



**ADOPTION OF INTEGRATED SOIL FERTILITY MANAGEMENT
TECHNOLOGY AND ITS EFFECTS ON WELFARE OF SMALLHOLDER MAIZE
AND
PIGEON PEA FARMERS IN BABATI DISTRICT-TANZANIA**

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ABSTRACT

Tanzania is among the developing country facing with impoverished soils. However, it is increasingly promoting the use of integrated soil fertility management technology (ISFM) approaches as one of the most sustainable strategies to replenish its impoverished soils (URT, 2010). In this case, this study aimed to analyse farmer adoption of ISFM and its impact on household welfare in Babati District, Tanzania. The study adopted a quasi-experiment cross-section design and used face to face interview to collect the data from a random sample of 500 maize and pigeon pea farmer households. In this study, the level of adoption were captured as a binary variable, and defined an adopter as a farmer using at least 50% of the ISFM package including at least one improved crop variety and at least one fertilizer. Likewise, probit regression model was used to quantify the determinants of adoption of ISFM whereas the impact of adoption was estimated using a propensity score matching technique. The findings from descriptive statistics show that about 49.40% of the maize and pigeon pea farmers in Babati District used ISFM technology. Furthermore, the findings from a probit regression model show that education of the household head, household size, value of livestock owned, value of household assets, farm size, extension services, agricultural training and access to credit increase farmer adoption of ISFM. However, participation in off-farm activities reduces the likelihood of adoption of ISFM. Moreover, the results from the welfare effects of adoption show that ISFM can generate sizeable gains in maize and pigeon peas yields. For instance, the yield gain of maize and pigeon pea were 32.68% and 45.60% respectively. Moreover, ISFM increases households' per capita consumption expenditure; for instance, the findings have shown that gain in purchasing power was about 32.69%. With regard to food insecurity access scale, adopters of ISFM recorded lower index of food insecurity access scale (2.92) compared to (3.31) reported by non-adopters. This calls for concerted efforts by government and private sectors to increase uptake of ISFM among smallholder farmers. This can be done through agricultural training on ISFM, technology promotion and dissemination, awareness campaigns for ISFM packages. Moreover, there is a need to increase and improve farmer access to ISFM package through providing access to affordable credit services and increase an access to ISFM technology through subsidies on agricultural inputs.