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Improving the Value Chain of Milk through Solar Milk Cooler in Ethiopia

Tigist Kefale Mekonen

Debre Markos University, Agricultural Economics, Ethiopia

Abstract

Ethiopia has a large potential in livestock production being the 1st among African countries and 9th in the world. Dairy farming contributes to the livelihoods of 1.7 million livestock farmers. About 4 billion liter of milk is produced in Ethiopia per year among, which smallholder farmers produce about 98 % of the milk. FAO recommends that the per capita consumption of milk be about 200 liters, which means 22 billion liters of milk is required. However, at the current production rate, there is an annual shortage of about 18 billion liters. Hence, in Ethiopia per capita consumption is less than 20 liters. The demand for milk products is rising rapidly in Ethiopia but quality milk supply is not enough due to high post-harvest loss. High perishability of milk and lack of refrigeration in rural areas are leading to millions of tons of fresh produce of milk going to waste every year; even the evening milk is not collected for the market and the income of smallholder farmers are getting low. Therefore, milk cooling facility is a vital technology for storing and transporting milk products. Though, this cooling process is limited or not applied in rural areas due to no access to conventional electric grid and high costs of standalone diesel generators. This problem creates an opportunity for introducing sustainable renewable energy, mainly solar milk cooler. As photovoltaic systems have the potential to be acquired in rural areas throughout the year, this technology is a viable energy source option. The cooling of milk while stored on the farm followed by the cooling during transport has a great role for the different stakeholders along the value chain. Therefore, this project aims to improve the profitability of smallholder dairy farmers and increase access to quality milk for the surrounding community by reducing post-harvest losses of milk through the use of solar milk cooler with the help of different stakeholders and funders.

Keywords: Ethiopia, post-harvest loss, smallholder farmers, solar milk cooler

Contact Address: Tigist Kefale Mekonen, Debre Markos University, Agricultural Economics, Debre Markos, Ethiopia, e-mail: kefale.tigist@yahoo.com