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## Evaluation and Analysis of On-Farm Demonstration Trials for Small-Scale African Farmers: Yield and Economic Parameters from four Countries (Uganda, Nigeria, Ethiopia and Mali).

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### Abstract

On-farm demonstration is done through a series of practical farm demonstrations over a period of time supported by extension workers or researchers with the ultimate objective to adequately impact the new and improved technology at farm level. Additionally, on-farm demonstration has the ultimate goal of increasing crop production and can be described to be a centre pivot used in capacity building of the small-scale farmers. On-farm demonstration can also be defined to be a measure put in place to effectively reduce the risk farmer's perceive and they are designed to take new innovations out of the 'unreal' scientific realm of the research station and place them firmly within the bounds of farmer's daily experience. Dataset from on-farm demonstrations for small scale farmers was collected for three years by a non-governmental organisation Sasakawa Africa (2011 - 2013) in four countries namely Uganda, Nigeria, Ethiopia and Mali. Statistical evaluation and analysis involves managing the huge dataset by first coding of the variable names and thereafter developing linear mixed models to test the yield and economic parameters. Evaluating and analysing dataset generated in farmers' field by non-research personnel requires much competent background in statistical methods, flexibility of thought, dedication to the task and innovativeness to match standards of statistical rigor to achieve the perceived objectives at the end of the research work. The statistical evaluation and result of the dataset appear to have a particular trend whereby about 85% of the yield results from the treatments (input levels namely farmer input, half input, full input, respectively) appear to increase and grow higher as the rate of the fertiliser input and other inputs increases. However, some parts of the data could not be analysed due to presence of only single treatments as in the case of women assisted demonstrations for maize plots in Mali and Ethiopia. Nevertheless, the results from Uganda and Nigeria appeared to be very interesting and gave a very good insight into the research work and showed a distinction of the statistical evaluation for the economic parameter of the dataset. Overall results showed that a general conclusion across the four countries could not be made.

**Keywords:** Half input and full input, economic parameters, input levels, farmer treatments