Modelling Risk and Uncertainty in Flood-based Farming Systems in East Africa

Authors: Issoufou Liman¹,², Cory Whitney¹,³, James Kungu² and Eike Luedeling¹,³

Introduction

- Flood-based Farming Systems (FBFS) sustain the livelihoods of millions of farmers in East Africa.
- FBFS can be highly productive, but can also be risky and labour-intensive.
- Since FBFS differ strongly from regular agricultural settings, results from many studies, (for example common crop models) cannot be applied.
- We attempted to develop customized solution-oriented crop models for FBFS using the principles of Decision Analysis (Luedeling & Shepherd, 2016).

Principles of Decision Analysis

- Consider all factors that seem important
- Integrate expert knowledge with other information
- Fully consider uncertainty, rely on the actual state of knowledge, not on assumptions

Materials and Methods

- Model development through inputs from local and international experts, and consideration of scientific literature

Preliminary results

In a flood-based farming system, seasonal floods are diverted and used to irrigate agricultural fields

Outlook

- Risk assessment and identification of critical uncertainties
- Probabilistic yield projections for FBFS in Kenya and Ethiopia (as in Luedeling et al., 2015)
- Apply model for ex-ante projection of flood-based farming interventions

References: