

## INDIGENOUS CHICKEN MARKETING CHANNELS AMONG SMALL-SCALE FARMERS IN MAU-NAROK DIVISION OF NAKURU COUNTY, KENYA

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### ABSTRACT

Poultry production in Kenya is an important source of livelihood for small-scale farmers who produce 80% of the national poultry production. Compared to other livestock species, indigenous chicken (IC) rearing remains attractive to poor households because the IC are hardy; adapt well to the rural environment; require less start-up capital and have low maintenance costs. They are a cheap source of animal proteins for financially unstable households. Although majority of small-scale farmers rear indigenous chicken, it has been reported that very few engage in it as a commercial enterprise for household income. The reasons why commercial rearing of indigenous chicken among most small-scale farmers remains low despite their high demand in the market are not well documented. The purpose of this study was therefore to study the difference in household income obtained by small-scale farmers in Mau-Narok Division of Nakuru County from different IC marketing channels. A cross-sectional survey research design was used. The target population consisted of small-scale farmers who reared IC in Mau-Narok Division. Using the coefficient of variation method, a sample size of 120 respondents was randomly selected from a sampling frame of 10,479 households. Data were collected using a semi-structured questionnaire. Descriptive and inferential statistics were used in data analysis and all tests were computed at  $\alpha = 0.05$ . Study findings indicated that there was a statistically significant difference between the income obtained by small-scale farmers in Mau-Narok Division from selling IC products at the farm and the income obtained from selling IC products off farm. This finding is contrary to the norm, whereby off farm marketing results in higher income. This could be due to the minimal price difference realised when farmers sold their products off farm. There is need for further studies to shed more light in this area.

**Key Words:** *Commercial rearing, Household Income, Indigenous Chicken, Kenya, Small-scale Farmers*

## Introduction

Chicken are the most abundant and widely kept livestock species in the world (Moreki, Dikeme & Poroga, 2010). Indigenous chicken (*Gallus domesticus*) are widely distributed in rural and peri-urban areas where they play an important role in income generation and food production (Moreki *et al.*, 2010; Thornton, Kruska, Henniger, Kristjanson, Atieno, Odero & Ndegwa, 2012). Globally, indigenous chicken (IC) produce 30% of all the white meat consumed (FAO, 2012). In Africa, over 70% of the total chicken population is made up of IC (FAO, 2011). Poultry production in Kenya is an important livelihood activity particularly among small-scale farmers who produce 80% of the national poultry production (Ministry of Livestock and Fisheries Development, 2011). Poultry sub-sector creates employment and promotes overall economic development. Additionally, IC have culturally been used in conventional medicine and for various cultural rites. Compared to other livestock species, poultry, specifically chicken have the advantages of having quick returns to investment and relatively simple management practices with numerous market outlets for their products. Ndirangu, Birol, Roy & Yakhshilikov (2009), indicated that poultry contributed to farmers' income, wealth and insurance against shocks. A study by Kingori, Wachira and Tuitoek (2010) further indicated that IC rearing was highly associated with women and the youth since it was viewed as a venture for the poor.

Indigenous chickens are have advantages in that they are hardy, adapt well to the rural environments, survive on low inputs and adapt to fluctuations in available feed resources (Kingori *et al.*, 2010). Thus, about 90% of the small-scale farmers in Kenya rear IC (Akondo, 2012; Kingori *et al.*, 2010). Although IC rearing remains attractive to poor households, most small-scale farmers rear IC as a subsistence enterprise. Available information from the District Agricultural Office Njoro District showed that, very few or none ventured into commercial rearing of IC (District Agricultural Office, 2011). In addition, the rapidly growing competitive uses of agricultural crop products especially maize were increasing the demand for livestock products (Agriculture and Rural Development [ARD], 2012).

A study by the UN (2011) indicated that between 1999 and 2009, Kenya's population increased by 35% to 38.6 million. This rate of growth not only increased demand on land productivity but also exposed the shortcomings of the tradition of land subdivision for inheritance. The study further showed that the average size of about four million small farms have been reduced to less than one acre. Thus, increased landlessness occasioned by the high population growth makes IC rearing an investment of choice due to its low spatial requirements. However, IC rearing has been influenced by several factors, which include; the rearing system used, level of technical knowledge, poor management and poor marketing strategies. Others include; shortage of feeds, improper housing, disease outbreak, parasite menace, predation, lack of technical assistance from extension staff and use poor IC breeds (Kingori *et al.*, 2010; Moreki, 2010; Ndathi, Muthiani, Kirwa, Kibet & Cheruiyot, 2012).

In Njoro District, most IC are kept by farmers in the rural settings (District Agricultural Office Njoro, 2011). As one approaches peri-urban set up, farmers tend to venture more into exotic chicken rearing than IC. This has been associated with better adoption levels and the quick returns associated with exotic chicken breeds. However, high costs of poultry feeds and other inputs seem to have driven most exotic chicken farmers out of the sub-sector. This has led to a steady decline in the number of exotic birds with broilers totalling 2,448, layers 5,738

while IC population was 142,721 as at 31<sup>st</sup> December 2011 (District Agricultural Office Njoro, 2011).

Rearing of IC appears to be the best alternative for most farmers since their feed demands and general cost of production is low (Kingori *et al.*, 2010). Data from Mau-Narok Division indicated that, majority of IC farmers have not given commercial IC rearing the attention it deserves as an important source of household income (Divisional Agricultural Office Report, 2011). Commercial rearing of IC among Mau-Narok small-scale farmers' would boost household income and food security thus contributing to the attainment of Millennium Development Goal (MDG) One (Ministry of Planning and National Development, 2007). The poverty index of Mau-Narok which stands at 43% would also decline (District Development Office (DDO), 2011).

Globally, IC rearing accounts for 30% of all white meat consumed. In Sub-Sahara Africa, IC are produced by small-scale farmers. In Kenya, 55% and 47% of meat and eggs respectively come from IC (Kingori *et al.*, 2010) whose rearing can be a reliable, affordable and easier to manage source of household income. Rearing of IC has many advantages, which include high, currently unmet market demand for IC meat and eggs (ARD, 2012; WSPA, 2012). This is due to the desirable characteristics of IC, which include leanness, good flavour, presumed organic product and changing feeding habits. Supply deficit for IC products worsens during the festive seasons like Easter and Christmas holidays. Though over 90% of small-scale farmers engage in IC rearing, very few of them consider it a commercial enterprise. This is evident in Mau-Narok Division. The reasons why most small-scale farmers' commercial rearing of IC is low despite their high demand in the market are not well documented. This makes it harder for policy makers and other stakeholders to make important decisions on how to improve IC production. This study sought to provide information on the difference in income that a small-scale farmer in Mau-Narok Division obtains in selling IC products at the farm and that obtained by selling IC products off the farm. The null hypothesis investigated was: there is no statistically significant difference between the income a small-scale farmer in Mau-Narok Division obtains in selling IC products at the farm and that obtained by selling IC products off the farm.

### Literature Review

Trade in poultry and poultry products in Kenya is characterized by extensive movement of live birds and their products within the country (i.e. between regions) and from neighbouring countries across the border into Kenya (Aila, Oima, Ochieng & Odera, 2012). Marketing channels for live birds and poultry products (meat, eggs and feathers) are not clearly defined. The chicken keeping households sell their live birds either directly in the local markets or to primary collectors (middlemen), who eventually sell in local markets, which include individuals, kiosks, shops and small restaurants mainly in the rural areas (Omiti & Okuthe, 2012). Primary collectors also sell some chicken in secondary markets in the urban areas. Some of these secondary traders sell to the tertiary markets who distribute the chicken to supermarkets, kiosks and small restaurants in the urban areas. This is attributed to the low and irregular IC productivity (Kingori *et al.*, 2010). Live birds and eggs are sold at the gate or in the local market, while live chicken are sold during the time of need for cash or upon an outbreak of a disease to avert huge losses (Mailu & Wachira, 2010; Ndathi *et al.*, 2012).

In their study Mailu & Wachira, (2010) found that two market channels were available to farmers either at the farm gate or at the market. Poultry traders, who bought IC from farmers in the rural markets, assembled them for subsequent sale in larger urban markets. The IC prices were found to vary by season, chicken sex, size and the trader involved. Additionally, eggs were found to be sold when hatching was not required. Studies by Ndathi, *et al.* (2012) and Thurlow, (2010) show that local traders purchased live chicken and eggs from farmers and transport them for sale to urban markets while eggs are also sold within households or through the local shop outlets. On average, live birds are sold when aged six months and over.

Although the marketing channels of poultry products remain undefined, Njoro Sub-County experiences a deficit of egg and chicken meat supply amounting to 50% while in Mau-Narok Ward the deficit is estimated at 60% (DAO, 2012). Chicken meat supply deficit worsens during the festive seasons like Easter and Christmas holidays. In their study on IC production in Kenya, Kingori *et al.* (2010) found that consumers' preference for IC meat is on the increase. This has been attributed to the characteristic leanness, flavour and presumed organic product. The demand for these products has been on the increase due to urbanization, increasing human population and decreasing agricultural land. Besides meat, IC are also kept for their eggs, feathers and manure. Rearing IC would then cushion the majority of small-scale farmers and vulnerable groups from extreme poverty and food insecurity. Streamlining the marketing channels would minimise small-scale farmers' exploitation and contribute towards changing their livelihoods.

Majority of the Kenyan population resides in the rural areas which are characterized by low income, food insecurity and high levels of poverty (Ministry of Planning and National Development, 2007). Indigenous chicken rearing plays a significant role in the economic and social life of resource-poor households. It contributes to cheap source of animal proteins and cash income (Kingori *et al.*, 2010). Indigenous chickens are present whenever there are human settlements and their economic strength lies on their low cost of production (Menge Kosgey & Kahi, 2010).

Furthermore, ICs' meat and eggs are in high demand in the market. This is due to the current trends of nutrition management where people mostly in the middle and high classes are going back to organic and traditional foods (DAO Njoro, 2011; Kingori *et al.* 2010). However, their low productivity coupled with farmers' reluctance to take up IC as a commercial venture and a steady source of household income has created a deficit in the market. Low productivity of IC has hindered their exploitation. Indigenous chicken rearing is a hidden treasure that farmers can benefit from only if they rear birds in larger numbers. In Kenya, IC possess high genetic diversity and are popular among the consumers. There is potential for improvement of IC production in Kenya given the available genetic and physical resources. Productivity needs to be increased without increased rearing costs or loss of biodiversity.

### Research Methodology

A cross-sectional survey research design was used. Two locations of Mau-Narok Sub-County in Nakuru County were purposively selected for the study. A total of 10,479 households were targeted of whom a sample of 120 respondents was obtained using a coefficient of variation method by Nassiuma, (2000). Simple random sampling was used to draw the required

respondents according to the proportionate households in each location. One hundred households were sampled from Mau-Narok representing 83.3% compared to 20 households representing 16.7% from Sururu because Mau-Narok's households were proportionately higher than those of Sururu.

**Table 1: Distribution of Households by Locations**

Locations	Frequency	Percent
Mau-Narok	100	83.3
Sururu	20	16.7
<b>Total</b>	<b>120</b>	<b>100.0</b>

*Source:* Survey data, Mau-Narok Division, 2012

Both qualitative and quantitative data were collected using semi-structured questionnaires. These were then analyzed using SPSS. Simple descriptive statistics mainly; means, frequencies, percentages, standard deviations and bar charts were used to analyze quantitative data. The influence of the level of application of indigenous chicken rearing technical knowledge on household income from the enterprise was determined using Analysis of Variance (ANOVA).

## Research Results

### Gender of Respondents

More than half of the respondents interviewed (55%) were female compared to 45% male. This seemed to indicate that most of the farm activities dealing with IC rearing were handled by women and agrees with the findings of Kingori *et al.* (2010). In their study, Kingori *et al.* (2010) found that IC rearing is highly associated with women and the youth as it was viewed as a venture for the poor. In addition although women are more active in most of the farm activities like IC rearing, they have limited access to productive resources. According to USAID (2011), if women had the same access to productive resources as men, they could increase yields on their farms by 20–30%. This increase could raise total agricultural output in developing countries by 2.5–4% and reduce the number of hungry people in the world by 12–17%, up to 150 million people. Additionally, a study done in Nigeria established that women produced between 60 to 80% of the food in that country (Meludu, Ifie, Akinbile and Adekoya, 2009). They were also responsible for managing household resources and were major pillars for achieving sustainable household food security. Given access to the productive resources, the female respondents in this Ward could expand their IC rearing enterprises.

### Level of Education of the Respondents

Half of the respondents (50%) had attained primary education while 22.5% had secondary education. Only 5.8% had post secondary school level education while 21.7% had no formal education. Majority of the respondents had attended primary school contradicting the findings of Oyugi (2012), which established high illiteracy level of 77% among rural farmers. Respondents with secondary school level education and above were 28.3%. With high education level, farmers' intellectual capacity is expected to be high. This should enhance

application of proper IC rearing practices hence improving the household income derived from IC.

### **Marital Status**

A large proportion of 89.2% were married, 8.3% were single and very few (2.5%) were windowed. According to FAO (2011), among the married households, women have limited control over decision making on agricultural resource allocation. Thus majority of the married women in this Division had little contribution in decision making on IC rearing resource allocation.

### **Farm size of the Respondents**

Most of the respondents (82.5%) had less than one hectare of land which agrees with the study done by UN, (2011), indicating that most small-scale farmers owned less than one hectare of land. Only 17.5% had more than one hectare of land. Among the 82.5% with less than one hectare of land, 9.2% did not own any land. These are farmers who were displaced from their farms during the 2007/2008 post election skirmishes that rocked the country. Being unable to buy alternative pieces of land they resulted to renting farms elsewhere or working as casual labours in other farms and living in rented houses in the shopping centres where by using simple structures they are able to rear IC. The mean farm size was 0.7 hectares. Mau-Narok being a horticultural hub, the small pieces of land are fully utilised for horticultural activities with little or no room left for IC rearing. This has negative implications on IC rearing as a commercial enterprise for household income as well since most agricultural enterprises often give attention to farm size. A study done by Muiti (2008) found a positive correlation between farm size and production level.

### **Age of the Respondents**

The age of the respondents ranged between 21 years and 87 years with a mean age of 47 and a standard deviation of 15.3. The mean age of 47 years may imply that commercial IC rearing would be very productive since these are farmers in the productive age category. Young farmers below thirty years of age were very few, a situation that could be attributed to rural urban migration of the youth in search of white collar jobs. However, 40.9% of the farmers were tending towards old age. According to Kingori *et al* (2010), old farmers had little knowledge on IC rearing and relied on experiences transferred from generation to generation. This was an indication that most of respondents could be using traditional knowledge in commercial IC rearing. This traditional knowledge is however crucial and needs to be accumulated and passed on to the younger farmers.

### **Marketing Channels**

From the results it is clear that a larger proportion of 47.5% sold their products at the farm while 19.2% sold their products off the farm. This corroborates the findings of the studies done by Aila *et al.* (2012); Mailu & Wachira, (2010) and Ndathi *et al.* (2012) that chicken keeping households sold their birds and eggs either directly to the local markets or to primary collectors (middle men). These middlemen eventually sold to other markets and the trade is

characterised by extensive movement of chicken and their products as indicated by Kingori *et al.* (2010).

### **Income Obtained from Different Marketing Channels**

More than half (51.7%) and 31.7% of the IC rearing farmers interviewed got incomes ranging KShs 1-20,000 for selling at the farm and off the farm respectively while 7.5% and 0.8% of those interviewed obtained incomes ranging KShs 20,001-40,000 from selling at the farm and off the farm respectively. None of the farmers selling off the farm obtained income above KShs 40,000 while 0.8% and 1.7% of the farmers selling at the farm obtained incomes ranging KShs 40,001-60,000 and above KShs 60,000 in a year respectively. Generally, most of the respondents selling their IC products at the farm gate and those selling off the farm got an income less than KShs. 20,000. It was also noted that most of the farmers did not sell the manure obtained from the birds but instead used it in their farms, therefore, they did not obtain any direct income from the manure. This would then be expected to lower the production cost they incur in buying of fertilizers used for horticultural production. A small percentage of farmers (9.2%) of those interviewed threw away the chicken manure since they did not own farms where they could use the manure (refer to Figure 4).

The t-test results indicated that the mean of the income obtained from selling IC products at the farm was higher and statistically different from the income obtained from selling off the farm. The study thus rejects the null hypothesis and accepts the alternative hypothesis that there is statistically significant difference between the income obtained by small-scale farmers in Mau-Narok Division from selling IC products at the farm and the income obtained from selling IC products off farm. This could possibly be attributed to the minimal price difference realised when farmers sold their products off farm. In addition farmers sold few birds that even when taken to off farm market they could not cater for the extra cost incurred. High transport cost in the area due to deplorable road status could also be a contributing factor. According to Sebushahu (2011), transport costs have been cited as among the factors that contribute to high prices off the farm. Lack of organised and appropriate transport for birds has been associated with small number of birds that are collected at the farm for sale off the farm. Indigenous chicken are thus transported in buses together with passengers and the farmers pay a lot of money for just a few number of birds. The standard deviation is high within the marketing channels indicating a variation among the sampled respondents which is expected when dealing with a normal population. However, the high standard deviation does not in any way affect the comparison between the marketing channels.

### **Conclusions and Recommendations**

Most of the respondents sold their IC products at the farm gate and those selling off the farm got an income less than KShs. 20,000. However, farmers did not sell the manure obtained from the birds but instead used it in their farms therefore they did not obtain any direct income from the manure.

Selling IC products at the farm gate earned small-scale IC farmers higher household net income than selling off the farm. This could be attributed to the fact that the profit margin obtained after selling IC products at the farm was higher since farmers did not incur any extra marketing cost like transport cost. Additionally, the prices of IC products off the farm were

not very high thus any extra marketing cost lowered the net income a small-scale IC rearing farmer obtained. There is need for further study to establish the real reasons why the income obtained from marketing IC products at the farm gate was higher than that obtained upon marketing off farm which is a contradiction of past studies done on IC marketing. The government and other development agents should help the IC farmers streamline their marketing channels and increase their volumes of production so that they can maximise their incomes.

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