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Are farm households willing-to-pay for organic soil amendments? the case of biochar and compost in northern Ghana

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Abstract

Organic soil amendments, particularly application of biochar and compost have been recommended as potential strategies for the adaptation and/or mitigation to climate change and weather variability in developing countries. However, the adoption of these organic soil products is extremely low, and this has necessitated researchers, development partners and policy makers' interest in understanding whether farm households in semi-arid regions are willing to pay for these agricultural inputs. Currently, the market for such inputs is at its infancy in many low-income settings, and this raises a policy relevant question on the demand for organic soil amendments. Using a contingent valuation approach, this study elicited the willingness to pay for organic soil amendments (i.e., biochar and compost) among 472 farm households in three semi-arid regions of Ghana. We found that the majority of farm households are willing to pay an amount lower than market prices for the organic soil amendments. Specifically, farm households in Northern Ghana are willing to pay an average of USD 6.43 and USD 6.06 for a 50-kilogram bag of compost and biochar, respectively. Therefore, a partial cost recovery approach would be beneficial in ensuring the demand for organic soil amendments in low-income settings. Employing the ordinary least squares (OLS) method, we also found that the correlates of the maximum willingness to pay include participation in capacity building initiatives on organic soil amendments and social protection programs, religion, education, distance to market and extension offices, risk attitudes, access to mechanisation and digital services including mobile phone, telephone masts and internet services, access to road network, and location of residence. We conclude that there is a demand for organic soil amendments albeit at a lower value than the market price, and this is influenced by socio-economic status and access to social capital, social networks, digital and physical infrastructure.

Keywords: Biochar, compost, contingent valuation, economic valuation, Ghana, organic soil amendments, willingness to pay