

## **Social- economics influence on indigenous poultry production project in Kenya. A case of Machakos indigenous poultry.**

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### **1.0 ABSTRACT**

**Purpose:** The purpose of the study was to analyze the Social- economics influence on project implementation by determining factors that influence indigenous poultry production. The study would then give recommendations to the relevant authorities and the indigenous poultry keepers to address those factors aimed at increasing indigenous poultry production.

**Findings:** The study showed that land size which was on average 1.1 had a significant influence on indigenous poultry production with a Wald of 37.017 and level of significance of less than 0.05 whereas the factors like gender issues, farm income and land tenure had a Wald of less than 1.0 and level of significance of more than 0.05 meaning they did not affect indigenous poultry significantly according to multivariate analysis with a confidence level of 95%.

**Recommendation:** The future study on why majority of indigenous poultry are reared by women should be done.

**Key Words:** Indigenous Poultry production, socio-economic, farm income, gender issues, land size, land tenure.

### **2.0 INTRODUCTION**

This article highlights the socio- economic that influence indigenous poultry production. This issues include farm incomes, gender issues, land size and land tenure. The world poultry population has been estimated to be about 16.2 billion, with 71.6 % in developing countries, producing 67, 718,544 metric tons of chicken meat and 57,861,747 metric tons of hen eggs (Gueye,2005). In Africa, village poultry contributes over 70% of poultry products and 20 % of animal protein intake (Kitalyi, 1998). In East Africa over 80% of human population live in rural areas and over 75% of these households keep indigenous chickens and Ethiopia is not exception to this situation (Kitalyi, 1998).

## 2.1 INDIGENOUS POULTRY PRODUCTION

According to Badhaso, B. (2012) the indigenous poultry are local birds whose rearing system is characterized by extensive scavenging management, no immunization programs, increased risk of exposure of birds to disease and predators, and reproduction entirely based on uncontrolled natural mating and hatching of eggs using broody hens, where there is no or minimum intervention to maximize their production and reproductive performance. According to Ndegwa, *et al.* (2000), indigenous poultry are among the local assets of the poor people living in the rural areas and who make up between 65- 80 percent of the total population in the sub- Saharan Africa.

With the Kenya population being near 43 million the land is becoming small and smaller. The depletion of farm land has caused harsh economic times that result to rise in food prices, farm inputs, and animal feeds. These factors have made the production of enough food unattainable, aggravating hungry and poverty-stricken households. One of the best opportunities for small-scale farmers can be through indigenous poultry production. The four main benefits of raising indigenous chickens are easy to establish for low-income families; more prolific and unproblematic to rear on small plots of land; more genetically diverse, well adapted, and more resistant to local pests and diseases; are vital for future food security, leading towards self-employment and self-reliance.

The low productivity of indigenous poultry is partly attributed to poor management practices; in particular the lack of proper healthcare, poor nutrition and housing hence decreased income from the production of indigenous poultry. King'ori, A.M. (2010a).

## 3.0 STATEMENT OF PROBLEMS

The market for the indigenous poultry continues to rise due to health related feeding preferences which seem to favour consumption of white meats. The demand for indigenous poultry in urban centers like Nairobi has continued to rise. According to Mailu, *et al.* (2008) from a study done of 68 farmers conducted in Kathiani, Machakos, Kibwezi, Nzau and Mwala District revealed that 70 percent of all indigenous poultry sales were conducted at the farm gate while only 19 percent of the sales were at the local market. The results suggests that while farmers complain of poor farm gate prices for indigenous chicken offered by middlemen, low volumes are an important drawback to market participation.

## 3.1 OBJECTIVE OF THE STUDY

Objectives of the study were to determine the factors influencing indigenous poultry production in Machakos County- Kenya. Specific objectives were:

- 1) To establish how farm incomes affects indigenous poultry production;
- 2) To establish how gender issues affect indigenous poultry production;
- 3) To establish how land size affect indigenous poultry production.

The research questions were:

- 1) How does farm incomes affects indigenous poultry production;
- 2) How does gender issues affect indigenous poultry production;
- 3) How does land size affect indigenous poultry production?

## 4.0 LITERATURE REVIEW

In a study carried out by Kumar, D. R. *et al.* (2013) of total of 150 households selected where the average flock size was 30 birds showed that for indigenous poultry to be feasible it requires better

understanding of the socio-economic aspects of the small-scale poultry farmers. Socioeconomics (also known as socio-economic or social economics) is the social science that studies how economic activity affects and is shaped by social processes (Wikipedia). In general it analyzes how societies progress, stagnate, or regress because of their local or regional economy, or the global economy.

#### **4.1 FAMILY INCOME**

According to Sharma, (2004) sales of livestock and livestock product make a considerable proportion of the rural farmer's cash income. Sonaiya, E.B. (2009) argues that Smallholder family poultry is affected by many technical factors including low bio-security, inadequate sources of inputs and services, especially sources of technical information as well as lack of genetically improved breeds which is as result of low income. Village poultry plays a key role in the home economy and its increased production has the potential to improve food security, assist in poverty alleviation and mitigate the adverse economic impacts of HIV/AIDS for rural people Harun, et al. (2001). Village chickens are active in pest control; provide manure required for special festivals and essential for many traditional ceremonies. Alders, *et al.* (2003). Credit is a financial tool for accessing inputs for production, considering the risk of being able to re-pay with low interest rate. Economic behavior and attitude therefore should be considered in making any suggestion and recommendation for changing the existing level of small-scale farming, Alamal, et al. (2010), Islam, M.S.,(2010) as there is substantial technical, allocate and economic inefficiency in poultry production. Factors for low productivity include as poor nutrition, diseases and management practices. King'ori, A.M. (2010b).

Smallholder indigenous chicken farmers face the challenge of how to increase food production and reduce poverty in rural areas. Poultry has potential of contributing to food and income security of rural households in Kenya. This challenge is particularly great in Western Kenya where majority (80%) of the rural households keep indigenous chicken. Here, indigenous chicken production is characterized by low levels of inputs and outputs (Okitoi *et al.*, 2007) with limited application on management interventions.

#### **4.2 LAND TENURE AND LAND USE**

In developing countries nearly all families at the village level, even poor and landless, are owners of poultry where production is feasible and low cost technology is needed to improve production considerably. Upton M. (2012). Poultry keeping is especially attractive to poor households as they require low start-up capital and have low maintenance costs. Besides, increasing landlessness occasioned by the high population growth means that poultry production has become the investment of choice due to its low space requirements.

Ninety percent of the rural household in Bangladesh raised a small number of poultry under scavenging or semi-scavenging system. During the daytime, these birds scavenge and eat household waste, crop residues, insects and other available feedstuffs, and sometime a small amount of supplemented feeds offered by the flock owner (Das et al., 2008). According Munyasi, et al (2012) tremendous increase of pastoralists keeping chicken is due to emerging changes in eating habits and diets; and that also, chicken flocks appear to be providing quick and cheap source of income as the flocks are kept on free range with minimal inputs.

Land tenure in Kenya influences the choice of farming system. Each type of the farming system affects land use, conservation and management in different ways. According to studies done by Odhiambo, (2002) to assess the impact of land tenure on land use and management of environmental resources, showed that land tenure regimes influence land use.

### **4.3 GENDER ISSUES**

Developing schemes that aim to promote and improve the family poultry sub-sector in a way that is sustainable must not underestimate the roles and contributions of women. However, getting new information to the front line of production requires more gender-disaggregated data. Gueye, E.F. (2003). Generally, in sub-Saharan Africa indigenous chickens are owned and managed by women and children and often essential part of female-headed households (Ahlers, *et al.*, 2009). Promotion of indigenous chicken production therefore, economically empowers the rural youth and women (Gueye, 2009).

Further, linked to the religious and socio-cultural lives of several million resources poor farmers for whom animal ownership ensures varying degrees of sustainable farming, the women producers have under taken poultry production as an agro-enterprise activity for income generating activity. Poultry production enterprise is a potential area for women groups to harness income, job create opportunities, improve quality life and standard of living for women residing in rural communities of The Gambia.FAO (2003). The role of poultry in poverty alleviation is food security and promotion of gender equality in developing countries which is well documented. Gueye E.F. (2000). Generally speaking, women group knows best the type of business that can earn maximum profit. Women often start by investing in livestock and then move on to other profitable activities. Gueye (2002).

### **4.4 RESEARCH METHODOLOGY**

Research methodology utilized both descriptive and inferential analysis. Under descriptive analysis percentages, tables and frequency distribution will be used while under inferential analysis, logistic regression analysis was to determine the relationship between dependent and independent variables. The target population of study was 20,000 small scale farmers of Kathiani sub- County of Machakos County. Data was collected using a 100 structured open and closed questionnaire which were administered by livestock specialists to selected small scale indigenous poultry farmers in Machakos through multi stage random sampling. 98 questionnaires were returned. The instrument was pretested by being administered to three livestock extension specialist. Singleton (1993) argues that while a sample size of 2000-3000 is considered the extreme upper limit, extreme lower limit is generally 30 cases for statistical analysis but continues to add that most social researchers would recommend a sample size of a 100. The area has one community with similar livestock keeping practices and in the same geographical locality. The study population is therefore considered homogeneous. Due to the time and resources limitation (Mutai, 2000) and going by Singleton (1993) a sample size of 100 would be considered adequate since the study population was considered to be homogeneous.

### **5.0 RESULTS AND FINDINGS**

This section focuses on areas that data was collected, findings and results. It also highlights on discussion of the results and findings. Lastly it gives the conclusion.

### **5.1 Socio- economic factors**

This section is looking at the socio- economic factors that could affect indigenous poultry production. The factors analyzed included income levels, composition of households members, household housing, household farm size, land tenure, number of indigenous bird, sources of farm labour, sources of capital, care takers of birds, decision making in slaughter and sale.

Table 1 shows that majority of the households' monthly income was below Ksh 5,000 constituting 76% while only 17 % earned more than Ksh 5,000 and only 7% earned more than ksh10,000.

Table 2 shows that majority, 68% of the household members are at age of less than 18 years, 25% are at the ages of between 18- 30 years, 3% were between 31-40years, 3% were between 41-50 years and 1% was of age of above 50 years. The study shows that the family members had people who would provide labour either in management or construction of poultry houses.

Table 3 shows that majority of the respondents, 71% owned semi- permanent houses, 19% of the respondent had mud- walled houses and 10%, have permanent houses. This was due to low level of incomes of majority of the households. However, this could be as a result of the fact that sand is abundant in the area and farmers bake their own bricks for construction of semi permanent houses. Termites are also a menace and trees are scarce warranting the use of bricks.

Table 4 shows majority of the households, 90 %, had a land size of less than 1acres while only 12% had more than 1 acre and above. The average farm size was 1.1 acres.

Table 5 shows that the land ownership was mainly family owned constituting 64%, own was 28%, leased at 6% and communal land 2%

Table 6 showed that majority of the household, 62% had more than 6 indigenous poultry while as only 38% had between 1-5 indigenous poultry. This showed that the household interviewed showed that only two farmers had more than 30 indigenous birds meaning production is low.

Table 7 shows that majority, constituting 82% were depending on family labour. 18% were depending on hired labour. This shows that indigenous poultry production is not that labour intensive hence the higher percentage in family labour as compared to the hired labour.

Table 8 shows that the main source of capital, constituting 94%, used in the farm is from the household heads themselves while only 6% of the same is borrowed. This was expected from the study given the income levels of most households which could not be enough to allow them to borrow finances.

Table 9 shows that indigenous local poultry are mainly owned by the wife at 57% and the man at 33%. While as 10% said that the indigenous local poultry is owned by both women and men. This shows that the responsibility of taking care of the indigenous local poultry is likely to be done by the wife or women.

Table 10 shows that taking care of indigenous local poultry mainly is the responsibility of women constituting 67% while only 13% is taken by men. This shows that women are heavily burdened and this is likely to influence indigenous local poultry production in the study area.

Table 11 shows that women are the main determiners of slaughter and sale of the indigenous local poultry comprising 60% as compared to men determiners who constitute only 26%. This shows that women, who owns more indigenous local poultry, 57%, compared to men 33% according to Table 4.10 also takes the main burden of taking care of indigenous local poultry where 67% of them were responsible for taking care compared to men 13% going by the findings in Table 11. This is likely to influence the indigenous local poultry production in the area of study where the sweat of one's labour is rewarded.



## 5.2. Multivariate Analysis

This section presents multivariate analysis of data in order to determine independent variables that were significant or not significant and which influenced or did not influence indigenous local poultry production in Machakos County- Kenya using Wald test through logic regression analysis Table 12 presents the multivariate analysis and below are the finding

\* Variable significantly influencing indigenous local poultry production at 95% confidence level.

\*\* Variable significantly influencing indigenous local poultry production at 99% confidence level.

An independent variable with a level of Wald of 2 and above was significant and hence influenced indigenous local poultry production in Machakos County- Kenya. An independent variable with a Wald level of between one and two were not significant but were likely to influence indigenous local poultry production in the district while an independent variable with a Wald level of less than one was not significant and not likely to influence indigenous local poultry production in the district.

## 5.3 DISCUSSION

This section highlights the findings in relation to the research questions that were to be answered.

On incomes the findings showed that majority of the households' monthly income was below Ksh 5,000 constituting 76% while only 17 % earned more than Ksh 5,000 and only 7% earned more than ksh10,000. This implied that most of the households had low level of income to meet basic needs and invest in intensive indigenous poultry activities such as construction of poultry house, purchase of good indigenous poultry breeds and even do good disease/ parasites control. The average monthly income was Ksh 5, 700. This findings agrees with the literature review as cited by Sonaiya, E.B. (2009)

On gender issues the findings showed that majority of indigenous poultry is taken care of by women at 67%, men at 13%, children at 5%, any at 15% while as majority of the indigenous poultry are owned by women at 57%, men at 33%, both at 10%. These further shows that since women have no access and control of resources like land it could affect indigenous poultry keeping in line with poultry house construction. This finding agrees with the literature review as cited by Ahlers *et al.*, (2009).

On land tenure the findings showed that the land ownership was mainly family owned constituting 64%, own was 28%, leased at 6% and communal land 2%. Land tenure insecurity was cited in the study as a factor that is likely to influence indigenous poultry production from the fact that farmers are likely to shy off from investing heavily in a farm that they are not sure of what can happen to it in future especially when it comes to constructing a poultry house. This agrees with the literature review as cited by Odhiambo, (2002). The findings showed that land size.

To establish the extent to which social economic factors influenced indigenous poultry production in the district, logistic regression analysis showed that average monthly income of the house hold head, source of capital and source of farm labour had no significant influence on indigenous poultry production in the district. The study showed that land size which was on average 1.1 had a significant influence on indigenous poultry production with a Wald of 37.017 and level of significance of less than 0.05 whereas the factors like gender issues, farm income and land tenure had a Wald of less than 1.0 and level of significance of more than 0.05 meaning they did not affect indigenous poultry significantly according to multivariate analysis with a confidence level of 95%. Land size influenced indigenous poultry production significantly and had a Wald of more than 2.

## 6.0 CONCLUSION

The findings showed that farm incomes and gender issues do not affect indigenous poultry production significantly whereas land size affects indigenous poultry production significantly. Average households land size was 1.1. From the study this land size is not enough for farming and doing indigenous poultry production at the same time. This however significantly influenced indigenous poultry production positively according to the study. This implied high land pressure in an effort to derive their livelihood from the small land size given the climatic condition of the area which is semi arid. The study shows that land size had an influence on indigenous local poultry production because of the scavenging area. Recommendation of future study on why indigenous poultry are reared by women should be done.

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**TABLES AND FIGURES****Table1: income levels**

Households average monthly income (Kshs)	Frequency	Percentage (%)	Average income (ksh)
Below 5000	75	76	5700
5001-10,000	17	17	
Above 10,000	6	7	
<b>Total</b>	<b>98</b>	<b>100</b>	

**Table 2: Composition of household members by age**

Age composition (years)	Frequency	Percentage (%)
<18	243	68
18-30	89	25
31-40	10	3
41-50	10	3
>50	2	1
<b>Total</b>	<b>354</b>	<b>100</b>

**Table 3 Type of house occupied by house hold members**

House type	Frequency	Percentage (%)
Permanent	10	10
Semi-permanent	70	71
Mud-walled	18	19
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 4 Households farm size**

Households farm size	Frequency	Percentage (%)	Average farm size
Below 1 acre	88	90	1.1 acres
1 to less than 2 acres	8	8	
2 to less than 3 acres	2	2	
3 to less than 4 acres	1	1	
4 to less than 5 acres	1	1	
Above 5 acres	0	0	
<b>Total</b>	<b>98</b>	<b>100</b>	

**Table 5 Households land tenure**

Response	Frequency	Percentage (%)
Own	27	28
Leased	6	6
Family land	63	64
Communal land	2	2
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 6 household number of indigenous poultry in the homestead**

Response	Frequency	Percentage (%)
1-5	37	38
> 6	61	62
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 7 Households' main source of farm labour**

Response	Frequency	Percentage (%)
Family	80	82
Hired	18	18
Both	0	0
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 8 Main source of capital used on the farm**

Response	Frequency	Percentage (%)
Own	92	94
Borrowed	6	6
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 9 Ownership of indigenous local poultry in the household**

Response	Frequency	Percentage (%)
Husband	32	33
Wife	56	57
Both	10	10
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 10 Response on who takes care of indigenous local poultry**

Response	Frequency	Percentage (%)
Husband	13	13
Wife	66	67
Children	5	5
Any	14	15
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 11 Determiners of slaughter and sale of the indigenous local poultry in the household**

Response	Frequency	Percentage (%)
Husband	25	26
Wife	59	60
Both	14	14
<b>Total</b>	<b>98</b>	<b>100</b>

**Table 12 Multivariate analysis**

Variables	Significant	Std error	Wald	Significant	
Gender :Male Female		0.719	0.898	0.343	*
Age : less than 45 years Above 45 years		1.222	0.617	0.432	*
Education level: At least primary Secondary and above		0.543	0.49	0.484	*
Source of family labour : Own Hired Both		0.561	0.05	0.910	*
Income Ksh 0-5000 Ksh 5001-10000 Ksh above 10000		1.443	0.013	0.910	*
Source of capital : Own Borrowed Both		1.848	0.565	0.452	*
Farm size below 1 acre 1-below 2 acres 2- below 3 acres 3 –below 4 acres 4- below 5 acres 5 acres and above		1.753	37.017	0	**
Land tenure: Own Family		1.610	0.032	3.322	*