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Research Application Summary

Assessment of milk safety practices among smallholder dairy farmers in Nyandarua West Sub-County, Kenya

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Abstract

Milk safety practices are the significant aspects in ensuring safety of milk. This is because the consumers only demand the quality products that are safe for their health. These include the practices that farmers need to put into consideration to reduce milk contamination such as cleaning the udder using warm water by wiping and drying it with a clean dry cloth, checking for mastitis using strip cup, using milking salve during milking to stimulate milk letdown, use of aluminium containers for milking and transporting the milk, Cleaning the milking containers regularly, the person milking should wear a clean dust coat, gumboots, mavin, cut hair and fingers short during milking, the milking shade should be thoroughly cleaned by disposing off cow dung, disinfecting the shade against pests using a proper pesticides, filtering the milk using proper ways and a clean sieve or piece of cloth, storing milk in a dry cold room or refrigerators and proper boiling if there is need. Additionally, farmers, should strictly adhere to the waiting period after treating an animal. The milk rejection cases in Nyamarura dairy cooperative has been on the increase. This has decreased the aggregated volume of milk from 1560 litres to 800 litres according to Nyamarura Strategic Plan 2017-2018. The reason for this is not well known. Therefore, research was undertaken to examine milk safety practices that must be implemented efficiently by dairy farmers in order to preserve twith safety and decrease cases of milk rejections at the cooling plant. A structured questionnaire with both open ended and closed ended questions was used as a primary tool to collect data from 138 respondents. Proportional sampling was used to select the dairy farmers in the four sub-counties. It was found out that only 70% of the farmers adopt the milk safety practices which include: use of pots, plastic containers and sufurias for milking and transportating the milk, detect mastitis, filter the milk, store the milk and use milking salve during milking but they were not used in an efficient and effective manner. Hence, it is recommended that trainings,other mentorship programs, coaching and workshops be used to enhance their skills of the farmers. Dairy farmers depend on extension services as the main source of information. The farmers do not depend on other online platforms (WhatsApp, Facebook, twitter, and LinkedIn) to share information.

Key words: Awareness, Kenya, mastitis, sources of information

Résumé

Les pratiques de salubrité du lait sont les aspects importants pour assurer la sûreté du lait. En effet, les consommateurs ne demandent que des produits de qualité sans danger pour leur santé. Il s'agit notamment des pratiques que les éleveurs doivent prendre en compte pour réduire la contamination

du lait, telles que le nettoyage du pis à l'eau tiède en l'essuyant et en le séchant avec un chiffon propre et sec, la recherche de mammites à l'aide d'un gobelet à bandes, l'utilisation d'un baume de traite pendant la traite pour stimuler la descente du lait, utilisation de récipients en aluminium pour la traite et le transport du lait, nettoyage régulier des récipients de traite, la personne qui traite doit porter un manteau anti-poussière propre, des bottes en caoutchouc, un mavin, les cheveux coupés et les doigts courts pendant la traite, l'ombre de traite doit être soigneusement nettoyée en jetant bouse de vache, désinfecter l'ombre contre les parasites à l'aide de pesticides appropriés, filtrer le lait en utilisant des moyens appropriés et un tamis ou un morceau de tissu propre, stocker le lait dans une chambre froide sèche ou des réfrigérateurs et faire bouillir correctement si nécessaire. De plus, les agriculteurs doivent respecter strictement la période d'attente après avoir traité un animal. Les cas de rejet de lait dans la coopérative laitière de Nyamarura sont en augmentation. Cela a réduit le volume agrégé de lait de 1560 litres à 800 litres selon le plan stratégique de Nyamarura 2017-2018. La raison de ceci n'est pas bien connue. Par conséquent, des recherches ont été entreprises pour examiner les pratiques de sécurité du lait qui doivent être mises en œuvre efficacement par les producteurs laitiers afin de préserver la sécurité et de réduire les cas de rejets de lait à l'usine de refroidissement. Un questionnaire structuré avec des questions ouvertes et fermées a été utilisé comme outil principal pour recueillir des données auprès de 138 répondants. Un échantillonnage proportionnel a été utilisé pour sélectionner les producteurs laitiers dans les quatre sous-comtés. Il a été découvert que seulement 70 % des éleveurs adoptent les pratiques de sécurité du lait, notamment : l'utilisation de pots, de récipients en plastique et de sufurias pour la traite et le transport du lait, la détection de la mammite, le filtrage du lait, le stockage du lait et l'utilisation d'un baume de traite pendant la traite, mais ils n'ont pas été utilisés de manière efficace et efficiente. Par conséquent, il est recommandé que les formations, les autres programmes de mentorat, le coaching et les ateliers soient utilisés pour améliorer leurs compétences des agriculteurs. Les producteurs laitiers dépendent des services de vulgarisation comme principale source d'information. Les agriculteurs ne dépendent pas d'autres plateformes en ligne (WhatsApp, Facebook, Twitter et LinkedIn) pour partager des informations.

Mots clés : Sensibilisation, Kenya, mammite, sources d'information

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Introduction

Milk is a very crucial diet in the human body (Kamana *et al*., 2014) Milk and other dairy products are the mostly used source of food in developing countries since they are affordable (Alonso *et al*., 2018; Muunda *et al*., 2021). Dairy farming is the most common source of livelihood for smallholder farmers in Kenya (Kamana *et al*., 2014; Msalya, 2017). Demand for the dairy products in developing countries is rising due to high population growth, rising incomes and changing lifestyles. There is a need for the dairy farmers to ensure safety food standards in order to capture a larger market share since the demand for milk and other dairy products is growing (lemma *et al*., 2018). They are the factors that lead to poor milk handling at the farm level. These could be lack of knowledge, inadequate milking facilities and ignorance of the farmers towards adoption of safety milk practices. In Nyandarua County dairy pin Kenya, initially farmers marketed their raw milk directly to consumers through the informal market channels (KDB, 2015). Currently the farmers have formed cooperatives in order to sell the milk in bulk to Brookside company. This has enabled them to improve the health requirements in dairy firms and licensing managers in the

cooperatives (FAO, 2011). However, the milk rejection cases are experienced widely. Milk is often prone to contamination and spoilage if not well handled at the farm level by the dairy farmers. Several researchers have reported that milk is an ideal growth medium for micro-organisms. (Ali and Abdelgadir, 2011). According to Yilma (2010) the aluminium containers are used for holding the milk to avoid the reaction of the milk with the containers. According to FAO (2013) milk should be stored in good conditions such as low and cold temperatures to avoid fermentation of milk. Farmers should ensure that the containers for milking and holding milk especially during the transportation to the cooling plant should be made of aluminium or stainless containers because they do not react with the milk easily (Yilma, 2010).

Farmers should also ensure that there is proper environmental and social economic management of the dairy animals at the farm level. That is, the dairy animals' welfare should be considered and animal nutrition that is enough water and feeds should be given to animals (FAO, 2011). Post milking safety practices should also be considered. That is, milk should be stored in good conditions such as clean aluminium containers. According to FAO (2013), the work force in the farm influence quality of milk production.

Kumar *et al*. (2017) indicated that for farmers to adopt milk safety practices, they should first be aware of the milk safety practices and clean milk production. The Nyamarura dairy farmers had to make use of the trainings offered by the extension agents and Brookside Company stakeholders in order to increase the stock of knowledge on various milk safety practices at the farm level (KDB, 2015). This is because low level of adoption of milk safety practices results in low incomes since low volume of milk is sold and a high volume is rejected due to contamination (Ngigi, 2004). Hence this study was undertaken to assess and understand milk safety practices amongst farmers of the Nyamarura Dairy Cooperative.

Methodology

Study area. The study was conducted in Nyamarura FCS situated in Charagita Ward, Nyairoko location in Nyandarua West, Kenya. It is located between latitude of 00 and 80 North and 00 and 50 South and between the longitude of 350 and130 East and 360 and 420. Over 70% of residents in the study area rely on dairy farming for their livelihoods. The study area has low temperature and cold climate which supports the keeping of exotic dairy breeds like the Friesian and the Guernsey.

Sampling procedure. The study adopted the survey research design. Mult-stage sampling technique was used as follows: Nyamarura Dairy Cooperative, the leading Cooperative in milk rejection cases was chosen purposely. It is within the leading milk production county (Nyandarua West sub county. Of the 14 sub-locations, four sub-locations were purposively selected because they joined together and formed Nyamarura Dairy Cooperative. The four sub-locations were; Nyairoko, Matindiri, Ruiru and Oraimutia. Finally, proportional sampling was used to get a sample size of 138 dairy farmers from a population of 250 registered dairy farmers from the four sub-locations, where 38 were from Nyairoko sub-location, 34 from Matindiri Sub-location, 35 from Oraimutia and 31 from Ruiru.

Results and Discussions

The statistics reveal that 37% of the farmers had attained primary, 33% secondary, 17% diploma and 13% university education. The level of education was significantly related to milk safety

practices since the greater the education level, the more the safety practices are implemented.

The pie chart below (Figure 2) shows how farmers stored milk in the farms. It indicated that most of the farmers sold milk directly to the cooling plant. A larger percentage of the smallholder dairy farmers were not aware of milk safety practices such as checking for mastitis, milk storage and filtering. Some appeared resistant to change because the theory of utility states that farmers adoption of a technology that satisfies them and also, they have to make a choice.

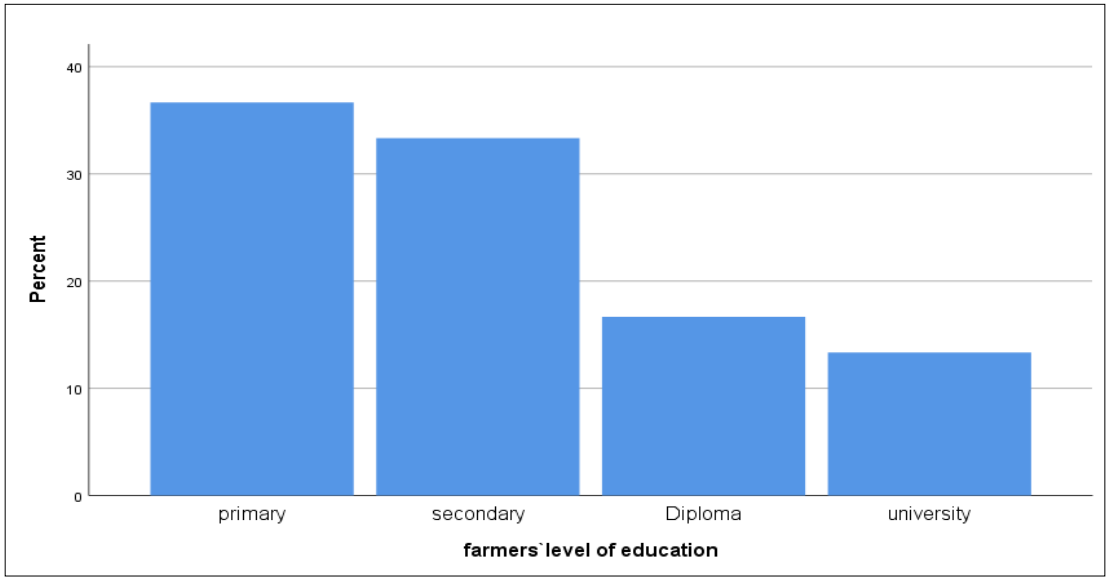

Figure 1. Dairy farmers' level of education

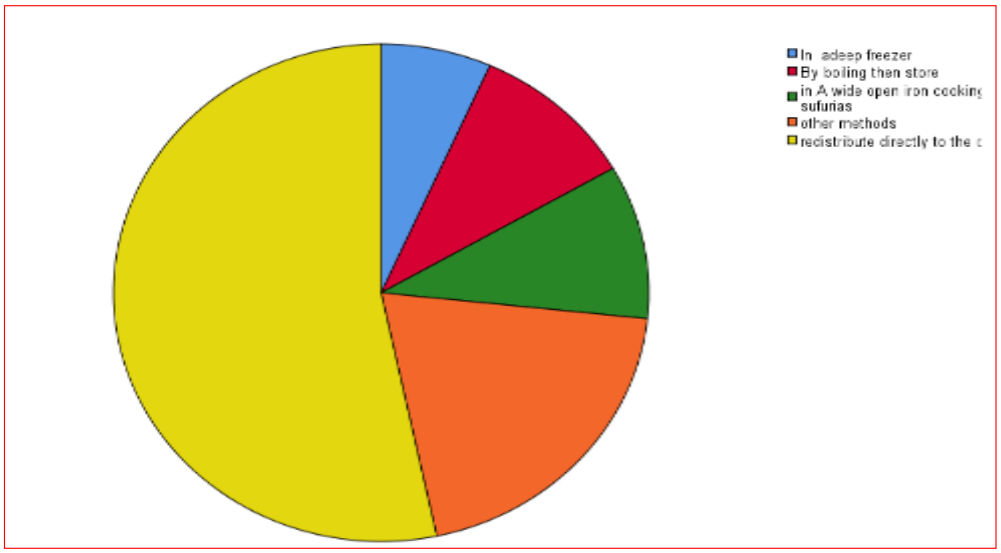

Figure 2. Ways of storing the milk on the farm

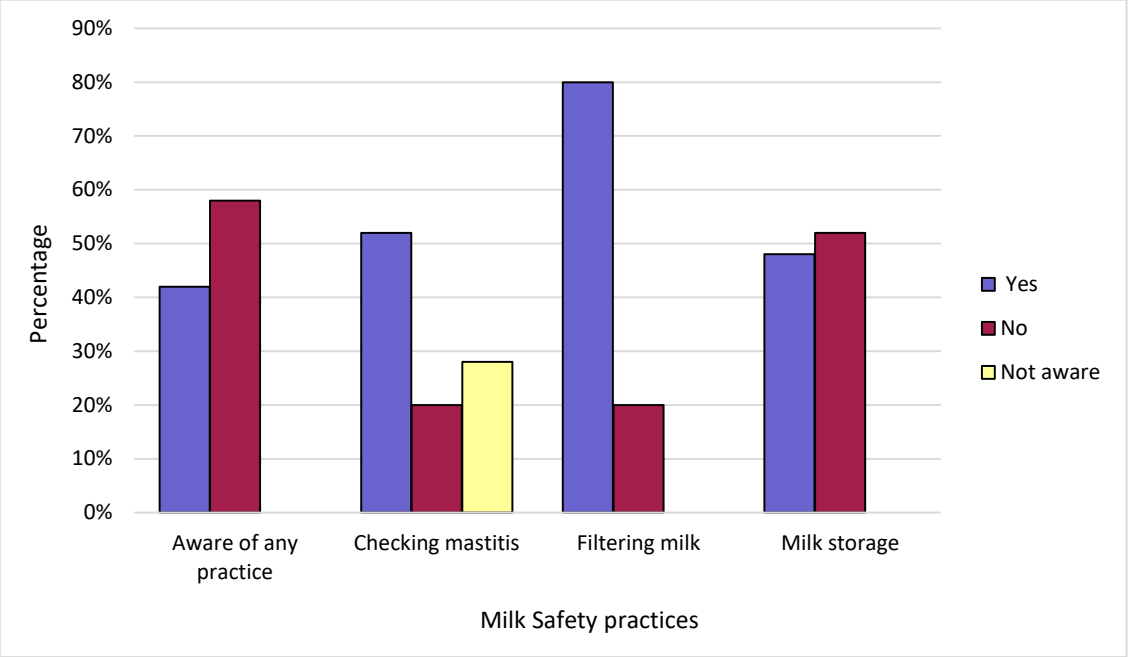

Figure 3. Level of awareness of farmers on milk safety practices

Farmers mostly depended on extension services as the main source of sharing and exchanging agricultural information (Figures 3 and 4). They were not yet exposed to receiving online platforms such as Facebook, WhatsApp, LinkedIn, twitter and other ICT and mobile apps (Digi farm, Shamba shape app) that have been implemented to share information on the dairy value chain and milk safety practices.

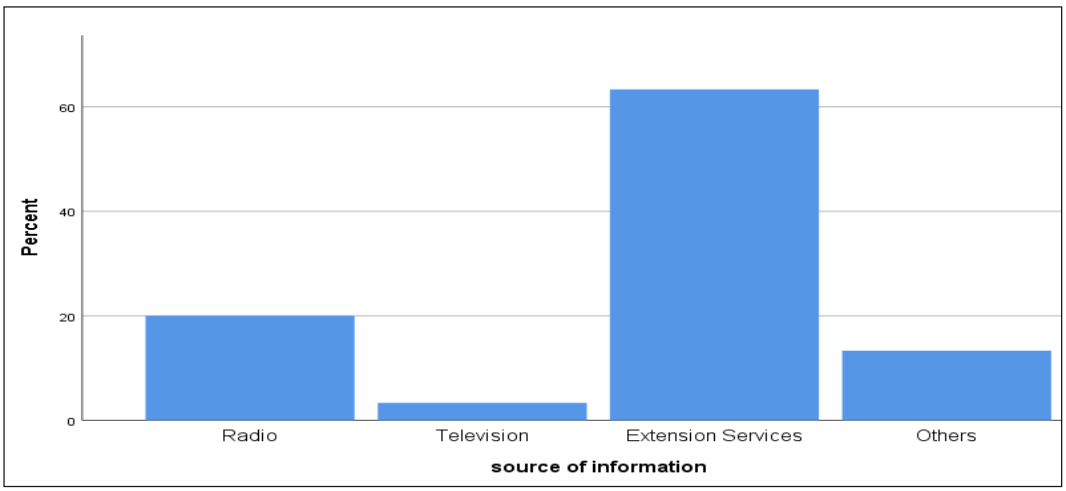

Figure 4. Sources of information on milk safety

Recommendation

Extension services should be tailored to help the Nyamarura Dairy farmers to improve their milk safety practices at the farm level which would result in clean milk production and milk safety. The meetings, agricultural seminars and the trainings should be tailored to empower the farmers with milk safety skills. Farmers should also be trained to engage in online platforms so as to get information pon the mik safety practices. Such programs would result in reduced milk rejection cases in the cooling plant.

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