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## GE08

# The Study of Soil-roots Strength Performance of Soil Slope by using Guinea Grass

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**Abstract.** Vegetation has been proven for establishing and implementing resistive measures against erosion and failure of slopes, river banks, removal of air pollution and reduced storm water runoff. Installation of cover crop involved soil element usage as growth medium which create several interaction between both strands. This study was carried out to investigate the soil strength performance by using Guinea grass at different planting period up to three months. Grass was planted in a 300 mm x 300 mm x 700 mm test plot with a suitable soil medium. Direct shear tests were conducted for each plot to determine the soil shear strength according to different planting period. Some basic Geotechnical testing was also carried out. The results showed there is an increment in shear strength for soil sample over the time at various depths. During period of 1st, 2nd and 3rd month, the average shear stress of 100 mm depth was 50.56kPa, 63.96kPa, and 96.59kPa respectively. Meanwhile, for 200 mm depth the result was 40.843kPa, 53.91kPa and 62.93kPa respectively. Lastly, on 300 mm depth, shear stress was 37.21kPa, 51.09kPa, and 59.27kPa respectively. Based on the result, the higher shear strength was obtained at different planting period and at varying depths. From the observation, roots mass increased for different planting period. In terms of tensile strength, the diameter of the root affects the rate of resistance against the tensile forces. This indicated that the roots structure growth affects the soil shear strength.

**Keywords.** *Shear Strength, Tensile Strength, Root Mass, Guinea Grass, Soil-Roots Interaction*

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