AN ANALYSIS OF DAIRY INNOVATIONS AND THEIR CONTRIBUTION TO DAIRY FARMERS' WELFARE IN SELECTED COUNTIES OF KENYA

By

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A80/54756/2019

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ABSTRACT

The Kenyan dairy subsector has a potential of improving household income and reducing poverty amongdairy farmers through provision of regular income from milk sale. The subsector is however faced with various challenges including low milk yields per cow, seasonal fluctuations in milk availability and prices with reduced production levels during dry season, adulteration, fragmentation of milk production between small farms, milk collection costs, high level of antibiotics in milk, presence of aflatoxin M1 in milk and high level of microbial load among other challenges. In response to these challenges, the Government of Kenya together with its stakeholders have intervened through promotion of local animal feed sourcing, improving cow feeding, health management and hygienic milking as well as promotion of exotic breeds all aimed to increase production quantity and decrease seasonality. Other interventions by dairy stakeholders that are aimed at ensuring efficiency in terms of reducing deliver time in the milk supply chain include supply of cooling systems in the dairy cooperative societies, use of appropriate milk cans with an intention of reducing milk losses. A quality based payment system that is aimed at ensuring dairy farmers supply quality milk to the dairies has also been piloted by Happy Cow limited. Despite the Governmentôs and its stakeholdersô interventions, dairy farmers are still faced with a challenge of seasonality in milk supply due to inability to produce and preserve fodder and also the raw milk that they sell sometimes do not meet quality and safety standards.Furthermore, quality and safety of milk sold to consumers in the market is not guaranteed. This study that will be carried out in milksheds of Mukurweini Wakulima Dairy, Happy Cow ltd and New Cooperative Creameries Sotik factory aims to analyse the dairy innovations that are currently adopted by dairy farmers and their contribution to dairy farmersô poverty level. Using a semi-structured questionnaire coded in Open Data Kit (ODK) platform to capture data electronically, allow for real-time data entry and management, 968 dairy farmers will be interviewed with the aim of achieving four objectives. To characterize dairy innovations currently adopted by sampled dairy farmers, a Non-Linear Principal Component Analysis (NLPCA) will be used. An ordered probit model will be used todetermine factors that influence the adoption of dairy innovations.To model scenarios of technical, organizational and institutional innovations that make milk collection systems efficient and inclusive, a system dynamic model will be used. Finally, the fourth objective on evaluation of the effect of

innovations ondairy farmerôspoverty level, Principal Component Analysis (PCA) will be used to establish the poverty status of household using asset based index which will be used as a proxy of household welfare status. A quintile regression will then be used to assess effects of dairy innovations on dairy farmersô poverty level. The study is expected to inform on the best bet scenarios of dairy innovation that ensure efficient and inclusive milk supply by dairy farmers in each milkshed and establish effects of dairy innovationsondairy farmerôs poverty level through a PhD thesis, four journal articles and a policy brief.