

Abstract

Climate change and variability have been identified globally as a major challenge to food security especially in Arid and Semi-Arid lands (ASALs). Agriculture and smallholder farmers have also been identified as the most vulnerable, mainly due to the former being rain-fed and the latter having inadequate adaptive capacity to the dynamics of climate change and variability. This study, therefore, sought to assess the perception towards adaptation strategies to climate change and variability, determine the social-economic factors that influences their adoption, as well as assess those adaptations strategies practiced, among smallholder farmers in Igambang'ombe Sub-County, Tharaka Nithi County. Descriptive research design was applied. Systematic random sampling was used to select the respondents and a semi-structured questionnaire with open and closed-ended questions was used for data collection. Observations and interviews were carried out, while systematic random sampling was used to select the respondents. Likert scale was used for analysis, frequencies and percentages were done, while correlation analysis was used to assess which socio- economic factors influenced the adoption of adaptation strategies to climate change and variability. The results showed that majority (81%) of the respondents perceived that climate change and variability was taking place, Weather information from forecasting as an adaptation strategy to climate change and variability was accessed by 81% of farmers, with 67% getting it from the Kenya Meteorological Department, mainly through radio at 74%. Furthermore, in land preparation and use, ox-ploughing was adopted by 71% of the farmers and 100% of the smallholder farmers allocating land to crop farming. Terracing and intercropping were adopted by 88% and 84%, with terracing being perceived as the most effective by 73% of the smallholder farmers. The study further showed that 62% of the farmers diversified crop production by introducing new crop varieties, mainly green grams and maize. The study showed that age (42%), farmer's farming experience (40%), and level of education of the household head (24%), were the key socio-economic factors in influencing the adoption of adaptation strategies to climate change and variability. Importantly adaptation of climate change and variability adaptation strategies was also associated to access and frequency of extension services. Access to farm subsidy, and credit was also important. Farmers and agriculture stakeholders needed to upscale the adoption of strategies as minimum tillage, mulching, contour ploughing, and use of weather and climate forecasting in the selection of crop varieties and production planning. However, the training should be guided by specific socio-economic farmer characteristics.