

## ABSTRACT

The impact of climate variability on societies around the world is increasingly evident. Kenya is one of the most vulnerable countries and economic sectors and livelihoods are already frequently experiencing the manifestations of the problem. Households engage in adaptation strategies in order to mitigate the negative effect of climate variability. The extent to which these effects are felt depends mostly on the level of adaptation in response to climate variability. A better understanding of the local dimensions of adaptation is therefore essential to develop appropriate response measures that can mitigate these adverse consequences. The general objective of this study was to contribute to knowledge and the enhancement of smallholder farmer response mechanisms to climatic variability for sustainable livelihoods and food security in Laikipia West Sub- County Kenya. Specifically was; to identify the adaptation strategies employed by households, to analyze factors influencing the choice of adaptation strategies by households and to determine the factors influencing willingness to pay for selected crop insurance as a response to climate variability. A multi- stage sampling technique was used to obtain a sample size of 392 households. A semi-structured questionnaire was used to collect primary data. Statistical Package for Social Scientists (SPSS) and STATA software were used for data analysis. Principal component analysis, Multivariate Probit, and Double bounded dichotomous choice model were used for data analysis. According to the results 63.11% of those who were willing to pay for insurance were male, 81.15% had formal education and 66.39 were pure farmers. The mean age of those willing to pay for insurance was 53.83 with mean household size of 6 people and mean land size of 4.96 acres. 44.26% had received weather information, 69.67% received extension services, 56.56% received credit and 77.05% were members to a group. The Multivariate Probit results indicate that; Male headed households, access to weather information, access to extension services, large land size and group membership had a positive impact on responding to climate variability through different strategies. Access to credit had a negative impact on use of crop risk reduction practices while household size, distance to market, occupation of household head, age of household head and agro ecology had mixed effects on adoption of different strategies. The mean willingness to pay without covariates was KSH 55923.38 and KSH 58552.22 with covariates. Occupation of household head and group membership had a positive effect on willingness to pay for crop insurance while access to extension services had a negative effect. Therefore, the study recommends stakeholders to develop policies geared towards massive campaign on the reality of climate change and its

serious consequences on food production. This can be achieved through provision of meteorological reports and alerts to farmers in understandable forms. There is a need for investment in the provision of affordable and quality formal education, up to date, relevant demand-driven extension services that provide localized response solutions depending on the agro ecology. There is also need to invest in training about crop insurance and its importance as a response strategy.