

INFLUENCE OF *JATROPHA CURCAS* L. AND ACCURACY OF PREDICTION MODELS ON THE INFILTRATION CHARACTERISTICS OF AN ALFISOL AT SAMARU, NIGERIA.

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Abstract

*The research was conducted at Northern Guinea Savannah ecology of Nigeria in order to achieve two aims, one was to evaluate the effect of *Jatropha curcas* L. cultivation on soil infiltration, and the second was to determine the efficiency of Kostiakov's and Philip's soil infiltration models. To attain the aims field infiltration studies and soil samples were evaluated from five adjacent land use systems; Arable Land (AL), Fallow Land (FL), One *Jatropha curcas* L. Land (OL), Two Years *Jatropha curcas* L. Land (TL) and Three years *Jatropha curcas* L. Land (RL). From the result, soil nitrogen and infiltration rate were higher in RL and significantly increased within the three years of *Jatropha curcas* L. plantation. When averaged across *Jatropha curcas* L., infiltration rate was increased by 46.4% over the land under fallow (FL). Also, the model evaluation result showed Kostiakov's model was more efficient and an excellent predictor of infiltration over Philip's model. This was manifested as Kostiakov's model gave value closed to unity for coefficient of determination- r^2 (0.97), Nash-Sutcliffe Efficiency-E (0.94) and lower value for Root Mean Square Error-RSME (7.6) and Coefficient of Variability-CV (6.7%).*

Keywords: *Jatropha curcas* L., Infiltration, Accuracy of prediction models

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