

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

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Introduction

Background & Context

- Smallholders in Ucayali, Peru, produce cacao for international markets amid challenges like resource degradation, economic instability, and rural youth outmigration.
- Despite consensus on the need for food system transformation, unique challenges leave practical pathways for smallholders largely unexplored.
- There's an urgent need for evidence-based studies that can help restore these landscapes and meet smallholder's and market needs.

Research framework

- Agroecology Initiative of the CGIAR
 - Focus: Support agroecological transitions to tackle socio-economic and environmental challenges
 - Scope: 250 researcher co-design and test agroecological innovation with at least 7,000 farmers, 70 policymakers, and 35 companies in 8 countries globally
- Banaqui Curimaná cooperative
 - 70 certified organic cacao smallholders

Main research question

- What cultivated and forest species can support the transformation of degraded cocoa plantations into biodiverse food forests in Peru's Ucayali region to meet smallholders' household needs and local consumer needs?

Sub-questions

- What do smallholder cocoa farmers currently produce and consume to meet their household needs and market demand?
- How do smallholders perceive their current system and the transformation to a biodiverse food forest?
- What are the market opportunities based on local customers' needs?
- Based on smallholder and market needs, which species and quantities best support a transformation to a biodiverse food forest?

Objectives

- Investigate the species that smallholders produce and consume.
- Understand smallholder perceptions and identify opportunities and limitations.
- Identify market opportunities based on local needs.

Conceptual Framework

Food Forest

- Designed, perennial, and intensively managed polyculture system.
- Integrates agroecological principles including biodiversity, synergies, and economic diversification

Food Profile

- Range of products from various species smallholders produce, consume, and purchase to meet household needs and market demand
 - Covers crops, livestock, tree fruits, and edible non-timber forest products

Methodology Summary

Mixed-Methods Approach

- Aim: Build well-rounded picture of farm's food profile and propose species for agroecological transformation.

Quantitative Farm Surveys

- Aim: Create detailed food profiles and provide data for FarmDESIGN.

Qualitative Farmer Interviews

- Aim: Provide nuanced insights into farmer perceptions and attitudes, assisting in species selection and transformation strategies.

Qualitative Interviews with Market Players & Experts

- Aim: Gain insight into market needs to identify readiness and opportunities for agroecological products.

FarmDESIGN Software

- Aim: Analyze current farm systems and model potential agroecological transformations using input from surveys and proposed species.

Methods in Detail

Quantitative Farm Surveys

- Sample Size: 20 farms
- Interview Technique: Closed-questions divided into production and consumption part using KoboToolbox
- Data Types: production, consumption, labor, inputs

Qualitative Farmer Interviews

- Sample Size: 10 farmers
- Interview Technique: Semi-structured interviews with zic-zac transect walks
- Data Types: Open-ended responses, GPS coordinates, and photographs

Qualitative Interviews with Market Players & Experts

- Sample Size: 5 market experts
- Interview Technique: Semi-structured interviews
- Data Types: Open-ended responses

FarmDESIGN Methodology

- Quantified Farm Diagnostics: Economic, ecological, social
- Iterative Feedback: Informs and refines food profile and species

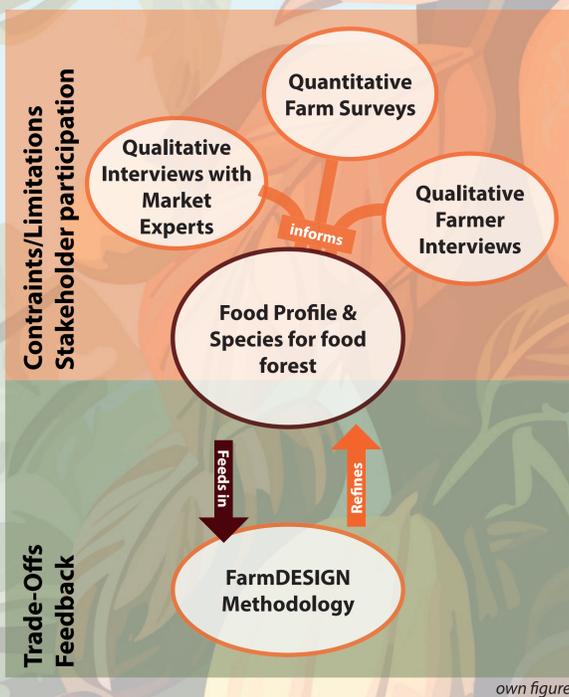
Challenges and Limitations

- Low sample size & self-reported data
- Subjectivity in qualitative data
- Technical constraints in FarmDESIGN
- Limited agroecology awareness and public knowledge gap

Next Steps

- Interviews are scheduled to commence at the end of September 2023

Methodological Framework



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Roots in the field, eyes on the future



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Expected Outcomes & Benefits

Insight & Support: Understanding of primary needs and market dynamics for Banaqui Curimaná's smallholders, aiding improved farming practices.

Actionable List: Species recommendations tailored to smallholder and market needs, fostering a transition to sustainable food forests and strengthening the value chain.

Acknowledgement

I am deeply grateful to my first supervisor, Dr. Alejandra Arce of CIP, for her invaluable support in Peru and in the field. I thank my second supervisor, Manuel E. Narjes of Alliance Bioversity-CIAT, and Dr. Philipp Mennig of TUM for their consistent guidance. Special appreciation is due to Jose G. Sanchez for on-site support and to Banaqui Curimaná Cooperative, especially its technical team and participating farmers.

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