

ABSTRACT

Rainfall variability threatens the food and income security of smallholder farmers in Uganda because of their dependency on rain-fed agriculture. It is estimated that two million smallholder farmer households in Uganda experience declines in agricultural production due to rainfall variability and this adversely affects their wellbeing. While past studies have emphasized the vulnerability of smallholder farmers to the effects of rainfall variability, less attention has been paid to the extent to which smallholder farmer households are resilient to these effects. This study sought to establish the factors that determine smallholder farmers' resilience to rainfall variability using Bududa and Manafwa districts in Mt. Elgon region of Eastern Uganda as cases.

The study; (i) characterized the rainfall variability patterns in Mt. Elgon region and their effects from the farmers' perspective, (ii) assessed farmers' access to and use of scientific and indigenous knowledge for rainfall forecasting and (iii) established the strategies that smallholder farmers use to enhance resilience to effects of rainfall variability. The study employed a cross-sectional survey and gathered data from 395 households. The data from the cross-section survey was complemented by qualitative data from 21 focus group discussions involving 203 farmers and in-depth interviews with five farmers.

Results indicate that over 95% of the farmers experienced undesirable changes in rainfall patterns in their respective areas over the last 10 years. Commonly reported changes included shortening of the rainfall seasons, more severe heavy intensity rains, heavy winds and hailstones. Farmers perceived that the changes in rainfall patterns depleted their livelihood assets and adversely affected their resilience potential as well. The situation was further aggravated by limited access to reliable and timely scientific climatic information to make informed production decisions. Farmers therefore relied largely on indigenous indicators to forecast the rainfall patterns and to validate the scientific information before making agricultural production decisions. Under this context, it is evident from results that less than half of the smallholder farmer households that participated in the study were resilient to the effects of rainfall variability. Such households were characterized by large amounts of livelihood assets that enabled them to rely heavily on physical and financial reserves to cope with and adapt to the adverse effects of rainfall variability. In addition, these households; used recommended agronomic practices, altered their asset portfolios, diversified into off-farm activities, and adopted soil fertility and water management practices.

Building smallholder farmers households' resilience to rainfall variability therefore needs to employ a multi-sectoral approach. Such an approach should include interventions aimed at customizing scientific climatic information to suit the needs of the smallholder farmers; providing technological options that enhance agricultural productivity while at the same expanding the livelihood assets to enable the smallholder farmer households absorb and/ or recover from the effects of rainfall variability.