EFFECTS OF BIOCHAR AND INORGANIC FERTILIZER ON FRENCH BEANS (*PHASEOLUS VULGARIS* L) PERFORMANCE IN NITISOLS

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This is my original work and it has not been submitted in any other University for award of a degree or any other award.

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Declaration by Supervisors

This research proposal has been submitted with our approval as University Supervisors.

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Abstract

Use of biochar is a proven technology in crop production; however, scarcity of information of how it is utilized commercially has led to poor recommendations to local farmers. There is little research work on utilization of biochar in this country especially as it relates to legumes. The little that has been done focuses more on maize and generally on smallholder farmers. The field is still relatively new and not well understood. The goal of this study is to determine the effects of two types of biochars: carbonized chicken manure and carbonized cow dung manure with or without Mavuno fertilizer grade 15:10:18 on the performance and the chlorophyll content of French beans (*Phaseolus vulgaris*) variety slender green from Elgon Kenya. The effects of the two types of manures on French bean will be documented for comparison. The treatments will be replicated three times and will be set on a completely randomized block design. The experiment will be conducted in an open field at Kenya Agricultural Research Institute (KARI) Thika station. The study will be conducted in 2014 long rain season and repeated during the short rains. Data will be collected on plant height, number of leaves, pod weight, leaf area, the chlorophyll content and biomass of this legume. The collected data will be analysed through the analysis of variance (ANOVA) while means will be separated using least significant difference (LSD). Biochar is known to have an ameliorating effect on various soil properties such as improvement of water holding capacity, nutrient retention and liming effect. Soil samples will be taken before planting and after harvest and will be analyzed to determine the effects of biochar on soil properties. The effects of biochar on the level of phosphorous, calcium and magnesium content of the soil and the performance and chlorophyll content of French beans will be determined and documented.
Key words: **carbonized chicken manure, carbonized cow dung manure, yield, growth parameters, French beans, Mavuno fertilizer 15:10:18 chicken manure and cow dung manure.**