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Development of *Pinus merkusii* Stecklings

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Abstract

Pinus merkusii is a tropical pine of Southeast Asia. It occurs naturally in Myanmar, Thailand, Laos, Cambodia, Vietnam, Indonesia and the Philippines. In Indonesia, it has become the second most extensively planted species after teak (*Tectona grandis*) covering a total area more than a half million hectares. A program for genetic improvement of stem form and growth of *P. merkusii* was initiated in 1977. Open pollinated seedling seed orchards (SSOs) have been established from progeny tests, which was established during the first generation breeding strategy. Work is continuing on further improvement of the existing breeding populations to give even greater economic returns. Nowadays, improved seeds are routinely produced from these orchards. It has been observed that seed yields vary according to the parent trees ranging from low to high. In order to optimize the genetic gains, parents with low seed yields but produce the best progeny have to be multiplied as stecklings. On the other hand, genetically improved seedlots of *P. merkusii* cannot be stored longer than a year. Attempts need to be done to develop alternative methods of planting stock production. Steckling or rooted cutting techniques as well as establishment technique of “hedged”; seedling stocks for *P. merkusii* have been a central focus in this development. The use of stecklings is expected to be complimentary with the conventional production through seeds. A series of experiment was carried out in order to determine factors affecting rooting ability of cutting and coppicing ability of “hedged”; seedling. Rooting ability was influenced by IBA hormone application (dosage and mode of application), rooting media, age of seedling stock, as well as branch cluster order, while coppicing ability was only affected by hedging distance. Based on the results of this experiment, a protocol for production of *P. merkusii* stecklings was developed and was subsequently tested on operational scale.

Keywords: Breeding strategy, *Pinus merkusii*, seedling seed orchard, seeds, steckling, rooted cutting