

Effects of Palm Waste Ash Residues on Acidic Soil in Relation to Physiological Responses of Habanero Chili Pepper (*Capsicum chinense jacq.*)

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Abstract : The use of biosolids from thermal conversion of palm waste for soil fertility enhancement was tested in acidic soil of Southern Nigeria for the growing of Habanero chili pepper (*Capsicum chinense jacq.*). Soil samples from the two sites, showed pH 4.8 and 4.8 for site A and B respectively, below 5.6-6.8 optimum range and other fertility parameters indicating a low threshold for pepper growth. Nursery planting was done at different weeks to determine the optimum planting period. Ash analysis showed that it contains 26% of total K, 20% of total Ca, 0.27% of total P, and pH 11. The two sites were laid for an experiment in randomized complete block design and setup with three replications side by side. Each plot measured 3 x 2 m and a total of 15 plots for each site, four treatments, and one control. Outlined as control, 2, 4, 6 and 8 tonnes/hectare of palm waste ash, the combined average for both sites with correspondent yield after six harvests in one season are; 0, 5.8, 6, 6, 14.5 tonnes/hectare respectively to treatments. Optimum nursery survival rate was high in July; the crop yield was linear to the ash application. Site A had 6% yield higher than site B. Fruit development, weight, and total yield in relation to the control plot showed that palm waste ash is effective for soil amendment, nutrient delivery, and exchange.

Keywords : ash, palm waste, pepper, soil amendment

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