

Abstract

This project aimed to evaluate site potential, status of pine in terms of wood demand and supply, as well as its utilization pattern at Wat Chan Royal Project Foundation. Moreover, we also studied the probability of introducing exotic pines for forest extension compared to those indigenous pines. As a result, we set up species/provenance trials for pine, monitoring indigenous pine growth and health, as well as natural regeneration. In addition, wood and resin properties were studied. Here we reported the 3rd year results of the study.

Provenance trails of five pine species at 1-year-old showed that survival rate and growth rate of all exotic pines were greater than those of indigenous pines, of which growth of *Pinus oocarpa* and *P. tecunumanii* were higher than *P. caribaea*. Growth rate of *P. merkusii* was lowest among all pines species owing to its grass stage.

Concerning to the natural regeneration of *P. merkusii* stand, the result revealed that tree density of high density plots increased, while sapling and seedling density decreased (1.34, 48.58 and 465.28 trees per rai respectively). Low density plots showed average tree density decreased, but sapling and seedling density decreased (3.34, 9 and 204.05 trees per rai respectively). Growth rate of *P. caribaea* left after thinning were monitored for the rest of the project period. The tree diameter growth was 1.005%, 0.783%, 0.465%, 0.682% and 0.223% increases for A1, A2, B1, B2 and control respectively. The tree height growth was 4.309%, 0.136%, 2.318%, 6.010% and 1.789% increases for A1, A2, B1, B2 and control respectively. However, these changes were not significantly different between thinned and unthinned stands.

Basic information for plantation extension showed that most of the land was dominated by Pine-Dipterocarp forests (*Dipterocarpus tuberculatus*). Tree density was not too high, hence enrichment planting of exotic pine (*P. caribaea*) can be implemented. Enrichment planting (30 tree per rai) by using exotic pine (*P. caribaea*) was implemented for 15 rai. One-month survival rate of seedling was 100%.

Caribbean Pine (*P. caribaea*) trees that were at least 10 years old were cut to create prototype office equipment product designed as a mobile phone stand and key holder. A draft of prototype product development manual including general information of materials, chemical properties, anatomical properties, and physical properties of caribbean

pine was accomplished. In addition, pine resin from caribbaen tree was collected by bark chipping method. A draft of the resin collection manual including resin yield, pine tree selection, physical properties of pine resin, and utilization method of each product were prepared.

