Geophysical Research Abstracts
Vol. 20, EGU2018-327, 2018
EGU General Assembly 2018

Predicting the Impact on Soil Organic Matter and Spread of Pathogens of Treatment of Crops in Rural Areas Nigeria with Organic Wastes

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Organic amendments, such as animal manures and composts, have commonly been used to improve agricultural production due to their value as fertilizers and their ability to improve soil fertility over the long term. Soil organic carbon and soil water are two important parameters that determine soil fertility. Application of different organic wastes, composts and digestates increases the organic carbon and water content of the soil. The RothC model was used to simulate the impact of different organic amendments on soil organic carbon and this was used to estimate changes in soil water using locally appropriate pedotransfer functions. A simple crop model was used to estimate the impact on crop production. The impact of applying differently treated and different quantities of organic wastes on the spread of key pathogens was also estimated. This allows us to make recommendations for the amount of organic wastes that should be applied to improve soil production, and the treatments needed to avoid microbial contamination of the environment.

KEYWORDS: ORGANIC AMENDMENT, SOIL FERTILITY, SOIL CARBON, SOIL WATER, RothC MODEL, PATHOGENS DEACTIVATION