Stem volume Models and Validation for *Cryptomeria japonica* in Jeju Island, Korea

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This study was carried out to fit different volume equations for *Cryptomeria japonica* trees in Jeju Experimental Forests, Jeju Island, Korea. A total of 120 *Cryptomeria japonica* trees were measured and were randomly split into two dataset One is for initial model development (80% of the dataset) and the other is for model validation (20% of the dataset). The two dataset were then combined for the final model development. Coefficient of determination (R^2), root mean square error (RMSE), mean difference (MD), absolute mean difference (AMD) were used as evaluation statistics to evaluate the performance of the different models. Results showed that volume models with two independent variables (DBH and total height) had a better performance as compared to models with only one (DBH). The result of model evaluation and validation showed that model 6 ($V=aD^bH^c$) was considered best based on the rank analysis among the candidate models. It is hope that the result of this study could help forests managers to easily predict the total volume of *Cryptomeria japonica* which is important in Carbon stock assessment of the different *Cryptomeria japonica* forests in Jeju Island, Korea.