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Transforming degraded cacao plantations to fruit-rich ‘food forests’ with agroecology in the Peruvian Amazon

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Abstract

Smallholders of cacao plantations in the Amazonian region of Ucayali, Peru, are currently facing manifold economic, ecological, and social pressures. Evidence-based studies are required to support the restoration of their landscapes whilst meeting their food and market needs. This study aims to comprehensively understand smallholders’ needs, challenges, and opportunities in terms of their production systems, food consumption, and markets.

Through the holistic lens of agroecology, it will provide insights as to how to best facilitate the transformation of these cacao plantations to biodiverse ‘food forests’ that integrate underutilized cultivated and forest species. The study uses a mixed-method approach that combines convergent and exploratory sequential mixed-method designs to capture the study’s complexity and interdisciplinary nature. The approach consists of three main components:

1. Quantitative profiling of 20 farms by interviewing farmers and collecting geospatial data to provide an inventory of food produced and consumed (food profile).
2. Qualitative interviews with a subset of 10 farmers using semi-structured interviews to understand farmers’ perceptions of their current food profile and potential expansion to biodiverse food forests.
3. Qualitative interviews with 5 potential customers or market experts to identify market opportunities and customer needs using purposive and snowball sampling.

The data analysis process includes:

- Bringing together qualitative data from farmer and market participant interviews through content analysis to identify perceptions of agroecological transformation and species that can support the transition.
- Merging identified species with quantitative data from part 1 using FarmDESIGN to generate farm configurations and trade-offs.
- Reflecting upon and evaluating the research results, identifying lessons learned and gaps for future research.

Anticipated outcomes involve a clear understanding of the primary needs of smallholder farmers in Ucayali and the prevailing market dynamics. A key outcome will be a tailored list of species that best support the transition to biodiverse food forests, based on the synergy of farmer insights and market trends.

In practice, the research will advocate for an agroecological transition to improve food and nutrition security. Importantly, this research places farmer knowledge at the center of the transformation process to ensure that solutions are both locally relevant and sustainable.

Keywords: Agroecology, agroforestry, amazon, cacao, FarmDESIGN, food forest, food system transformation, nutrition security, rainforest, sustainable development