Genetic parameters of Pinus caribaea var. bahamensis in an open-pollinated orchard in the municipality of Assisi, São Paulo

T3.34 Tree improvement delivery system: breeding, selection, and seed and seedling production

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Abstract: Tropical species such as P. caribaea var. bahamensis have relevance for the productivity of the country in tropical regions due to its adaptability to climatic conditions. This work proposed the characterization of the heritability and genetic gain of a test of provenance and open pollination progeny of P. caribaea var. bahamensis with the purpose of selecting the most productive progenies in wood production for future breeding programs. The test was implemented in March 1988 in the Assis State Forest (22º35'S and 50º22'W), in a randomized complete block design, with 72 progenies, one plant per plot, and 28 repetitions with 6 x 6 m spacing. The Selegen - REML/BLUP program was used for statistical analysis. Among the silvicultural characters analyzed for average heritability we highlight the wood volume and the diameter breast height (DBH), presenting indexes of 0.75 and 0.64, respectively. The genetic gain for wood varied from 0.79% to 28.48% and genetic diversity ranged from 0.01% to 1%. The number of individuals ranged from 14 to 986 plants, in four selection methods with 6 intensities. Heritability values for volume and DBH showed a strong indication of genetic gain. The selection proposal that showed the best genetic gain is the individual selection (28.48%) with the selection intensity of 2% and the number of selected individuals is 22 plants. The proposal that showed the best genetic diversity was the selection within progeny (ranging from 0.98 to 1.00), with a number of individuals ranging in selection from 72 to 986 plants. The selection methods mentioned are satisfactory because they demonstrate possible genetic gains and help in the choice of material for genetic improvement programs for wood production.