



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Linkage between small scale farmers’ objectives and agroecology in crop production systems of eastern Uganda

CHRISTINE ARWATA ALUM¹, HUSSEIN LUSWAGA²

¹*Independent Consultant, Uganda*

²*University of Dodoma, Biology, Tanzania*

Abstract

Crop production systems in the Eastern highlands of Uganda have experienced changes due to increasing population densities and declining farm sizes. Production practices are influenced by the kind of crops grown, area allocated to the crops and distance of the plots from the homestead. The objectives of small scale farmers and their links to the use of agroecological approaches are explored to assess the importance of individual objectives in crop production decision making. Farmers’ objectives were elicited using paired comparisons. The objective preferences were then identified using ranking exercises. This was preceded by converting the objective rankings into weights, which were then used in a multiple objective decision making farm model. The weights reflect the relative importance attached to the various objectives by the farmers. The three important objectives in their order of preference were ‘nutrition security’, ‘cash income’ and ‘leisure’. Nutrition security in relation to crop production diversity was considered a key objective because increases in on-farm productivity relied on farmers’ health and physical strength, since most of the farm labour is provided by the farmers and family members. Cash income from the sale of crops enabled farmers to purchase other foods not available on-farm. Results from the decision-making model show that cropping plans that promote better nutrition were mixed-crop systems. Besides improving nutrition, these systems improved crop productivity. Increased cash income in mixed-crop systems was largely due to crop productivity. In comparison to the monoculture systems, mixed-crop systems promoted better utilisation of the already limited land resource. The results have shown that agroecological approaches through mixed-crop systems increase crop productivity, may reduce risk and promote better food and nutrition security in farming households. Farmers consider their objectives during crop production decision making processes, and agroecological practices can be considered for nutritional security for small scale farmers. Therefore, understanding small scale farmers’ decisions regarding their cropping practices is relevant in agricultural policy formulation.

Keywords: Agroecological approaches, mixed-crop systems, multiple objective decision making farm model, nutrition security, objective rankings, paired comparisons