

## Performance of Casuarina Hybrid (*C. junghuniana* x *C. equisetifolia*) as the Fast Growing Tree for Bio-energy in Saline Soil

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### Abstract

The growth performance in term of biomass of *Casuarina* hybrid (*C. junghuniana* x *C. equisetifolia*) and other fast growing species (14 species in total) planted in saline soil with influence of tidal current of sea water was evaluated at Samutsakorn province, Thailand. Soil salinity of this site was measured in terms of the Electrical Conductivity (EC) which was observed to be moderate in salinity level (EC = 4.2-4.4 mS/cm). The trial was planted in Randomized Complete Block Design (RCBD). As the site was low-wet land, ridging as a soil preparation was done before planting. Harvesting was done during December 2013, when the trees reached 2 years old. After 2 years of planting, *Melaleuca leucadendron* presented the highest survival rate 100 %, followed *Acacia ampliceps* at 97.78%, while *Acacia difcilis* and *Acacia torulosa* could not survive in this type of soil. In term of growth as dbh, *Acacia ampliceps* and *Casuarina* hybrid showed significantly higher value than the others with 8.41 and 8.33 cm respectively. With reference to total height, *Casuarina* hybrid showed obviously the highest value with 7.9 m height, followed by *Eucalyptus camaldulensis* with 6.3 m height. Regarding the biomass yield performance, *Casuarina* hybrid provided the highest stem, leaves and total biomass which were 34.39, 21.05 and 66.72 ton/ha, respectively followed by *Acacia ampliceps* with 21.68, 10.57, and 52.63 ton/ha for stem, leaves and total biomass respectively. Results of this study indicated that *Casuarina* hybrid and *Acacia ampliceps* are two potential fast growing species in saline soil for energy plantations.