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Risk in Diversifying Agricultural Land Use: Perceived Impacts of Woody Species and Livelihood Diversification Strategies in the Central Highlands of Ethiopia

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Abstract

Research on sustainable land use in Ethiopia has recently been extended to locally-grown woody species outside forests. The non-competitive integration of woody species in agricultural farms may support the development of adapted land use systems by providing both goods and service functions. Thus, the control of natural resource degradation and the diversification of income, which may gain significance in livelihood diversification strategies, meet concerns of the Ministry of Agriculture about how to cope with environmental degradation and human needs within the Millennium Development Goals.

This study stresses the need for awareness towards neglected farmers' perception of potential private gains and losses from diversifying agricultural land use by integrating woody species. The objectives are **(i)** to identify woody species occurring in agricultural land with special respect to farm fields, **(ii)** to analyse the perceived suitability of woody species in terms of goods produced to diversify livelihood activities, **(iii)** to analyse farmers' risks perception and responses to risk in farming linked to woody species and potential service functions.

The methodology bases on the analysis of the 'Farming System'. An integrated study approach combines a rapid appraisal and formal questionnaire survey in 130 systematic-randomly selected and ex-post stratified households in two villages. The analysis of woody species diversity in agricultural land relies on key persons' local knowledge, direct observation and botanical assessment on-station. Pair-wise and direct use ranking help to identify woody species that appeared to farmers as most promising for several uses. Likert scales reveal farmers' perceptions of risk associated with woody plants on-farm and their role in responses to risks. The analysis makes use of indicators on the farmer's access to and control over resources and is based upon descriptive statistics.

Results refer to opportunities and threats in diversified tree-integrated agricultural land use corresponding to perceived strengths and weaknesses of particular woody species that **(a)** are competitive/non-competitive for natural resources in farm fields, **(b)** constitute sources of fuelwood and fodder in diversification strategies, and **(c)** impact the range of potential service functions - primarily the prevention of soil erosion and soil improving capability.

Keywords: Diversification strategies, Farming Systems, local knowledge, non-competitive tree integration, perceived benefits from land use, risk perception and response

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