Tropentag, September 16-18, 2015, Berlin, Germany

"Management of land use systems for enhanced food security: conflicts, controversies and resolutions"

Adopting Climate-Smart Strategies and their Implications for Food Security

Kathleen Brüssow, Anja Fasse, Ulrike Grote

Leibniz Universität Hannover, Institute for Environmental Economics and World Trade, Germany

Abstract

In order to provide food for a growing population in Tanzania, there is pressure to increase its agricultural production. In the light of climate change, small-scale farmers have started to adopt strategies to sustain their food production. The objective of this paper is to explore which strategies small-scale farmers adopt and which factors determine the adoption decision. Furthermore, it aims to analyse the implications of adopting climate-smart strategies for food security. The analyses are based on a household survey conducted in 2014 with 900 small-scale farmers in rural Tanzania. The randomly selected households were either located in a semi-arid or in a semi-humid regional setting. The results indicate that the main climate-smart strategies adopted by farmers, include fertiliser use, tree planting and adjusting the crop portfolio, i.e. increasing or decreasing the variety of planted crops. According to the farm households, these activities are considered as long-term adjustments to climate change. The adoption decisions have been found to depend on the number of income sources of the farm households. Thus, a household with more diverse income sources is less likely to adopt a climate-smart strategy. Further, an increasing distance to village centre has a negative influence on the adoption of the more capital intensive adjustments such as tree planting. Farmers with higher risk-taking attitudes are more likely to adjust their crop portfolio or increase their fertiliser use. Very important is also that farmers more easily adopt all these climate-smart strategies (except for decreasing the variety) if they have seen these from others. This finding suggests that on-farm trials with farmers' participation can be effective in promoting climate-smart strategies. The implications for the food security of the farm households have been proxied by the Food Consumption Score (FCS). The t-tests suggest that adopters of crop diversification have on average a higher FCS than non-adopters. Fertiliser users are on average less food secure with a lower average FCS but they also have on average a lower net income than non-adopters. This supports the assumption that the adoption strategy of fertiliser, including manure, is the first strategy chosen by relatively poorer farmers.

Keywords: Adaptation, climate change, food security, Tanzania

Contact Address: Kathleen Brüssow, Leibniz Universität Hannover, Institute for Environmental Economics and World Trade, Königsworther Platz 1, 30167 Hannover, Germany, e-mail: bruessow@iuw.uni-hannover.de