

Estimates of genetic gains in *pinus maximinoi* growth traits

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Forests are sources of vital raw material to develop technologies and products that are essential for human societies. In Brazil, native forests have become insufficient to provide the necessary timber due to both economic and environmental restrictions. Therefore, wood raw material has to be sourced from planted forests managed under intensive silvicultural systems. *Pinus maximinoii* is a Central American pine species of great potential for intensive silviculture in Brazil. It produces good quality wood and shows great growth potential in many parts of the world. However, in Brazil, *P. maximinoi* has been planted only in experimental scale and seed for commercial plantings is practically non-existent. This research was carried out as the basis for the estimation of genetic parameters and potential genetic gains in quantitative traits. A combined provenance and progeny trial was established in 1988 in Ventania municipality (Florestal Vale do Corisco Company), state of Paraná, Brazil. The experiment was established in a randomized complete block design with nine replications of six-tree line plots. Treatments were made up of 79 open pollinated families from nine Mexican, Guatemalan, and Honduran provenances. Seed from a local source (Ventania, Brazil) was used as control. The experiment was planted in a 3 m x 3 m spacing. Height and diameter (dbh) measurements taken at five years after planting were used to estimate individual tree volumes. Deviance analyses were performed to estimate genetic parameters and expected gains through selection. Significant variances among provenances, progenies, and individual plants were observed in growth traits. Higher levels of genetic variation were found within progenies. Estimates of individual heritabilities were moderate. Thus, individual tree selection is seen as the best strategy to ensure genetic gains in wood volume growth in subsequent generations.