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Biochar and Food Security in Central Uganda

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Abstract : Uganda is among the poorest but fastest growing populations in the world. Its annual population growth of 3% puts additional stress through land fragmentation, agricultural intensification, and deforestation on already highly weathered tropical (Ferralsol) soils. All of these factors lead to decreased agricultural yields and consequently diminished food security. The central region of Uganda, Buganda Kingdom, is especially vulnerable in terms of food security as its high population density coupled with mismanagement of natural resources led to gradual loss of its soil and even changes in microclimate. These changes are negatively affecting livelihoods of smallholder farmers who comprise 80% of all population in Uganda. This research focuses on biochar for soil remediation in Masaka District, Uganda. If produced on a small scale from locally sourced materials, biochar can increase the quality of soil in a cost and time effective manner. To assess biochar potential, 151 smallholder farmers were interviewed on the types of crops grown, agricultural residues produced and their use, as well as on attitudes towards biochar use and its production on a small scale. The interviews were conducted in 7 sub-counties, 32 parishes, and 92 villages. The total farmland covered by the study was 606.2 kilometers. Additional information on the state of agricultural development and environmental degradation in the district was solicited from four local government officials via informal interviews. This project has been conducted in collaboration with the international agricultural research institution, Makerere University in Kampala, Uganda. The results of this research can have implications on the way farmers perceive the value of their agricultural residues and what they decide to do with them. The underlying objective is to help smallholders in degraded soils increase their agricultural yields through the use of biochar without diverting the already established uses of agricultural residues to a new soil management practice.

Keywords : agricultural residues, biochar, central Uganda, food security, soil erosion, soil remediation
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