4| **Impact of Value Chain Data on Women Rabbit Farmers in
Kilifi County, Kenya**

Bozo Jenje Bozo
Technical University of Mombasa, Mombasa, Kenya

Abstract

In the 50 year -African Union Strategic Plan of the Agenda 2063, the *"Africa We Want",* goal 3 of the Aspiration 1 on the prosperity of Africa emphasizes citizens' healthy and well -nourished persons in Africa. To align with the agenda, governments are working to provide supporting environment to avert food insecurity among women. To bridge the gap and the zero hunger goal, an assessment of value chain data on women rabbit producers is in line with Kenya Vision 2030 is important. The study in Kilifi County is aimed at finding out the impact of value chain data on women rabbit producers. The research design employed was quantitative and the sampling techniques were convenience and snowball. The mode of data collection was through structured questionnaires issued to the women rabbit producers by the Research Assistants. The respondents were drawn from a representative sample of 63 women rabbit farmers with at least 5 to 10 rabbits, in the 7 Sub-Counties of Kilifi County including Kaloleni, Ganze, Rabai, Malindi, Kilifi North, Kilifi South and Magarini. Data was analyzed using Statistical Package of Social Science (SPSS) to obtain descriptive statistics and percentages that are presented in tables and charts for interpretation. The findings revealed that women rabbit producers had relationships with veterinary services at 24.4%, Agricultural extension officers at 15.6%, feed stockiest at 13.3%. On food security and nutrition, 22.2% acknowledged that rabbit meat contributed to food security, 17.8% agreed that earning were obtained from sales of rabbit products, 37.8% affirmed that there was improved dietary. In regard to empowerment at household levels 89% agreed since they earned between KShs.500 to Kshs.30,000 in a month. Moreover, the study recommends that there is need to identify information that can be aggregated to assist women rabbit producers to be food and economic secure. Finally, the producers need to be facilitated to adopt best practices on precision rabbit farming to improve their operation efficiency and strengthen the value chain linkages for growth.

Keywords: Value chain data, women rabbit producers, Agenda 2063

Introduction

World over there are glaring statistics on global food insecurity and poor nutrition. Africa as a continent is not spared either. In the spirit of Pan-African vision and to attain socio-economic development in the 50-year African Agenda, the *"Africa We Want"*,-much development shall be driven by youth and women in bridging inequalities in the next half century (AU, 2019a). By 2023, lives and living standards will be transformed among the

youth and women leading to the reduction of hunger to 20% (AU, 2019b). Further, in conformity to goal 3 of the Aspiration1 on the prosperity of Africa, the African Union Strategic Plan 2063 stresses on citizens healthy and well -nourished persons in Africa. .

To align with the Agenda, governments are in pursuit to provide supporting environment to avert the ever-increasing food insecurity issue amongst women. Using data driven solutions, precise and predictive decisions can be achieved for the growth of women rabbit producers in rural areas. To bridge the gap and the challenge of Sustainable Development Goal 2 of zero hunger and access to adequate, safe and nutritious food for every human globally every minute (FAOSTAT, 2011), an assessment of value chain data on women rabbit producers is important in line with Kenya Vision 2030.

In agriculture world–wide, the livestock sectors Gross Domestic Product (GDP) share is 40 % and livestock's provide about 33% of the animal protein (FAO, 2013). However, by 2030, the demand for livestock meat will give an opportunity to women in the gender economy since the projections show an upsurge of more consumption to two-fold in urban sector areas because of rural-urban migration and population increment. Since Africa, in the global rabbit meat market contributes to 4.7% of the meat production. The issues of hunger and lifestyle diseases such as obesity and overweight can be reduced with the consumption patterns of white meat from chicken and rabbits (FAOSTAT, 2012; FAOSTAT, 2019). According to FAO (2012), health conscious customers favor meat with characteristics of low fat and high protein content that is also synonymous with other small animals such as guinea pigs, giant rats and grass cutters.

Hence, rabbit breeding and raising (cuniculture) is pivotal for it requires low inputs in terms of the rabbit production systems on account of investment, acceptance, nutrition, income and empowerment of gender (Oseni & Lukefahr, 2014). In Kenya, in areas that rabbits are kept include the Coast, Meru, Rift Valley regions. According to FAO, (FAOSTAT, 2011) Kenya has shown an exponential increase of 145 per cent on national rabbit stocks (breeding female), followed by Rwanda in the region.

Study Objective

The study objective is to determine whether value chain data has an impact on women rabbit producers in Kilifi County.
                                    Literature Review

The growth of rabbit farming in Kenya is attributed by Borter and Mwanza (2011) as a result of marketing activities undertaken through the efforts of the National Agriculture and Extension Program (NALEP) in 2000. Further, Borter et al (2011) explained that in Kenya rabbit production is flourishing as a result of associations such as Rabbit Breeders Association that resulted from promotion in the 1980s that was launched through the National Rabbit Development Program funded by Government of Kenya and German

International Development Agency (GTZ). Rabbit farming as a business enterprise is a rapidly growing venture due to shrinking land use and it is now accepted for both food and livelihood (MOLD, 2012). To concur. Omole (1988) opined that rabbit production is the fastest-growing livestock enterprise as a result of land size reduction (APD, 2010).

According to the Kilifi County Integrated Development Plan 2018- 2022, the Directorate of Livestock Production and Veterinary Services noted that California and Chinchilla breeds are most preferred amongst the rabbit farmers in the County. It is estimated that 29,400 kilos of rabbit meat was produced fetching sh17, 640,000 in the last five years (KCIDP, 2018).

Though, the industry for rabbits is a subset of the livestock subsector, the rabbit census in Kenya is about 650,000 and in the regions of Rift Valley, Coast and Meru the consumption is rated low (MOLD, 2012). In the Kenyan market live rabbits fetch KShs 3, 000 to KShs. 10,000 depending on species while a kilogram of meat is KShs. 650, urine KShs. 100 per litre and 1000 kilograms (1 ton) of manure KShs. 50, 000 (Jenje, 2018).

In Kenya, the small scale producers control rabbit production (APD, 2010). The most kept breeds of rabbits in Kenya are New Zealand White and California white, according to the Animal Production Division Survey in 2010. Other breeds found in Kenya are Giant Flemish, Kenyan White, the French Lop, and Checkered Giant, Chinchilla, Angora, Rex and Dutch. Additionally, rabbit keeping has been hindered by cultural tendencies but there is room to explore rabbit production potential among the small scale farmers in peri-urban areas and rural area (Luzobe, 2011).

Wilson (2015) posits that "value chain includes a multitude of participants at several levels, from primary producers to consumers. For alleviation of poverty and food security, (Nafis, 2011) affirms that rabbit production value chain can supplement household income and at the same time generate rural growth through agribusiness. The value chain is supported by several stakeholders involved in industrial rabbit meat production and commercial distribution until the products reach the customers and consumers (Baviera & Buitrago-Vera, 2016). Value chain gives added value to each interdependent activities that form part of the production process of the product or service to the consumer (Porter, 1985).

The popularity of rabbit farming and business is fast growing because of health concerns. Lifestyle diseases demand proper dietary among the population in most households globally. The popularity of rabbit is because of being prolific, high genetic in selection potential, efficiency in feed conversion and economic utilization of space (Lukefahr & Cheek, 1990). In Spain, Baviera-Puig and Buitrago-Vera (2016) studied the value chain of rabbit meat and the findings depicted that large scale retailers sold meat cut products and packaged products at the counters. In Uganda, Ndyomugyenyi and Otiengino (2013) deduced that the future of rabbit farming in households provided an opportunity for

increased household incomes in the value chain production networks. In Tunisia, Quertani, Dabboussi and Mejri (2016) looked at the projections of rabbit sector development on value chain judgment and concluded that reforms in the sector were important for the growth and increased rabbit meat consumption. In Kenya, Mailu, Wanyoike and Serem (2013) focused on the characteristics of rabbit breeds and the objectives of the farmers and preferences. The conclusion drawn was that rabbits mature fast and require lesser space. Another study in Kenya on factors on rabbit farming influences in Meru County concluded that rabbit products and benefits need to be shared to future rabbit farmers (Mbutu, 2013).

Research Methodology

The research design in gathering the data on site was quantitative and the preferred sampling technique used in the study was mixed sampling incorporating convenience and snowball. The mode of data collection was through structured questionnaires issued to the women rabbit producers face to face by the 6 Research Assistants and the Principal Investigator. The respondents were drawn from a representative sample of 63 women rabbit farmers with at least 5 to 10 rabbits, in the 7 Sub-Counties of Kilifi County in Kenya that includes Kaloleni, Ganze, Rabai, Malindi, Kilifi North, Kilifi South and Magarini. Data was analyzed using Statistical Package of Social Science (SPSS) to obtain descriptive statistics and %iles that are presented in tables and charts for interpretation.

Findings

Sub County Population, Sampling of Women Rabbit Keepers in Kilifi County

The percentage rate of the sample respondents in the study was 71 %, from the 45 out of the 63 targeted populations of women rabbit farmers in Kilifi County. Of the total 80 % agreed that they consistently get information from the value chain actors. Only 2.2 % disagreed.

Based on Table 1 Rabai Sub - County had the most women rabbit keepers with 33.3 % representation, followed by Kilifi North and Kilifi South sub counties with 17.8 % each. The least sub county with 4.4 % women in active Rabbit farming was Kaloleni.

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Table 1

Sub County Population and Sampling of Women Practicing Keepers in Kilifi County

Sub Counties	Women in Rabbit Farming	%	Valid %	Cumulative %
Kaloleni	2	4.4	4.4	4.4
Rabai	15	33.3	33.3	37.8
Malindi	5	11.1	11.1	48.9
Kilifi North	8	17.8	17.8	66.7
Kilifi South	8	17.8	17.8	84.4
Magarini	7	15.6	15.6	100.0
Total	45	100.0	100.0	

Value Chain Data Importance to Women Rabbit Farmers in Kilifi Sub Counties

In order of ranking on value chain data importance to women rabbit farmers in Kilifi Sub Counties, rabbit breeds, rabbit feeds, stockiest, consumer eating habits, rabbit farming perception, markets, and income in households were evaluated. The results showed that there was a general acceptance among 67.8 % of the women. On rabbit breeds information the score was (M= 4.000 SD=.577) which is significant while about 73.3 % of the respondents believed that market data was important at a score of (M=4.153 SD=.37553). The lowest scored issue was stockiest at (M=3.600 SD= .843).

Rabbit farmers Fmpowers Women in Households

Responding to whether the women at household levels are empowered, 89% were in acceptance while 11% were doubtful. Among those that are empowered, 44.4% earned an income of between KShs 500 to KShs 2500 monthly. Secondly, about 40 % sold rabbits between   KShs 3, 000 to 10,000. Those had an income of KShs. 20,000 to KShs 30,000 were 4.4 %. The higher earners were 2.2 % of the women earning a range of KShs.30, 000 and above.

Breeds Kept by Women in Small Scale Enterprises in their Households

In their households, women with 1 to 5 rabbits dominated with a score of 57.8 %, followed by those with 6 to 10 at 26.7 %. Rated third were women with 11 to 20 rabbits at 13.4 % and lastly farmers with 21and above rabbits at 2.2 %. The farmer's most popular breeds were Kenya White and Chinchilla at 40 % respectively, followed by California at 13.3%. New Zealand White and Flemish shared 8.9 % each while Dutch were the least at 2.2% behind Kentucky at 11.1%. Asked about the future of the rabbit farming project, 93.3% of the farmers attributed that in the next five years they will keep

the rabbit breeds but 4.4% were not sure whether it would be economical to sustain the venture. The 53.3% of the women were optimistic that rabbit raring was profitable while 15.5% viewed the farming as less profitable. Among them, 28.9% had no idea since they had not sold.

Food Security and Nutrition

On the value of food security and nutrition, approximately 22.2% of the Kilifi women in rabbit farming acknowledged that rabbit meat contributed to food security, 17.8% agreed that the cash proceeds are earned from sales of rabbit products, 6.7% saw an improvement on their economic livelihood, 37.8% affirmed that there was improved dietary and 11.1% ascertained that there were nutritional benefits from rabbits.
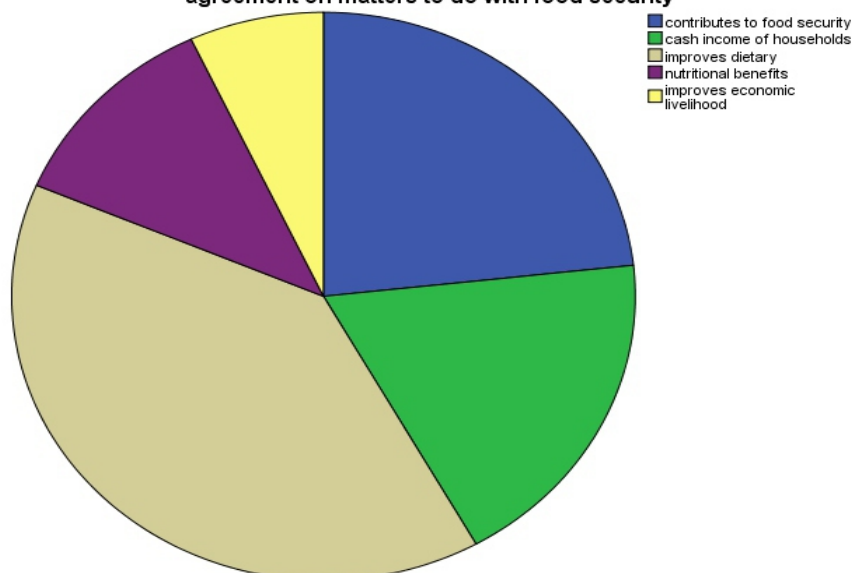

Figure1: Extent of Agreement on Food Security

Products Sold by Women Rabbit Producers

The preferred products that were sold by the farmers included live rabbits assessed at 51.1% followed by rabbit meat at 44.4%; urine and wool were sold at 4.4 and 2.2% respectively.

Training Requirements for Women Rabbit Farmers

On the issue of training, 100% of the respondents agreed that disease management was a critical issue that required training. Asked in regard to market opportunities, 91.1% admitted that more knowledge was important while 75.6% want to be trained on use of smart technology applications to improve on their farming. However, about 64.5% require financial assistance and grant proposal writing skills.

Relationship between Rabbit Producers and Service Providers

On relationship among the value chain partners with the women rabbit producers, 24.4% of them scored (M=2.79 SD= .929) for veterinary services which was more accessible. Agricultural Extension Officers followed with score (M=2.644 SD= .857) as rated by 15.6% of the women. Feed stockiest selected by 13.3% of the women was rated at (M=2.67 SD=.745). The partners that had the worst relationships included: donor agencies at (M=2.44 SD=.785) among the 67.8% of the women, County government (M=2.312 SD=.771) and insurance Companies at (M= 2.33 SD=.603) against 60% of the respondents, financial institutions scored (M=2.401 SD=.622) from the 55.5% and restaurants (M=2.55 SD=.666) at 46.6% of the population respectively.

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Conclusion and Recommendations

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Despite majority of women not realizing there is great potential in the rabbit industry in the gender economy because of the favorable liberal policies, there is space for the women entrepreneurs to commercialize rabbit raring. Subsidies are required to encourage and promote the low income women practicing rabbit keeping to tap more opportunities in the economy for better livelihoods and upscale their household incomes. Extension services are limited to the farmers in the rural areas due to accessibility and spread in their sub counties.

Finally, to bridge the knowledge gap a demonstration and training center need to be started within the county of Kilifi to impart skills on marketing strategies, services, production, hygiene, diseases management, financing, and grant proposal writing. Lastly, trainings should also have a component of entrepreneurship for the sake of commercialization into a profitable venture.

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