

ASSESSMENT OF PLANT SPECIES FOR REVEGETATION OF ABANDONED QUARRY SITE IN SOUTHEAST NIGERIA

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ABSTRACT

A randomized complete block design with six replicates was used to assess plant species for revegetation of abandoned quarry site in Southeast Nigeria using leguminous cover crops and fertilizer applications. Tree species used were *Adenanthera pavonina*, *Gmelina arborea*, and *Acacia auriculiformis*. The leguminous cover crops were *Mucuna utilis*, *Stylosanthes gracilis* and *Centrosema pavonina* and fertilizer applications were 100 NPK, 200 NPK and 300 NPK. *Acacia auriculiformis* had significantly the highest plant height, canopy sectional area and canopy cover irrespective of fertilizer application and leguminous cover crops. *Gmelina arborea* had significantly the highest stem girth and basal area irrespective of the fertilizer applications and leguminous cover crops. *Adenanthera pavonina* had the least result of the above parameters. In plant height, the best fertilizer application and leguminous cover crops for *Acacia auriculiformis* were 300 NPK and *Stylosanthes gracilis* respectively. For *Gmelina arborea*, 100 NPK and *Stylosanthes gracilis* were the best fertilizer application and leguminous cover crop respectively. In terms of canopy sectional area, *Acacia auriculiformis* and *Gmelina arborea* gave significantly the highest and the least respectively, irrespective of the fertilizer application and leguminous cover crops. In terms of canopy cover, *Acacia auriculiformis* had significantly the highest. 300 NPK fertilizer applications in *Acacia auriculiformis* gave significantly the highest canopy cover, followed by *Stylosanthes gracilis* and *Centrosema pubescens*. The least was *Gmelina arborea* both in fertilizer application and leguminous cover crops. *Adenanthera pavonina* was the least in all the parameters except in canopy sectional area and canopy cover irrespective of the fertilizer applications and leguminous cover crops. There is a significant difference between the plant height and stem girth, canopy sectional area, basal area, canopy cover, and Potassium. Increase in plant height significantly increase stem girth, canopy sectional area, basal area, canopy cover, and potassium. There is a significant difference between the stem girth and canopy sectional area (CSA), basal area (BA), canopy cover (CC), and Potassium (K). Increase in stem girth significantly increases the CSA, BA, CC and K. This study recommends the use of *A. auriculiformis* trees for rehabilitating and restoring quarried sites

KEYWORDS: Assessment, Plant Species, Revegetation, Quarry Site

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