THE ROLE OF INTERSPECIFIC HYBRIDIZATION IN FOREST TREE BREEDING

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The role of interspecific hybridization in forest tree breeding remains to be specified. A seemingly infinite array of genotypes may be accessible although the probability of extracting specific genotypes ranges from 0 to 1 depending on gene content, gene action, and germ-plasm architecture of the species combined, The probability of efficiently developing improved forest trees by interspecific hybridization in specific cases follows a similar range. Unfortunately, some prior knowledge of crossability and usually of progeny performance is necessary before breeders can confidently adopt or reject the method. So far, tree breeders have been accumulating such knowledge in what might be called exploratory studies.

With a few exceptions, exploratory studies suggest that interspecific hybridization should have generally secondary emphasis in forest tree breeding. When studies reveal extraordinary hybrid performance or performance plateaus are achieved through other breeding approaches, interspecific hybridization may become a more efficient breeding approach.

Exploration of interspecific hybridization should be continued. The topics of crossability and reproductive biology of crossing are yet to be comprehensively treated in any genus. At least two additional topics require our attention. Simulation studies of costs and benefits will clarify our views on the role of interspecific hybridization as a breeding method. Detailed examination of genotypic arrays present in F_1 and especially in advanced generation progenies will provide a prerequisite genetic foundation for understanding and predicting crossing results.

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