Tropentag, September 20-22, 2023, hybrid conference

"Competing pathways for equitable food systems transformation: Trade-offs and synergies"

Trade-offs and synergy of the transition in crop-livestock-tree systems in northwest Vietnam

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Abstract

Northwest Vietnam has experienced changes in crop and livestock systems due to improved interventions of provincial programmes and different projects. These interventions can potentially change the performance of farms, the structure of farming systems, and their transition toward agroecology. However, the specific ways in which crop-livestock-tree farming systems may evolve towards agroecology in the presence of these interventions are not understood. The current study aimed to characterise the agroecological transition of crop-livestock-tree systems and identify the trade-offs and synergy on farm performance. The study was conducted in Northwest region of Vietnam in Chieng Chung commune, Son La province. A mixed methodology approach was used in this study in two steps. Group discussions with local stakeholders were first conducted to identify the main changes in the farm and key performance, which arise therefrom on farm performance. The key stakeholders included head of farmer organisation, women's organisation, communal leaders. In-depth interviews were conducted in sequence with 32 cattle-coffee farmers. These farmers were households who have adopted changes identified in the mentioned discussions. The transition in the farm was examined in three aspects of agroecology in terms of diversity, synergy, recycling, using TAPE tool developed by FAO, (2018). Socio-economic indicators were used, including productivity, revenue, production cost, quality of life, labour intensity, and job creation. Results show that land use in the farm has changed towards intensification and multifunctionality of coffee-based systems. Cattle systems have become more intensive in livestock density on farms and developing feeding systems. Interviewed farms have a transition in diversity (>50 %) due to the cultivation of new trees and improve grass species. The synergy between systems is also in transition (>=50 %) because of the increased use of manure for crop and trees, and crops and crop residues for animal feeds. However, recycling is still under agroecological transition (<50 %). In comparison to the past, the development has led to higher productivity in land and labour, increased revenue regularity, better quality of life in labour income, and more employment opportunities for local people. The transition has lowered chemical fertiliser cost (>70 %), while increasing labour hardship, especially for caring coffee systems

Keywords: Agroecological transition, synergy, trade-offs, Vietnam

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