SUBTHEME 1: • Agriculture: Sustainable Agro-ecological practices for climate resilience

PRE-CONFERENCE PAPERS

1. Residual effects of land preparation method and organic amendment on soil physical property, growth and yield of collards (Brassica oleracea).

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Abstract

Land preparation method and organic soil amendment is a potential practice for soil physical properties and source of plant nutrients for increased crop production in Kenya, but its residual effects have not been fully realized. Therefore, in this study collards (Brassica oleracea) was used to determine the residual effects of land preparation method and organic soil amendment since it requires high nitrogen for vegetative growth. The experiment was conducted at Meru University Demonstration Farm in split plot design with randomized complete block design (RCBD) land preparation being the main plot and nutrient management being the sub-plots. The experiment consisted of two land preparation method (conservational and conventional). The nutrient levels were 2.5t ha-1 BSF, 5.5t ha-1 BSF, 8.5t ha-1 BSF, 2.5t ha-1 BSF + Biochar, 5.5t ha-1 BSF + Biochar, 2.5t ha-1 BSF + Trichoderma 125g ha-1, 5.5t ha-1 BSF + Trichoderma 125g ha-1, 5t ha-1 FYM, 100kgN ha-1 DAP and control. Collards were planted on the plots where maize crop was harvested. Data collected was on collard stem diameter, chlorophyll index, plant height, number of leaves, collard yields per plant and soil moisture. Results showed that land preparation method had no significant residual effect on collard stem diameter and chlorophyll index. Organic soil amendment had a significant residual effects ($p<0.0001$) on vegetative growth and yield of collards with 8.5 t ha-1 BSF manure maintaining the highest values. Conservational land preparation method influenced soil moisture significantly ($p<0.05$). Organic soil amendment has a residual effect on collard production.

Keywords: *Biochar, Black soldier fly manure, Collards vegetative growth, Collards yield, Soil moisture, Trichoderma spp.*