ABSTRACT

Agroforestry has been identified as the most sustainable remedy to counter declining farm productivity, especially in Sub-Saharan Africa. Based on this, state and non-state actors have promoted several agroforestry technologies in Uganda's eastern highlands to improve farm productivity. Using on-farm demonstration trials, agroforestry training sessions and field days, smallholder farmers were expected to make choices on the recommended agroforestry technologies and apply them on their crop fields in a scientifically recommended way for the anticipated outcomes to be realized. However, because of heterogeneous farm contexts, socio-technological and intrahousehold decision-making shape the way agroforestry technologies are utilized by the smallholder farmers. This study sought to establish the rationale for smallholder farmers' adaption practices of the agroforestry technologies to their contexts in Uganda's eastern highlands. The specific objectives addressed by the empirical chapters in this dissertation were to; (1) determine the influence of socio-technological factors on smallholder farmers' choice of agroforestry technologies for adaptation, (2) examine the influence of intra-household decision-making on the use of agroforestry technologies, and (3) describe the smallholder farmers' modifications and practices in suiting the agroforestry technologies to their contexts. The study used a mixed methods research strategy which employed an exploratory sequential approach to collect the data. The study adopted a cross-sectional survey design which enabled the utilization of both quantitative and qualitative research approaches to answer objectives 1 and 2. The study population and sample were drawn from the smallholder farming households that were exposed to agroforestry technologies through the trees for food security project. A case study approach was the most appropriate for objective 3 to understand how modifications and practices promoted smallholder farmers' uptake and usability of agroforestry in their prevailing situation. Results indicated that the number of tree species desired by the farmer and perceived value of the technology were the most critical socio-technological factors commonly influencing smallholder farmers' choices of agroforestry technologies. The study also found male decision-makers dominated pre-production, production and post-production agroforestry decisions. The only decision where females' decision-making power was close to that of their male counterpart was deciding which crops to plant in a particular agroforestry plot. Furthermore, smallholder farmers made several adjustments in the recommended practices. They devised their practices to make the technologies more useful to their contexts based on their knowledge, experience, preferences and priorities. The modifications and practices across the agroforestry technologies were mainly intended to enhance tree seedling survival, diversify benefits, optimize space utilization, minimize management costs, and shorten the waiting time for tree-related benefits. Thus, there is a need for a hybrid (knowledge exchange) extension model situated in the agricultural innovation system's thinking to allow smallholder farmers to contribute to agroforestry technology development. This will help to generate technologies that are economically viable and socially acceptable to smallholder farmers.