the appropriate model.

The standing tree volume of *G. arborea* can be estimated with 3 - 5 % error with the following equation, which is useful in accurate estimation of standing timber volume of *G. arborea*.

$$v = \left[0.012032 - \frac{-1.13807}{dbh^2} \right] \times \exp \left[-5.16009 + 1.722326 \times \ln(dbh) + 0.992644 \times \ln(ht) \right]$$



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