



Effects of agricultural intensification practices on smallholder farmers' livelihood outcomes in Kenyan hotspots of Climate Change

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Abstract

Developing countries, Kenya included are mostly affected by food shortage and poverty as a result of high dependence on agriculture constrained by climate variability, declining land sizes and low agricultural technologies. Agricultural intensification is key in solving these problems to ensure increased farm output per unit land area. This study analyzed the role of agricultural intensification on smallholders' poverty and food security status. The study is based on data collected from a sample of 320 smallholder households from two Sub-counties of Kenya, Makueni and Nyando. Principle Component Analysis (PCA) was first used to group agricultural intensification practices into clusters. The Multivariate Tobit results indicated that age of the household head, household size, and proportion of land cultivated, number of trainings, group diversity, location and level of agricultural intensification significantly influenced households' food security status during the food secured and food insecure months as well as their poverty status. The study recommended on the need for smallholder farmers to form and join many groups which promote social networks thus reduce information asymmetry and improves their bargaining and borrowing power. It also suggested on the need for policy geared towards training and extension which is generation specific that can easily be incorporated by both the old and the young farmers. Through these, there will be increase in the level of agricultural intensification used by smallholder farmers which successfully will lead to improvement of food security and reduction of poverty.

Keywords: *Food security; Climate change; Poverty; Kenya.*

Introduction

Eradication of poverty and extreme hunger are among the sustainable development goals the world has to overcome (FAO, 2015). Extreme hunger can be solved through increased agricultural production. Around 41 percent of the land on Earth is occupied by dry land and it is a home to half of the people living in

poverty (Kok *et al.*, 2016). However, it is clear that climate change is a looming challenge to the eradication of global poverty and hunger, which calls for urgent action (GoK, 2017). The extreme climate condition leads to low agricultural production forcing vulnerable farmers living in dry regions to exploit

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