

Investigation of Market Factors Influencing Commercialization of Indigenous Chicken Farming by Small Scale Farmers in Kericho County, Kenya

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Abstract: *Indigenous chicken commercialization is crucial in ensuring increased productivity hence increased food security and income of rural people. Poultry products are an essential component of diets in both rural and urban centers. However, the production has remained subsistence in nature, characterized by low productivity. The commercialization provides major opportunities for increased production and incomes for smallholder farmers and plays a role in poverty reduction. Despite the high demand for indigenous chicken in urban areas because of leanness and good taste, very few farmers consider it as a commercial enterprise. The purpose of this study was to investigate market factors influencing commercialization of indigenous chicken farming by small scale farmers in Kericho County, Kenya. Descriptive research design was used to analyze the factors that influence commercialization of indigenous chicken farming. The target populations were 800 indigenous chicken farmers from 46 groups and 15 key informants. Stratified and simple random sampling technique was used to select a sample of 127 indigenous chicken farmers. Additionally, all the 15 key informants were interviewed and a focus group discussion conducted from randomly selected target groups. Data was collected using both interview schedules, questionnaires and focused group discussion guide. Data was analyzed using frequencies, percentages and chi-square and presented in tables, bar charts and graphs. Hypotheses were tested at 95% level of confidence. The descriptive statistics results of the findings show that most farmers were accessible to the market but had limited access to market information. The sales volumes of live chicken and eggs per year by each farmer were low as compared to the high demand indicated by most farmers. The prices of live chicken and eggs were equally low with most farmers indicating that they determined the price of live chicken by physical observation. The chi square test results show a p value of 0.019 for market factors. Clearly, this study has demonstrated that markets factors significantly influence commercialization of indigenous chicken farming in Kericho County, Kenya. The study recommends use of ICT to complement other extension methods in technology dissemination, establishment of marketing platforms and networks for information sharing as well as training farmers on market driven production and effective price determination*

Keywords: Indigenous chicken, commercialization, market factors, small scale

1. Introduction

Indigenous chicken contributes over 30% of the total white meat produced and consumed globally. Over 70% of the total chicken production in Africa is indigenous chicken [6]. In Kenya, Indigenous chicken products account for 47% and 55% of the total poultry eggs and meat, respectively. Small scale indigenous chicken plays a significant role in poverty reduction through its contribution to cheap food and income. In many developing countries around the world, poultry products are an important source of food and income for many medium and small scale farmers [21]. Based on the existing evidence in both developed and developing nations, small scale poultry has helped in gender equality promotion and has enhanced the food and nutrition security of the very poor household [7]. According to [25], the world population of poultry in 2016 was 22.705 billion with about 70% of this population found in developing countries. The estimated production out of this population was 91 million metric tons of chicken meat and about 78 million metric tons of hen eggs. Consequently the composition of indigenous chicken was 63% out of the total world population of poultry.

According to [8], a large proportion of households in the developing nations keep chicken for food where eggs are consumed within the household and chicken only slaughtered during special occasions with the excess sold in the market. Over 80% of human population in developing nations and particularly in East Africa who live in rural areas keep

indigenous chicken [18]. In Kenya, poultry enterprise is preferred by most small scale farmers in Kenya because it requires little capital to start and maintain hence affordable to many farmers. Most indigenous chicken farmers let free the chicken to feed on their own around the house during the day while at night are confined in the house for shelter. In some instance, the farmers supplement the diet of the bird with cereal grains and from time to time with food leftovers from the household. Besides these feed supplements, little or no inputs such as vaccinations and antibiotics are used resulting in low egg and meat production due to malnutrition and diseases [19]. In Kericho, indigenous chicken comprises 84% of all the poultry flock [5]

The demand for indigenous chicken meat and eggs in the Kenyan markets has continued to grow as the human population increases and the current trend of nutrition management where people have preference for organic and traditional foods [12]. This offers an immense opportunity for increased income and better livelihood for the small scale farmers [26]. The opportunity for small scale farmers to expand production and raise income depends on their ability to compete in the market, yet pervasive market imperfection in developing nations like Kenya characterized by lack of price and technological information, lack of connection to established market actors, distortion in the input and output markets and credit constraints in the rural markets renders access difficult [16]. A report by the [4] indicates low number of chickens kept by small scale farmers despite the

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high demand for the indigenous chicken products in the market. The information on why most small scale farmers are reluctant to engage in indigenous chicken production as a commercial venture despite the high demand for meat and eggs in the market is limited. This study sought to provide information on the factors influencing commercialization of indigenous chicken in Kericho County, Kenya.

2. Literature Review

In theory, commercialization in indigenous chicken production would stimulate increased productivity which would result to increase household income, food security and poverty reduction which in turn motivate farmers to increase production [27]. This is however based on the premise that farmers have access to the markets and are therefore able to obtain high returns from their produce [22]. Farmer organization and collective action are often seen as key factors in enhancing farmers' access to markets [9].

Access to market and market information is important to avoid exploitation. According to [3], market prices are sometimes demand driven with local purchases and middlemen being the main outlets. Lack of sufficient market information has been a setback to poultry farmers with most farmers relying on private or even physical contacts for market related information.

[15] stated that organized poultry market have registered great success in improving rural farmer's livelihoods by attracting distant buyers who offer competitive prices. Indigenous chicken and its products were highly demanded by consumers yet their demand needs were not adequately met. This implies that there was need to improve production and supply in order to meet this demand [1]

[23] noted that consumption of poultry products has shot up in urban areas hence creating an increase in the production of poultry. Indigenous chickens have the potential to satisfy at least part of this demand through increased productivity and reduced wastage and losses. [13] indicated that many farmers cannot access markets due to poor infrastructure. Some roads were impassable during the rainy season, hence a lot of waste of livestock products. [2] identified lack of access to organized formal local and export markets was as one of the biggest drawback for indigenous chicken producers in Lukosa area of Zimbabwe. He indicated that farmers sold their chicken and eggs within the local communities between farming households and to small extent local markets. He further noted that there was exploitation of farmers by unscrupulous buyers or middlemen who mainly purchase at meagre prices and transported for resell in lucrative markets in urban centers.

3. Research Methodology

Descriptive research design was used to determine the factors influencing commercialization of indigenous chicken in Kericho County. Descriptive research design was preferred because it allowed for comparisons of the research findings, is exploratory in nature and also enabled collection,

presentation, evaluation and interpretation the data in a simpler more understandable form by the researcher [14]. A total of 800 indigenous chicken farmers from 46 indigenous chicken groups in the 6 sub counties of Kericho County were targeted for this study. The other target population also comprised of 15 key informants who were extension agents both from private and public sector and who had been in the field for at least 3 years of experience with at least certificate holder in agriculture or related courses. For focus group discussion, 6 indigenous chicken groups were randomly selected.

Stratified random sampling procedure was used to obtain a sample of indigenous chicken farmers from 46 indigenous chicken groups in the 6 sub counties of Kericho County. The sample size formula by [14] was used to obtain a sample size of 127 respondent's indigenous chicken farmers from 46 indigenous chicken groups in the 6 sub counties of Kericho County. The sample size in each stratum (Sub County) was calculated using the each strata population as a percentage of the total sample. Simple random sampling was used to select a sample of the indigenous chicken farmers for the interview.

With an introductory letter from the University of Kabianga in August 2018 and a permit from the National Commission for Science Technology and Innovation (NACOSTI), face to face interviews were conducted for the sampled 127 indigenous chicken farmers using interview schedules. The questionnaires were dropped and picked from the sampled 15 key informants while focused group discussion were conducted for the 6 indigenous chicken groups. The collected data were analyzed using descriptive statistics where frequencies, mode, mean and percentages were calculated. Excel spreadsheet and SPSS statistical package were used to aid in the data analysis. The analyzed data was then presented in tables, bar charts, graphs and figures. Chi Square test was also used to test the null hypothesis that there is no significant influence of market factors on commercialization of indigenous chicken farming by small scale farmers in Kericho County.

4. Results and Discussions

4.1 Accessibility to the market by small scale indigenous chicken farmers

Results in Table 1 show that 95.3% of the farmers were accessible to the market while 4.7% of the farmers were not accessible to the market. This implies that farmers are able to sell their live indigenous chicken and products and are therefore motivated to increase their production. It is an indication of a high demand for indigenous chicken and products by consumers which if exploited would result into maximum returns.

Table 1: Accessibility to the market by small scale indigenous farmers in Kericho County

Accessibility to market	Frequency	Percent
Very accessible	23	18.1
Accessible	40	31.5
Fairly Accessible	58	45.7
Not accessible	6	4.7
Total	127	100.0

Source: Study Data, 2019

4.2 Access to Market information by small scale indigenous chicken

The results show that 40.9% of the farmers had access to market information while 59.1% did not have access (Table 2). It implies that a considerable proportion of farmers were able to make informed decisions on what to produce, where to sell their live indigenous chicken and products and at what price to sell for maximum profits resulting from reduced marketing cost. This is comparable to finding of [24] who found that 55% of farmers had access to price information and were therefore had more propensity in participating in pineapple market. The result is consistent with the findings of [20] that access to market information is crucial to production and marketing information. The findings of [10] further supports the results by indicating that availability of market information boosted confidence of farmers who were willing to participate in the market.

Table 2: Access to market information by small scale indigenous chicken farmers of Kericho County

Response	Percent	Percent
Yes	52	40.9
No	75	59.1
Total	127	100.0

Source: Study Data, 2019

4.3 Sales points for live indigenous chicken

Figure 1 shows that 69.3% sold their chicken in the local market, 30.7% sold their chicken to the neighbors, 22.8% to primary collectors, 15% to hotels and 11% to poultry groups. This indicates that there is an opportunity for indigenous chicken commercialization through enhances market linkage. This is consistent with findings by [17] that farmers sold live chicken and eggs directly to local traders or to primary collectors and transported then to urban markets while eggs are also within local households and local shop outlets. The study also sought to find out the distance to the market.

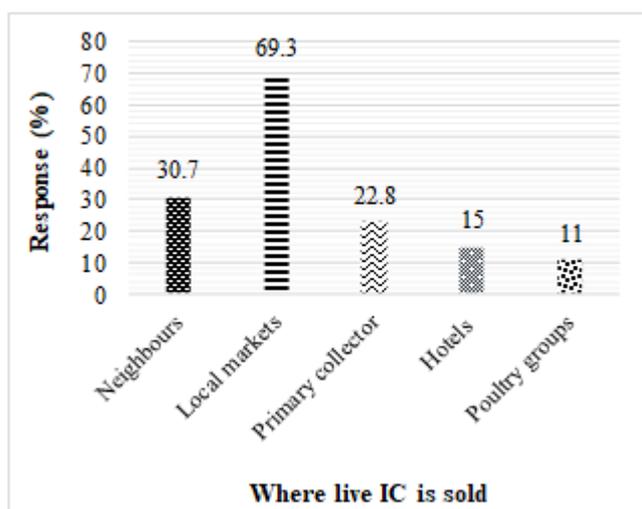


Figure 1: Sale points for live IC by small scale indigenous farmers in Kericho County
Source: Study Data, 2019

4.4 Distance to the local market

Regarding to the distance to market (Table 3), 43.3% of the farmers was less than 5kms, 37.0% was between 5kms and 10kms to the market while the distance to the market for 19.7% of the farmers was above 10kms. This implies that most farmers easily accessed the local market thus explaining the high number of farmers selling at this market outlet. The respondents were further asked to state the number of live birds sold per year.

Table 3: Distance to the local market by small scale indigenous farmers in Kericho County

Distance	Frequency	Percent
Less than 5kms	55	43.3
5-10kms	47	37.0
More than 10kms	25	19.7
Total	127	100.0

Source: Study Data, 2019

4.5 Number of live indigenous Chicken sold per year by small scale indigenous

With respect to the number of live indigenous chicken sold per years, 55.1% of the farmers sold less than 100 live birds, 33.1% sold between 100 and 400 of live indigenous chicken birds while 11.8% sold above 400 live indigenous chicken birds (Table 4). This signifies that a good proportion of farmers have embraced indigenous chicken commercialization. In addition, the respondents were asked to state the price of a live indigenous chicken.

Table 4: Number of live indigenous chicken sold per year by small scale indigenous chicken in Kericho County

Number of live chicken	Frequency	Percent
Less than 100	70	55.1
101-400	42	33.1
Above 400	15	11.8
Total	127	100.0

Source: Study Data, 2019

4.6 Price of live indigenous chicken sold by small scale farmers

The results showed that 77.2% of farmers sold their live indigenous chicken between Kshs 300 and Kshs 1000. Less than 22.8% sold their chicken for less than Kshs 300. The mean price of live indigenous chicken was Kshs 407. Most farmers sold their chicken at a good price indicating better returns and profitability which are indicators of commercialization. The respondents were further asked to state how the price of a live chicken was determined.

Table 5: Price of live indigenous chicken sold by small scale farmers in Kericho County

Price (KShs)	Frequency	Percent
Less than 300	29	22.8
301-500	75	59.1
501-1000	23	18.1
Total	127	100.0

Source: Study Data, 2019

4.7 Price determination mechanism

Table 6 indicate that most (48%) of the farmers uses physical observation to determine the price of the live indigenous chicken. About 37.8% determines the price of indigenous chicken by weighing, 33.1% the prevailing market price while 17.3% considers the age of the live indigenous chicken. It implies that farmers have embraced various ways of price determination and are therefore likely to receive the right price for their live indigenous chicken. This is a key aspect towards indigenous chicken commercialization.

Table 6: Price determination mechanism of live indigenous chicken by small scale farmers in Kericho County

Mechanism	Frequency	Percent
Weighing	48	37.8
Physical observation	61	48.0
Age of the chicken	22	17.3
Prevailing market price	42	33.1

Source: Study Data, 2019

4.8 Sales of indigenous chicken eggs

The respondents were further asked to state the number of eggs sold per year and the prices. Their responses are shown in Figure 2 and Table 7 respectively. The results show that more than half of the farmers sold less than 20 crates of eggs per year. Only 22% of the farmers sold above 30 crates of eggs annually. About 27% of the farmers sold between 21 and 30 crates of eggs annually. The mean crates of eggs sold by each farmer annually were 16 crates.

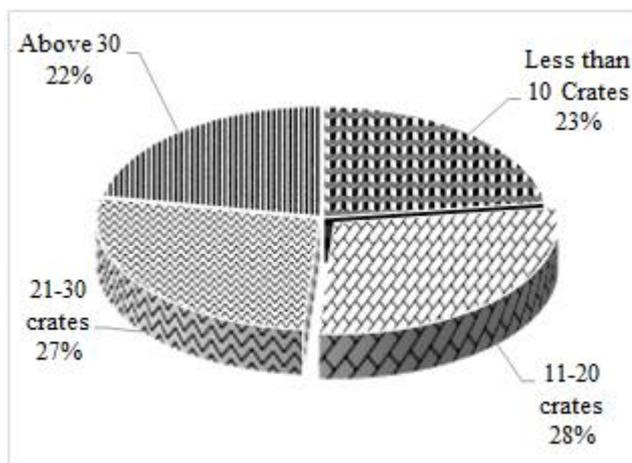


Figure 2: Number of crates of eggs sold per year by small scale indigenous chicken farmers in Kericho County

NB: Each crate has 30 eggs

Source: Study Data, 2019

With regard to price of a crate of eggs, results in Table 7 show that 52% of the farmers sold a crate of eggs at between Kshs 200 and Kshs 300, 27% of the farmers sold a crate of eggs at above Kshs 300 while 20.5% of the farmers sold a crate of eggs at Kshs 200. The average price of a crate of the eggs was Kshs 220. This maybe because most of the eggs are sold within local households and at the local shop outlets as indicated by [17]. The result could negatively affect indigenous chicken commercialization.

Table 7: Price of a crate of eggs sold by small scale indigenous chicken farmers in Kericho County

Price of a crate of eggs	Frequency	Percent
Less than 200	26	20.5
201-300	66	52.0
Above 301	35	27.6
Total	127	100.0

Source: Study Data, 2019

4.9 Level of demand of indigenous chicken and products by consumers

The study sought to find out the level of demand of indigenous chicken and products by consumers. The results (Table 8) indicated that there was high demand for live indigenous chicken and products (76.4%). This is significant as it stimulates production at the farm level and guarantees better prices for live indigenous chicken and products. This is consistent with the finding of [12] of high demand for indigenous chicken meat and eggs which they attributed to the changing trends of nutritional management where most people in the middle class and high class are reverting back to organic and traditional foods. The attribute therefore contribute significantly to indigenous chicken commercialization.

Table 8: Level of demand for live indigenous chicken and products by consumers in Kericho County

Level of demand	Frequency	Percent
Very low	3	2.4
Low	3	2.4
Moderate	24	18.9
High	55	43.3
Very high	42	33.1
Total	127	100.0

Source: Study Data, 2019

4.10 Hypothesis testing

Null Hypothesis: There is no significant influence of market factors on commercialization of indigenous chicken farming by small scale farmers in Kericho County.

To test this hypothesis, chi-square test was used. The chi-test results (Table 9) showed a p value of 0.019. Since the p value = 0.019 is less than the alpha level of significance of 0.05 we reject the null hypothesis and conclude that market factors significantly influence commercialization of indigenous chicken farming by small scale farmers in Kericho County

Table 9: Chi-Square tests of market factors and commercialization of indigenous chicken farming by small scale farmers in Kericho County

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.919 ^a	2	0.019
Likelihood Ratio	7.686	2	0.021
Linear-by-Linear Association	6.996	1	0.008
N of Valid Cases	127		

Source: Study Data, 2019

This confirms earlier findings and is supported by [3] that market prices are demand driven with local purchase and middlemen being the main outlets. Similar results were found in the study where majority of the farmers sold their live chicken and products in local markets, neighbors, primary collectors within a distance of 5kms .However, [23] found out that consumption of indigenous chicken products had shot up in urban areas. In this study it was found that majority of the farmers didn't access market information which is supported by [2] that lack of access to organized formal local and export markets had led to exploitation of farmers by unscrupulous buyers enjoy lucrative markets in urban centers. [15] concluded that organized poultry market have registered great success.

5. Conclusions and Recommendations

5.1 Conclusions

Based on the results of the high number of farmers who have access to the market signifies an immense opportunity for commercialization. However the low number of farmers who had access to market information could slow down indigenous commercialization due to price formation mechanism. Furthermore, the high number of farmers selling their live bird in the local markets could be a disincentive to market participation due to low price offers. Consequently the low number of live birds and eggs sold per year by indigenous chicken farmers as well as the low price for live chicken and eggs by majority of indigenous chicken farmers is a proof of low levels of commercialization in Kericho County as a result if market factors.

5.2 Recommendations

The study recommends the use of information communication technologies (ICT) to complement the other extension methods of dissemination of indigenous chicken production technologies to enhance adoption and increase productivity hence commercialization. And further recommends the establishment of marketing platforms and networks where farmers and traders can share information on the stocks and prices of indigenous chicken and products as well as training farmers on market driven production and effective price determination.

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