Performance of Four Important Timber Species Grown on Acid Soils in Ghana

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ABSTRACT

This study was conducted with three soil types obtained from Ankasa (Ankasa series) with a pH range of 4.0-4.5, Boiso (Boi series) with a pH of about 4.5-5.0 and Tafo (Wacri series) with a pH of about 5.5-7.0. Seedlings of four different timber species were obtained from the Forest Research Institute of Ghana (FORIO), Kumasi. One hundred and ninety two seedlings of the four timber species *(Nauclea diderrichii, Khaya ivorensis, Terminalia superba* and *Triplochiton scleroxylon)* were placed in 35x25cm polyethylene bags. One-third of the bags were for each soil type and 48 seedlings, with 12 for each plant species were sampled each month i.e. four replicates for each species each month. The experimental design used was Split-Plot Design with the soils assigned to the main- plot and plants assigned to the sub-plots. Sampling was done monthly and on each occasion the following measurements were taken(i) seedling height (from soil surface to tip of terminal bud); (ii) number of leaves; (iii) leaf area using graph sheet; (iv) stem diameter measured at half seedling height with vernier calipers; (v) leaf area ratio; (vi) relative growth rate and (vii) dry weight. The general trend was that *Triplochiton scleroxylon* grew best in Wacri soil while *Nauclea diderrichii* did well in Boi soil. *Triplochiton scleroxylon* performed better than all the other plants in all the soils. It also performed well with respect to dry weight, number of leaves, leaf area and shoot height. *Terminalia superba* was the next best plant, doing well in shoot height, number of leaves, dry weight and having the lowest leaf area ratio. *Khaya ivorensis* performed poorly with respect to all the parameters except number of leaves and leaf area ratio. With respect to stem diameter all the plants performed equally. Boi and Wacri soils were better for timber seedling growth than Ankasa soil. It was concluded the timber species used in the study generally do well in Boi and Wacri soils than Ankasa and the plant that grows best in these soils is *Triplochiton scleroxylon* followed by *Terminalia superba* hence these plants were recommended for afforestation and reforestation programmes in areas where these soils are found in Ghana.

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