

The need to develop instruments to capture the realistic stumpage volume and influence loggers to improve on their logging efficiency has been a topic of interest in recent times. This study assessed the logging efficiency in Ghana and developed allometric models to predict stumpage volume. A total of 135 trees from nine timber species were sampled from three logging sites during commercial logging operations. The average logging recovery for all sampled trees was about 75 %. The small-end diameter of the merchantable residues averaged between 31 cm and 60 cm while their length values varied from 3.0 m to 8.5 m. In general, species-specific models exhibited better predictive power than mixed-species models. Models that predicted total merchantable volume from the volume of the extracted logs had the best fits, with Furnival index values ranging from 0.590 to 1.727. Results of the models' validation indicated that mixed species models could predict merchantable volume better for relatively small trees than for big trees with merchantable volume greater than 20 m³. Keywords: sustainable forest management, logging efficiency, stumpage, allometric models