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# STATUS OF INDIGENOUS CHICKEN PRODUCTION AND ASSESSMENT OF LOCAL FEED RESOURCES IN NYAMIRA COUNTY, KENYA

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***Abstract*:** This study has been undertaken to determine the status of indigenous chicken production, assess nutritive value of local feed resources used as indigenous chicken feed and assess major factors that influence indigenous chicken production in Masaba Sub County, Nyamira County, Kenya. The results of this study shows that there were more youthful (54.6%) and female (58%) indigenous chicken farmers. The findings also show that 61% of farmers had training in poultry farming,58% of IC farmers had experience of more than 5 years and 74% of the families had up to 5 members hence small family size. The production system was found to be extensive with small flock sizes with mean of 3.5 chicken per household. Newcastle, coccidiosis and chronic respiratory diseases were the most prevalent diseases reported in this study. Nine locally available feed resources were identified (Fish meal, Kales, Cabbages, Sweet potatoes, Cassava, Maize, Sorghum, Finger millet, Kikuyu grass) feedstuffs were sampled and processed for proximate and mineral analysis at Kenyatta University Food and Nutrition laboratory using standard procedure by Association of Agricultural Chemists. The results showed the dry matter content of samples ranges from 96.03% (kikuyu grass) to 83.12% (sweet potato tuber). The crude protein content mean was 18.9% and standard deviation of 32.6, fish meal (65.63%). The mean carbohydrate content was 47.1% and Cassava root had high carbohydrate content of 80.94%. Fish meal and maize had highest crude fat content (9.86% and 4.07%). Crude fiber was high on maize. Calcium content was high in Cabbage, kikuyu grass and fish meal (1.71%, 0.73%, and 0.49% respectively). Phosphorous was high on kikuyu grass. The results from multivariate analysis shows that experience in poultry farming, family size and training had significant influence in IC production in Masaba Sub County ($p < .05$). This study has generated baseline information to be used by policy makers and other stakeholders in livestock subsector to formulate policies aimed at use of local feed resources in feed formulations, preventing poultry diseases by availing vaccines, farmers training by county extension staff to improve indigenous chicken production.

**Index Terms:** Indigenous chicken production, local feed resources, nutritive value.

## 1. INTRODUCTION

Poultry production plays an important role for human nutrition, national income, employment and income generation in developing countries (Rashid, 2003). The most dominating poultry production system in rural areas of Africa is extensive system based on local indigenous types and relying on scavenging feeding systems (Mohammed *et al*., 2016). Kenya has an estimated population of 47.6 million people (KNBS, 2019) and over 70% of the population lives in the rural areas where they practice agriculture for subsistence and commercial purpose. Masaba North Sub County is predominantly a rural area which has a poverty index of 32% compared to national average of 36% (KNBS, 2018).

Agriculture is the second largest contributor to GDP after service sector in the country. Kenya has estimated 15.76 M cattle, 19. 3M sheep, 28M Goats, 4.6M Camels, 1.18M Donkeys, 443,000 pigs, 30. 3M indigenous chicken, 5.6M exotic layers, and 2.9M broilers. The indigenous chicken in Kenya represents 78% of the total poultry population. Masaba North Sub County, in Nyamira County has a human population of 110,914 and the farming population of 20,678 households and poultry population of 12,810 out of which the indigenous chicken are 11,684, exotic layers 867 and exotic broilers 259 (KNBS, 2019).

Kenya's main indigenous poultry production system is the free range (backyard) system where birds are left to scavenge for feed during the day and confined at night. Birds of all ages live and scavenge together (Kingori *et al*., 2010). The second production system is semi-intensive whereby the birds are confined and fed during morning hours and left to scavenge during afternoon and confined in shelters of moderate cost at night. Water and supplementary feeds are provided. Birds are kept in small flocks of between 5 and 50 birds mainly for consumption and sale (Magothe *et al*., 2012). The third system is intensive (commercial) system, where flocks ranges between 5 and 500 adult birds confined in constructed shelters or runs and provided with commercial feeds or homemade feed rations and health care (Magothe et al., 2012).

Poultry production offers opportunity for improved household's income especially for vulnerable members of the society such as youth, people with disability (PWDS), widows, and has other functions such as cultural and nutritional roles. Indigenous poultry production is the first step on the ladder for poor households to tackle poverty (Bangu, 2020). The potential of indigenous chicken as a source of income and food remains poorly exploited (Lubandi, *et al*., 2018). The flock size is small, typically less than 100 and the family flock consist of birds of both sexes and different ages making management a demanding task (Desta, 2020).

Studies have shown that the current issues of climate change, increased human population coupled with decreased land size and increase in flock size have led to low quality and quantity of scavenge able feed resources for indigenous chicken, with nutrient content below recommended levels to support growth and egg production. Thus, additional nutrients should be provided through supplementary feeds (Goromela *et al*., 2007). Indigenous chicken production has great potential with changes in production system from scavenging to a semi-intensive system with investment in production inputs.

## 2.0 NEED OF THE STUDY

Poultry production is carried out alongside other farming activities in Masaba North Sub County as supplementary source of household income and food/protein and used during cultural functions. Indigenous poultry value chain is not well developed and most information on poultry improvement is lacking in the study area. Poultry production is further hindered by the high cost of commercial feeds, hence the need for alternative local feeds which are cheap and locally available. The nutrient content of locally available feed resources is largely not known hence the need to generate such data in this research.

## 3.0 RESEARCH METHODOLOGY

### 3.1 Population and sample size

The study used a sample size of 196 comprising of 169 indigenous chicken farmers, 8 feed store attendants, 10 chicken traders and 9 extension officers. Households with indigenous chicken was used as sampling frame for this study. The sample size of 169 IC farmers was calculated using the formula by (Krejcie and Morgan 1970);

$$S = X\,2NP\,(1-P) \div d\,2\,(N-1) + X\,2P\,(1-P). \qquad (2.1)$$

Where, S = required sample size, $X^2$ = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841), $N$ = the population size (300), $P$ = the population proportion (assumed to be .50), $d$ = the degree of accuracy expressed as a proportion (.05) and research randomizer was used to randomly sample 169 farmers from 300 farmers from 20 common interest groups of indigenous chicken farmers in the Sub County. All 8 feed store attendants, 10 chicken traders and 9 extension officers were recruited into the study to obtain more information on the indigenous chicken production.

### 3.2 Data and sources of data

Both qualitative and quantitative data were collected from the study area. Data was collected in the three wards of the sub county from indigenous chicken farmers using a pre-tested structured questionnaire. Focus group discussion with Key informants in poultry value chain was done to obtain data on current and past status of indigenous chicken production in the sub county, guided by checklist. The key informants interviewed include livestock extension officers, veterinary officers, agriculture officers, poultry traders, poultry consumers, and feed store attendants. Secondary data was collected from sub county agriculture, livestock offices and published sources.

During the survey observations were made to collect data on the local feed resources and feeding practices in the farm (Outhen, 2014). Nine locally available feedstuffs were identified as potential during household survey (maize, millet, sorghum, wheat, cassava, sweet potato tubers, kales and cabbages) were collected and processed for laboratory analysis. Proximate analysis was done to determine the dry matter (DM), ash, crude protein (CP), ether extract (EE), crude fiber (CF), nitrogen free extracts (NFE), according to AOAC procedures of (2005).

### 3.3 Statistical tools and data analysis

This section explain the statistical tools used analyze data and make inferences from this study. The details of this statistical tools are described below.

#### 3.3.1 Descriptive statistics

Descriptive statistics such as frequencies, percentages, minimum, maximum, range, mean and standard deviation were used to analyze data on demographic factors, status of indigenous chicken production and assessment of nutrient contents of the local feed resources. Constraints and opportunities of the IC production and diseases were analyzed using ranking index method (Olwande et al., 2016).

#### 3.3.2 Multivariate analysis

Multivariate analysis was the inferential statistic used to determine major factors that influenced indigenous chicken production. Multivariate analysis was carried out to determine which independent variables influence indigenous chicken production in Masaba North Sub County at 95% level of confidence. Logistic regression model was used in this study as several independent variables were used to predict the dependent variables which influence indigenous chicken production.

$$Y_1 = X_1 + X_2 + X_3 + \ldots\ldots X_n \qquad 3.1$$

where $Y_1$ is the predicted score, $X_1$, $X_2$, and $X_3$ are the predictor scores and n is the number of predictor variables.

### 3.4 Conceptual framework

The conceptual framework of this study shows interaction between the dependent, independent, intervening and moderating variables. The outcome of this study is the status of IC production in Masaba sub county. The independent variables were disease and parasite control, market infrastructure, training and extension services, feeds and feeding. The dependent variables were input supply sources, chicken mortality, housing, type of breeds kept, flock size, flock composition and income from sale of eggs and birds. The moderating variables are government policies such as subsidies. The intervening variables are unemployment and poverty levels of the IC farmers.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Results of demographic characteristics of the indigenous chicken farmers in Masaba sub county, Nyamira county, Kenya

Table 4.1: Demographic characteristics of the indigenous chicken farmers in the study area

| Parameter | Frequency | Percent |
|---|---|---|
| **Age** | | |
| Less than 20 years | 2 | 1.20 |
| Between 20-35 years | 90 | 53.30 |
| 36-50 years | 41 | 24.30 |
| Over 50 years | 36 | 21.30 |
| **Gender** | | |
| Male | 71 | 42.00 |
| Female | 98 | 58.00 |
| **Education level** | | |
| No education | 16 | 9.40 |

| | | |
|---|---|---|
| Primary | 28 | 16.60 |
| Secondary | 90 | 53.30 |
| Tertiary | 26 | 15.40 |
| University | 9 | 5.30 |
| **Experience in poultry farming** | | |
| Less than 2 years | 3 | 1.80 |
| Between 2-5 years | 68 | 40.20 |
| Between 6-10 years | 52 | 30.80 |
| Between 10-20 years | 36 | 21.30 |
| More than 20years | 10 | 5.90 |
| **Number of members in a family** | | |
| Less than 2 | 30 | 17.80 |
| Three members | 32 | 18.90 |
| Four members | 33 | 19.50 |
| Five members | 30 | 17.80 |
| More than 5 members | 44 | 26.00 |
| **Trained/Training institution attended** | | |
| County | 102 | 60.40 |
| Farmers field school | 1 | .60 |
| None | 66 | 39.00 |

Table 4.1 shows that the majority of IC farmers were youth (35 years and below) representing 54.5%. This is likely due to lack of employment and the low cost of starting the enterprise. The results also show that there are more women (58%) than men this may be attributed to cultural beliefs that chicken is women enterprise. This study also found that majority of the poultry owners had post primary education (74%). Education is important as educated farmers are likely to adopt current farming technologies and strategies and hence improved production. This was similar to study done in Kakamega and Nandi counties by Cheruiyot and Adhiaya (2021). The demographic finding on level of education and experience show that majority of the indigenous chicken farmers had secondary and above level of education and more than five years' experience in chicken farming this was comparable to a study done in Machakos county, Kenya by Nduthu (2015) who reported 58% of farmers had secondary and above level of education.

Table 4.1 also shows that majority of IC farmers have experience in poultry production of more than 5 years (58%). Experienced farmers were likely to have skills and knowledge in disease control, good husbandry practices and formulation of homemade rations. Table 4.1 also shows that the majority of the households had up to five family members. The family size was small hence low competition for feed resources hence positive influence on indigenous chicken production in the sub county. Table 4.1 shows that the majority of indigenous chicken owners had some basic training on poultry production by county extension staff and FFS at (61%). Trained farmers were likely to use modern technologies of farming hence positive influence on IC production. this was higher than studies in western Kenya by Sungu (2014) who reported that 46.3% of poultry farmers were trained. This was probably as a result of Nyamira County Government having prioritized IC value chain and presence of development partners such ASDSP supporting IC value chain in the sub county.

### 4.2 Results on status of indigenous chicken production in Masaba North Sub County, Nyamira County, Kenya

#### 4.2.1 Flock size and composition

This study found that the majority of households interviewed had less than 40 indigenous chicken (77.5%). Those with between 40-55 were 18.9%, and those with 56-70 indigenous chicken were 3%, while those with 71-85 indigenous chicken were few 0.6%. The results on flock composition shows that majority of farmers (55%) keep hens followed by those who keep pullets 36.7%, then those who keep cocks at 6.5%, and the least were those who keep chicks were 1.8%. The flock compositions ranges from 1-4 with mode of 4, and mean of 3.5 this shows that the majority of farmers had chicks, pullets, hens and cocks. The ratio of cock to hens in this study was 1:9 this was lower than the study in south Nyanza Kenya by Olwande (2009) who reported a ratio of 1:7 cock to hens.

#### 4.2.2 Production system used to rear indigenous chicken

This study found that extensive system (scavenging) was the most common system used by farmers in Masaba sub county to rear their indigenous chicken (61.5%) this may be due to scale of production where most farmers keep few chickens for subsistence purpose. Other farmers who mainly keep improved indigenous chicken practice semi-intensive system (30.8%) confine and feed their chicken during morning hours and left to scavenge in the afternoon. These finding was comparable to studies in Makueni County, Kenya by Mutua (2018) who reported that 74.1% farmers were practicing extensive system. The most common breeds kept were local indigenous followed by improved indigenous chicken and their crosses this is attributed to scavenging nature of local indigenous chicken.

**4.2.3 Management systems**

The results of this study shows that deep litter system is the most common housing system (50. 9%). Majority of the houses are made of wooden walls and other locally available materials. The common feeding system was found to be scavenging and supplementation with local feed resources (37. 9%). The study also found that 64.5% of farmers supplement their chicken using green vegetables. The results also show that majority of the households use electricity as source of lighting and brooding of chicks. The study also shows that the majority of household's main source of water is rain water

**4.2.4 Disease control, constraints and opportunities of production**

**4.2.4.1 Sources of drugs and vaccines**

The results o of diseases and parasites ranking by county service extension service providers during focus group discussion shows that Newcastle, Coccidiosis and chronic respiratory diseases were ranked highest after scoring (96, 89 and 78 respectively). These diseases were found to occur during rainy and cold seasons of the year affecting mainly chicks and growing birds. This finding were similar studies in South Nyanza, Kenya (Olwande, 2016)) who reported Newcastle disease as the most prevalent disease.

**4.2.4.2 Mortality rate**

The results show that 81.1% of the farms had mortality of less than 10 birds per year, this shows that the mortality rate was low since most farmers were trained on good husbandry practices. The results show that mortality rate was high in chicks at 61.5%, this indicative of poor management of chicks and mortality is highest during month of November, June and April (26.6%,13.6% and 11.8% respectively). This indicates that mortality is highest during cold season and lowest during dry season.

**4.2.4.3 Constraints and opportunities ranking by indigenous chicken farmers**

The results of this study show that diseases and parasites were the most important constraints faced by indigenous chicken farmers in Masaba sub county followed by the high cost of farm inputs and predation. This may be attributed to inadequate animal health measures adopted by IC farmers and poor housing used by IC farmers. Other important constraints were theft and lack of credit facilities. The IC farmers suggested opportunities to the constraints such as vaccinations, biosecurity, use of local feeds and ethno veterinary drugs, collective marketing and formation of producer organizations to address the constraints faced by IC farmers.

**4.2.4.4 Constraints and opportunities ranking by chicken traders**

During FGDs with indigenous chicken traders (10 traders) this study found that the major constraints faced were lack of sales yard for live birds, lack of capital and credit and chicken mortalities during transportation were ranked highest with scores (36,35 and 34 respectively). The study found that chicken markets was not well developed and sale of live birds and eggs are done in livestock auctions where there are no cages for birds and they are sold on roadsides during market days. There are also challenges of poor handling and transportation equipment's leading to high mortalities reported during transportation.

**4.2.4.5 Constraints and opportunities ranking by feed traders**

During FGDs with poultry feed traders (8) constraints and opportunities were ranked. The study found that high cost of raw materials used to manufacture IC feeds were high and seasonal availability of the feed resources were major constraints with score (20 and 16 respectively). this may be attributed to completion for feed resources with humans and the sub county receive bimodal rainfall patterns and feeds resources are plenty during harvest seasons.

**4.2.4.6 Constraints and opportunities ranking by extension service providers**

During FGDs with extension officers (9) from department of Agriculture, Livestock and Fisheries in the sub county. The study found that lack of facilitation and lack of motorized transport were ranked as major constraints (22 and 18 scores respectively). This was likely be affecting effective delivery of extension services to farmers in Masaba sub county.

**4.2.5 Breeds of indigenous chicken and their sources**

This study found that majority of the poultry kept in the interviewed farms were local indigenous chicken (42. 6%). The local indigenous chicken was found be suitable with scavenging system practiced by most farmers. The results also show that the majority of the farmers hatch their own birds (60. 4%). Majority of this farmers practiced natural hatching methods with few using artificial method using incubation.

### 4.2.6 Labor source

This study found that the majority of households interviewed use family labor (98.8%) and only1.2% use hired labor with family members' support.

### 4.2.7 Egg production

The findings of this study show that average egg production per farm per day was 6. The minimum number of eggs produced in a farm per day were 1 while the maximum 34. This shows that the production level was low. This study also found that shows that January, February, July and August had the highest number of eggs produced. This was probably due to availability of feed resource as July and August are harvest season in the sub county and the favorable environmental conditions as January and February are dry periods. The study was also conducted to establish the month with minimum egg production. The results also show that the months of April, June, September and November had minimum egg production.

### 4.2.8 Sales and marketing

The study found that the number of eggs sold per day ranges from 1-34. Most eggs produced are consumed at home as protein source while others are used for breeding purposes. The study also found that retailers and the village are the major outlet for the sale of the poultry products. The poultry market is not well developed in the sub county. The eggs and live birds are sold to retailers who come and collect products at farm gate. Other farmers take their products to hotels and retail shops in town and market centers in the sub county.

### 4.2.9 Income

This study found that the cost of an egg ranges from 15-20 shillings depending on market demand forces. The study also shows the cost of hen ranges from 300-700 and the cost of cock ranges from 500-1000 shillings. This varies with the market outlet and also season. During festivities and holidays the prices tend to be high.

### 4.2.10 Production cost

The study found that the cost of feeds ranges from 300 to 7500 shillings. This depends on the flock sizes and the source of feeds. Those farmers using homemade rations use less of money compared to farmers using commercial feeds. The study also shows that the cost of drugs, vaccines, electricity and wages varied with flock sizes and technologies used by individual farmers.

### 4.2.11 Extension services

This study found that county is the most dominant source of extension service providers (90. 5%). Since agriculture is devolved function the county government of Nyamira has prioritized IC farming and has been supplying farmers with day old chicks. The county also has other development partners such as NARIGP, ASDSP who have identified indigenous chicken value chain as potential in alleviating poverty and source of income generating activities for youth, women and PWDs.

## 4.3 Locally available feed resources and their nutrient contents

### 4.3.1 Proximate analysis

Table 4.2: Nutrient composition of identified local feed resources in Masaba Sub County, g/100g dry matter basis

| Feedstuff | % DM | % Ash | %Crude Protein | %Crude fiber | %Crude fat | %NFE |
|---|---|---|---|---|---|---|
| Fish Meal (Caridean Shrimps) | 91.72 | 11.09 | 65.63 | 2.39 | 9.86 | 2.76 |
| Maize (Hybrid) | 86.04 | 0.91 | 10.94 | 36.13 | 4.07 | 34.00 |
| Finger millet | 85.00 | 1.90 | 7.29 | 3.73 | 1.84 | 70.23 |
| Sorghum | 83.97 | 1.38 | 12.40 | 8.79 | 2.70 | 58.71 |
| Kikuyu Grass | 96.03 | 0.86 | 10.94 | 34.66 | 2.51 | 47.28 |
| Cabbage | 88.00 | 1.34 | 23.33 | 15.14 | 0.83 | 47.35 |
| Kales | 83.89 | 1.21 | 30.63 | 36.08 | 1.36 | 14.61 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cassava root (peeled) | 89.79 | 2.97 | 2.92 | 2.09 | 0.83 | 80.94 |
| Sweet Potato tuber | 83.12 | 3.48 | 5.83 | 3.70 | 2.17 | 67.93 |
| **Mean (%)** | **87.51** | **2.79** | **18.88** | **15.86** | **2.91** | **47.09** |
| **Recommended nutrient requirements for poultry (%)** | | | | | | |
| Chicks (0-6 weeks) | - | - | 18 | - | 1 | - |
| Growers (6-18 weeks) | - | - | 15-16 | - | 1 | - |
| Layers (>18 weeks) | - | - | 17 | - | 1 | - |

*NRC (1994), DM=Dry matter content (100-%MC), NFE=Nitrogen free extracts (100- %MC+%Ash+%+CP+%EE%+CF%).

The results of the study in Table 4.2 above shows that fish meal (caridean shrimps) had highest protein content (65.63%) hence excellent protein source for IC but should not exceed 8% inclusion level in IC feed formulation. Cassava roots and sweet potato tubers was found to have high energy levels (80.94 and 67.93 respectively) and can be used to complement maize in IC feeds and require processing before use such as chopping, drying and grounding before use to reduce hydro cyanide content in cassava meal and trypsin inhibitors content in sweet potato meal. Cassava root and sweet potato tubers were found to have low crude protein and fat contents this could be compensated with proper feed formulation. Maize, sorghum and finger millet were also found to be good source of energy.

The findings on assessing the nutrient composition, usage and constraints of locally available resources used as IC feeds shows that the proximate content of maize was similar to previous studies in western Kenya by Carter *et al*., (2015). The protein content in this study was higher at 10.94% this may be attributed to new hybrid variety but the percentage dry matter and fat content were similar. The proximate content in cassava root and sweet potato tuber was comparable to research by Outhen (2014) in Laos Republic, Southeast Asia. The NFE content of cassava was higher than those reported by Outhen (2014) this is attributed to differences in varieties of cassava and agro- ecological conditions. The ash and crude fiber content was lower in this study than those reported by Outhen (2014) because the cassava root was peeled before feed analysis.

### 4.3.2 Chemical analysis

Table 4.3: Mineral composition of identified local feed resources in Masaba Sub County (dry matter basis)

| **Feedstuff** | **% Mg** | **% Ca** | **% K** | **% Na** | **% P** |
|---|---|---|---|---|---|
| Fish Meal (Caridean Shrimps) | 0.79 | 0.49 | 0.66 | 1.82 | 0.59 |
| Maize | 0.12 | 0.04 | 1.19 | 0.71 | 0.63 |
| Finger millet | 0.96 | 0.14 | 0.5 | 0.74 | 0.64 |
| Sorghum | 0.64 | 0.04 | 1.57 | 0.81 | 0.60 |
| Kikuyu grass | 1.11 | 0.73 | 8.45 | 0.91 | 0.67 |
| Cabbage | 0.84 | 1.71 | 3.65 | 0.69 | 0.46 |
| Kales | 1.68 | 0.5 | 8.45 | 1.09 | 0.59 |
| Cassava root (peeled) | 0.42 | 0.04 | 1.16 | 0.78 | 0.44 |
| Sweet potato tuber | 0.46 | 0.05 | 1.49 | 0.81 | 0.35 |
| **Mean (%)** | **0.78** | **0.42** | **3.01** | **0.93** | **0.55** |
| **Recommended levels of minerals for poultry (%) *** | | | | | |
| Chicks (0-6weeks) | 600mg | 0.9 | 0.25 | 0.15 | 0.40 |
| Growers (6-18weeks) | 500mg | 0.8 | 0.25 | 0.15 | 0.32-0.35 |
| Layers (>18 weeks) | 400mg | 2.0 | 0.25 | 0.15 | 0.32 |

*NRC (1994), Mg-magnesium, Ca-calcium, K-potassium, Na-sodium, P-phosphorous

The findings of this study in Table 4.3 above shows that maize, sorghum, cassava and sweet potato had low levels of calcium hence need to supplement calcium in feed formulations. This study has also found that cabbage, kikuyu grass, kales had high levels of minerals (magnesium, calcium, potassium, sodium and phosphorous) should be used to supplement mineral deficit in maize, sorghum and finger millet meals which are excellent energy sources but deficient in calcium and other minerals.

**4.4 Major factors which influence indigenous chicken production in Masaba Sub County, Nyamira County, Kenya**

Table 4.4: Multivariate analysis

| Variable | Wilks' Lambda value | F | Significance value obtained | Significant |
|---|---|---|---|---|
| Age | 0.86 | 0.78 | 0.80 | |
| Gender | 0.94 | 1.34 | 0.23 | |
| Level of education | 7.65 | 1.37 | 0.09 | |
| Experience | 0.67 | 2.08 | 0.00 | * |
| Family size | 0.67 | 2.08 | 0.00 | * |
| Training | 0.70 | 1.49 | 0.03 | * |

*Variable significantly influencing IC production and productivity in Masaba Sub County at 95% level of confidence.

The results indicate that the age, gender, level of education obtained *p values* greater than 0.05, indicating that they had no influence on indigenous poultry production. Furthermore, the level of experience, family size and training had *p values* less than 0.05, indicating that they had a positive and significant influence on indigenous chicken production. The results of further analysis show that the trainings attended by IC farmers had significant association with the mortality rate and egg production ($p < .05$), the results of this study show that majority of IC farmers were trained in poultry production this results were similar to findings by Nduthu (2015) who reported that there was a significant link between training and indigenous chicken production.

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