184. Adapting to climate change in potato and sweet potato systems in East Africa.

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Abstract

Sub-Saharan Africa (SSA) is predicted to experience considerable negative impacts of climate change. The IPCC Fourth Assessment Report emphasizes that adaptation strategies are essential. Addressing adaptation in the context of small-scale, semi-subsistence agriculture raises special challenges. An important constraint is that data demands are high, because site-specific bio-physical and economic data are required. The development of relatively simple methods for ex ante evaluation of adaptation at the household and system levels is therefore needed. In an ongoing research project coordinated by the International Potato Center (CIP), we test a new approach to ex ante impact assessment that produces site-specific results that can also be aggregated for regional analysis. The methodology uses the kinds of data that are more often available in resource-poor countries. The stochastic approach integrates socio-economic and bio-physical data on farmers' land allocation, production, input and output use. Characteristics of the agricultural system regarding resources and productivity are analyzed and compared for both current and projected climate. Possible adaptation strategies are then assessed for their capability to reduce or offset the adverse effects of climate change. We apply the methodology to several study areas in East Africa where potatoes or sweet potatoes are an important part of the agricultural system. After characterizing the current systems with actual climate data, the effects of a perturbed climate are analyzed and a variety of adaptation strategies tested. Despite the limitations, the new approach offers a flexible framework for evaluating adaptation strategies using scarce data of resource-poor countries in SSA and other parts of the world. It allows a rapid integrative analysis for timely advice to policymakers and for exploration of technology and policy options.