

**URBAN CHICKEN PRODUCTION AND
HOUSEHOLD INCOME IN DODOMA MUNICIPALITY,
TANZANIA**

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ABSTRACT

Urban chicken production has continued to exist for many years in Tanzania. With the raise in concern on poverty in the country, urban chicken production which is practiced by most of the households in urban areas seems to be one of the relevant ways to address poverty prevailing among urban dwellers. The study was conducted in two wards of Dodoma Municipality, Tanzania. The main concern of the study was to assess the contribution of urban chicken production to household income and to identify challenges facing urban chicken producers in the study area. A cross sectional type of study was conducted to collect data from June 2013 to September 2013 using questionnaire survey; whereas 72 households were included in the survey. T test was used to find out if the earnings from chicken production were significantly associated with the income changes of the households of chicken producers. Findings have shown that most of the income from chicken products was derived from sales of eggs and live chicken. Moreover, the findings supports the preposition that chicken production has contribution in increasing household income ($P = .000$). The findings have also revealed that urban chicken producers are faced by a number of challenges; the some of them being financial, price fluctuation, and lack of unit among producers. One of the recommendations of the study is that, chicken producers should organize themselves in a trade association to assist them in price negotiations, and soliciting financial means.

Key words: urban; poultry production; chicken production, household income

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Introduction

Tanzania is among the countries in the world where chicken production is widespread. For instance, there were 30 million indigenous chickens and other species by the year 2005 in the country (MWLD, Statistical Year Book, 2005). Relatedly, a economic survey done by The Tanzania Ministry of Finance and Economic Affairs, 2008 observed that the number of chicken population was increasing and estimated to be about 36.2 million chickens by the year 2008 (NBS, 2008). In 2007/2008, National Sample Census of Agriculture shows that the ownership of poultry birds was by about 66 percent of all livestock-keeping households. Apart from that, it also revealed that, there has been an increase in chicken products where by egg production increased from 380 million to 1.8 billion between 1995 – 2005 years; which resulted into increase in per capita consumption of chicken products, for instance meat increased from 5 to 11 kg and eggs from 14 to 53 per annum between the same years (URT, 2006)

The significance of chicken production to the country cannot be underestimated. For instance, in 2005, the agricultural sector contribution to the national Gross Domestic Product (GDP) was 45.6% (Economic Survey, 2005), and out of this contribution, about 30% was from poultry and small stock production. In the year 2007, the economic survey has shown that, the share of the livestock including chicken in GDP has been 4.7% (URT, 2008). The significance of the poultry industry to the economy is not limited to its share in the total GDP but also it plays vital role in other areas such as supply food products, thus contribute to food security, convert forages and crop residues into edible products, source of income and employment, provides manure and fulfils cultural roles in the communities (URT, 2006). The chicken industry is of greater importance since it acts as remarkable investment channel for most of the poor people. By the year 2000, in Tanzania, the chicken industry was estimated to be worth 40.5 billion Tanzanian shillings (\$50.6 million) (Boki, 2000; Minga et al., 2000).

The chicken production industry in Tanzania like in other African countries can be divided into a traditional and commercial sector. URT, (2006) statistics show that commercial sector is mostly practiced in urban areas; and the traditional sector is mainly practiced in rural areas. It further, indicates that the traditional sector contribute over 70% of the poultry production; including chicken, it supplies most of the poultry meat and eggs consumed rural areas, and about 20%

consumed in urban areas. The commercial sector consists of small-scale to large-scale chicken enterprises under intensive management conditions. It is in the commercial sector that, the layers and broilers are kept for egg and meat production, respectively.

Despite the endowment of chicken and chicken products, one of the obvious development challenges that have faced Tanzania for many years is poverty reduction. Findings from the five studies PHDR (2002, 2003, 2005, 2007 and 2009) and three Household Budget Surveys (HBS) (1991, 2001, 2007) show that while economic growth has significantly improved over time, the reduction in poverty has not been achieved to the same extent. According to the Household Budget Survey (HBS), 2001 it was estimated that almost half (48 percent) of Tanzania's population of 36 million people is unable to meet basic food and nonfood needs. The poverty line basket was valued using prices collected in the 2000/01 survey. At that time the poverty line was TZS 7,253. Between 2000/01 and 2007, prices of goods and services in the basket increased by 93%. Because the population continued to grow, the absolute number of poor Tanzanians increased by 1.3 million between 2000/01 and 2007 based on the projected population of 38.3 million in Mainland Tanzania in 2007, the total number of poor people is estimated to be 12.9 million (PHDR, 2009). In Dodoma region, poverty has revealed itself through a multiple effect on the society. Data from the HBS indicate that the food share in total consumption declined from 62% to 59% from 2000/01 to 2007. Further analysis shows that, In Dodoma, between 2000/01 and 2007, there were decline in the share of food in total consumption at all levels of income/consumption.

It is generally accepted that urban chicken production is important to most households in the urban areas. However, most information on chicken production practices discusses the chicken production at rural areas (Mwalusanya, (1998):Mdegela 1998 in Mwalusanya, (1998)) in Consequently, the contribution of urban chicken production practices remains less recorded and hence less recognized. Furthermore, it is also noted that, livestock has lagged behind crop agriculture, growing at only 3.3 percent per year since 1998 to 2007. Incomes from poultry and other livestock has continued to grow at slow pace compared to crop production (World Bank, 2009) in Pauw and Thurlow (2010). Since they are important for improving lives of people in many parts of the country, especially for lower-income households; the question that may also rise is, what are the problems encountered by urban chicken producers in rearing the chickens for

commercial purpose? In a way there is scant information on how chicken production practices contributes to household poverty reduction in urban areas, and what are the challenges encountered by chicken producers of the urban areas. Therefore this paper intends to contribute in the providing explanations to these issues.

Methodology

This paper is a result of research work which was conducted in Dodoma municipality, Tanzania using two ward Kiwanja cha Ndege and Makole ward as a case. A cross sectional type of study was conducted to collect data from June 2013 to September 2013 using questionnaire survey. The non-probability sampling techniques were used to select the appropriate respondents, whereby 72 respondents engaged in chicken production were selected from. Purposive sampling was used to obtain key informants such as Ward livestock and Extension Officers. Primary data was collected directly from the respondents through interview. Secondary data was obtained through documentary review where by materials on household income and urban chicken production were revised. In data analysis descriptive analysis was used where frequencies and percentages were used to establish types of the chicken products that generate income, identifying the challenges facing chicken producers in the area. Also inferential statistics was also used where T test was used to find out if the earnings from chicken production were significantly associated with the economic changes of the households of chicken producers.

Survey of Literature

Urban Chicken Production in Tanzania

Poultry production which includes chicken production in Tanzania is carried out in two major systems. These comprise of the small-scale village or backyard poultry system (local chicken production system) which is the dominant one. The majority of chicken are kept in small-scale extensive traditional systems in rural areas; they supply most of the poultry meat and eggs consumed in rural areas and about 20% in urban areas. The other system is the semi-intensive and intensive poultry production system normally practiced in peri-urban and urban areas in the country on a commercial basis (Kakengi et al, 2003). Despite the smaller proportion of number of chicken in urban areas of Tanzania compared to their counterparts in rural areas (Ezekiel, 2009; National Sample Census of Agriculture 2002/2003, 2007/2008), urban chicken production

has emerged for over three decades now and has continued to gain popularity. By 1990s, 80% of the urban population was engaged in agriculture production which may include among others chicken production (Mvena, 1999). It is estimated that urban chicken production has continued to increase over years; this has been due to population growth, urbanization, and improvement in per capita real income which have spurred the growth of meat consumption in Tanzania. With competing meats either too expensive, as in the case of beef, or banned by religious persuasion, as in the case of pork; chicken meat have increased share in the consumption basket of Tanzanian consumers

Importance of chicken production in poverty alleviation

In 2000, world leaders agreed to the Millennium Development Goals (MDGs), with goal one being to halve the number of poor people by 2015. According to the World Bank (2005) there were 1.1 billion people subsisting on an income of less than US\$1 a day in 2005. The MDGs Report for 2006 notes that there is still much to do to combat poverty; 852 million people in developing countries were affected by chronic hunger in years 2010 - 2012, with the problem being particularly acute in sub-Saharan Africa and South Asia (FAO,2012). This situation challenges all sectors including the poultry sector and the livestock sector more broadly to reflect on the contribution they can make to poverty reduction.

Generally, it is accepted that chicken production is potential for reducing household poverty. For instance, (Dolberg,2001 asserts that, chickens are important since they can provide protein for the family and high value food at occasional festivities. On the similar note, Perry (2002) opines that all animals including chicken can contribute to financial asset formation through sales of produce such as, meat, eggs and live animals. Animals also contribute to human capital formation through the positive influence that consumption of food of animal origin has on poor people's health. Furthermore, poultry including chicken can serve other additional values. For instance birds are given away as gifts, they are sacrificed to ancestors and divinities, or they are consumed as part of ritual and secular celebrations – thereby strengthening important social bonds. In some societies, chickens may be used to foretell the future through divination rites. As such, poultry play an important cultural and social roles as well as being used to meet individual economic goals (URT,2006). In areas where livestock and livelihoods are concerned, there are experiences on record of attempts to use poultry as a tool in poverty alleviation work (Dolberg and Petersen ,

1999) . There have also been attempts to document the loss of livelihoods faced by poor people when a disease such as highly pathogenic avian influenza strikes.

Challenges facing chicken production

Findings by Delgado et al (1999) opines that rising demand has fuelled a structural change in the production and supply of chicken meat, with production for the global market concentrated in the hands of relatively few large companies, characterized by vertically integrated production and marketing. Smallholders of developing countries face severe constraints to taking advantage of market opportunities and must pay high costs to overcome market imperfections brought about by poor physical or institutional infrastructure. These findings are in line with Woolcock et al, (2004) who claimed that marketing of chicken in Mozambique and the United Republic of Tanzania can be constrained by poor market access which will inevitably have a negative effect on farm gate prices in far-from-market areas.

The production of poultry has been also adversely affected by a variety of constraints; of these constraints, for many years poultry diseases continue to play the major role in hampering its development (FAO, 1998; Rushton, 1999). In most developing countries, poultry mortalities due to diseases were estimated at between 20% - 50% and expected to rise as high as 80% during epidemics (Alamargot, 1987; Alemu, 1995). Although, the control of Newcastle disease has reduced the effect, a study done in Ethiopia by Mamo et al, (2013) observed that, diseases is still among the constraints faced by chicken production under urban condition. Other constraints were predators, shortage of supplementary feeds, poultry housing problem and lack of veterinary health services. Another constraint observed was lack or limited finance (credit facilities) for the procurement of basic poultry equipment and materials. Since the feed ingredients are also expensive, insufficient funds makes it difficult for the farmers to produce and supply sufficient and good quality feeds to the poultry birds (Akanni, 2007) and consequently affects their health

Chicken Production Policies

The Government of Tanzania has committed itself to carrying out major reforms in the livestock industry, with clear recognition of the existing problems faced by the industry, particularly to poultry production such as diseases, poor quality feeds, inadequate technical support services, low genetic potential of the local breed and weak farmer organizations. In addition, there is

inadequate regulatory framework in hatcheries and breeding farms. The Livestock Policy of 2006 was in line with the ongoing reforms, and in tackling the problems the key elements of this policy were redefined. The Key elements are.

- The Government will support and strengthen technical support services and use of appropriate technologies in poultry production.
- The Government will promote inventorisation, characterisation, evaluation and selection of the indigenous poultry breeds.
- In collaboration with other stakeholders the Government will promote improvement of genetic potential in the traditional flock in order to increase livestock productivity.
- Efforts will be undertaken to promote investment in poultry production, processing and marketing.
- The Government will encourage establishment of quality breeding farms and hatchery facilities.
- The Government will sensitize, encourage and promote establishment of poultry producers and traders associations.

Further relevant policies include the Presidential Circular No. 1 of 2002 (focuses on regulated animal movements for controlling animal diseases), the Empowerment Policy, the Investment Policy. Investments in the public sector aim at creating an enabling environment to facilitate investments by the private sector. Broadly, investments in the public sector include inter alia infrastructure, agricultural extension, research, policy formulation and regulatory functions. In order to facilitate foreign and domestic investors, the government has set up the Tanzania Investment Centre and the Land Policy 1995 (regulates the land tenure system whereby livestock owners should be allocated land so as to restrict uncontrolled animal movements) the Environment Management Policy (aims to control environmental degradation). Both policies seek to promote livestock production and productivity in order to ensure basic food security, increase export earnings, raise nutritional status and increase standard of living.

There are also a number of other global policies that poultry development is seeking to elaborate and implement. They include Trade Policy of 2003 and the Livestock Stakeholders Resolutions of 2001. The vision of the livestock industry as stated by the livestock stakeholders in April 2001 is that “By year 2025, there should be a livestock sector which to a large extent shall be commercially run, modern and sustainable, using improved and highly productive livestock to ensure food security, improved income for the household and the nation while conserving the environment”.

At the moment, the efforts by the government in providing effective, proper support to poultry economic activities is either ineffective or very minimal. The current livestock policies do not focus much on poultry but preferably on cattle and goats. However, with improved productivity the subsector is expected to attract public and private investments in the future.

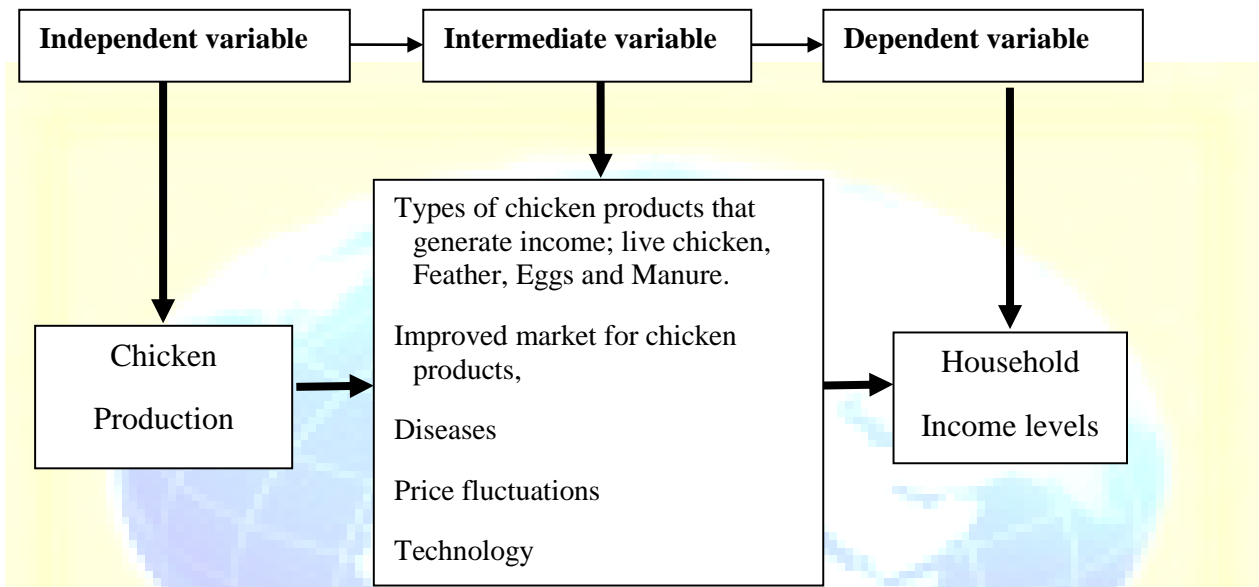
Conceptual framework

Poultry production is a category of domesticated birds kept by humans for the purpose of collecting their eggs, or killing for their meat and feathers (URT, 2006). Chickens keeping, which is category within poultry can raise the household income by consequently providing a good source of food, assets and help the families in rural and urban areas to reach their economic goals; particularly the poorest families with limited resources like land and capital (Mvena, 1999; Perry, 2002; Dolberg and Jensen, 2003). A household can be regarded as the primary unit within the chicken producers, with age and gender determining the division of labor. But there is also capacity for cooperative management of resources. Household in terms of the membership and the criteria for belonging to it; determines the individuals whose incomes are aggregated when creating income indicators at the household level .

In this conceptual framework which shows relationship between independent, intermediate and dependent variables. Improved household income is a dependent variable which can be determined by independent variable which is chicken production. Improvement of chicken producers income through chicken production accompanied by favorable production environment through accessibility of financial services, to acquire quality product and effective use of extension officers in advising chicken producers on the best technical methods in chicken production improved infrastructure system which supports the transportation of chicken inputs

and outputs to the market centers, can be the best way to determine the income level in household. A part from the favorable production environment, types of chicken products that generate income have a great influence on income level of household obtained from chicken production.

Figure 1: Conceptual frame work



Results and Discussion

Profile of Respondents

The results of the study revealed that (66.7%) of chicken producers were female and (33.3%) were male. This shows that, Population of chicken producers is dominated by female because most of the time they stay at home therefore it is easy to take care of the chicken. The findings concur to that of (Dolberg and Jensen, 2003), in her study also found that women are largely participating in labour intensive sectors, very small scale firms, and highly divisible economic activities. The age of majority of chicken producers (47.2%) ranges between 30-45 and minority (4.2%) were above 61. The results implies that urban chicken industry is dominated by people of the age group of between 30-45 years old and 46-60 years old, these are exactly the age groups actively engaged in production. Majority of respondents (45.8%) were illiterate or attended the primary school level of education and only (15.3%) have attended education above secondary education. The findings reveal that, population of chicken producers is dominated by people who

had less chance to education. The similar findings were noted by Mamo et al (2013). This could be mainly due to the fact that they cannot be employed in the white color jobs which require higher levels of education. Therefore they use chicken as source of income to improve their livelihood. In terms of occupation, 30.6% have other occupation apart from chicken production, while 69.4% are chicken producers, it indicates that large number of chicken producer their income depends on chicken production. Those who had other sources of income were either employed as doctors, teachers, Lawyers and bankers or they were self employed in business or farm activities

Number of chicken kept

The finding indicates that most (54.2%) of the urban chicken producers kept between 201- 500 chicken, followed by those who kept 501-1000 who constituted 30.6% of the respondents; while those who kept 50-200 were 5.6% and only 4.2% kept 1,501 or more chickens. This seems to represent the likelihood that most of urban chicken products are for commercial purpose. This goes well with the data collected from Dodoma Municipality livestock department reports, which revealed that in the Municipality households who kept 50 or more chicken do it for commercial purposes. On the other hand Mamo (2013), in his study in Ethiopia, revealed that the average number of chicken kept in village for non-commercial purposes was 10.44 per household.

Rushton and Ngongi, (2002) asserted that many chicken producers have specialized in meat or egg production and hence have an interest in improved chicken strains so as to increase their income. Consistently, our findings have shown that 26.4% of respondents kept chicken for Meat, 51.4% for eggs and only 22.2% for both meat and eggs. This implies that most of the urban chicken producers in Dodoma are more likely to specialize in eggs production than meat production. This is by all means influenced by consumer's preference of indigenous to exotic chicken breeds; which are abundant in supply from villages around the Municipality, given the fact that large part of the Municipality is rural.

Type of chicken products that generate income

As we have noted elsewhere in this paper, chicken have several products, our findings indicate that to the large extent; the products which generate income to urban chicken producers in the area, are eggs and live chicken. Other products like manure were observed to have contributed to

such income generation to the lesser extent. Our findings suggest that limited contribution of other chicken products to producers' income is associated with shortage of technology in the study area.

Our findings also revealed that in selling chicken, there were two distribution channels; being wholesale and retail channels. It was evident from the findings that a channel of distribution was important determinant of the price of chicken products. Those who sold through wholesale channel were 47(65.28%) of all respondents; and we realized that, they had relatively low price of between Tshs 200/= (.13\$) – 300/= (.20\$) per egg, and Tshs 5,000 (3.33\$) per live chicken. Whilst sellers through retail channel were 25(24.72%) of respondents; and had relatively high price of between Tshs 300/= (.20\$) – 350/= (.23\$) per egg, and Tshs 7,500 (5\$) per live chicken.

Income generated from chicken products

The study findings show that most of the respondents (55.6%) indicated that they earned between Tshs 100,000/= (66.67\$) to Tshs 500,000/= (333.33\$) per month from chicken production. The rest of respondents earned between Tshs 500,000 (333.33\$) to Tshs 1,000,000/= (666.67\$) per month (23.6% of the respondents), Tshs 1,000,000/= (666.67\$) or above per month (13.9% of the respondents), and below Tshs 100,000/= (66.67\$), per month (6.9% of the respondents). Based on these findings it can be said that chicken production has contributed to the improvement of the household income in the area. This conclusion is further elaborated in the next sections.

Chicken production and changes in chicken producers' income

To ascertain that chicken production has contributed to changes in chicken producers' income, we have compared respondents' mean income before and after their engagement in chicken production; and asset acquired using the chicken production income. Before this comparison, it was important to identify the respondent's initial capital for the chicken business. Our findings show that most (53%) of the respondents had their initial capital ranging between Tshs 100,000/= (66.67\$) and Tshs 500,000/= (333.33\$). 30% of the respondents had their initial capital below Tshs 100,000/= (66.67\$); while only 17% had their initial capital above Tshs 500,000/= (333.33\$). These findings represent a common trend of most urban chicken producers in the less developed countries. They indeed support findings by (Akanni, 2007) who noted that,

most urban chicken producers are likely to have limited finance; of which has effects to chicken producers.

In order for us to be able to compare the initial capital and the earned income, we calculated the mean amount of the respondent's initial capital and the mean amount of income earned from chicken production. The results have revealed that the mean income before respondents' engagement in chicken production was 175,436.11 per month , with standard deviation of 191674.364; and that the mean income afterwards was 675,294.44 per month , with standard deviation of 690833.389. These results suggest that there was significant change in income of the chicken producers; whereas the mean income before respondent's engagement in chicken production was nearly four times (3.85) the mean income after their engagement. We found that at 95% confidence level, "t" was -6.679, df = 71, and P = .000, s

ignifying that the changes is highly significant.

Table 1: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Amount of income before chicken production as per year.	175436.11	72	191674.364	22589.040
Amount of income per year from chicken production	675294.44	72	690833.389	81415.496

Table 1: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Amount of income before chicken production as per year.	175436.1	72	191674.364	22589.040
Pair 1				
Amount of income per year from chicken production	675294.4	72	690833.389	81415.496

Table 2: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Amount of income before chicken production as per year.	175436.1	72	191674.364	22589.040
Pair 1				
Amount of income per year from chicken production	675294.4	72	690833.389	81415.496

As far as asserts are concerned, our respondents indicated that chicken production has enabled them to increase their household asserts. Out of the 72 respondents 65 (90.3%) agreed that they had their household asserts increased due to their engagement in chicken product. The assets reported by respondents included; houses, clothes, incubator, tractors, kitchen appliances, gas cookers, farm plots, cows, car, motorcycles, refrigerators, and sofa sets. In addition some respondents have reported that income from chicken has enabled them to open other business. In general terms the increase in mean income reported in the previous paragraph and the increase in asserts reported here are good indications that chicken production is likely to have significant

contribution in the improvement of welfare of the people in the study area. Consistently, data from the Dodoma Municipal livestock department have confirmed the foresaid trend is likely to prevail in the area.

Challenges facing chicken production industry

Based on data we obtained from the Dodoma Municipal livestock department challenges facing the chicken producers include; diseases, poor quality feeds, inadequate technical support services, low genetic potential of the local breed, and weak farmer organizations. In addition, there is inadequate regulatory framework in hatcheries and breeding farms.

Our findings based on interviews, have demonstrated similar challenges; whereby, respondents have reported that most of the challenges they faced had to do with inadequate financial resources, price fluctuations, inadequate veterinary services, and diseases and death of chicken. In considerations to inadequacy of financial resources, the respondents said that they did not have enough funds to run the chicken production more profitably. Though this problem could have been solved through increased access to financial services, it is sad that access to loan is still limited. On this the findings revealed that only 8% of the respondents were able to get loan from financial institutions, while the rest mentioned that they depended on own source and SACCOS to finance the running and expansion of their production.

On price fluctuations, we came to learn that Dodoma Municipality is a parliamentary town and in the past recent has been hosting a good number of colleges and universities. These two characteristics have been reported by respondents to have affected the price of their products. The respondents said that the Municipal population is too seasonal, when parliament, colleges and universities are on sessions they had good prices; than when they are not. In this case prices have been fluctuating following the variations in population.

Another challenge was that of inadequate veterinary services, whereby, though we found that in each of the wards there was one livestock officer, our respondents have complained to have been facing a problem of inadequate veterinary services for their chicken. Accompanied with inadequate veterinary services are chicken diseases and death. In relation to these our respondents had complained that due to the inadequate veterinary services when it comes to chicken diseases and death they are helpless. As a matter of fact a disease which results to death

of chicken is the result of chicken producers being ignorant with the diseases; as such availability of immediate veterinary service would be of big rescue. One of the ignorance demonstrated by chicken producers has been documented by Msami, (2000) who reported that 34 out of 43 households participated in his study, got their replacement and new stock from chicken traders. Whereby, only three of these farmers had knowledge of the immense danger of disease posed by introduction of new birds into their flocks.

Conclusions and Recommendations

Conclusions

The main concern of this study was to assess the contribution of urban chicken production to household income and to identify challenges facing urban chicken producers in the study area. Throughout this paper we have demonstrated that chicken production contributes to the household income. The contribution was evident through the significant increase of mean income of respondents and the assets they acquired due to income from chicken production. However, we have identified a number of challenges to the chicken producers, this include price fluctuation, lack of unity among chicken producers, and inadequate financial resources.

Recommendations

The study findings have shown that chicken production contributes to the income of household but they are faced with several challenges. One of these challenges is financial resources, thus it is recommended that since chicken production seem to be profitable venture; financial institution should find a way to extend loans to chicken producers to enable them increase their financial ability to run the existing business and for expansion.

Given the fact that chicken producers are not organized, it would be a plausible idea for them to join hands and establish their own association. Such association will help them in matters of common interests such as negotiation of on prices, promotion of unity among themselves, and setting up a fund from which members can secure loan.

It is also recommended that as chicken production in Tanzania is increasing, the improvement of the present marketing systems for chicken meat and eggs should be established.

Finally, the Government through Ministry responsible for livestock and Non-governmental organizations should develop an easily adaptable technology in a cost-effective manner which will enable the production and utilization of other chicken product in order to generate income in the study area.

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