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Assessing the Welfare Impact of Biochar as a Soil Amendment in West African Cities

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Abstract

More and more people move to cities in the hope for a better life. While in 1960 less than 34 % of the world population lived in urban areas, today around 54 % are living in cities (World Bank 2016). The increasing population in urban areas leads to shrinking agricultural land. Furthermore, for many urban famers commercial agriculture is a major contributor to income. So if the availability of land is getting smaller, income security as well as urban food security is under threat (Prain et al. 2010). Therefore, productivity enhancing and innovative methods are needed to ensure food security and income security in urban areas and prevent poverty increase. This is where my research ties in. The Urban Food Plus Project aims at assessing the effectiveness of Biochar to increase agriculture output in inter alia Bamako (Mali) and Bamenda (Cameroon). Currently, Biochar as a soil amendment is not used in both cities. The study aims to assess the welfare implications of incorporating Biochar into soil from the perspective of urban producers. To do so an ex-ante impact evaluation using a farm household production function is estimated to systematically explain farm output. The results of these estimations are then used to simulate a world with and without Biochar in the two study areas. This is done to see whether Biochar has the ability to improve soil productivity and leads to welfare impacts for urban farmers. Furthermore, soil quality characteristics will be integrated into the regression analysis to simulate farm specific yield increase due to Biochar practice. The data collection in Bamenda took place in summer 2017, the collection in Bamako is planned for late summer 2018 using a standardised questionnaire to get insights into the current living conditions of urban farmers. The sampling is random, using GIS-based spatial sampling. Furthermore, the socio-economic data is complemented by soil data from each farm.

Keywords: Agriculture innovation, biochar, food secutity, productivity, urban agriculture, west africa

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