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Assessment on consumption and marketing system of chickens in Gena Bossa district, south Ethiopia

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This study was conducted in Gena Bossa district on assessment of consumption and marketing of chickens with the objectives of assessing chicken meat and egg consumption and marketing system of chickens. Random sampling method was used to select 138 households for interview. About 55.1% of chickens were owned by wife and the rest of flocks were owned by husband, boys and girls. Almost all of the farm activities were conducted by women especially cleaning poultry house, feeding and watering of chickens. About 40.6% of respondents provide half a day to care chickens. Chicken meat and egg consumption were connected with holidays. Farmers consume chicken meat 3.64 times per year and they consume egg 2.22 times per month. There were no formal market channel for live chickens and egg marketing. Market fluctuation of chickens and eggs occur during holidays. Unstable price, demand seasonality, lack of market places, poor infrastructure and lack of market information were common factors affecting live chicken and egg marketing in the study area. In summary, this result recommended that government should organize production of chickens with marketing channel.

Key words: Chicken, consumption, marketing, Gena Bossa.

INTRODUCTION

Poultry particularly chickens are the most numerous and widely raised livestock species in the world (FAO, 2012). In Africa, almost every homestead keeps some poultry for mainly home consumption and cash sales (Dwinger and Unger, 2004). In most African countries, the rural chicken population accounts for more than 60% of the total national chicken population (Kitalyi, 1998). In Ethiopia chickens are the most widespread and almost every rural family owns chickens, which provide a valuable source of family protein and income (Tadelle et al., 2003). The Ethiopia poultry population is estimated to be about 60.5 million. About 83.5, 7.1 and 9.4% meat and egg product comes from indigenous, hybrid and exotic breeds of poultry (CSA, 2016).

Poultry production systems in Ethiopia show a clear distinction between traditional, low input systems and modern production systems using relatively advanced technology (Alemu, 1995). There is also a third upcoming "small scale" intensive system with small number of birds (from 50 to 500) as an urban and per-urban household income source using exotic birds and relatively improved feeding, housing and health care (Alemu and Tadelle, 1997). The most dominant chicken types reared in Ethiopia are local ecotypes, which show a large variation in body position, plumage colour, comb type and productivity (Halima, 2007). However, the economic

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contribution of the sector is not still proportional to the huge chicken numbers, attributed to the presence of many productions, reproduction and infrastructural constraints (Aberra, 2000).

Village poultry is kept with minimal input of resources and is considered by most smallholders as supplementary to the main livelihood activities. The chickens scavenge to find feed and are rarely provided supplementary feed to increase production of egg and meat. Sheds, if provided, are made of local materials. Poultry keepers lose many chickens as a result of diseases and exposure to predators, but little attention is paid to the health and protection of predators. The chickens are mainly indigenous, sometimes mixed with foreign breeds and cross breeds. Poultry contributes household income and provides access to high-quality protein, which is generally in short supply.

Poultry products offer affordable quality animal protein sources for the smallholder farm households. Rural households consume a very limited quantity of poultry products. They rank cash income as the primary purpose of village chicken production. Poultry consumption is moreover closely associated with wealth status. Chickens are not a daily food even for a better-off household. Chickens are consumed mostly during holidays. In general, poultry consumption accounts or less than 1% of the total annual food needs of farm households (Bush, 2006).

Despite their low productivity, indigenous chicken are known to possess desirable characteristics such as thermo-tolerance, resistance to some diseases, good egg and meat flavor, presence of hard egg shells, high fertility and hatchability as well as high dressing percentage (Aberra, 2000). There were highest numbers of chickens reared in Ethiopia, particularly in Gena Bossa district of South Ethiopia. But consumption and marketing of chickens and its products were not proportional to its number in the study area. Consumption and marketing system of chickens and its products were not documented in Gena Bossa district. This being the case, the major objectives of research was to assess chicken consumption and marketing systems in the study area with the following specific objectives:

(i) To assess chicken meat and egg consumption in the study area
(ii) To assess chicken and its product marketing systems in the study area
(iii) To assess labor allocation and owner ship of chickens in Gena Bossa district

MATERIALS AND METHODS

Description of the study area

The study was conducted in Gena Bossa district of Dawuro Zone. Karawo is the main town of the district which is located at about 508 km south west of Addis Ababa across Shashemene and Wolayita, 303 km from Hawassa Town of SNNPR and 192 km from Jimma. There are 19, 159 households in the study area. The annual mean temperature ranges from 16.1 to 28°C. The rainfall is a bimodal type: the short rainy season is between (February to March) and the long rainy season between (May to September). The average annual rainfall ranges from 500 m to 1,200 mm.

Selection of study households

Random sampling methods were used to study population those rears chickens. Based on the number of chicken population and its representativeness six kebeles were selected. The total of 138 households was selected to carry out the survey.

Data collection methods

Questionnaire survey

The data were collected by using both primary and secondary source of data. The primary data were collected by using questionnaire and direct observation. The parameters like consumption of chicken and its products, marketing systems, labor allocation and owner ship of chickens were gathered by using questionnaire.

Data management and analysis

Descriptive statistics such as percentage, mean and frequency were calculated and all survey data was analyzed by using SPSS Version 20. Qualitative and quantitative data sets were analyzed by using appropriate statistical analysis procedures. The simple descriptive statistics (mean, SE) for numerical survey data were calculated by SPSS.

RESULTS AND DISCUSSION

Flock ownership

Ownership of chickens in the study area was shown in Figure 1. According to the survey, 55.1% of chickens were owned by women in the Gena Bossa district. The rest 40.6, 2.2 and 2.2% of chickens were owned by husbands, boys and girls, respectively. This result was similar to the findings of Tadelle et al. (2003) in the central highlands of Ethiopia which reported as women owned and manage birds and controlled the cash generated from the sale of birds. Findings confirmed that women owned most chicken flocks and that income generated from chicken production belongs to them (Pederson et al., 2001). Chicken were the wealth of women in three agro-ecological zones of Ethiopia and higher number (51.4%) of women were the owner of chickens (Goraga et al., 2016). This result was also similar to Getachew et al. (2015) who reported that most chickens are owned and managed by women and men not interested to raise chicken because they considered it as a side business practiced by women to support family income. Ownership of chickens was dominated by women (77.5 and 70%) while ownership of children

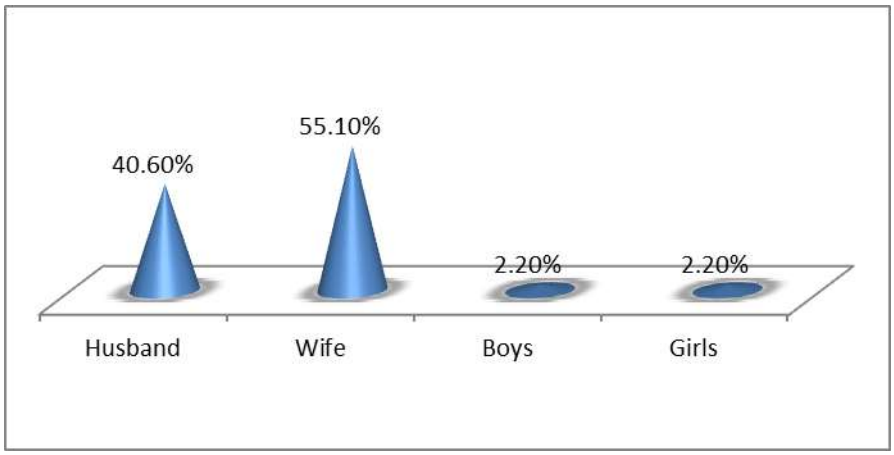

Figure 1. Ownership of chickens in Gena Bossa district.

Table 1. Labor allocation for chicken production.

Farm activities	Men	Women	Boys	Girls
Chickens house construction (%)	62.3	3.6	34.1	-
Chickens house cleaning (%)	-	81.2	-	18.8
Feeding chickens (%)	-	78.3	5.1	16.7
Watering of chickens (%)	0.7	71	7.2	21
Slaughtering chickens (%)	73.2	-	26.8	-
Treating sick chickens (%)	53.6	42.8	3.6	-
Making decision (selling, buying, gift) (%)	58.7	39.1	2.2	-
Selling eggs (%)	-	92	3.6	4.3
Selling live birds (%)	4.3	87.7	2.9	5.1

accounted for 22.5 and 30% of the respondents in lowland and midland agro-ecologies of central Tigray, respectively (Gelila et al., 2016). This result dis-agrees with Meseret (2010) report in Gomma woreda about 96.7% of chicken was owned by women.

Labor allocation for chicken production

Most of chickens' farm activities were conducted by women in the study area (Table 1). House construction was performed by men (62.3%), women (3.6%) and boys (34.1%). Most of farm activities like cleaning poultry house, feeding chickens and watering chickens were performed by women and girls. Slaughtering were the activities which was given for husband and boys only. Most of the time decisions for selling, buying and providing gift were performed by both men and women. Selling eggs and chickens were mainly performed by women. Similarly, Tadelle and Ogle (2001) indicated that in Ethiopia management of chickens was fully in the domain of women whereas decision making regarding control and access to resources varies considerably. This result was also similar to Gelila et al. (2016) in central Tigray, except for the construction of chicken house and treatment of sick chickens women took the major share in management activities related to poultry production. Also rural women accomplished 47.9 to 77.6% of farm activities, except chicken house construction which was mainly (63%) done by rural men and there was a clear difference in task sharing among the different family members; chicken ownership and management were dominated by rural women indicating that village chicken are the property of rural women (Goraga et al., 2016). Mapiye et al. (2005) also reported that women, in Rushinga district of Zimbabwe, were dominated in most of the activities on village chicken production like; feeding (37.7%), watering (51.2%) and cleaning of bird's house (37.2%) where as men were dominant in shelter constructions (60%) and treatment of chickens (40%).

Time given for rearing chickens

The survey data calculated for time given to kept chickens per day were showed in Table 2. According to

Table 2. Time given to kept chickens in the study area.

Time given to kept chickens	Frequency	Percentage
Half a day	56	40.6
A quarter of day	33	23.9
Hours on a day	26	18.8
No times spent	23	16.7

Table 3. chicken meat and egg consumption in the study area.

Consumption	Mean	SE
Household egg consumption per month	2.22	0.082
Household meat consumption per year	3.64	0.112

the result 40.6% of the respondents gave half a day to manage their chickens per day. Other farmers gave a quarter of day, hours on a day and no times spent which requires 23.9, 18.8 and 16.7%, respectively.

Chicken meat and egg consumption

Most farmers consume chicken meat at the time of holiday's especially Christian festivals like Easter. But there were no any cultural/religious taboos against consumption of chicken meat and egg in the study area. According to the survey, producers consume chicken meat 3.64 times per year. About 80% of the respondents consume poultry meat 1-2 times a year indicating egg consumption is comparatively affordable than poultry meat from the point of view of purchasing power since there seems to be no taboos connected to the consumption of poultry and poultry product (Meseret, 2010). Average consumption of chicken per household per year in lowland agro-ecology of central Tigray was 5.4 and 4.4 chickens in male and female headed households while in midland agro-ecology 3.9 and 2.9 chickens in male and female headed households, respectively (Gelila et al., 2016). This result is lower than the value 5.9, annual consumption of chickens per household in Southern Ethiopia (Mekonnen, 2007). Consumption of poultry products is more common in urban than in rural areas. Poultry consumption is commonly high during holiday periods. This result was similar to Moges et al. (2010a) report in Bure district 78% of village chicken owners consumes chicken only during religious/cultural holidays, 20.3% consumes every time when needed/available and only 0.7% reported that they never eat chicken. The national poultry meat consumption is estimated, on an average to be 69,000 tons per annum (ILRI, 2000). This implies they eat at holidays for cerebrations. Also producers in the study area consume eggs 2.22 times per months as shown in Table 3. This implies farmers' sale chickens and eggs rather than consuming in the house. This result was comparable to Gelila et al. (2016) report in central Tigray annual average egg consumption of the households in lowland agro-ecological zones was 39.4 and 44.4 eggs in male and female headed households, respectively and in midland agro-ecology 33.6 and 35.8 eggs in male and female headed households, respectively. Consumption of chicken in present study was higher than Meseret (2010) report in Gomma woreda about 94% of the respondent consume eggs 1-6 times a year whereas as 4% of the respondents do not consume eggs at all.

Marketing systems of chickens and its products

Characteristics of poultry and egg markets

Poultry products in most developing countries, especially in Africa, are still expensive. The marketing system is generally informal and poorly developed. Unlike eggs and meat from commercial hybrid birds (derived from imported stock), local consumers generally prefer those from indigenous stocks. Village poultry producers, consumers and retailers are the main actors involved in poultry and egg marketing in Gena Bossa district. Marketing of poultry and eggs is practiced in various places especially in local and urban markets.

Poultry marketing

All producers those participated on survey were practicing marketing their chickens as well as eggs. There were various places for marketing in Gena Bossa district. There were three major urban markets in the district namely Sunday market at Woldehane, Wednesday market at Angela and Thursday market at Karawo. Producers travel for marketing poultry and eggs

Table 4. Reasons for selling live birds in the study area.

Reason for selling chickens	Frequency	Percentage
Specific weight gain/age of birds	64	48.5
Personal money requirements	55	41.7
During holydays and festivals	13	9.8

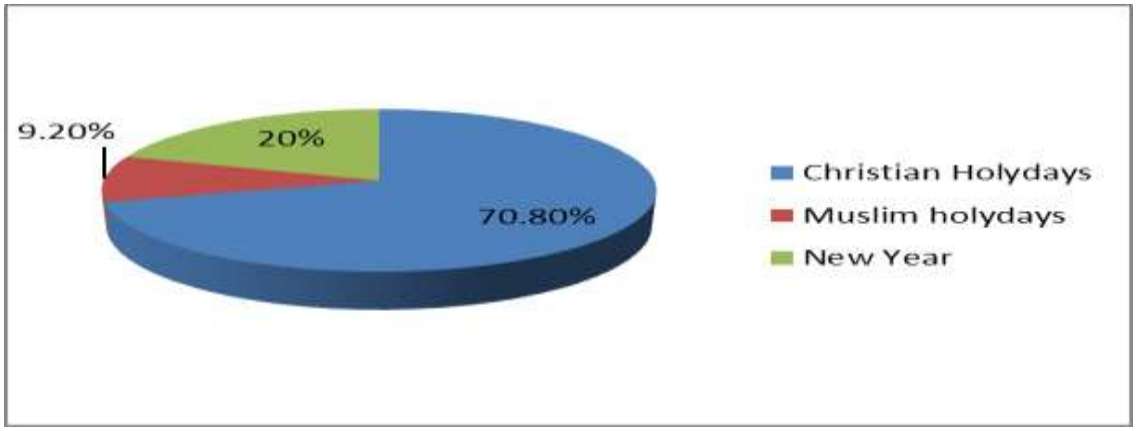

Figure 2. Times of live chicken market fluctuation occurring in the study area.

on average 4.56 km to reach marketing places. Also they sell products at local market as well as farm gate. Backyard poultry owners were selling their birds at their own doorstep, to village market, to local shopkeeper and middleman in Bhandara district of India (Khandait et al., 2011). The major reasons that producers often sale their poultry were when chickens reach specific weight gain per age of bird (48.5%), personal money requirement of the farmers (41.7%) and during holydays and festivals to fulfill income requirements for ceremony of holyday (9.8%) as shown in Table 4. This result was in line with Desalew (2012) funding in east Shewa 73.3% of respondents sale poultry for personal money requirements, and the rest 24.4 and 23.3% of producers' sale their chickens during festivals and holydays in Ada'a and Lume districts, respectively. Farmers sell their chicken mostly when there is an instant cash need in the house (65.6%), when there is disease outbreak to occurs (24.4%) and during the major crop planting seasons (10%) usually occurred from the beginning of the main rainy season at Dale, Wonsho and Loka Abaya weredas of southern Ethiopia (Mekonnen, 2007).

There were market fluctuations of live birds at different time in the study area. The main time at which market fluctuation occurs in the study area were at the time of holydays. The major holydays in which market fluctuation of poultry exist were Christian holydays (70.8%), Muslim holydays (9.2%) and at New Year (20%) as shown in Figure 2. The demand of poultry decreases during fasting period for Orthodox Christians and demand increase during holiday festivities (Getachew et al., 2015). The price of live chickens is affected by seasonal supply and demand especially during holidays and fasting months (Samson and Endalew, 2010).There were also fluctuation of chicken marketing occurs at rain season due to breaking out of diseases in the study area.

There were variations of price on live chickens in market at different time. Laying hens have highest price (44.45±0.83 birr) than pullets (30.9±0.63 birr) in the market. This result was higher than Assefa (2007) reported in which the price of matured cocks and hens were 21.5 (30) and 13.4 (30) birr, respectively. The main determinates of chickens price in the market were feather color, comb type, shank color, body weight and sex of birds which shown in Figure 3. This result was in line with Addisu et al. (2013) report in north Wollo price of live chicken was determined based on body weight (41.83%), combination of comb type and plumage colour (32.35%) and plumage colour (25.82%). There were a lot of problems affecting chicken market in the study area as shown in Table 5. Major factors that affects live chicken market in the study area were unstable bird price, poor sales (demand seasonality), lack of market place, poor infrastructure (road, market, etc.) and lack of marketing information in the study area. Most of farmers could not have market information for their chicken in the district to increase farmer's income level. More than half of the respondents (65%) do not have any information about the price of the chicken before they went to markets in Dale, Wonsho and Loka Abaya weredas of southern Ethiopia

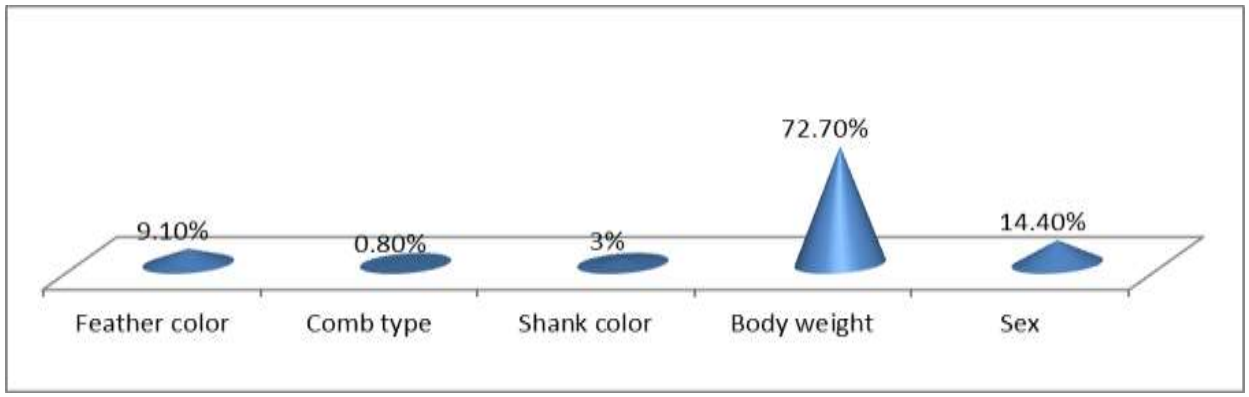

Figure 3. Determinant factors of chicken market price.

Table 5. Problems related to live chicken market in the Gena Bossa district.

Problems	Frequency	Percentage
Unstable bird price	50	37.9
Poor sales (demand seasonality)	51	38.6
Lack of market places	10	7.6
Poor infrastructure (road, market, etc.)	16	12.1
Lack of market information	4	3
Others	1	0.8

Table 6. Regular clients of egg in the study area.

Regular clients	Frequency	Percentage
Village collector/neighbors	50	37.9
Collectors in the market	50	37.9
Consumers	32	24.2

(Mekonnen, 2007).

Poultry egg marketing

Poultry producers were familiar to egg marketing in the study area. Women and children are responsible for egg marketing. The major egg marketing places in the district were local market, farm gate and urban markets. Transportation of eggs for market was very difficult in the study area due to lack of standard road and transportation materials. Farmers travel for marketing eggs on average 4.56 km to reach marketing places.

The egg marketing channel is more or less similar to that of chicken. Eggs are sold at the farm gate to egg collectors, in the open markets to middlemen and consumers and to retail shops, hotels and supermarkets. Regular client for egg marketing in the study area were village collector/neighbors, collectors in the market and consumers as shown in Table 6. This result agrees with Desalew (2012) report in east Shewa selling eggs and chicken was practiced at local shopkeepers, village market and doorstep. The major channels through which producers/farmers sell their chicken in the markets are direct sold to consumers and/or to small retails that take the chicken to large urban centers (Kena et al., 2002). Eggs produced are sold at the farm gate to egg collectors, in the open markets to middlemen and to consumers and to retail shops, hotels and supermarkets in the towns of Dale, Wonsho and Loka Abaya weredas of southern Ethiopia (Mekonnen, 2007).

Egg transportation is difficult in the study area due to lack of standard road. Egg breakage occurs because of transportation problems. Almost 98% of farmers transport eggs by hand carrying systems using straw to reduce egg breakage. Plastic containers and *kircat* (basket) are also used to transport eggs to markets. Egg collectors and traders, often women, buy eggs from farmers and

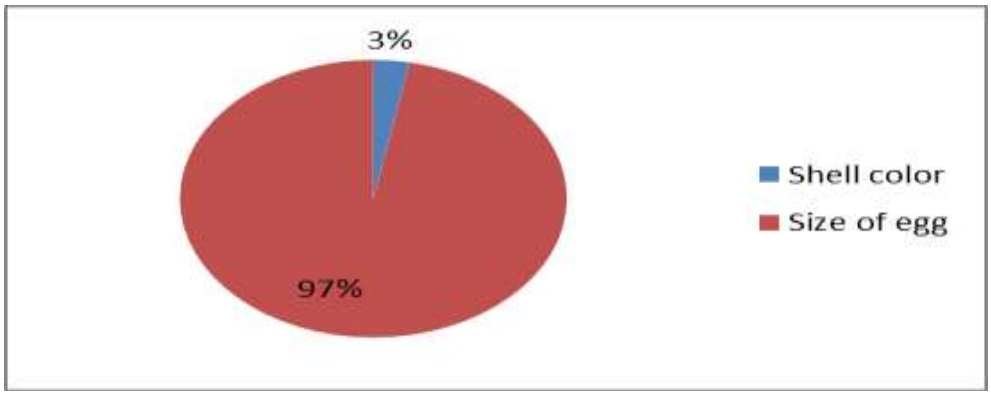

Figure 4. Determinant factors for egg marketing.

Table 7. Factors affecting egg price in Gena Bossa district.

Problems	Frequency	Percentage
Unstable egg price	61	46.2
Poor sales (demand seasonality)	18	13.6
Lack of marketing places	17	12.9
Poor infrastructure (road, market, etc.)	30	22.7
Lack of market information	6	4.5

use carton or wooden containers to transport eggs from house to market. Market price of egg in the study area was 1.78±0.03 birr. Egg market fluctuates at different time in the study district. The determinant factors for egg market were shell color and size of egg as shown in Figure 4. The average price per unit egg similar to Addis and Malede (2014) report in the average price of egg was 1.70±0.05 in north Gondar zone. There was highest number of problems which affects egg marketing in the study area as shown in Table 7. The most common problems which affects market price of eggs in the study area were unstable egg price, poor sales (demand seasonality), lack of marketing place, poor infrastructures (road and market) and lack of information as shown in Table 7. Due to lack of marketing place and access to main road in Alefa as like as live weight of chicken the price of egg was lower than Quara and Tache Armacheho districts of north Gondar zone (Addis and Malede, 2014).

CONCLUSION AND RECOMMENDATION

This study was conducted in Gena Bossa district on assessment of consumption and marketing systems of chickens and its products. This result indicates 55.1% of chickens were owned by women. Most poultry farm activities were conducted by women especially cleaning poultry house, feeding and watering. Decisions for selling, buying and providing gift were performed by both husband and wife. Farmers gave time for their chickens and 40.6% of respondents provide half a day to care chickens by feeding and watering. Chicken meat and egg consumption were connected to holiday's especially Christian festivals. Most of farmers consume chicken meat 3.64 times per year as well as they consume eggs 2.22 times per month. This shows egg and meat consumption is not common in the study even if the advantage of consuming meat and egg is higher than other foods in terms of protein contents. Marketing of poultry and its products were common in the study area. There were no formal market channels for live birds and egg marketing. Market fluctuation of live birds and eggs occur during holidays. In the study area, common problems for marketing of chickens and eggs were unstable price, demand seasonality, lack of market places, poor infrastructure and lack of market information. Depending on this result, the following recommendations are forwarded:

(i) Government, research center and health organization should give training on the importance of chicken meat and egg consumption to prevent diseases related to protein deficiency.
(ii) Government should organize production of chickens with marketing channel.
(iii) Government should minimize infrastructure related problems that affects marketing of live birds and eggs.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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