



# Improving the traditional dairy sector in Assam: policy, practice and incentives

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In India, milk makes a significant contribution to the nutrition of consumers, and the livelihoods and nutrition of millions of dairy producers, traders, and cottage processors, but milk quality and safety remains a major issue in the country.

The informal milk market dominates the sector (about 80%) in India. In some parts of the country, it is even more important, for example in Assam 97% of milk is marketed through informal sector (ILRI 2007).

A number of zoonotic pathogens, including tuberculosis, brucellosis and Q fever, circulate in India. Some of these can be transmitted through milk, and may cause serious illness in humans. Moreover, milk offers an excellent growth medium for other pathogens and is often inadvertently or deliberately contaminated with other hazardous substances, such as disinfectants.

## An intervention for milk safety

In 2006–2007, the International Livestock Research Institute (ILRI) conducted a comprehensive study on the dairy sector of Assam state. Based on the findings of the study, an action research project was designed and piloted in 2009–2013 in Guwahati, the capital city, and major milkshed, of the northeast Indian state of Assam. The project sought to improve the hygiene and quality of milk marketed by informal market actors (producers, traders and sweet makers) through a training, monitoring and certification program.

Adapted to the context in Assam, the project drew on lessons from the ILRI East African model of informal dairy

development. Researchers first conducted a baseline survey on milk quality, informal milk business economics and knowledge, attitude and practices of the market actors. This was followed by a rigorous process of designing and developing customized training materials for the market actors.

ILRI researchers estimated that there were around 400 traders and 800 producers in the main milk shed in and around the city. They sought to provide training to as many as possible on hygienic milk production, handling and marketing to ensure that most consumers in the city benefitted from the intervention. In total, 265 traders and 480 producers were reached during the project. This was sufficient to cover most domestic milk consumed in Guwahati, a city with a population of approximately one million.

A peer-monitoring system subsequently established, comprising a hygiene committee of trained actors, monitored the hygiene practices of fellow market actors for about six months following a simple protocol and a tool. Successful adopters of improved practices were offered a training certificate by the Joint Coordination and Monitoring Committee (JCMC), a committee of all relevant government departments and ILRI constituted under the aegis of the project.

In addition to the training, information campaigns were carried out in the media targeting the general public. Key to the success of the project, scientists helped establish a platform for policy engagement, in which all relevant government departments, including the dairy development,

health and veterinary departments, as well as the municipal corporation, participated to integrate their respective initiatives towards a common cause.

The platform also facilitated the establishment of a mechanism for communication between market actors in a sector; heretofore, dominated by mistrust, offering them a tool to discuss and resolve issues pertaining to the sector and the initiative. This was the first such initiative designed for the informal dairy sector in Assam state, and perhaps the country.

The impact of the pilot initiative was assessed in 2012 by repeating the survey conducted in 2009, among the trained and untrained market actors. It looked at knowledge differences before and after the interventions, and with or without interventions. In 2014, another survey was conducted to assess the indirect effect of the intervention on milk productivity, mastitis prevalence, and milk hazards in terms of antibiotic residues, aflatoxins, and the presence of *Brucella abortus* antibodies.

Table 1. Improvement in knowledge of disease transmission among milk producers and traders after the intervention

	Believe diseases can be transmitted from dung	Believe diseases can be transmitted from milk
<b>Milk producers</b>		
2009	2.7% (11/404)	13.0% (52/401)
2012	37.2% (60/161)***	35.4% (57/161)***
Trained (2012)	69.8% (37/53)***	64.2% (34/53)***
Untrained (2012)	21.3% (23/108)	21.3% (23/108)
<b>Milk traders</b>		
2009	1.1% (2/175)	9.1% (16/175)
2012	47.1% (106/225)***	41.5% (93/224)***
Trained (2012)	63.9% (78/122)***	64.8% (79/122)***
Untrained (2012)	27.2% (28/103)	13.7% (14/102)

\*\*\* Significant difference at  $p < 0.001$  between 2009/2012 or between trained/untrained

### Effects of the intervention

- Milk producers that had been trained had significantly more knowledge about disease transmission (Table 1), and were more aware of the diseases that could be transmitted to humans.
- Farmers trained between 2009 and 2012 produced 12% more milk per cow than untrained farmers. Untrained farmers reported a decrease in milk production over the same period.
- Prevalence of subclinical mastitis was lower in the trained rather than untrained group. There was no difference in presence of antibiotic residues or aflatoxins in milk or seroprevalence for the zoonotic *Brucella abortus*, which is not surprising as the training program did not include these aspects.
- Average quantities of milk sold by trained traders was higher (151 litres) than that sold by untrained traders (90 litres). The average selling price for milk received by trained traders (INR 31.01) was higher than for untrained traders (INR 30.20).

- An economic assessment indicated sector level benefits of at least USD 5.6 million. The internal rate of return of the intervention was estimated as 224%.
- Training materials have been widely disseminated and used in couple of other dairy projects in India.
- By working with traders and farmers, the intervention was able to reach large numbers of consumers in Guwahati city.



### *Outcomes of the policy initiative*

- Although many officials at the Dairy Development Department (DDD) initially expressed reservations about the initiative, following its successful piloting, informal dairy sector work became an important part of the department's activities.
- The Government of Assam has given the DDD authority to check milk quality and safety, by appointing selected dairy officials as food safety officers under the Food Safety and Standard Act (FSSA) of India. This role had been restricted to the Human Health Department which often lacks the human resources and skills to carry out dairy inspections. This is the first instance in India of dairy officers being given responsibility for milk safety and will greatly increase capacity for milk safety on the ground.
- For the first time ever in Assam state, and probably in India, public funds were devoted to work on the informal dairy sector. The evidence generated by the ILRI project has helped persuade the World Bank and the government of Assam to replicate the project in a further 16 districts in northeastern state. The next phase of the World Bank-funded 2017–2024 project, Assam Agribusiness and Rural Transformation (APART), will receive approximately USD 12 million in financing.
  - With extensive technical support from ILRI, the new initiative will be the first major intervention in the informal dairy sector in India.
  - The APART project plans to use the learning principles designed for the informal dairy sector initiative to improve the informal pork value chain in Assam state, also under the technical guidance of ILRI.
- The research findings from the informal dairy initiative also suggest additional areas for future work including targeted interventions for zoonoses control, aflatoxin management and the prudent use of antibiotics.



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Johanna Lindahl, Ram Pratim Deka and Delia Grace work for the International Livestock Research Institute. This is one of a series of briefs documenting the impacts of ILRI's research..



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