

Abstract

Objective: To determine the impact of agro-biodiversity interventions on crop and livestock diversity among agro-biodiversity farmer field schools (ABD-FFS) and Non ABD-FFS households in Bondo District.

Methodology and results: The study was conducted in the greater Bondo District which comprises of the current Bondo and Rarieda Districts, in Nyanza Province, Kenya within the 2009/2010 cropping seasons. Bondo District was selected because it is one of the two districts where the agro-biodiversity project activities were implemented. The district presents a wide cross section of aquatic and terrestrial biodiversity, which provides a good opportunity for farmers to adopt enterprise diversification as a strategy to enhance agro-biodiversity. Data were obtained from a random sample of 150 households using a single household survey (SHS). Shannon's index was used to determine crop and livestock diversity in the comparison groups. Multinomial Logit (MNL) and Ordinary Least Square (OLS) regression models were used to determine the impact of crop and livestock diversity on food security and income, respectively, while optimal level of farm enterprise diversification was determined using a linear programming model. The analysis showed that crop diversity is higher for ABD-FFS farmers compared to Non ABD-FFS farmers. However livestock diversity is higher for Non ABD farmers probably due to a trade-off between crop and livestock diversity. Farmers specializing in crop production are likely to keep a few livestock species. Further, the study showed that crop diversity significantly increases the probability of the smallholder farmers being food secure.

Conclusion and application of findings: Farmers under low resource endowment can attain a profitable, diverse and nutritious benefit by bringing in enterprises with low production costs and positive gross margins. Further, farmers need to adopt crop diversity and improved technology to increase productivity of their farm enterprises and assure themselves food security and income. Finally, farmers will need to improve productivity of their livestock to keep less livestock which will release land for crop production and increased crop diversity. A farm plan with few but productive livestock in the mixed farming system provides a balance in income and ensures food security.