

Factors Affecting Adoption of Soil and Water Management Practices in Machakos County, Kenya.

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Abstract

Degradation of natural resources has become a global problem that threatens the livelihoods of millions of poor people. In Africa's dry land areas, inappropriate agricultural practices including stumpy adoption of Integrated Soil Fertility and Water Management (ISFWM) technologies account for 28 percent of the degraded soils resulting to low land productivity with consequent increased food and nutrition insecurity. The study was carried to establish the factors that affect smallholder farmer's adoption of ISFWM technologies. A multi-stage sampling involving a combination of purposeful, stratified, random and substitution sampling was used. Two hundred and forty eight (248) households were sampled in both sub-counties; 124 from PPATEs and 124 from Non-PPATEs. Sixty two (62) households each from LM AEZ 4 and 5, Sampling of 31 PPATE and 31 Non-PPATE households from each zone. Data collection was done by well-trained enumerators' and analyzed using SPSS software. Regression models (Tobit and logit), as well as descriptive statistics were used to analyze factors that affect smallholder famers' adoption of ISWFM technologies. The cost-effectiveness of the ISFWM structures was analyzed through Cost- Benefit Analysis (CBA). Descriptive statistics were used to compare ISFWM adoption between the PPATEs and Non-PPATEs in both sub-counties. Tobit regression results revealed that The variables Age, gender, access to agricultural extension access and agricultural credit were found to influence adoption of ISFWM technologies significantly ($P < 0.05$) whilst Education level, access to inputs, access to radio, Labor, appropriate equipment farm implements, output Market access and farmers' perception on reliability of October-November Short rain season were cited to affect adoption of ISFWM highly significantly ($P < 0.01$). The Cost-Benefit Analysis revealed that among the ISFWM structures practiced in LM AEZ 4 and 5 was Zai pit with CBR of 6.98 and 5.63 in LM AEZ 4 and 5, respectively followed by tied ridges with 5.29 in LM AEZ 4 and 5.14 in LM AEZ 5.