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"Resilience of agricultural systems against crises"

Transitions in Agro-Pastoralist Systems of East Africa: Impacts on Food Security and Vulnerability

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Abstract

Climate-induced livelihood transitions in the agricultural systems of Africa are increasingly likely. There is limited evidence on what such transitions might look like. We tested the hypothesis that sedentary farmers in transition zones that may become warmer and drier in the future may be forced to increase their reliance on livestock vis-à-vis cropping in the future. We carried out fieldwork in 12 sites in Kenya, Tanzania and Uganda to understand changes in farming systems in the recent past. We then evaluated what the impacts of these changesmay be on household incomes and food security in the future, using crop and household modelling. We found no direct evidence for the hypothesised extensification of production in the study sites. Human diets have changed considerably in the last 40 years, as cropping has been taken up by increasing numbers of households, even in marginal places. Maize predominates, but some householders are increasing their crop and diet diversity, particularly in the locations with higher annual rainfall. At all sites people wanted to have more livestock. Food insecurity was common at all sites with an annual rainfall of 800 mm or less, and critical levels were seen at the sites with less than 700 mm of rainfall. Households were self-sufficient in securing adequate dietary energy from food production in 7 of the 12 sites, all with rainfall higher than 800 mm. Model results indicate that climate change may create opportunities for diversifying cropping in some places and allowing cropping to start whereit is not currently possible. Other places might see substantial reductions in crop yields. Although many householders have some knowledge about drought-tolerant crops, few cultivate millet, sorghum and cassava. Reliance on maize may be increasingly risky in view of its susceptibility to climate change impacts. Policies aimed at increasing the consumption of cassava, sorghum, millet and pigeonpea could be highly beneficial for future food security in the region. Vulnerability in the drier locations is already high, and policies should support safety nets and market and infrastructural development. Households in the wetter areas need to manage risk and to increase cropping diversity. Acritical requirement is knowledge transfer concerning the growing and utilisation of unfamiliar and untraditional crops.

Keywords: Food security, pastoralism

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