

Assessment of Local Chicken Management and Production Systems in Damot Pullassa Woreda of Walaita Zone, Southern Ethiopia

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Abstract

The study was conducted in Damot pullassa woreda of wolaita zone, southern Ethiopia to assess local chicken production and management systems. To obtain primary data simple random sampling procedure was employed. That is four kebeles were randomly selected from the total 23 kebeles of the woreda and then from each selected kebeles 20 households, and hence a total 80 households were, included in the study and secondary data were obtained from written documents of the wereda's Bureau of agriculture. Data were analyzed using simple descriptive statistics. The results of the study indicates that 81.5%, of the respondents were males and 75% are married additionally about 75% of respondents are illiterates. The average chicken holding per house hold was 4 heads and chicken were kept for subsistence (31.25%), income generation (18.75%) and both subsistence and income generation (62.5%). furthermore the respondents were kept their chickens in free scavenging system and majority (81.25%) did not supplement their birds before they go for scavenging. The common supplements used in chicken feeding were maize (1st), wheat (2nd), and kitchen wastes (3rd) as ranked by the respondents. Majority (81.25%) of the respondents provide water to their chicken free of choice. However, chicken production in the study area was constrained by shortage of feed (1st) prevalence of chicken disease (2nd), predators (3rd), lack of capital (4th) and poor veterinary service (5th) as ranked by the respondents. Therefore, improved management technologies should be introduced in order to increase the productivity of the local chickens.

Keywords: free scavenging, local chicken, production system, management, Damot pullasa

INTRODUCTION

Ethiopian chickens are the most wide spread and almost every rural family owns chickens, which provide available source of food protein income (Tadelle *et al.*, 2003). The most dominant chicken types reared in Ethiopia are local eco-types, which show a large variation in body position, plumage color, comb type and productivity (Asefa, 2007).chicken production is an important economic activity in Ethiopia. Beside its social and cultural benefits, poultry play a significant role in family nutrition. The chicken population of Ethiopian is estimated to be 50.38 million of which about 99%is local birds (CSA, 2013). Despite the high number of chicken contribution to farm house hold income and national economy is relatively very low. The per capital chicken meat and egg consumption in the country is reported to be 2.85 kg and 57 eggs per annual, respectively, (Alemu and Tadelle, 1997).

Chickens have a short generation interval and a high rate of productivity. They can also be transported with ease to different areas and are relatively affordable and consumed by rural peoples as compared with other farm animals such as cattle and small ruminants. Chickens also play acomplementary role in relation to other crop livestock activities. Indigenous chickens provide major opportunities for increased protein production and income for small holders (Tadelle *et al.*, 2003).

Indigenous chickens are good scavengers as well as foragers and have high levels of disease tolerance, posses' good material qualities and are adapted to harsh conditions and poor quality feeds as compared to the exotic breeds. However in Ethiopian, lack of knowledge about poultry production, limitation of feed resources , and prevalence of diseases (new castle, coccidiosisetc)as well as institutional and socio-economic constraints remains to be major challenges in village based chicken productions (Abebe and Wossene,2006).

In general poor management including prevalence of different disease and predators , lack of poor health care, poor feeding, insufficient water availability and poor marketing information is major constraints to village indigenous chicken production. Therefore having information on chicken production and management system in a given locality or area could help in devising appropriate improvement strategies. In study woreda, Damot Pullassa , there is no easily available information with regard to the local chicken production and management systems. Identifying the existing local chicken production and management systems can help as in put information in the designing and implementing village based poultry production programs. The present study was, there, intended to assess local chicken production and management systems in Damot Pullassa Woreda.

1.1. General objectives

- To assess village poultry production systems in the district

1.2. Specific objectives

- To assess management practices of indigenous chicken kept in selected district
- To identify constraints or challenges of local chicken production systems in the study area

MATERIALS AND METHODS

Description of the study Area

The study was conducted in Damot Pullassa Woreda of Wolaita Zone, Southern Ethiopia. Damot Pullassa is located in the southern nation nationalities and people regional state at 6°40'46"N latitude and 37°46'56"E longitude at an altitude of 1750 masl and 393km south of Addis Ababa. The study area has 23 kebeles of which 12 kebeles are Dega and the remaining (11 kebeles) are waynadega. The mean annual rainfall is 1500mm with bimodal distribution. Seventy percent of the woreda has medium to warm climate with mean minimum and mean maximum temperature of 15°C and 25°C, respectively (Damot Pullassa woreda Bureau of Agriculture, 2015).

Sampling techniques

Damot Pullassa woreda has 23 kebeles located in the two agro-ecological zones namely Dega and Woyna Dega. Two kebeles from each agro-ecology were randomly selected and from each selected kebele 20 households, thus a total of 80 households (4*20), were randomly selected and included for the study.

Data collection methods

Both primary and secondary sources of data were used for the study. Primary data like information about profile of the respondents, the main source of income, livestock holding, chicken husbandry practice, chicken feed resource and feeding systems, constraints to chicken production were collected from the respondents using structured questionnaire. Secondary data were obtained from the Damot Pullassa Bureau of agriculture.

Statistical Analysis

All the collected data were arranged, organized and analyzed by using SPSS version 16 and simple descriptive statistics such as mean, frequency and percentage and the results were reported in the form of table.

RESULTS AND DISCUSSION

Profile of the respondents

The profile of respondents in Table 1 and as shown in table male respondents accounted 81.25% while the female respondents accounted 18.75%. Out of the interviewed respondents' majority (75%) were married. About half (52.5%) of the respondents had age of 18-45 years old but that had age >45 years old accounted (41.25%), and this result indicates the proportion of the active working force which involve in different agricultural activities is relatively low.

Table 1. Demographic characteristics of the respondents

Parameters		Number of the respondents (N=80)	Percentage%
Sex:	Male	65	81.25
	Female	15	18.75
Marital status:	Single (unmarried)	15	18.75
	Married	60	75
	Widowed	5	6.25
	Divorced	-	-
Age category (years)	<18	5	6.25
	18-45	42	52.5
	>45	33	41.25
Educational status	Illiterate	50	62.5
	Writing reading only	15	18.75
	Grade 5-6	7	8.75
	Grade 9-12	4	5
	Grade 12 completed	3	3.75
	Diploma and above	1	1.25
Family size:	<4	15	18.75
	4-7	46	57.5
	>7	19	23.75
Family source of income	Crop production only	0	0
	Livestock production only	0	0
	Both crop and livestock production only	80	100

With regard to the education status of the respondents most (62.5%) were illiterates while the rest (37.5%) were literates (Table 1). The presence of large proportion of literate households may be an opportunity for easily training and accepting of improved management practice of live stock as supported by (Tassew and Seifu,

2009). The presence of large proportion of illiterates in the present study could therefore disadvantage 57.5%, 23.75% and 18.75% of the respondents reported that they had family size of 4-7 persons, >7 persons and <4 persons, respectively. In the study area all the interviewed respondents follow mixed farming systems which means rearing livestock and crop productions together (Table 1).

Livestock holding of the respondents

The average number of livestock holding per household in study area is shown in table-2. The mean number of livestock per household was 3.35 heads of cattle, 0.35 heads of sheep, 0.1875 heads of goat and 1.275 heads of equines and 4 heads of chicken.

The average member of livestock per household in the present study were very low when compared to the values of 15.6 heads of cattle, 7.6 heads of sheep, 4.4 heads of goat, 1.99 heads of equines and 16.8 heads of chickens reported by Said and Berhan (2014) from Burji woreda, Segen Zuria zone of SNNPRS.

Table: 2-Mean livestock holding of the respondents:

Livestock species	Total number(from 80 respondents)	Mean
Cattle	268	3.35
Sheep	28	0.35
Goat	15	0.1875
Equines	102	1.275
Chicken	320	4

Purpose of chicken keeping and chicken production system

The purpose of chicken keeping of the study area is shown in table 3. Respondents reported that the purpose of chicken keeping is for subsistence (home consumption) 18.75%, income generation (18.75%) and both subsistence (home consumption) and income generation (62.5%) and as indicated in table 3 that all the respondents were kept their chickens in free-scavenging systems and 80% of the respondents reported that they clean the chicken house once a day. According to Alemu (1995), chicken production system in Ethiopia show a clear distinction between the traditional, that is low input system on one hand and modern production system using relatively advance technology on the other hand.

Table 3. Purpose of chicken keeping and production system

Parameters	Number of respondents (N=80)	Percentage (%)
Purpose of chicken keeping		
Substance (home consumption)	15	18.75
Source of income	15	18.75
Both	50	62.5
Purpose of chicken production system		
Free scavenging	80	100
Semi-intensive	-	-
Housed (intensive)	-	-

Chicken feed supplementing and watering frequency

According to Tadlle and Peter (2003), insects, grasses and harvest leftovers are the major feed sources for scavenging in the village chicken production in Ethiopia. Supplementation with home produced cereal grain or purchased feed is sometimes practiced by village chicken produces in most parts of Ethiopia.

In the present study only 18.75% of the respondents supplement their free scavenging chickens, while majority (81.25%) did not supplement their bird before they go for scavenging (Table 4). In agreement to the results of the present study Gueye (2003), reported that lack feed supplementation is one of the main characteristics of free ranging chicken production system and the table shows the common type of supplement used in free scavenging chickens in the study area.

Table 4. Chicken feed supplementation practice and types of feed

Parameters	Number of respondent (N=80)	Percentage (%)
Do you supplement you chicken?		
Yes	15	18.75
No	65	81.25
Type of supplement		
Maize	45	56.25
Wheat	19	23.75
Kitchen wastes	16	20

Water is essential food for chicken like other species of Animals. Access to clean and plenty water determines the productivity and health of chickens. Therefore, as much as possible water should be freely available

to chickens. In the present study majority (81.25%) of the respondents do not provide water to their chicken on free of access bird by itself search from where it available if any source of water is available within scavenging site while only (6.25%) and (12.5%) of the respondents supply water to their chicken twice a day and once a day, respectively (Table 5).

Table 5. Watering frequency of chicken in the study area

Watering frequency	Number of respondents (N=80)	Percentage (%)
Once a day	10	12.5
Twice a day	5	6.25
Three times	-	-
Bird search based	65	81.25

Constraints to chicken production in the study area

The major constraints, raised by the respondents, in the study area are presented in table5. The respondents ranked shortage of feed (1st), prevalence of disease (2nd), predators (3rd), lack of capital (4th), and poor veterinary service (5th), as the major constraints affecting their chicken protection and productivity. According to Abebe and Wossne (2006) chicken production in Ethiopia is constrained by lack of knowledge about poultry production, limitation of feed resources and prevalence of diseases as well as institutional and socio-economic factors. Those reports are more or less in agreement with constraints raised by the respondents in the present study (Table 6).

Table 6. Major constraints of chicken production in study area

Constraints	Number of respondents (N=80)	Percentage (%)	Rank
Shortage of feed	30	37.5	1 st
Prevalence of diseases	20	25	2 nd
Predatory	15	18.75	3 rd
Lack of capital	9	11.25	4 th
Poor veterinary service	6	7.5	5 th

CONCLUSION AND RECOMMENDATION

The results of the presents study showed that chickens were kept subsistence (home consumption), source of income and both subsistence and source income. All the respondents were practiced free scavenging chicken production systems. Majority (81.25%) did not supplement while only 18.25% of the respondents supplement their free scavenging chickens. Maize, wheat and. Majority (81.25) of the respondents was not provided water to their chicken while 12.5 and 6.25% % of respondents provide water once and twice per day respectively. Moreover current finding showed that shortage of feed, prevalence of chicken diseases, predators, lack of capital and poor veterinary service was main constraints affecting chicken production in the study area. Based on the above conclusion the following recommendations are forwarded.

- The free scavenging/traditional chicken production system should be changed to at least to semi scavenging
- The feeding system should be improved and the feed resource availability should be increased and improved
- Veterinary service should be expanded in districts in order to reduce prevalence of diseases and chicken loss due to disease within each kebeles

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