

Original Research Paper

Evaluation of Socio-economic Role and Challenges of Rural Poultry Keeping in Nole Kabba Woreda, Western Wollega, Ethiopia

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ABSTRACT

An assessment of Socio-economic role and challenges of rural chicken production was conducted using structured questionnaires in three Keble's of Nole Kabba Woreda of West Wellega Zone in Ethiopia. Thirty, 33 and 29 households were randomly selected from poor, medium and rich wealthy groups, respectively. On the other hand, 32, 29 and 31 were selected from mid-highland, highland and lowland agro-ecological zones, respectively. Thus, a total of 92 households and 18 key informants (6 individual from each Kebele) were used. Finally, all the collected data were analyzed using statistical package for social sciences (SPSS) procedures. Result of this study showed that 50% of the total households (HH) in three Agro-ecological zones raise chicken as an income source while 27% are consumed at home. It was observed that 67% of the

wealthy HH's 67% keep chicken for home consumption while majority of medium (51.5%) and poor (45%) HH's rear keep chicken as their income source. The study also revealed that the consumption of poultry and poultry product is compulsory during holidays. 67% of the poor households consume poultry and its product during holidays while this level goes up to 93% when it comes to rich households. Furthermore, the priority of egg consumption was found to be at the levels of 50, 27 and 23% for the elderly, children and patients, respectively. An important conclusion in the present context, but apparently unexplored is that in 45% and 39% of the total respondents from highland and lowland considered predators as the major constraint while 33% of the respondents from the mid-highland considered widespread disease as the major constraints of chicken production in the study areas. Thus, existing poultry extension package needs to address important veterinary issues and predator control since poultry disease and predator attacks are widely spread in the Woreda.

Key words: Poultry, Wealth status, Agro-ecology, Egg, Households

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INTRODUCTION

In Ethiopia, the advantages of poultry keeping includes that poultry require low capital, small feed and readily available household labor. Poultry is a source of self-reliance for women, since poultry and egg sales are decided by women (Aklilu et al., 2007), both of which provide women with an immediate source of family income to meet household expenses. Village poultry is also the only capital that households have left when declining into poverty because of varies reasons such as drought and other natural and manmade calamities.

Unfortunately however, the contribution of the Ethiopian poultry population to human nutrition and export earnings are dis-proportionately low. The current total annual poultry meat and egg production are estimated at 6, 720 and 26, 059 metric tons (FAO, 2005), resulting in per capita egg and poultry meat availability at of 0.09 kg and 12 eggs, respectively.

The productivity of local hens is low, not only because of low egg production potential, but also due to high chick mortality (Hoyle, 1992; Taddele, 1996 and CACC, 2003;

Tadele and Ogle, 2001) soon after they are hatched. Generally it is difficult to associate this high mortality with a single factor rather considered as a result of combination of several factors including disease, predation deficiency of feed and nutrients, and finally, the hostile environments the newly hatched chicks do encounter. Of the regional states, the states of Amhara and Tigray collectively own 43% of the total national poultry population (Akililu, 2007) and are Orthodox Christian in faith.

Annual poultry meat and egg consumption per household is estimated as 2.19 Kg and 1.72 kg, respectively in the Tigray Regional State compared to the national average of 0.12 and 0.14 kg, respectively. Likewise in the Tigray regional states, live bird and egg sale per household is estimated as 6 chickens and 100 eggs/year, respectively. At a current market price, these figures tend to indicate annual income of Birr 322.0 from household poultry, indicating that the village family poultry in extremely poor areas of these parts of the country play an important economic, nutritional and socio-cultural role in the livelihoods of the rural households (Solomon, 2008). According to Aklilu (2007), village poultry is the first step of the ladder for poor households to get out of poverty. Poultry is a source of self-reliance for women, since poultry and egg sales are decided by women (Aklilu et al., 2007), both of which provide women with an immediate income to meet household expenses such as food. Moreover, poultry are used for strengthening marriage partnerships and social relationships. In the local culture, particularly in remote areas of Tigray and Amhara regions, women who can provide men with food like a chicken dish (Doro wot) are considered to be contributing to a stable marriage. Serving Doro Wot is also a demonstration of respect to the guests, thus strengthening a social relationship which is especially important for poor households. For the poor, poultry meat is the only special meal they can afford during religious festivities like New Year, Christmas and Easter. Church leaders and attendants are also served with chicken dishes. In general, socio-cultural roles are more important in the area with the poorest market access particularly in the Tigray regional state (Aklilu, 2007).

The socio-economic aspects and challenges of poultry production were studied in the north and central highlands of Ethiopia where Orthodox religion is more dominated; in contrast, no work has been carried out to assess the socio-economic aspect and challenges that are encountered in case of poultry production of western Ethiopia in general, in Nole Kabba Woreda of western Wollega Zone particularly where protestant religion is more dominated. From the above backdrop, the present study was designed with the objective to generate information on socio-economic factors and constraints that are encountered in the production and development of poultry in Nole Kabba Woreda of western Wollega

Zone.

MATERIALS AND METHODS

Description of the Study Area

This study was carried out in Nole Kabba Woreda of Western Wollega Zone of Oromia Regional State, located 491 Km West of Addis Ababa and 160 Km from Nekemte. The altitude of Nole Kabba ranges between 1400 m above the sea level and 2576 m above the sea level. The annual rainfall of the study area ranges between 1600 and 2000 mm. Nole Kabba is classified as one of the surplus food producing area in Woreda's of the Western Wollega Zone. The population of the Woreda is 67,667, the majority (95%) of which lives in the rural areas. Nole Kabba has a high potential for livestock production and the total livestock population of the Woreda is estimated as 42,075 chickens, 53,204 cattle, 29,606 beehives, 18,288 sheep, 5, 678 goat, 3, 854 donkeys, 2, 438 horses, and 857 mules.

Selection of Study Site and Households

For the selection of the study site and households, stratification was made in two ways based on Agro-ecology of the study site and wealth status of the households.

The Nole Kabba Woreda consists 26 Kebeles. The Woreda was stratified into 3 agro ecological zones based on altitude by RWSSH (2007). One Kebele from each agro-ecological zone, namely Haro Chorroka, Dakkibo Bururi and Kiltu Tobbe were purposely selected from lowland, mid-highland and highland. respectively based on poultry, human population and total area coverage. The households of the selected Kebeles were further stratified into well-of (affluent), partially self-sufficient (medium) and insufficient (poor) groups based on wealth status as ranked by the government for the ease of development interventions (Nole Kabba Woreda Administration Office and Social Data Profile, 2009). 10 HHs were randomly selected from each of the three wealth status within from each of the three agro-ecological zones and a total of 92 households (HH) and 18 key informants (KI) were used to assess the production practices and productivity of local and exotic breeds of chicken. During household selections the household in the Kebele were listed in alphabetical order and randomly selected. If the selected household did not have chickens the household next to the selected was chosen for the survey work. Moreover, 6 households who possessed more diversified (in sex, age, production and breeds) chickens were purposively selected from each of the 3 Kebeles selected (total of 18) for group discussion (GD).

Table 1. Purpose of poultry keeping based on agro-ecology (% of HHs)

Purpose and Objective	Mid-highland	Highland	Lowland	Overall
Consumption	25.0	31.0	25.8	27.2
Sale	56.3	44.8	48.4	50.0
Religious	15.6	13.8	22.6	17.4
Non defined	3.1	10.3	3.2	5.4

Table 2. Purpose of poultry keeping based on wealth status (% of HHs)

Objectives	Poor	Medium	Rich	overall
Consumption	10.0	27.3	44.8	27.2
Sale	66.7	51.5	31.0	50.0
Religious	23.3	18.2	10.3	17.4
Non defined	0	3.0	13.8	5.4

Data Collection

Structured questionnaire was used to collect data from primary source which mainly comprised of HHs, development agents and KIs followed by review of the available secondary data source from respective office. The enumerators were trained for two days on importance of every item in the questionnaire and techniques of data collection. Pilot pre-testing of data collection on the structured questionnaires was practiced for checking enumerators' implementing efficiency and the practical applicability of questionnaire itself in the field. In the meantime, the reliability and consistency of the collected data were verified on time and site by the researcher by frequent visit.

The interviews were conducted at the farmer's residence with the assistance of local extension officers. A visit to physical facility of live bird and egg markets and open discussion with poultry farmers, sellers, buyers and intermediaries were also made. Finally, data on reasons for keeping chicken, socio-economic role of poultry and marketing system were collected. Appropriate timing for data collection was fixed after negotiation with respondent, placing special emphasis on women while interviewing the households.

Statistical Analysis

All data collected were analyzed by using statistical package for social science (SPSS) version 17.0 for windows. Chi-square procedure was carried out to examine significance difference of some parameters. For qualitative factors descriptive statistics was used.

RESULT AND DISCUSSION

Socio Economic Role of Poultry

Purpose of Poultry Keeping

The data from the study at HHs level on poultry keeping which was based on agro-ecology are shown in Table 1. It appeared that 50% of the total respondents kept poultry as source of family income while 27% kept for food. Respondents from mid (56%), high (45%) and low-lands (48%) kept poultry as means of family income. On the contrary, 27, 17 and 5% of the respondents were found to keep poultry for home consumption, religious and unknown purpose, respectively. According to the results of this study, 44.8% of the total respondents who were categorized as rich households used poultry for home consumption indicating that consumption of poultry and poultry products largely depends on the wealth status of the households (Table 2).

Table 3 showed that 40-50% of the respondents were of the opinion that, the current high market price of chicks and eggs and the costly traditional methods of chicken dish preparation were the major limitation to the consumption of poultry and poultry products at the household level (Table 3). Thirty to 35% of the respondents gave priority to the family income generation capacity using poultry as a reason than for home consumption. These results are in agreement with those of Mammo (2006), who reported market price and health status of the households are the primary constraint affecting poultry product consumption in Jamma woreda of north Ethiopia.

Chicken and eggs from respondents categorized as poor households are more likely to be sold as sources of cash income. However, chicken meat and egg consumptions are obligatory in the study areas during holidays and special occasions. Seventy-four to 83% of the total respondents reported that the consumption of poultry and its products is a matter of compulsion during holidays. Sixty-seven percent of the total respondents who were categorized as poor HHs indicated that the use of poultry and poultry products during holidays while

Table 3. Major limitations to poultry and poultry product consumption in the study area (% HH).

Constraints	Mid-highland	Highland	Lowland	Overall
Expensiveness to prepare dish	50(16*)	24.1(7*)	29(9 ^{NS})	34.8(32*)
The product are expensive	18.8(6)	44.8(13)	29(9)	30.4(28)
Giving priority to cash income	28.1(9)	27.6(8)	32.3(10)	29.3(27)
No problem to consume	3.1(1)	3.4(1)	9.7(3)	5.4(5)
χ^2 _Value	14.75	10.0345	3.9677	19.3913
Poor HH				
Expensiveness to prepare dish	10(1 ^{NS})	30(3 ^{NS})	20(2 ^{NS})	20(6 ^{NS})
The product are expensive	30(3)	20(2)	30(3)	26.7(8)
Giving priority to cash income	60(6)	50(5)	50(5)	53.3(16)
No problem to consume	-	-	-	-
χ^2 _Value	3.80	1.40	1.40	5.600
Medium HH				
Expensiveness to prepare dish	83.3(10*)	20(2 ^{NS})	27.3(3 ^{NS})	45.5(15*)
The product are expensive	16.7(2)	40(4)	27.3(3)	27.3(9)
Giving priority to cash income	-	40(4)	36.4(4)	24.2(8)
No problem to consume	-	-	9.1(1)	3(1)
χ^2 _Value	6.50	0.800	1.7273	11.9697
Rich HH				
Expensiveness to prepare dish	50(5 ^{NS})	22.2(2 ^{NS})	40(4 ^{NS})	37.9(11 ^{NS})
The product are expensive	10(1)	44.4(4)	30(3)	27.6(8)
Giving priority to cash income	30(3)	22.2(2)	10(1)	20.7(6)
No problem to consume	10(1)	11.1(1)	20(2)	13.8(4)
χ^2 _Value	4.400	2.1111	2.000	3.6897

* $p < 0.05$ level; NS-Not-significant across the column; Value in the Parenthesis are the numbers of respondent responded in each parameters.

93% of the respondents who were categorized as rich HHs, indicated the use of poultry and poultry products during holidays. Ethiopian New Year, Easter and Wedding Ceremony are the major occasion of consumption of poultry and poultry products in the study areas. The trend was found to be similar to those of Akilu et al. (2007), who reported that poultry meat is the only special meal that can be afforded during religious festivities like New Year, Christmas and Easter, Church leaders and attendants are also served with Chicken dishes.

Tadelle (1996), Tadelle et al. (2003) and Mammo (2006) documented that 23, 27 and 28% of the eggs produced are sold, both in the central highlands of Ethiopia and in Jamma woreda of north Ethiopia, respectively, since the low household income from crop production (small land holding) made the farmers to sell the largest proportion (50%) of the eggs produced. In contrast, the results of this study showed that less than 27% of the eggs produced are used for home consumption. Thus, the results of this study showed that the major objective of poultry production was for family income generation and subsequently the role of poultry to contribute as a source of high quality protein became limited in the study areas.

Poultry Production, Product Utilizations and Consumers Preferences

The current high market price of poultry and poultry products seem to have attributed to the corresponding high cost of chicken production. Market price of live birds and supplementary basic feed items were the major production costs mentioned in the study area. Fifty-five percent of the total respondents indicated that the purchase of birds was accounted for the largest segment of production cost of chickens. On the other hand, 36% of the respondents reported that the purchase of feed and veterinary drugs was accounted for the second largest production cost of chickens in the study areas. The majority of the respondents (76%) spent from their personal income to run poultry farming. Sixteen and 8% of the whole respondents reported that they borrowed money from friends and private money lenders for chicken rearing indicating the role of credit in chicken rearing in the study area.

The nutritional contribution of chicken within the HHs is shown in Table 4. The results have shown that 50, 27 and 23% of the respondents said priority of eggs consumption was given to elderly which was followed by children and patients, respectively.

Table 4. The nutritional use of poultry by different age group in the study area (% of HH)

Age groups	Mid-highland	Highland	Lowland	Overall
Meat				
Aged People	40	58.3	54.5	50.7
Children's	28	25	27.3	26.8
Patients	32	16.7	18.2	22.5
Eggs				
Aged People	20	8.3	18.2	15.5
Children's	56	41.7	50	49.3
Patients	24	50	31.8	35.2

Table 5. Consumer's preferences towards meat of exotic breed in the study area (% of HH)

Preferences	Mid-highland	Highland	Lowland	Overall
General preferences				
High	25.0	31.0	35.5	30.4
Medium	12.5	10.3	25.8	16.3
Low	34.4	55.2	29	39.1
No preference	28.1	3.4	9.7	14.1
Poor HH				
High	30.0	20.0	20.0	23.3
Medium	-	10.0	30.0	13.3
Low	30.0	60.0	40.0	43.3
No preference	40.0	10.0	10.0	20.0
Medium HH				
High	41.7	20.0	36.4	33.3
Medium	8.3	10.0	27.3	15.2
Low	25.0	70.0	27.3	39.4
No preferences	25.0		9.1	12.1
Rich HH				
High	30.0	55.6	50.0	34.5
Medium	50.0	11.1	20.0	20.7
Low	20.0	33.3	20.0	34.5
No preferences	-	-	10.0	10.3

Table 6. Constraints of poultry production in the study area (% of HHs)

Constraints	Mid-highland	Highland	Lowland	Overall
Disease	34.4	31	32.3	32.6
Predators	28.1	44.8	38.7	37.0
Economic problems	15.6	6.9	19.4	14.1
Marketing	21.9	17.2	9.7	16.3

Thirty nine and one tenth of one percent of all the respondents from the above three study areas had low preferences towards the consumption of exotic poultry and poultry products. According to the results of the discussion made with the KI, poor preferences toward exotic poultry and poultry products was attributed to the poor yellow coloration and palatability of eggs and meat

of exotic breeds of chickens.

Problems of Chicken Production in the Study Area

Major constraints of chicken production in the study area are shown in Table 6. The results showed that 70% of all

the respondents ranked predation and disease as the most important constraints in rural poultry production in the study areas. The remaining respondents mentioned marketing and market related economic problem as the major problem to poultry production in the study areas. The results of this study were similar to those of Tesfu (2006) who ranked predation and disease conditions as the major problem of chicken production in Ethiopia. More than half of the total (54.3%) respondents reported that they had access to agricultural extension-services when it came to poultry production and 78% of these respondents were recipients of improved poultry breeds through the national poultry extension activities. None of the respondents reported had access to credit. The indigenous and exotic chickens (69 and 38%, respectively) are reported to be kept over two production years.

A majority of HH respondents interviewed (70% reported that disease and predations accounted for the largest annual losses in the poultry sector in Ethiopia. The predators involved in chicken losses include eagles, hawk, and crow, rats, wildcats, monkey and dogs while ants and mosquitoes are the insect pests that kill chicks especially in the rainy season. On the top of these, there was a lack of vaccination program and knowledge about the causes and transmission of diseases and pests. Eighty-nine percent of the respondents reported that they kept different classes of chickens together, the practice that facilitates transmission of diseases. Ninety-two percent of the respondents reported that the highest mortality in village chicken occur during the first two weeks of age when the chick began to move away from the mother hen and beyond her protective barrier during this time. Compared to those of lowland, predation caused 44.8% mortality in the highland compared to 28.1% in the mid-highland.

The overall losses due to predation appeared to be higher (37.0 %) than those caused by diseases (32.6%). Thus, this higher level of mortality due to predators is linked to wild-life and this aspect deserves closer study as the number of predated chicks and adult chickens may run into millions every year. The results of the above are in agreement with those of others (Kitalyi., 1998; Tadle and Ogle, 200; Udo et al., 200; and Maphosa et al., 2004) who reported that mortality during brooding stage is the highest in village chickens. About 86% of the respondents suggested that Newcastle Disease and Fowl Cholera are the major diseases in the study areas. This result was similar to that of Leulseged (1998), Kyvsgaard et al. (2001), Maphosa et al. (2004) and Sonaiya and Swan (2004) who reported that Newcastle Disease is the most devastating disease for scavenging chicken in Ethiopia.

This result is also in line with the report of Yongolo (1996) and Sonaiya and Swan (2004) who reported that Newcastle Disease was the most severe disease in village chicken production with mortality up to 100%

particularly in young chicks. In addition, birds that recovered from disease conditions appeared to be low in productivity as indicated by Smith (2001).

CONCLUSION

Survey on challenges and socio-economic aspects of rural chicken production was carried out in three Agro-ecological zone of Nole Kabba Woreda of Oromia regional state, Ethiopia. A total of 92 and 18 HHs were involved in the survey and group discussion, respectively. The objective was to generate information on socio-economic and other constraints that were considered as impediments to the development of poultry production in Nole Kabba Woreda of western Wollega Zone. The primary data were collected from the household selected by using of structured questionnaire. Finally all the data collected were analyzed using (SPSS). The result of the current study revealed that about 50 and 27% of all the respondents considered poultry production as source of family income and food, respectively. According to the results of this study about 44.8% of respondents categorized as rich households used poultry for home consumption indicating that consumption of poultry and poultry products largely depends on the wealth status of the households. About 74-83% of all the respondents reported that the consumption of poultry and poultry product is compulsory during holidays. The results obtained clearly showed that poultry diseases and predators are wide spread in the Woreda. Farmers pointed out that Newcastle Disease, fowl cholera, respiratory diseases and predators are responsible for losses of birds in the study areas. Almost all the respondents reported poultry and poultry product market price fluctuation attributed to limitation in land holding, disease occurrence and low purchasing power of the consumers. Based on the results of the present study, the following recommendations are made: Provision of basic education on market oriented small scale poultry production and management (Identify constraints and opportunities to improve market access, raise productivity with a focus on institutional arrangements that link producers, processors, marketers and distributors while recognizing that power differentials among actors may influence outcomes along the chain), that is strengthening poultry value chain should be given top priority through the existing extension system with special emphasis placed on women. In other words, conducting gener-based studies and adapted market mapping of village poultry value chain in the near future. The existing poultry extension package also need to address important veterinary issues, since poultry diseases are wide spread in the Wereda area.

REFERENCES

Akili H, (2007). Village poultry in Ethiopia; Socio-technical analysis and

- learning with farmers. PhD. Thesis, Presented to the Wageningen University, Wageningen, the Netherlands.
- Akiliu H, Almekinders CJM, Van der AJZ (2007). Village poultry consumption and marketing in relation to gender, religious festivals and market access. *Tropical Animal Health and Production* 39, 165-168.
- CACC (Central Agricultural Census Commission) (2003). Statistical report on farm management practices, *livestock and farm managements Central Statistical Authority report of 2004-2005*, Vol.II Addis Ababa, Ethiopia.
- FAO (Food and Agriculture Organization) (2005). Emergency regional support for post-avian influenza rehabilitation. Summary of project results and outcomes, by F. Dolberg, E. GuerneBleich & A. McLeod. Rome.
- Hoyle E (1992). Small scale poultry keeping in Wellaita, North Omo region. *Farmers Research Project (FRP) Technical Pamphlet* No. 3 Ethiopia.
- Kitalyi A (1998). Village chicken production systems in rural Africa. House holds food and gender issues. Food and Agriculture Organization of the United Nations: Rome Italy. P.81
- Leulseged Y (1998). A study on the production system of the indigenous and improved poultry in rural areas of Northern Wollo. M. Sc. Thesis Presented to School of Graduate Studies of Alemaya University. p.103.
- Kyvsgaard NC, Luz AU, Peter N (2002). Analysis of traditional grain and scavenge based poultry systems. Poultry as a tool of in poverty eradication and promotion of gender equality: *proceeding workshop Nicaragua*. (mailto:nck@kvl.dk).
- Mammo M, (2006). Survey on village chicken production under traditional management systems in Jamma woreda, south Wollo, Ethiopia. M. Sc. Thesis Presented to School of Graduate Studies of Alemaya University, Ethiopia.
- Maphosa TJ, Kusina NT, Makuza S, Sibanda S (2004). A monitoring study comparing production of village chickens between Communal RWSSH (2007). (rural water supply, sanitation and hygiene) Water development project.
- Smith AJ (2001). Poultry. The Tropical Agriculturalist. London. *CTA and MACMILLAN Education Ltd*.
- Solomon D (2008). The structure, marketing and importance of the commercial and village poultry industry an analysis of poultry sector in Ethiopia. *A consultancy report to FAO*, Addis Ababa, Ethiopia.
- Sonaiya EB, Swan ESJ (2004). Small scale poultry production technical guide. *Animal Production and Health*, FAO of United Nations. Rome Italy. p.114
- Tadelle D(1996). Studies on village poultry production systems in the central highlands of Ethiopia. M.Sc. Thesis, Swedish University of Agricultural Sciences. Uppsala, Sweden.
- Tadelle D, Ogle B (2001). Village poultry production system in the central highlands of Ethiopia. *Tropical Animal Health and Production*. 33(6): 521-537.
- Tadelle Dessie, Million Taddese, Alemu Yami and K. J. Peters, 2003. Village chicken production system in Ethiopia. Paper 2. Use patterns and performance valuation and chicken products and socio economic functions of chicken Livestock Research for Rural Development. 15(1):4p <http://www.cipav.org.co/irrd/irrd15/1/tadeb151.htm>.
- Tesfu T (2006). Chicken production systems and monitoring around the villages of Dire dawa town, Msc. Thesis, Alemaya University , Ethiopia.
- Udo HMJ, Asgedom AH, Viets TC, (2001). Modeling the impact of intervention in village poultry productions. Livestock Community and Environment. Proceeding of the 10th Conference of the Association of Institution for Tropical Veterinary Medicine Copenhagen, Denmark. Mekele University College, Ethiopia. henk.udo@dpsvh.wau.nl.
- Yongolo MGS (1996). Epidemiological of Newcastle disease in village chickens in Tanzania. MVM Thesis, Sokoine University of Agriculture, Morogoro, Tanzania. p.125.