VOLUME EQUATIONS FOR SAMÁN (*SAMANEA SAMAN*) TREES GROWING ON PASTURE LANDS IN ZULIA, VENEZUELA

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Samán (*Samanea saman*), native to neotropical dry forests, is one of the most important Venezuelan timber tree species. At Zulia state, most dry forests have been cleared, and lands devoted to cattle production. However, samán trees were spared because of their wide crowns and comestible seeds that provide shade and food for cattle. Optimal ecological conditions and seed dispersal by cattle have regenerated natural stands used by farmers for wood production and pastures. In these stands, samán trees develop large crowns supported by thick stems and branches (diameter > 1 m) suitable for sawn timber. The objective of this work was to develop equations for estimating raw and merchantable volume (stem + branches) from individual standing trees using as predictor variables diameter at breast height (dbh), total height, number of merchantable branches, and crown dimensions. Seventy trees were destructively sampled from harvested stands. Dbh categories, 10 cm width, were considered as strata for sampling. Fifty six trees were used to fit 68 linear and non-linear regression models with volume over and under bark as dependent variables. The remaining 14 trees were used for validation. The criteria for screening the best models were the adjusted R^2, Furnival index, and residual analysis. Selected models were validated using a fit index. Results showed that models including dbh, total height, and number of merchantable branches are the best for predicting the volume of standing trees.