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Management of Agroecological Transitions Within Diversified Farms

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Abstract

Agroecological systems should integrate increased cultivated and non-cultivated biodiversity in order to achieve their objectives. However, studies on agroecological transitions have been mainly conducted on highly specialised farms. This study aims to understand how farmers manage agroecological transitions in farms combining different crop and livestock productions. A generic framework was applied to compare crop/livestock production managements within thirty diversified farms cultivating citrus in the Réunion Island. The sample covered multiple forms of diversification: farmers growing a diversity of fruit trees, farmers combining fruit trees with semi-perennial fruit species and market-gardening, and farmers combining crop and livestock productions. Trajectories of practices were also investigated to rebuild the sequence of changes' introduction in each farm. The study showed firstly that constraints and opportunities to agroecological transitions were specific to each production. These specificities included both agronomic features, such as sensitivity to pests, perennial or annual nature, open-air or confined farming and surface areas, and economic features, such as market demand, product traceability, added-value and alternative input availability. Then, interactions between productions appeared to facilitate a progressive transition for farmers. Benefic exchanges of information, matter and labour were identified. Some farmers tested alternative practices at first on one production, such as mechanical weeding, and then extended the successful practices to other productions. They could innovate on their main production for which they allocated more time, for instance by introducing cover crops. Or they could innovate on secondary productions for which they could take more risks, by reducing significantly synthetic inputs use. Biological processes were enhanced by matter exchanges between productions, especially on farms combining crops and livestock. Labor organisation was improved by some alternative practices with different labour period or frequency, such as chemical traps or mulching. The specific features of each production may complicate the design, the support and the management of agroecological diversified farming systems, but diversification enhances agroecological transition because of production synergism and low-risk progressive pathways of change.

Keywords: Agroecology, Diversification, Dynamics of change, Farm level