

**EFFECT ON DIFFERENT RATES OF AGROBLEN FERTILIZER IN
GROWTH RATE OF SEEDLINGS *Neolamarckia cadamba*
AT NURSERY LEVEL**

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ABSTRACT

Neolamarckia cadamba or in native name known as Laran tree is one of the species that being selected for the development in forest plantation industry. Fertilizer rates used are one of the factor that influence the growth of Laran seedlings at the nursery level. Therefore, it is important to choose the right fertilizer rates in order to produce a good quality seedlings. The main objective of this study is to examine the growth performance and root development of Laran seedlings under different rates of fertilizer. Besides that, this study also conducted to determine an economic cost for the preparation of fertilizer rates quantity applied to the seedlings with a good growth rate performance. This study was conducted in Forestry Complex Nursery, Faculty of Science and Natural Resources (FSSA), Universiti Malaysia Sabah (UMS) for three months. In this study, there are four different rates of Agroblen fertilizer had been used with amount of 0 kg/m³, 8 kg/m³, 12 kg/m³ and 16 kg/m³. Experimental design used to conduct the study is Completely Randomized Design (CRD). Survival rate percentage for all treatment is 100 % except T2 treatment which is 91.67%. Analysis of ANOVA found that there are significant difference ($p < 0.05$) between Agroblen fertilizer rates against the height, collar diameter, number of leaves and leaf area which is T4 (16 kg/m³ Agroblen fertilizer) gives the highest average for the four parameters used compared to other treatments by reading the height of 48.45 cm, collar diameter of 8 mm, number of leaves 12, and leaf area 43095.00 mm. Whereas for the root density plug score and root shoot ratio shows T4 treatment (16 kg/m³ Agroblen fertilizer) and T3 (12 kg/m³ Agroblen fertilizer) both are the highest among the others with score of 4 and ratio of 1:3.1. Correlation analysis shown that there is very strong positive relationship between the shoot and root development. In term of cost preparation, the most economic cost accordance with a good growth rate performance of Laran seedlings at nursery level is from T3 treatment which is 12 kg/m³ Agroblen fertilizer because it shows the cost preparation needed for T3 is RM 22.81 while for the treatment T4 is RM 30.02. In conclusion in this study, the quantity of 16 kg/m³ Agroblen fertilizer shown the highest growth performance however, by using quantity of 12 kg/m³ because the growth performance of T3 (12 kg/m³ Agroblen fertilizer is more economical Agroblen fertilizer) treatment showed there are very low in difference if compared to the T4 (16 kg/m³ Agroblen fertilizer) treatment in the nursery level.