

# Ex-ante Assessment of the Adoption Potential of Innovations in Finger Millet and Pigeon Pea Cropping in South India

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## Background

Resource-poor farmers in South India are confronted with multiple challenges such as climate change, soil nutrient depletion, nutritional security issues and economic constraints. The BIOFI Package is a technological innovation developed in the frame of the Indo-Swiss Collaboration in Biotechnology (ISCB) that aims to tackle these challenges by improving the production of finger millet (*Eleusine coracana*) and pigeon pea (*Cajanus cajan*), two major crops in rainfed regions of South India.

## Objective

To better understand the adoption potential of the BIOFI Package based on the analysis of the innovation’s attributes, local people’s livelihoods and farming practices and the farming context in two research sites in South India.

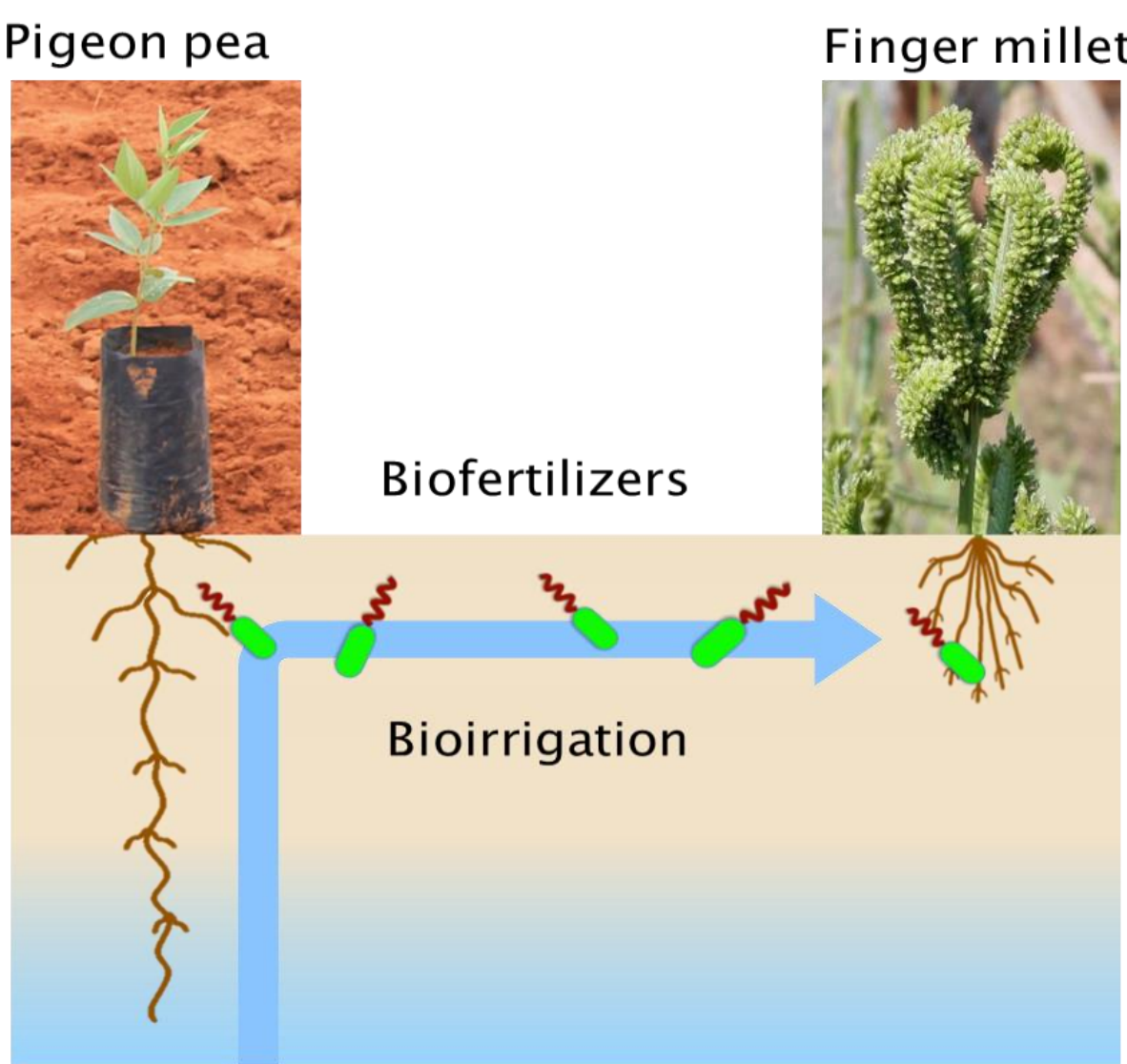


Figure 1: The BIOFI Package

## Methodology

### Research sites:

- Kolli Hills, Tamil Nadu (hilly region, high genetic diversity of millets)
- Mandya district, Karnataka (plains, major finger millet production region)

### Data collection:

- Literature review
- Field observations
- Survey with 400 finger millet growing farmers
- Focus-group discussions
- Expert interviews

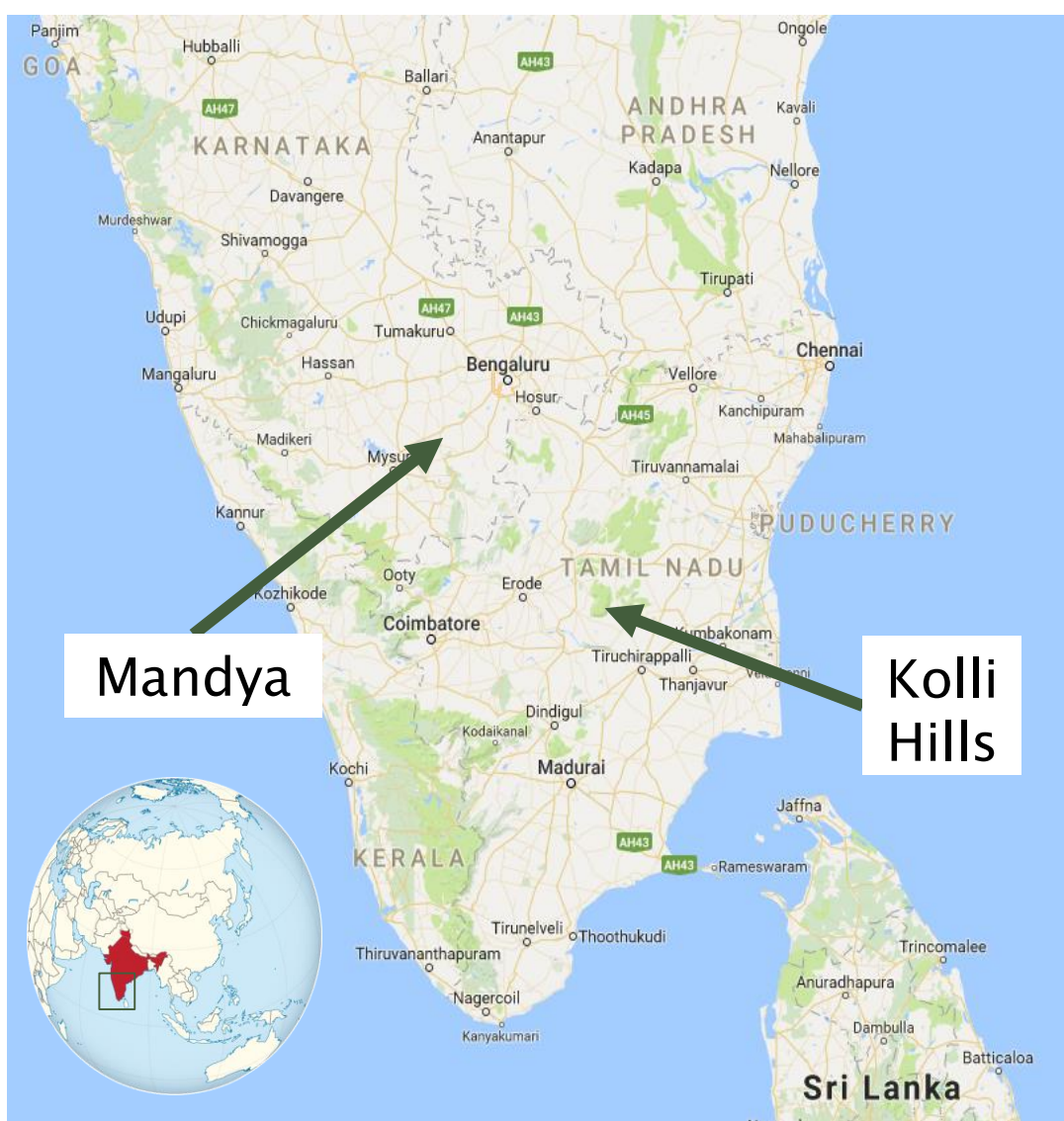


Figure 2: Research sites

## Results

Multiple potentially hindering and conducive factors for the adoption of the BIOFI Package were identified (see Table 1).

From an ex-ante perspective the adoption potential appears limited in both sites yet to different extents and for different reasons. Major potentially hindering factors for the adoption are:

- The attributes of the innovation itself
- The limited importance of the two target crops in local livelihoods
- Big differences between existing and proposed practices (see Fig. 3, 4)
- Additional labour and cash requirements
- Limited availability, awareness and use of biofertilizers
- Limited availability of output markets at local level



Figure 3: Mixed cropped finger millet field in Kolli Hills



Figure 4: Mixed cropped finger millet field in Mandya

Table 1: Ex-ante assessment of the adoption potential of the BIOFI Package

Factor		Kolli Hills	Mandya
Innov.	Complexity		
	Trialability		
	Observability		
Farming household	Farmers' attitude		
	Importance of finger millet in livelihoods		
	Importance of pigeon pea in livelihoods		
	Importance of finger millet in subsistence		
	Importance of pigeon pea in subsistence		
	Importance of finger millet for cash income		
	Importance of pigeon pea for cash income		
	Cropping patterns of finger millet		
	Cropping patterns of pigeon pea		
	Finger millet varieties		
	Pigeon pea varieties		
	Sowing method of finger millet		
	Sowing method of pigeon pea		
	Input use in finger millet production		
	Labour intensity		
	Costs		
	Awareness and use of biofertilisers		
	Relevant social capital		
Farming context	Availability of output market for finger millet		
	Availability of output market for pigeon pea		
	Availability of necessary inputs		
	Presence of promoting organization		
	Agro-ecological conditions		
Accessibility of fields			

Somewhat conducive

Somewhat hindering

Strongly conducive

Strongly hindering

Neutral or open question

## Conclusions and Recommendations

- **Complementary research**, especially testing and evaluating the technology together with farmers, is needed in order to gain a more comprehensive picture of the adoption potential of the BIOFI Package.
- It may be meaningful to **reconsider the «package approach»** and to explore the potential of individual components of the BIOFI Package.
- In research for development a carefully designed, facilitated and monitored **innovation development process is key** and needs to be considered a goal in itself. Site-specific needs assessments, a genuinely collaborative or collegial participation of farmers throughout the process, the involvement of multiple disciplines and stakeholders, capacity building in interdisciplinary research and a systemic, innovation-driven approach are all meaningful elements towards the development of innovations offering a relative advantage to resource-poor farmers.