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Integration tree into cropping systems: Insights for enhancing agroforestry and forest landscape restoration in central Togo

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Abstract

Forest landscape restoration (FLR) plays a crucial role in enhancing the sustainability of cropping systems by improving soil health, water regulation, and biodiversity. These benefits directly support food security and human well-being, particularly in regions where communities depend heavily on agriculture for their livelihoods. Integrating trees into cropping systems is a key FLR strategy that strengthens these benefits, making FLR increasingly essential for sustaining both ecosystems and human well-being. However, adoption of this practice remains low, and its drivers remain underexplored. Therefore, this study aims to gain deeper insights into factors affecting tree integration into cropping systems, fostering agroforestry practices and enhancing the success of FLR. Semi-structured questionnaires were used to collect demographic, socio-economic, and institutional data from 140 agricultural households in the Tchamba Prefecture (Togo). We used descriptive statistics and a logit regression model to analyse the data. The results show that formal education, farmers' contact with projects, age, and residence status influence the integration of trees into cropping systems. The predominance of indirect land access and land security (80 %) may hinder long-term investments and willingness to adopt trees into cropping. With 75 % of households earning less than 460 euros per year, financial constraints may limit their investment in tree planting or other FLR-related activities. Regarding trees into cropping systems, the study highlights firewood provision (84 %), microclimate improvement (77 %), and fruit production (66 %) as the main benefits, while soil fertility restoration was the key advantage of agroforestry. The findings highlight the need to tailor agroforestry interventions within the FLR approach to context-specific farmer determinants, ensuring that restoration strategies are more effective and locally adapted.

Keywords: Adoption factors, agroforestry, context-specific, cropping systems, land tenure, perception