**Original Research Article**

**Improving Access to Market Information for Smallholder Indigenous Chicken Farmers: A case of Misungwi District, Mwanza Region, Tanzania**

**ABSTRACT**

*Access to market information by smallholder chicken farmers is most important for involving them in the chicken market. The majority of smallholder chicken farmers do not have access to market information regarding their chicken, such as the price of the chicken at the markets, quality, and quantity of the chicken required at the markets. This study is to review the barriers Tanzanian smallholder chicken farmers face while trying to obtain market information in the Misungwi district. This study was carried out in four purposefully selected villages in the Misungwi district. This study used a sample size of forty respondents. Stakeholders were interviewed, including four traders, four middlemen, and two extension officers. Quantitative data were analyzed by using SPSS and Microsoft Excel spreadsheets, while qualitative data were analyzed using a content analysis procedure. The result of the study revealed that the price information has an impact on improving the bargaining ability of smallholder chicken farmers. The constraints to accessing market information in the study area are associated with the lack of information services, inadequate number of extension officers, high illiteracy, lack of awareness of the market information services, and lack of means and facilities by which information can be easily accessible. It is therefore suggested that there is a need for the Misungwi district council to place more weight on better practices on access to relevant, current, and appropriate market information for smallholder chicken farmers on prices based on the information provided, which will increase their bargaining power for their chicken.*

**Keywords:** Market information, Indigenous chicken, Smallholder farmers

**INTRODUCTION**

Indigenous chickens are the most commonly kept and most numerous livestock species in Africa (Moreki et al., 2010). This is due to advantages over other species of livestock which include short generation interval, prolificacy, low initial cost, and maintenance cost compared to other livestock, adaptive to rural environment, survive on little or no inputs and adjust to fluctuations in feed availability (Mengesha, 2016). Indigenous chicken keeping has been part of human development for centuries and continues to play a vital role in rural livelihoods, especially those living in remote areas and poorer communities in developing countries (Alders and Pym 2009). Another advantage is their fast reproductive rates, ability to be raised even under limited land spacing per household. However, their production is still relatively weak due to inadequate skills in management. Indigenous chickens widely distributed in the rural and peri-urban areas where they play the vital role in income generation, food production, and social aspect.

According to the Agriculture Sample Census of 2017, the estimated population of poultry in Tanzania had about 43.7 million chicken of which 41.9 million (96%) were indigenous chicken. These statistics show that indigenous chicken production system appears to be the largest compared to the commercial chicken production system. These provide almost all the poultry meat in the rural areas and also contributes nearly 100% and 20 % eggs consumed in rural and urban areas respectively (Guni et al., 2021). Smallholder chicken farmers raise almost 90 percent of the indigenous chicken in the rural areas under the traditional free-range system. The flock sizes mostly range from 10 – 20 chicken with an average of 15 chicken per household making it challenging to have a viable commercialized indigenous chicken enterprise. On the other hand, the demand for the indigenous chicken has been increasing and yet the supply side has continued to depend mainly on these smallholder chicken farmers.

Indigenous chickens are reared under different production systems, mainly scavenging, semi-intensive system and to a lesser extent intensive systems. The free-range system is dominant in most rural areas and has been practised for many years in Africa (Mutayoba et al., 2012). Most research attempts on local chicken have focused on increased production, disease management and marketing (Mwalusanya et al. 2002). In different circumstances, there is an increase in demand for indigenous chicken meat and eggs in Africa particularly in Tanzania, and yet the supply side has continued to depend mainly on these smallholder chicken farmers. In this regard, the increased demand, need to be matched with market information which plays a vital role for most smallholder chicken farmers to anticipate to the market by their production of indigenous chicken and making choice of the market segment.

Market information is essential in determining marketing behaviour for farmers. Accessing the market information is crucial for smallholder farmers’ improvement as it creates demand, offers better prices and improving smallholder incomes (Lee and Suzuki, 2015). In tackling problems of inaccurate information or information asymmetries, several African countries established the market information systems (MIS) to serve to provide market prices to market actors (Muto, 2013). Improvement in market information access can be achieved by coordinating necessary market players and supporting services (Magesa et al., 2020).

Majority of the rural smallholder farmers in developing countries have difficulty in accessing market information (Matovelo, 2008). Ferris (2005) found that in most African countries lack accurate and relevant agricultural information by smallholder farmers is a significant factor constraining efforts to improve the agriculture sector. Low return of smallholder farmers of their products associated with lack of access to the market information (Roy, 2012). This study, therefore, aims to identify constraints facing smallholder chicken farmers to access market information.

**METHODOLOGY**

**Study area**

The study was conducted in four villages located in Misungwi district in Mwanza region on the shores of Lake Victoria in Tanzania. Mwanza Region is in the northern part of Tanzania, located between latitude 10 30' and 30 south of Equator. Longitudinally, the region located between 310 45' and 340 10'east of Green Winch. Misungwi has a population of 351,607 whereas males are 173,997 and females are 177,610, and average household size for It stands at 6.5 (NBS, 2013). It is bordered to the west by Mwanza city, Kwimba district to the East, Magu District to the North, Shinyanga region to the South, and to the South-west by the Geita and Sengerema districts. The main economic activities performed by the Misungwi community are farming and indigenous livestock keeping. The district was selected because had the largest number of chickens (358,133) reared in it (NBS, 2012). The four villages (Mabuki, Mwambora, Kijima, and Nguge) were purposively selected because these are among the areas where smallholder chicken farmers have been supplied with the cockerels from the project of African Chicken Genetic gain (ACGG). This project was under the Tanzania Livestock Research Institute (TALIRI) with the aim of increasing their production and also a market for their products. Moreover, these are among areas with limited access to chicken market information and low income.

**Sampling selection**

The survey was carried out to collect primary data through semi-structured questionnaires which were designed and introduced to smallholder chicken farmers using face-to-face interviews. Forty smallholder chicken farmers were randomly selected from four villages which were Mabuki, Mwambora, Nguge, and Kijima with regards to the distance from the primary village market. There were two (2) strata of twenty (20) farmers in each group, in this case, an influence of the distance to the village marketplace was considered. One (1) strata of twenty farmers to represent farmers who are near to the primary village market below 10 km from their households and other 20 farmers who are far to the primary village market above 11 km. The semi-structured questionnaires were used to gather data on market information services obtained from the government, choice of market segment (price and quality attributes). Also, challenges facing farmers accessing to market information of indigenous chicken, and they ranked their answers from the questionnaire (1 to 5) 1=Most important, 5 = least important, and also the distance of the smallholder chicken farmers from their household to the marketplace was accessed to find out the effect of distance on price. The questionnaire was translated in Kiswahili that helped respondent that knew how to read and write filled it by themselves.

In this study, the population consisted of the smallholder chicken farmers, males and females whereby the majority were female who seems to involve with chicken rearing, extension officers from Misungwi district council who are dealing with smallholder chicken farmers, middlemen and travelling traders. This study used both probability and non-probability sampling techniques with a sample size of 50 respondents, comprising of male and female smallholder chicken farmers. Simple random sampling was employed to select respondents randomly in order to increase validity, reliability, and to reduce bias. The four study villages selected in regarding of distance of the smallholder chicken farmer’s households to the primary chicken market. Farmers in all the villages are widely scattered from one another with a distance of as far as of half to one kilometre. The sampling technique was used to select respondent from the group of smallholder chicken farmers. The selection was conducted in the village government office with the collaboration of the village executive officer (VEO) in each village. In each village, there were approximately twenty smallholder chicken farmers. On pieces of paper, names were written and then put it in a container, while each respondent has an equal chance of being selected and ten pieces of papers were picked, the smallholder chicken farmer whose name appeared was selected. The technique was therefore used to select 40 smallholder chicken farmers from four villages; that means 10 smallholder chicken farmer from each village. Purposive sampling was used to select 10 respondents to gather in-depth information as follows; Four travelling traders at the primary market, one middleman from each village in total four middlemen, two extension officers from the Misungwi district office were purposively selected to gather in-depth information.

**Data analysis**

The quantitative data from questionnaires were organized, described, coded and analysed. Statistical Package for Social Sciences version 25 (SPSS) and Microsoft Excel programme was used to derive descriptive statistics such as percentages, averages, frequencies. Independent sample t-test was used to test the difference in average price between smallholder chicken farmers who get a market price before selling their chicken and other who not getting market price information. And ANOVA was used to test mean the average difference between villages far and near to the chicken market. Bar chart and frequency tables were also used in interpreting the results.

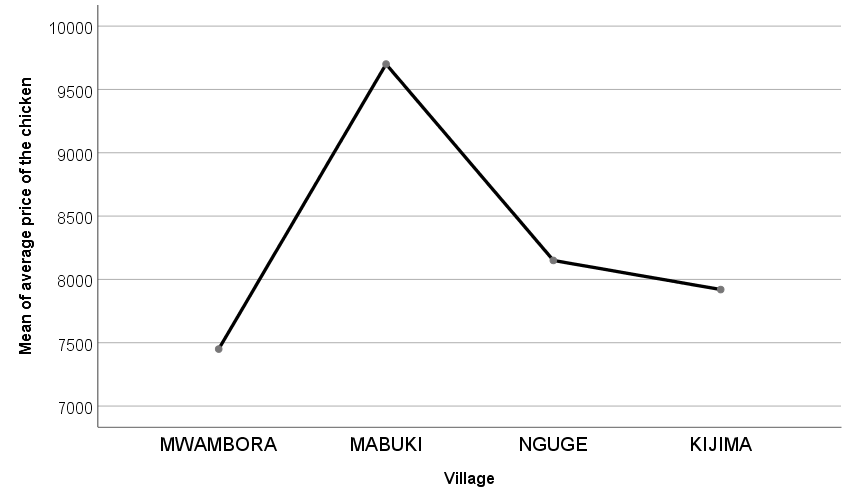
**RESULT AND DISCUSSION**

**The average price difference between those getting and not getting market price information**

Smallholder chicken farmers who are getting market price information before selling their chicken were found to sell at the price of TSH 8,753 per chicken while other smallholder chicken farmers who sell their chicken with no idea of market price received an average price of TSH 7,973 per chicken. The average price difference between the farmers who get the market price information and those who do not get market price information is TSH 780. The independent sample t-test resulted in the p-value of 0.019 which indicates that there is a significant average price difference between those who are getting and not getting market price information.

**The average price difference between villages near and far from the primary market**

Smallholder chicken farmers from Mabuki received the mean average price of TSH 9,700, followed by smallholder chicken farmers in Nguge who received the mean average price of TSH 8,150, then smallholder chicken farmers of Kijima received the mean average price of TSH 7,920 and the last farmers from Mwambora who received the mean average price of TSH 7,450. The ANOVA test resulted in the p-value of 0.000 which indicates that there is a significant mean average price difference between villages far and near to the primary market (Figure 1).



**Figure 1: The Average price difference between villages near and far from the primary market**

(Source: Field survey data, 2018)

**Constraining factors in communication that affects the accessibility of market information**

The constraints in communication faced by respondents in accessing market information were lack of information services, high illiteracy levels for smallholder chicken farmers, poor knowledge sharing culture, followed by lack of awareness of the market information sources (Figure 2). And lastly, respondent indicated language barrier as one of the constraints though it is not so much.

**Figure 2: Constraining factors in communication that affects access in market information**

Source: Field survey data, 2018

**Constraining factors in infrastructure that affects the accessibility of market information**

The figure 3, revealed that the most important constraint in accessing market information was an inadequate number of extension staff, limited accessibility of market information, and inadequate availability of market information, followed by the distance from the marketplace. Furthermore, the study revealed that untimely provision of information was the least important constraints that affect the accessibility of market information.

**Figure 3: Constraining factors in infrastructure that affects the accessibility of market information**

Source: Field survey data, 2018

**Ways to improve access to market information of the indigenous chicken**

Smallholder chicken farmers were asked to give their opinions on possible ways to improve access to chicken market information. Below are their views:

Government to provide short-training and seminars: Smallholder chicken farmers suggested that they could obtain easily market information if the government were to conduct those seminars and training regularly especially for those distant villages to disseminate information to village farmers.

Extension officers to reach them regularly: Smallholder chicken farmers suggested that extension officers should visit them regularly because information is changing from day to day. They also recommended to have an outreach programme for extension officers to their villages; this will facilitate the easy obtaining current information.

Establishment of the selling point: Some of the smallholder chicken farmers were living far from the primary chicken markets. Hence, they suggested to have selling points near their households; this will help them finding market information and meet traders.

Introduction of weighing scale at the chicken market: Smallholder chicken farmers suggested that they could earn more only if they were selling their chicken by the actual weight and not estimated weight by hand.

The government should set chicken price: At the moment the chicken price is determined by traders, and then they come to negotiate with them. Smallholder chicken farmers suggested that if there will be actual price due to the weight of the chicken, they can anticipate even better ways of keeping a chicken. Not only will increase their earning from their chicken but also will increase production.

Formation of chicken farmers associations: Farmers suggested that the government should intervene in establishing those groups of chicken farmers to enable the easier access of market information to village farmers.

Smallholder chicken farmers recommended that market information should be prepared in accessible language to them and make it available to the village office. This will help them easily access the information.

The government needs to remind those extension officers who facilitate the dissemination of chicken information to them to reach also in those smallholder chicken farmers in rural villages. Some farmers pointed out that most of the extension officers were not committed to their work even if they happen to visit their communities, and also stay in office and they don’t come to their communities. Hence, makes hardly in obtaining new information.

**Existing market information reach smallholder chicken farmers currently in the district**

**Kind of market information**

The kind of information shared was mainly on price information and breed varieties which pays more at the market. Similarly, as noted by Mittal and Mahar (2012), reported that price information has an impact on improving the bargaining capability of smallholder farmers with traders. Munyambonera et al., (2012) revealed that availability and access to timely, adequate and information on price are of great importance, especially to small and marginal farmers. Similarly, supported by Bienabe et al. (2004) and Kalembo (2013) who reported that intermediaries do not provide right the information on the market price. According to KIT et al. (2008). It is a challenge situation for smallholder farmer to obtain reliable information on the supply, demand and price and other relevant market information. Information on price becomes essential to smallholder farmers when they can make use of it.

**Sources of market information**

The study shows that Personal experience, neighbours, and traders or intermediaries were among the three primary sources of smallholder chicken farmers used in accessing chicken market information. Similarly reported by Bernard, Dulle and Ngalapa (2014) who found that most smallholder farmers preferred personal experience as a source of accessing market information, followed by family/parents, neighbours and also extension officers. But Bozi and Ozcatalbas (2010) revealed that family members, neighbour farmer, extension services, input providers and mass media were primary sources of information for Turkish farmers.

Also, research findings revealed that other smallholder chicken farmers access to market information through extension officers and at the marketplace. Few smallholder chicken farmers access to market information through the use of the phone, however none of the respondent reported to use neither radio nor television in obtaining market information. The study also revealed that for most of the smallholder chicken farmers they don’t know the role of extension officers towards the provision of market information. Furthermore, the study revealed that smallholder chicken farmers who are getting market price information before selling their chicken they received a higher price than those who are not getting price information.

The findings from this research indicated that less the respondents use mobile phones in obtaining market information while most of them they are not using a mobile phone in getting and disseminating market information, only depending on the information of word of mouth from their neighbours or friends. This was different from the study conducted by the Magesa et al. (2014) who revealed that smallholder farmers heavily depend on the radio and mobile phones in accessing different information including market information, most of the farmers depend on mobile phones for getting and disseminating information market information.

**Constraining factors in communication affects smallholder chicken farmers in accessing chicken market information**

The study shows that the majority of the smallholder chicken farmers mentioned lack of information services like the one of the constraints facing them in accessing market information. From the discussion of extension officers and chicken farmers, it was noted that there was no information service available in the villages study area. This is in line with Bernard, Dulle and Ngalapa (2014) findings, which revealed that most of the rural smallholder farmers in Tanzania having this problem of lack of information service.

The findings further revealed lack of awareness of the market information sources as constraining factors facing smallholder chicken farmers from accessing market information. For instance, one female smallholder chicken farmers in Kijima village stated that she has no idea where to get help apart from neighbours, and from the personal experience. This is in line with what has been found by Babu et al. (2011) conducted a study on farmers’ information needs and search behaviours in Tamil Nadu. The outcomes from this study revealed that the primary constraints facing farmers in accessing information were lack of awareness of information sources available among farmers and unavailability of information.

The findings also revealed that some of the smallholder chicken farmers were illiterate, meaning that they have less chance of accessing market information except other sources including neighbours and also extension visit. This limits their ability to share information and knowledge that they would acquire through reading these simple printed materials. This is in line with Mtega and Benard (2013) and Siyao (2012); who cited from Ochieng (1999) findings, which reported high illiteracy level was one of the limiting factors in accessing of information services in rural areas, and high illiterate rate among rural women hinders them from obtaining information that would help to improve their activities.

Similarly, poor knowledge sharing culture and language barrier was another constraint facing smallholder chicken farmers in accessing market information. This is in line with Byamugisha et al. (2008) who noted that the challenges faced by smallholder farmers in Uganda when searching for information as language barriers and lack of cooperation from fellow farmers in sharing information. Also, Tologbonse et al. (2008) found that the language barrier and outdated information were limiting factors in accessing information.

**Constraining factors in infrastructure that affects smallholder chicken farmers in accessing market information.**

The findings revealed that the inadequate numbers of extension officers as a major constraining factor in infrastructure facing smallholder chicken farmers from accessing information. In the study area, it shows that extension officers were low compared with the number of smallholder chicken farmers. Hence, few extension officers could see merely few smallholder chicken farmers and could not manage to meet all smallholder chicken farmers, or in another way not all smallholder chicken farmers could meet extension officers. This is in perfect agreement with Aina (2006) who revealed that because of the few in a number of extension staff, farmers hardly obtain new information. Also, poor availability of market information, limited accessibility of information sources and untimely provision of information were constraining factors in infrastructure facing smallholder chicken farmers in accessing market information. All these are in line with Masuki et al. (2010); Ellen (2003) who reported that poor information infrastructure hinders access to information in the Africa continent.

**CONCLUSION**

The study has revealed that market price information has an impact on improving the bargaining ability of smallholder chicken farmers. Availability and access to relevant, accurate, timely and adequate information on prices through extension officers and other sources, will enable smallholder chicken farmers to make timely decisions.

Furthermore, smallholder chicken farmers provided with price information received a higher price than those who are not getting market price information and the majority of farmers not getting market information before selling their chicken.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Authors hereby declare that no generative AI technologies such as Large Language Models (Chat GPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

**REFERENCES**

Agricultural Sample Census of the Ministry of Agriculture and Food Security (MAF)., 2012. National Bureau of Statistics Tanzania (NBS). Available at: <http://nbs.go.tz/nbstz/index.php/english/statistics-by-subject/agriculture-statistics/261-livestock-sector-national-report-census-of-agriculture-2007-2008 > [Accessed 12 July 2018].

Babu, S. C., Glendenning, C. J., Asenso-Okyere, K., Govindarajan, S. K., 2012. Farmers’ information needs and search behaviors: a Case study in Tamil Nadu, India. IFPRI Discussion Paper 1165. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/126836

Benard, R., Dulle, F. and Ngalapa, H., 2014. Assessment of information needs of rice farmers in Tanzania; A case study of Kilombero District, Morogoro, Library Philosophy and Practice [e-journal] 1071. Available through <http://digitalcommons.unl.edu/libphilprac/1071> [Accessed 29 May 2018]

Kalembo, L.S., 2013. Linking rural smallholder milk producers to urban markets: A case study of selected wards in Kibaha district, Tanzania. Thesis report. [pdf] Available at: <https://edepot.wur.nl/279007> [Accessed 28 August 2018]

Lee, G. and Suzuki, A., 2015. Evaluating the Impact of Market Information System on Coffee Producers’ Revenues and Profits in Ethiopia, Available at < https://editorialexpress.com/cgi-bin/conference/download.cgi?db\_name=CSAE2016&paper\_id=314> [Accessed 25 June 2018]

Magesa, M.M., Michael, K. and Ko, J., 2014. Access to agricultural market information by Rural Farmers in Tanzania. International Journal of Information and Communication Technology Research, [e-journal] 4(7), pp.264-273. Available through: <http://esjournals.org/journaloftechnology/archive/vol4no7/vol4no7\_2.pdf> [Accessed 18 August 2018]

Masuki, K., Kamugisha, R., Mowo, J., Tukahirwa, C. J., Mogoi, A. J., 2010. Role of mobile phones in improving communication and information delivery for agricultural development: Lessons from South Western Uganda.

Mittal, S. & Mehar, M., 2012. How mobile phones contribute to the growth of small farmers? Evidence from India. Quarterly Journal of International Agriculture, 51 (3), 227-244. Available through: < https://ageconsearch.umn.edu/bitstream/155478/2/2\_Mittal.pdf > [Accessed 7 August 2018].

Moreki, John., Dikeme, R. and Poroga, B., 2010. The role of village poultry in food security and HIV/AIDS mitigation in Chobe district of Botswana. Livestock Research for Rural Development. 22. [online] Available at: < https://www.researchgate.net/publication/289863089\_> [Accessed 27 July 2018]

Mtega, W. and Benard, R., 2013. The state of rural information and communication services in Tanzania: a meta-analysis. International Journal of Information and Communication Technology Research, 3(2), 64 – 73

Mutayoba, S. K., Katule, A. K., Minga, U., Mtambo, M. M. and Olsen, J. E., 2012. The effect of supplementation on the performance of free-range local chickens in Tanzania. Livestock Research for Rural Development. Volume 24. Available at: <http://www.lrrd.org/lrrd24/5/muta24093.htm> [Accessed 5 May 2018]

Munyambonera, E., Nampewo, D., Adong, A., and Mayanja, M., 2012. Access and Use of Credit in Uganda: Unlocking the Dilemma of Financing Small Holder Farmers. Available at http://ageconsearch.umn.edu/bitstream/150229/2/policybrief25.pdf

Mwalusanya, N. A., Katule, A. K., Mutayoba, S. K., Minga, U. M., Mtambo, M. M. A. and Olsen, J. E., 2002. Nutrient content of crop contents of rural scavenging local chickens in Tanzania. British Poultry Science [e-journal] 43: 90-95. Available through: https://doi.org/10.1080/00071660120109926

Queenan, K., Alders, R., Maulaga, W., Lumbwe, H., Rukambile. E., Zulu, E., Bagnol, B. and Rushton, J., 2016. An appraisal of the indigenous chicken market in Tanzania and Zambia. Are the markets ready for improved outputs from village production systems? Livestock Research for Rural Development. Volume 28, Article #185. Available at: < http://www.lrrd.org/lrrd28/10/quee28185.html> [Accessed 7 May 2018]

Siyao, P. O., 2012. Barriers in Accessing Agricultural Information in Tanzania with a Gender Perspective: The Case Study of Small‐Scale Sugar Cane Growers in Kilombero District. The Electronic Journal of Information Systems in Developing Countries, 51: 1-19. doi:10.1002/j.1681-4835.2012.tb00363.x