

# **Prediction of Sediment Yield in Runoff from Agricultural Land in the Southern Guinea Savanna Zone of Nigeria**

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## **Abstract**

*Records on 111 natural rainfall events covering 2 years (2001 and 2003) were used to estimate the sediment yield in runoff from a bare surface Alfisol, and a similar soil under straw mulch and natural grass in the southern Guinea savanna zone of Nigeria. Measurements of runoff amount and sediment load were made for the months of May–September of each year. The mean monthly runoff amount for the straw mulch, grass and the bare plots were 21.5 mm, 50.3 mm and 64.1 mm, respectively. The mean sediment load from the straw mulch and grass plots were 0.23 t/ha and 0.5 t/ha, respectively. The corresponding monthly mean sediment yield of 1.64 t/ha from the bare plot was 2.8 and 7.5 times greater than the grass and straw mulch plot, respectively, indicating the effectiveness of the latter in reducing splash erosion. The sediment yield was regressed on the runoff depth and the rainfall amount to obtain linear relation that can be used to predict sediment yield on Alfisols under bare farm land environment.*