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THE ADOPTION STATUS OF DAIRY FARMING TECHNOLOGIES BY RURAL WOMEN IN KHWISERO, KAKAMEGA COUNTY

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Abstract

The study from which this paper is drawn was carried out in 2017 at Khwisero sub-county, Kakamega County in Kenya. The study aimed to establish the status of adoption of dairy technologies by the rural female farmers in the location of study. It employed a descriptive survey research design to collect both qualitative and quantitative data. The target population for the study comprised all women who were dairy farmers in the cooperative group in Kwisero. Random sampling was used to sample location and sub-location and to select 72 respondents from the target of 720. The findings indicated that the adoption of dairy farming technologies by women farmers was low. The technologies in question included exotic dairy cows, high production fodder crops such as nappier grass, mullato and sweet potatoes vines; coupled with the preservation of these fodders. It could also be ascertained that low status of adoption was due to family preferences and unavailable disposable resources to meet immediate family needs as well as the complexity of managing dairy farming technologies. This was resultant to most women being left out in decision making concerning land and activity allocated to it. The household gender differences have an influence on women's capability of dairy technology's choices and capacity to adopt. The study therefore recommended that implementers should note the different roles played by women and men as well as involvement of both genders in the dairy farming technologies calendar. This would go a long way in aiding technological awareness processes and improve the status of adoption.

Keywords: Rural women dairy farmers, Status of dairy technologies adoption, Gender roles, Household gender differences.

Introduction

The United Nations General Assembly 2030 Agenda set out 17 Sustainable Development Goals (SDGs). The SDG 1 and 2 envisions strategy of eradicating extreme

hunger and poverty (Unesco, 2015). The use of appropriate technologies by rural women dairy farmers could help meet the envisioned goals. Further these technologies can help in meeting the demand for dairy products. The other benefit of the technologies would be the mitigation of global climate change.

According to FAO (2013) gender mattered in the adoption of dairy farming technology. This is because women and men played different roles in dairy farming activities. In the previous FAO (2011) report, statistics indicated that rural women comprised an average 43% of the daily dairy labour force globally. Yet they had still to fully adopt and utilize the available dairy farming technologies. Rural women played a role in dairy farming activities albeit in varying status and degrees of adoption across the world (FAO, 2011). Further, the report asserted that understanding inequalities in adoption and sustainable use of dairy farming technologies by innovators of technologies was not as robust as it should be in most countries across the world.

Garcia et al. (2012) found that in Central Mexico adoption of dairy farming technologies by rural women spanned an increment of over 5000 Kgs of milk per cow in 2010. Likewise, FAO (2010) reported that one New Zealand dairy cow produced as much as five dairy cows in India. This was seen as an outcome of gender equality and equity in adoption of dairy farming technologies among members in households. Studies in India too found out that the adoption of dairy farming technologies by Indian rural women, transformed them into major contributors of national socio-economic growth (Vamsidhar, 2014; Aditya, and Gilespie. 2014).

A review of studies in Africa by Doss (2001) and Sulo et al. (2012) established a disparity between dissemination and adoption of dairy farming technologies among rural women dairy farmers. These discrepancies were also observed in other empirical studies carried out in Ethiopia, Ghana, Nigeria, Malawi and Benin (Tiruneh et al., 2001). This may suggest that dissemination or creation of awareness does not necessarily translate into adoption but rather that interplay between the attributes of the technology and the adopter may play a major part as well. According to Tiruneh et al. (2001) identifying the dairy farming technologies adoption process and causes of gender-based disparities were fundamental in unraveling the reasons behind the slow embrace of helpful technologies among rural dairy women in Africa.

Bongiwe and Susan (2015) too established that women made up 52% of the total population in the dairy sector, and were responsible for roughly 50% of the manual labour on African farm land. Yet, dairy development agencies put great responsibility on African rural women

than men in the adoption of dairy farming technologies. For these reasons, more efforts were needed in identifying strategies in helping female dairy farmers in rural areas to warm up to helpful dairy technologies.

Status of Adoption of the Dairy Farming Technologies by Rural Women

There was a direct relationship between the level of adoption of dairy farming technologies and dairy produce output. The technologies which can improve dairy production comprise exotic dairy cows, high production fodder crops such as nappier grass, mullato and sweet potatoes vines; coupled with the preservation of these fodders. Rural women's involvement in the adoption of these technologies is crucial in consideration to the essential roles they play in the industry. Understanding the status of adoption by rural women dairy farmers was important as these influenced farming decisions; including choice and adoption of dairy technologies. There is a general notion that the state of adoption by rural women was not as vibrant as expected especially when compared to that of men across the world.

Njuki et al. (2013) carried out a study in Mozambique on the gendered impact of agricultural asset transfer. They found out that the status of technological adoption was low because dairy cows were considered men's property; except in women headed households. From common knowledge, gender power relations exist in most African households. This is resultant to socialization on gender roles and resource ownership among families. In order to support the notion, information is required on different status of adoption by rural women. This could be an avenue to help dairy stakeholders in understanding the implication of gender perspectives, especially, implication of resource ownership to adoption of these technologies as well as the appropriate processes for intervention at the household level.

Another study by Njarui et al. (2012) in Kenya and Uganda on production characteristics and gender roles in dairy farming established that 15% more female-headed households in Uganda adopted dairy farming technologies in comparison to their counterparts in Kenya. This was attributed primarily to Non-Governmental Organization(NGO) interventions through projects that donated of dairy cows to widows whose husbands had succumbed to HIV and AIDS. In contrast, a study by Baltenwek et al.(2006) in Kenya and Uganda on dynamic changes in dairy technologies uptake indicated that the majority of cows owned by rural women dairy farmers were purchased from own savings or loans from micro-finance banks.

Doss et al. (2015) study in East Africa on gender matters and understanding farm level technologies revealed that women and men differences in preferences and choices influenced

the levels of adoption of technologies. The researchers added that unequal gender relations were taken for granted during innovations of technologies. In addition, Kingiri (2010) study on gender and agricultural innovations indicated that unequal access to resources and gender disparities in labour division had made technological innovations of more benefit to men than women by lessening the workload of men and increasing the activities linked to women. This might implied women status in the society was influenced by socialization that a scribed women physical labourers and men property owners and users of machinery. Thus, a more proactive and practical strategies are yet to be determined, that could unlock socio-cultural bottlenecks that have rendered women not to demand for and use of technologies, to ease the experienced labour burdens. Ragasa (2012) established that women's values of financial transactions, women's mobility, patriarchal power and assumptions reinforced gender stereotypes and led to their low status of adoption of technologies. A studyby Micere et al. (2016) on dairy stratification, women's decision making, time use and implications for child nutrition was conducted in Kenya. They found that the status of adoption of dairy farming technology to improve household welfare in rural areas was low. This, they said, was due to unforeseen cost of operation. In the study, technologies were perceived in terms of costs rather than end benefits.

STATEMENT OF THE PROBLEM

Non-Governmental Organizations, County and National Government allocated huge amounts of resources through smallholder dairy farmers' initiative programmes, especially through rural women dairy groups aimed at creating awareness and disseminating different dairy farming technologies amongst farmers. Despite this, the dairy industry in Kakamega County continued to perform way below its full potential. This was evidenced by milk deficit in the county, as most of raw milk sold in Kakamega town was procured from Nandi and Uasin Gishu Counties. It is possible that the low milk production could be attributed to low adoption of the dairy farming technologies by a majority of rural women dairy farmers. Consequently, one objective of the study was to determine the status of the adoption of dairy farming technologies by rural women in Kakamega County; with the aim of increasing dairy productivity.

OBJECTIVES

The general objective of the study was to determine the adoption of dairy farming technologies by rural women in Khwisero, Kakamega County. The specific objective from

which the article is based was to establish the status of adoption of dairy farming technologies by rural women in Khwisero, Kakamega County.

SIGNIFICANCE OF THE STUDY

By determining the dairy technologies adoption status, the dairy stakeholders can determine the success rate. This can also help in establishing if indeed the adoption status may be a major contributor to the low growth of the dairy industry in the County. Again this may aid in finding ways of improving the adoption rate.

METHODOLOGY

The study from which this paper is drawn was carried out in 2017 at Khwisero sub-county, Kakamega County in Kenya. The study aimed to establish the existing technologies in the location of study. It employed a descriptive survey research design to collect both qualitative and quantitative data. The target population for the study comprised all women who were dairy farmers in the cooperative group in Kwisero. The total population was 720 comprising of trained rural women in dairy farming technologies. Random sampling was used to sample location and sub-location and to select 72 respondents from the target of 720. The study used different instruments to collect both primary and secondary data. These included questionnaires, key informant interview guides, focus group discussions guides and an observation checklist.

RESULTS AND ANALYSIS

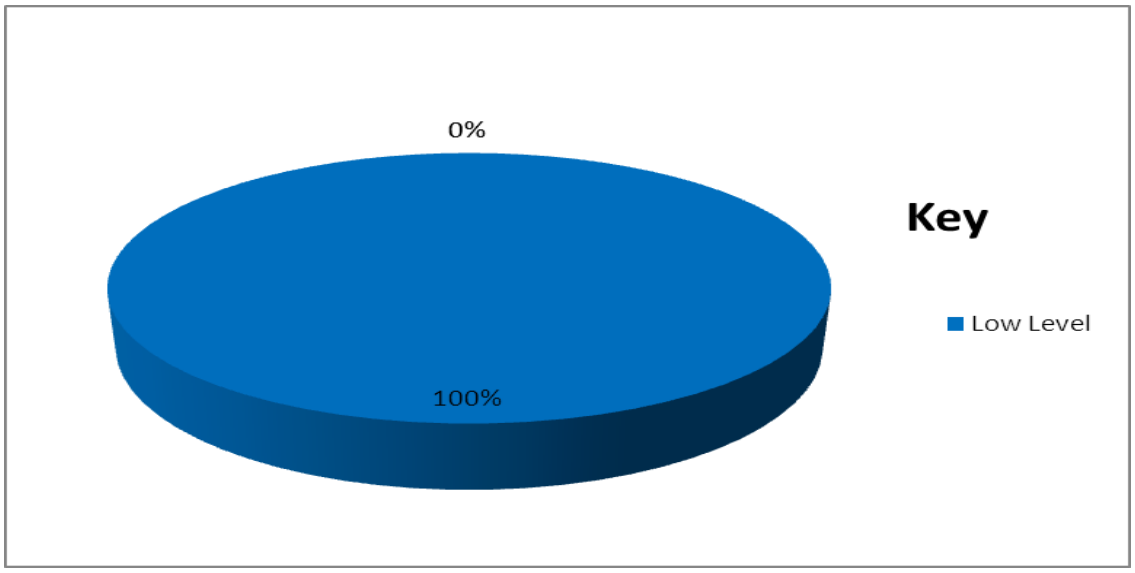

Figure 1: Status of Adoption of Dairy Farming Technologies by Rural Women Dairy Farmers

The study sought to find out the status of adoption of dairy farming technologies by rural women dairy farmers in the study area. *Figure 1* displays all the study's respondents (100%) confirmed low status of adoption of dairy farming technologies. In addition, the key informant classified progress of adoption as slow, low, and selective; singling out family priorities on pressing basic needs and poverty. This might be an indicative of more unknown barriers that are slowing rural women from adopting dairy farming technologies. In response to the question on reasons for low status of adoption during FGDs, respondents disclosed resource constraint in form of land being unavailable and low disposal income divided between family welfare and dairy technologies management.

The FGDs also disclosed that allocation of farming activities on available land was the role of men. On their part nevertheless, men tended to place priority on cash crops as well as sugarcane and food crops such as maize and banana at the expense of dairy farming. Other established causes of low status of adoption during FGDs were the experienced low farm gate milk prices, distance from main dairy markets, and inability by the County Government to establish milk market structures.

This was also pointed out by key informants that,

> *"Based on poor structures, some rural women here sold off adopted cows and they are planting fodder for sale to other dairy farmers"(*KIs NGOs Representative)

From the view of respondents, dairy farming activities in the study area were not taken as an economic activity but rather as a basis for meeting individual household gender needs, roles, responsibilities and power relations in term of resource allocation. As a result, the adoption of dairy farming technologies was low. It could also be ascertained that low status of adoption was due to family preferences and unavailable disposable resources to meet immediate family needs as well as the complexity of managing dairy farming technologies. The findings are in line with Social cognitive theory of gender development and differentiation Bassey and Bandura (1999) positing that gender differences were fundamental phenomenon that affects virtually every aspect of rural women dairy farmer's lives.

CONCLUSIONS

The Khwisero study established that the adoption of dairy technologies in the study area was low. This was because socio economic factors, gender needs, roles, responsibilities and household power relations determined the status of adoption. It was also proven that in many households in study area, land activities and resource utilization was planned by men. This implied that most women were left out in decision making concerning land and activity allocated to it. As such, household gender differences are likely to influence women's capability of dairy technology's choices and capacity to adoption. In this regard, therefore, implementers should note the different roles played by women and men as well as involvement of both genders in the dairy farming technologies calendar. This is can be used as a way to ease tension between men and women in a household, enhancement of technologies awareness processes and ultimately, improved the status of adoption.

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