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Contribution of Local Agroforestry Systems to Food and Nutrition Security of Small Farming Households in Yayu, Southwestern Ethiopia

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Abstract

Ethiopia is the home of more than 30 million undernourished people, the fourth largest amount per country in the world. Among the existing approaches to cope with food and nutritional insecurity, agroforestry appears to be one of the most cost-effective alternatives. Hence, this study characterised the predominant agroforestry practices of small farming households in the Yayu Biosphere Reserve by emphasising their contribution to local food and nutritional security. The study was conducted during 2014–15, during which 300 households were selected using a multi-stage random sampling design which considered the proximity of the sampled villages to the forest and market/road. Data was collected by applying a semi-structured survey and through field observation. Descriptive statistics, ANOVA and Pearson correlation analyses were used to estimate the extent and variation of local agroforestry practices. Results show that three predominant agroforestry practices, namely homegarden(HG), multistorey-coffee-system(MCS) and multipurpose-trees-on-farmlands(MTF), are practised by 99.7%, 93%, and 82% of households, respectively. MTF is mainly used for food production, MCS for income generation and HG for both. From all three practices, 127 useful plant species were identified, of which 42.5%, 25.9%, and 31.5% were trees, shrubs, and herbs respectively. Proximity to market is significantly associated with the number of useful species in HG ($r=-0.289; p < 0.01$) and MCS ($r=-0.333; p < 0.01$). Out of the ten major plant utility groups, seven were present in all three practices, i.e. food, fodder, fuel, shade, timber, NTFP and medicinal. 80 edible species were identified in all three practices, of which 55 were primarily cultivated for household food supply. Regarding the food groups, only ‘spices/condiments/beverages’ was found in MCS, and ‘cereals’ and ‘legumes’ in MTF, while in HG all of these as well as ‘roots/tubers’, ‘vegetables’, ‘dark-vegetables’, ‘sweets’ and ‘fruits’. In HG and MTF the species count and richness of food groups per household was significant ($p < 0.01$). Income provision comes from four major sources, MCS (60%), HG (18%), MTF (13%) and off-farm activities (11%). Based on the observed diversity, purpose-specialisation, and synchrony of the three agroforestry practices, we conclude that they contribute considerably but in different ways to all pillars of food and nutritional security of households of Yayu.

Keywords: Homegarden, multipurpose tree on farmland, multistorey coffee system, traditional agroforestry, Yayu Biosphere Reserve

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