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"Bridging the gap between increasing knowledge and decreasing resources"

An Actor-Oriented Analysis to Identify Postharvest-Losses in Small-Scale Milk Production Systems in Nakuru, Kenya

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Abstract

Various reasons for postharvest-losses (PHL) along the milk value chain have been identified in scientific studies, whereby some, such as spillage and spoilage occur on farm and are described as resulting from "poor handling practices". In order to support smallholder dairy farmers to reduce such losses, we use an actor-oriented approach, based on the concept that production systems are purposive human activity systems, in which production is not merely a function of material flow but rather of farmer management determined by their knowledge of the complex socio-ecological system. Especially in small-scale production systems, farmers act under conditions of constraint which highlight the importance of understanding why farmers do what they do. By conducting an activity and knowledge analysis the current study aimed to identify reasons for PHL and derive improvement strategies that are reasonable from the smallholder dairy farmer's perspective. Field data collection was conducted in two distinct study sites of Nakuru County, Kenya. The study used a multi-method approach, combining semi-structured interviews with 47 farmers, focus group discussions (n=3) and participatory observation of the milk handling practices. Furthermore, quantitative data on milk production and marketing were collected monthly with >70 farmers. Qualitative data were structured using content analysis. In order to access the knowledge guiding farmers' practices such as the rules that underlie their routine and problem solving actions, a cybernetic knowledge analysis was conducted. The results show that with regard to milk spoilage, producers describe specific cause-effect relations. They differentiate traits of milking equipment and parlours, assess their activities of milk gaining and storage process, and for all observe related sources of contamination. Underlying problems described by the producers are e.g. lack of means to construct cemented cowsheds and parlours, which would promote animal cleanliness and health, as well as safe milking. Despite this awareness, current low gains from milk production hinder and disincentivize investment in improving milking practices. Hence, training on milk handling will not yield enhancements. Co-developing improvement options that combine farmers' knowledge with technical innovations will offer most opportunities for reducing milk losses and improving quality.

Keywords: Knowledge analysis, post-harvest losses, small-scale dairy production, systems approach

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