

PARENT-PROGENY GROWTH CORRELATIONS IN WHITE SPRUCE

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Seedlings of 28 white spruce half-sib families (seed from open-pollinated parents growing at various locations in the Upper Peninsula of Michigan, northern Wisconsin, and northern Minnesota) were measured for current annual growth and total height at age four. Both variables were significantly, positively correlated with parent average yearly growth ($r = 0.80$ and 0.81 , respectively). Current annual growth in 1967 and average progeny height were highly positively correlated with a correlation coefficient of 0.98 . The data, in conjunction with data presented by other researchers, indicate the general feasibility of phenotypic selection in white spruce. When the progenies from the 11 parents of similar age (36 to 42 years old) were compared, those from the five fastest growing parents were growing at a yearly rate in 1967 nearly 25% better-than-average for their age group. If the yearly growth of the progenies from the five fastest growing parents is maintained to rotation age, then this increase in total height would represent a greater than 21% increase in merchantable volume. Considerable cost in the selection of parent trees can be justified if only a fraction of this increase is achieved.

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