

## **Abstract**

There is an increasing recognition of the role of climate change adaptation among farmers who depend on rain-fed agriculture in Africa. However, due to a range of factors, many farmers particularly in the rural areas have barely adopted sufficient adaptation measures and have continued to suffer losses from the inherent effects of climate variability and extremes. A study based on farming households' survey was conducted in selected sub-locations in Kitui County to gain insights on the adaptation strategies used by farmers against climate variability and extreme events and factors influencing their adoption. Purposive and cluster sampling methods were applied in identifying the sub-locations of study while proportionate and systematic sampling were used to select the households which formed the units of analysis. A total of 341 households from Yuku, Kaveta, Kauwi and Kasaini sub-locations, located in arid, semi-humid, transition from semi-arid to semi-humid and semi-arid zones respectively constituted the study's sample size. The results indicated that there was a statistically significant relationship between agro-ecological zones and adoption of building water-harvesting schemes, planting trees for shade, irrigation, use of chemical fertilizer, use of organic manure, improved crop variety, agro-forestry, integrated pest management, moving herd from one place to another, migration to urban areas and use of pesticides ( $p < 0.1$ ). Further, results of the Logistic regression analysis showed that gender, education level, farming experience and age significantly ( $p < 0.05$ ) influenced adoption of adaptation strategies to climate variability and extremes in the study areas. The study identified the need for intense agricultural extension training and climate change sensitization among farmers to ensure that feasible adaptations are promoted and factors influencing adoption of adaptation strategies addressed.