
Job Market Paper

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October 25, 2017

JEL Codes: O13, Q12, Q24, D83, C93

Abstract: Soil degradation, a serious environmental problem in much of Sub-Saharan Africa, often necessitates the use of fertilizers to increase soil fertility and improve crop yields. However, rural smallholders usually do not have sufficient information about their soil nutrient levels to make profit maximizing decisions about fertilizer usage. This leads to sub-optimal combinations of inputs, and frequently, further soil and environmental degradation, food insecurity and reduced ability to increase household incomes. We conducted two-round experimental auctions to test whether providing soil test information and fertilizer recommendations to farmers affected their behavior and ability to optimize their input choices. We auctioned packages of inorganic and organic inputs, dividing farmers into different soil fertility information treatments, and analyzed the data using triple difference estimation methods. We find that providing soil fertility information has significant effects on farmers’ demands for agricultural inputs: recommendations to use inorganic fertilizer increase willingness to pay by 61% compared to the baseline, while recommendations to use organic fertilizers lead to more nuanced effects that depend on the gender of the respondent. Overall, our study strongly suggests that soil information transfers can enable more effective fertilizer optimization among farmers, and can potentially be a cost-effective way to reverse localized ecological degradation and increase crop yields.

*Special thanks to David Lee, Dries Roobroeck, Janice Thies, Jura Liaukonyte, Johannes Lehmann, Edmundo Barrios, and James Otieno for valuable input and support for this research. We also thank Ray Weil and Cheryl Palm for the use of the SoilDoc soil testing system. Funding for this study was provided by the Atkinson Center for a Sustainable Future, a U.S. Borlaug Fellowship, and several grants and fellowships from Cornell University. Other major support for this research came from a USDA National Institutes for Food and Agriculture grant, from the International Institute of Tropical Agriculture, and from the World Agroforestry Centre.