Tropentag, September 18-21, 2016, Vienna, Austria

"Solidarity in a competing world — fair use of resources"

Ex-ante Assessment of the Adoption Potential of Innovations in Rainfed Agriculture in South India

Pia Fehle[1], Dominic Blättler[1], Alessandra Giuliani[1], S. Manjubarkavi[2], Manjula Menon[3], Rengalakshmi Raj[3], M. N. Sivakumar[4]

[1] *Bern University of Applied Sciences (BFH), School of Agricultural, Forest and Food Sciences, Switzerland*

[2] *University of Madras, Department of Anthropology, India*

[3] *MS Swaminathan Research Foundation, Gender and Grassroots Institutions, India*

[4] *MS Swaminathan Research Foundation, Biodiversity Kolli Hills, India*

Abstract

Small and marginal farmers in rainfed regions of South India are confronted with erratic rains, droughts, soil nutrient depletion, food and nutritional security issues and economic challenges. There is a need for innovations leading to more productive, sustainable, resilient and economically viable production systems. The BIOFI Network, a research project under the umbrella of the Indo-Swiss Collaboration in Biotechnology (ISCB), aims at the improvement of the rainfed production of two major local crops, namely finger millet (*Eleusine coracana*) and pigeon pea (*Cajanus cajan*), by developing and promoting a package of innovations called the BIOFI Package. The technology focuses on the aspects of biofertilisation and bioirrigation in a specified intercropping system of the target crops. An interdisciplinary approach is followed: while biotechnologists strive to optimise the Package on-station, socioeconomic researchers examine farmers' current practices and the adoption potential of the proposed innovations.

With the objective of identifying conducive and hindering factors for the adoption of the BIOFI Package, this study investigates on the existing finger millet and pigeon pea seed, cropping and farming systems in two semi-arid agroecosystems in South India and confronts the findings with different factors shaping the Package. For this purpose, a survey was conducted with 200 women and men farmers per site, amplified by a qualitative follow-up and a discussion with all researchers involved.

From an *ex-ante* perspective, the adoption potential of the BIOFI Package appears limited in both research sites. Conducive factors are among others the potential productivity increase and the high market potential of both target crops. Major hindering factors are the low relevance of one or both crops within the local farming systems, competing production branches and off-farm activities, limited market access, strongly differing agronomic practices and the relatively high complexity, cost and labour intensity of the BIOFI Package. Biofertilisers face the challenge of limited awareness, lack of information on use of or difficult access to the products. Based on these findings it is questionable whether marketing and extension can compensate for the obstacles identified. A reality-check in the field and a similar study in other locations are necessary.

Keywords: Adoption of innovations, biofertilisation, bioirrigation, climate change resilience, finger millet, interdisciplinary research, pigeon pea, rainfed agriculture, semi-arid agroecosystems

Contact Address: Pia Fehle, Bern University of Applied Sciences (BFH), School of Agricultural, Forest and Food Sciences, Länggasse 85, 3052 Zollikofen BE, Switzerland, e-mail: pia.fehle@bfh.ch