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"Can agroecological farming feed the world?
Farmers' and academia's views"

# Local agroecological knowledge and climate change adaptation in eastern Africa

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**Abstract**

Implementation of sustainable adaptation strategies in agricultural systems requires context specificity due to varied impacts of climate change on farmers and agricultural systems. Climate change is projected to impact on food security due to changes in temperature and an increased frequency of extreme events which cause a reduction in crop yields and impacts on yield stability (Diacono et.al., 2017). In the mountain ecosystems, the complexity of the environment characterised by changes in temperature and precipitation over short distances draws the attention to the need for contextualized response strategies for continued food security. Adaptation in agricultural systems is therefore important as it determines the severity of the impact of climate change impacts on food production. In the context of African agriculture, vulnerability of smallholder farmers is a function of climate change due to reliance on rain-fed agriculture and socio-economic factors such as inadequate financial resources to support adaptation, limited access to information, under-developed infrastructure and lack of supporting institutional and policy environments (Kmoch et. al., 2018: Pereira, 2017). Adaptation strategies that are currently being implemented are likely to be insufficient in enabling farming communities to cope with longer-term climate change. This is because these strategies are implemented using a top-down approach, without due consideration for the prevailing environmental, policy, social and economic factors within which the smallholder farmer operates. Using a mixed methods approach, this paper proposes to identify existing agro-ecological practices in a mountain ecosystem in East Africa, to determine the context in which the strategies are implemented and to identify the barriers to implementation of the identified agro-ecological strategies. We propose that integrating the local knowledge on agro-ecological strategies in adaptation planning will support the increased uptake of the strategies and promote their sustainability within the agricultural systems.

**Keywords:** Adaptation, agro-ecological strategies, local knowledge

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