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“Filling gaps and removing traps
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Challenges and Opportunities for the Implementation of an Innovative Solar Milk Cooling System in Kenya

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Abstract

While the need to preserve evening milk by smallholder dairy farmers is well understood, much less has been documented on the adoption dynamics in small scale systems for addressing these demands.

The solar milk cooling system (SMCs) represents an innovative solution to cool milk on farm level. It is possible to use the SMCs to cool up to 40 liters of evening milk notably in off grid contexts. To enhance understanding of SMCs adoption, this study explores the introduction and implementation of SMCs in Western-Kenya. A mixed methods approach was adopted in which quantitative data (milk volumes, number of farmers, payments) and qualitative data (surveys, semi-structured interviews, focus groups) were collected. Two systems were installed in March 2018 to collect the evening milk which was previously not being collected due to lack of storage facilities. The study also implemented a willingness to pay study and the results used to develop a payment plan signed by both groups to pay for the system through monthly installments. Additionally, a one year monitoring study was conducted in order to capture the reality and dynamics around the system. The results show that the implementation of the technology in Kenya and its success depends largely on non-technological factors: market insecurities (the price difference between the informal and the formal market); institutional challenges (payments modes, governance structures); seasonality of milk production; and the social relationships between the different actors. These results also reflect the finding that both of the study regions were unsuccessful in reaching the targets that were discussed in the agreements. While cooling is indeed needed in these regions, unless the above mentioned challenges are addressed, unstable and inconsistent adoption will undermine the overall potential benefits occurring from the sale of cooled evening milk. This study presents an example of the importance of a multi-disciplinary approach to understand the local context where an innovation is tested.

Keywords: Adoption, cooling, innovation, milk, small-scale farms, technology