Forest Growth simulator for Jari Tropical Rainforest, Brazil[(1)]

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Abstract — This study aimed to develop and validate a growth and yield simulator using a distance-independent tree model for the forests of Jari Florestal S.A. forests, incorporating the productive capacity of the site as a prediction attribute. The data came from an experimental area belonging to Jari Florestal S.A., under monitoring since 1983 of Embrapa Amazônia Oriental, with 8 distributed measurements in 32 years of monitoring plots. The experiment has 12 treatments plus a control treatment, distributed in 40 plots, 13 of those intended to validate the proposed model. All trees with DBH ≥ 5 cm were used to compose the mixed effect models describing the diametric growth, mortality and recruitment. The species were separated into ecological, economic and growth rate groups, accounting for 13 species groups and 32 subgroups by combining all 3 categories. Were tested 9 variables as site productivity indicative of composing the simulation submodels. The simulator was implemented in Simile visual modeling software, and its scenarios were submitted to 5 statistical tests to validate the results. The proposed simulator presents reasonable results and good accuracy, providing significant results in the simulation of all management regimes in the experiment.

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