

# Innovations for Smallholder Dairy Producers in Nepal:

## A Study on Adoption and Dissemination of Mobile App Feeding Support Tool and Mastitis Control Technologies

Rio Trimono, Indonesia, rio.trimono@ufl.edu, Master of Sustainable Development Practice (MDP), University of Florida | Field Practicum | Committee: Dr. Renata Serra, Dr. Sebastian Galindo

### 01. BACKGROUND

In Nepal, smallholder dairy producers suffer from low milk productivity and high cost of production due to:

- 1) poor animal feeding practices, and
- 2) the prevalence of mastitis disease (mammary gland infection) resulting in compromised milk production.

2016/17

Heifer International Nepal and partners researched and piloted innovations to improve feed and reduce sub-clinical mastitis, with the support from USAID Feed the Future Innovation Lab for Livestock Systems

2018

Heifer and partners conducted various meeting and training programs to disseminate the innovations to dairy farmers, organizations and livestock technicians.

May-June 2019

The field practicum was conducted to assess the outcomes and roadblocks of the dissemination efforts.

### 02. INNOVATIONS

- **Livestock Feeding Support Tool (L-FST)**  
An android mobile app-based tool to formulate least-cost, nutritionally balanced dairy animal feed utilizing locally available feeders.  
**Benefits:** reduce feeding cost, increase milk production.
- **Mastitis Control Technologies**  
Technology package for early detection of mastitis (California Mastitis Test [CMT] & milk conductivity test) and control/prevent mastitis (Post-Milking Teat Dipping [PMTD] & dry cow therapy).  
**Benefits:** reduce (sub)clinical mastitis and cost for treating sick animals.



### 03. OBJECTIVES

- To assess the level of awareness, trial, and adoption of innovations among dairy producers and technicians.
- To investigate the important perceived characteristics of innovations.
- To examine factors limiting knowledge dissemination and adoption of innovations.

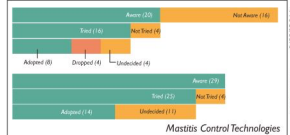
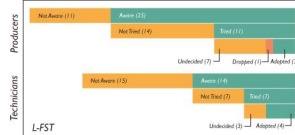
### 04. METHODS

- Semi-structured interviews with 36 producers and 29 technicians (purposive sampling).
- Focus Group Discussions (FGDs) with dairy producers (purposive random sampling).  
A total of 8 FGDs with 5-10 participants/group.



### 05. FINDINGS

#### Awareness, Trial, and Adoption



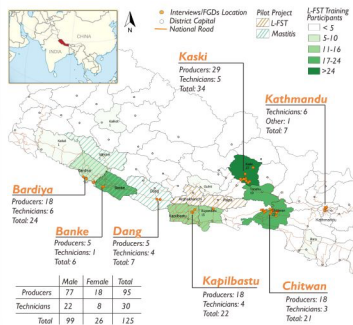
#### Important Perceived Characteristics

Relative (dis)advantages: (i) potentially improved animal health and milk production; (ii) could be time consuming and labor intensive. Complexity: L-FST was easy to use but farmers required practical training and field experiment to observe the benefits of adoption. Compatibility: (i) innovation's use depended on perceived urgency; (ii) innovations required more resources that were not accessible for some farmers (e.g., feeders, test kits, dip chemicals, mineral blocks).

#### Limiting Factors

- Inadequate training and persuasion from change agents.
- Lack of access to extension services and local technicians.
- Difficulties to try innovations (e.g. unsupportive device).
- Lack of motivation due to small livestock holding and small source of livelihood not coming from dairy farming.
- Limited availability of local feeders and animal medicine.
- Lack of time, manpower, and financial resources.

### MAP OF INTERVIEWS/FGDS LOCATIONS, PILOT PROJECT DISTRICTS, AND L-FST TRAINING PARTICIPANTS



### 06. CONCLUSION

1. Trial and adoption of L-FST was lower than mastitis control, but one third of producers using PMTD discontinued.
2. The perceived relative advantages of innovations were cited as the key motivations for uptake, but were undermined by difficulties in trying & using the technologies, including time and labor requirements.
3. Adoption & dissemination of innovations were limited by the insufficient level of training & persuasion efforts, farmers' small livestock holding, & low access to technological inputs

### 07. RECOMMENDATIONS

1. Improve Training Programs by targeting the right agents, explaining the value of sharing, giving incentives for local technicians to follow up, and reinforcing the involvement of key players in livestock sector development.
2. Revitalize the Roles of Cooperatives to improve access to livestock technicians, extension services, procurement of technological inputs, and assistance in taking up innovations.
3. Improve Innovation Designs. Equipping mobile app with video/graphic tutorial and help menu.

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