

# Agroforestry: A key land use system for sustainable food production and public health



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## Background

- An estimated 1 in 3 people experience food insecurity globally in part because:
  - Food systems are strained by population growth, climate change, and land-use pressures
  - Industrialized agriculture struggles to adapt to local needs
- Agroforestry is a productive, climate-resilient land use system adaptable to specific regions and communities
- Covers an estimated 43% of all agricultural land
- Despite prevalence, public health impacts remain insufficiently explored

## What is Agroforestry?

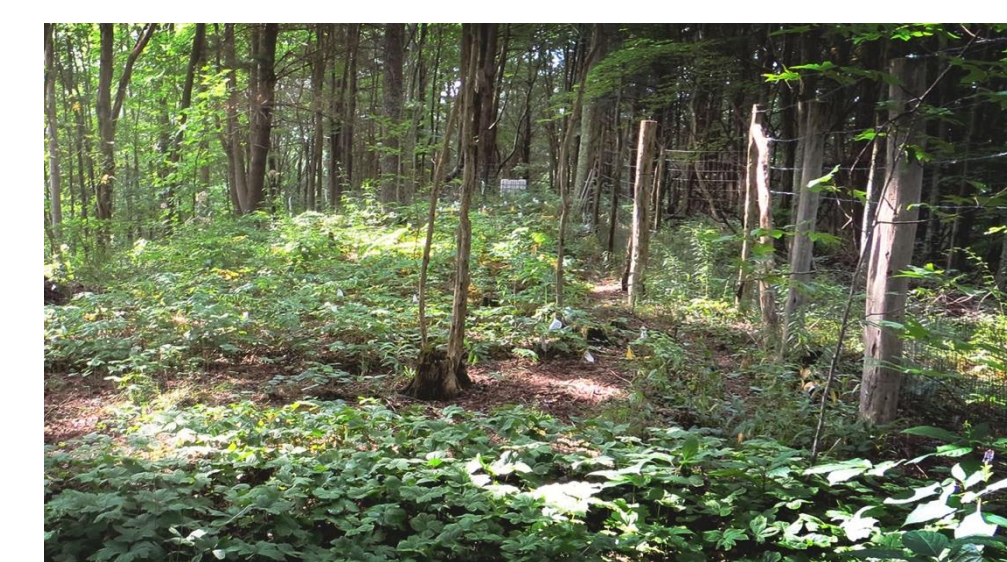
- *Agroforestry: A land-use system that integrates trees with crops and/or livestock*
- Multiple plant and animal components within one system
- Trees enhance soil quality, provide shade, and support nutrient cycling improving environmental sustainability and long-term productivity



Silvopasture



Alley Cropping



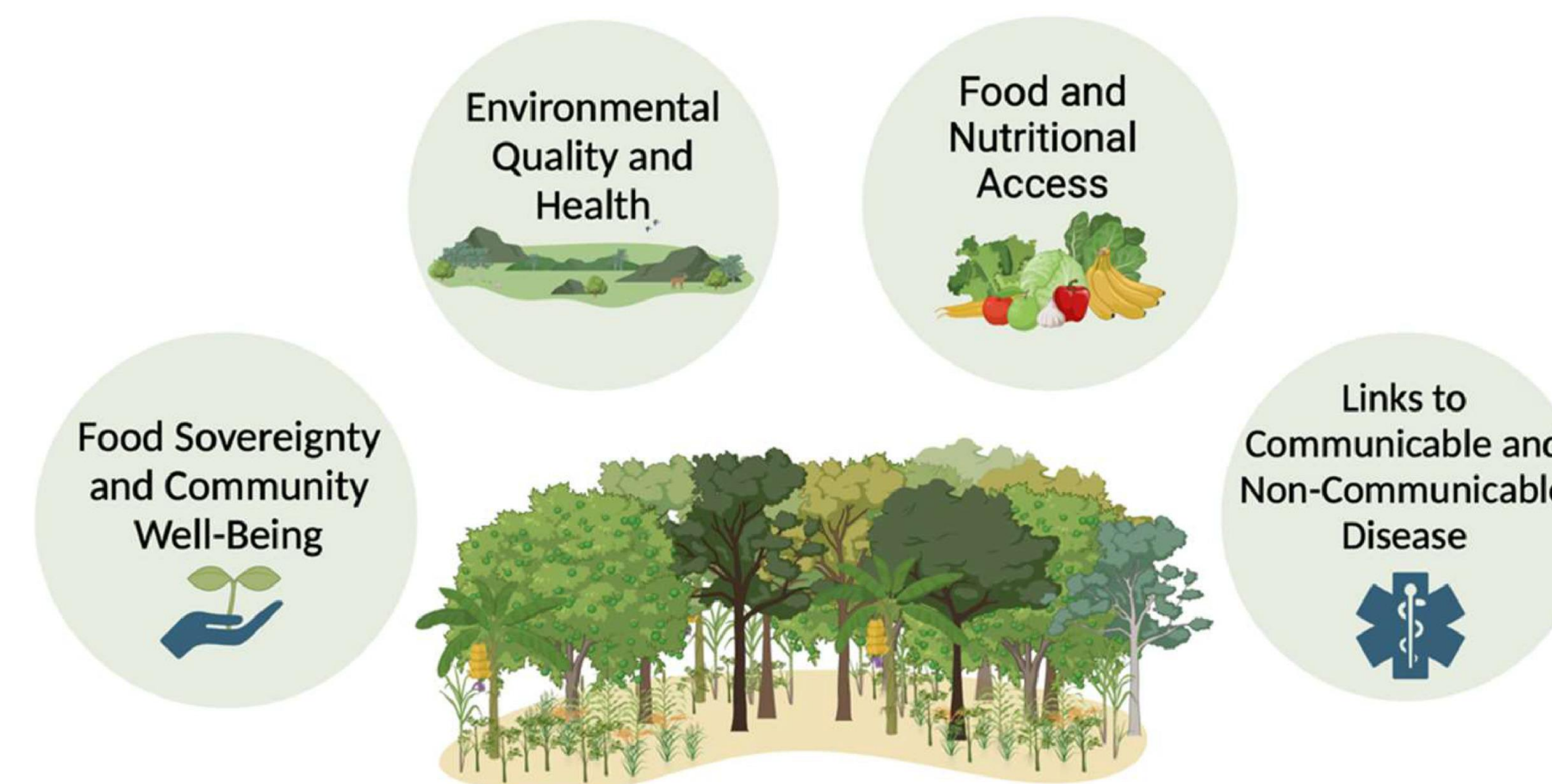
Forest Farming

## Food and Nutritional Access

- Often more productive than monocropping, especially in long term → improved food access
- Higher crop diversity → improved micronutrition, nutritional security, dietary diversity
- Resilience to environmental stressors such as drought and pests.
- Contributes to stable and sustainable food and nutritional access

## Food Sovereignty and Community Well-being

- *Food Sovereignty: The right of communities to control how food is produced, distributed, and consumed*
- Increased food sovereignty → improved food access, self efficacy, and community well-being
- Agroforestry improves food sovereignty by facilitating:
  - Local control of food production
  - Opportunities for the involvement of women
  - Increased off-farm work
  - Use of traditional agricultural techniques
- Enhances community resilience and livelihoods
- Promotes social equity and well-being



## Environmental Quality and Health

May improve respiratory health of surrounding communities through:

- Reducing particulate matter and pollutants
  - Producing less dust than monocropping
- May improve water quality through:
- Reducing runoff (chemical contamination of water and algal blooms)
  - Reducing use of chemicals and pesticides

## Communicable and Non-Communicable Disease

- **Communicable diseases** emerge at forest edges
  - Through maintaining forest structure, agroforestry may reduce emergence of disease
  - By increasing contact between people and vectors agroforestry may increase emergence of disease
  - More research is needed to inform implementation of safe agroforestry strategies
- Agroforestry may affect **non-communicable** disease prevalence through:
  - Improved food access and nutrition
  - Improved air and water quality
  - Increased exposure to microbes → immune development

## Challenges

- Little research on public health impacts
- Significant regional differences that may affect efficacy of agroforestry as a public health intervention
- Inadequate policy measures to promote agroforestry
- Limited community buy-in in some regions because of limited awareness, economic constraints, and adoption challenges.

## Conclusions and Recommendations

- Agroforestry represents a promising yet underutilized public health intervention
- Provides co-benefits for environmental sustainability, food systems, and human health

Recommendations:

- Strengthen evidence base
- Integrate into public health and policy frameworks
- Develop policies that support adoption and scaling
- Collaboration among public health professionals, agricultural scientists, and communities