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Original article

Production and marketing of chicken at kimbibit woreda in north shoa zone, Oromiya region, Ethiopia

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ABSTRACT

The study was conducted to determine production and marketing chicken at Kimbibt Woreda from three representative kebelles by selecting a total of 150 households who involved in chicken production. The data were collected by questionnaire, personal observation and interview like composition, marketing channels and purpose of village chicken production. The result of the study revealed that about 80% of the households kept local chicken, 12% local and cross breed, and 8% kept exotic and local breed together. The major sources of parent stock were from market (52%), research centers (6%) and hatched in home (42%) . In this study village chicken in the study area become sexual maturity and egg laying first at average 61/2 months, the average number of clutch /hen/years was 3 and their hatchability was 76%. 60% of the household rear their chicken for laying, 26% for income source and 14% for consumption. The main constraints were diseases 54%, predators 20% and 8% lack of professional assistant. Therefore, to reduce these constraints government sector should give enough training for village chicken producers to maximize their income for livelihood improvement.

1. Introduction

In Ethiopia, the agricultural sector is the corner stone of the economic and social life of the people. The sector employs 80-85% of the population and contributes 40% of the total growth domestic product (Hundumal et al, 2010). Animal production in general and chicken production as the one component of agriculture covers 40% of the agricultural output playing an important role in the rational economy as it contributes 13-16% of the total GDP (Hundumal et al, 2010).

Chicken are among the most adaptable domesticated animals, and there are few places on the globe where climatic conditions make the keeping of chicken flock impossible (Bishop, 1995).

The total chicken population in the country is estimated at 39.6 million (CSA, 2009). The majority (98%) of these chicken are maintained under traditional system with little or no input for housing, feeding and health care, the indigenous chicken belong to a group of local unimproved breeds commonly found in developing countries and may include mixed (unspecified) breeds resulting from uncontrolled breeding (Mushi etal, 2005).

Kimbibit woreda (sheno town) is one of the North Shewa zone woreda in which chicken production is practiced under smallholder which provide people benefits in good security (meat and egg) and for source of income. However, due to lack of management, in adequate health care, lack of improved reeds the return or output obtained from local chicken is very low outcome. Therefore, the aim of carried out this research in this woreda was to alleviate the problems that related to chicken production and marketing system under small holders.

2. Materials and methods

2.1. Description of the study

The study was conducted in Adadi Falle Kebele in Kimbibit woreda, North shewa zone of Oromia regional state. The woreda is 195km from the zonal capital Fitche, and 80km from Addis Ababa. The districts extends form 9o12’ – 9o32’ N latitude and 39o33’ E longitudes. The woreda has 31 kebeles with a total area of 752.27km2 lands and 72,247 overall totals human population.

The alttitude of woreda ranges form 1390-2980m above sea level (a.b.s.l) and predominantly has semi- arid types of climate. The annual rainfall is 913mm and mean minimum and maximum temperature of the center are 13oc and 190c respectively. The topography of the woreda is 89% plain, 4% undulating, 2% valley and 5% is mountainous. The major live stock population in the area are cattle, sheep, goats, chicken and equines are practiced with integration crop production like barely, wheat, bean, pea, little and other types of crops.

2.2. Sampling methods and sample size

The study was conducted at kimbibit Woreda in three representative Kebelles and a total of 150 individual households were selected purposively. These kebelles were selected purposively for the study due to accessibility of road, village chicken production practiced in the area and reliable information gathered to the study.

2.3. Methods of data collection

The data were collected by using both primary and secondary source of data/ the primary data was collected by using questionnaire, personal interview and direct observation. Parameters selected to collect relevant data included under questionnaire are; Educational level of households, flock composition, types of bread, productivity of chicken management practice, feeding system and source of parent stock flock were gathered. By interview parameters like purpose of village chicken, marketing system, health care, and constraints of village chicken were asked. By observation housing system, types of feed offered, number of cocks, pullets and layers were seen. The secondary data was collected from the written document of Kimbibit woreda Agricultural development office.

2.4. Data analysis techniques

The data was analyzed by using SPSS statistical software through simple descriptive statistics like average, and percentage and presented in form of tabulation

3. Results

3.1. Flock composition

The flock composition in the study are is presented in table 1.

Table 1
Flock composition.

Types of chicken	No. of chicken				%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total	
Lavers (>20wks)	90	85	95	270	21.5
Cocks (>20wks)	75	83	77	235	18.7
Pullets (8-20wks)	60	65	69	194	15.5
Cocker's (8-20wks)	75	73	70	218	17.4
Chicks (0-8wks)	110	115	112	337	26.9
Total	410	421	423	1254	100%

The result revealed that the households participated in different age of poultry composition. The main they raised different class of poultry was to substitute generation of breed, for hatching, egg marketing and consumption, and for income generation. In this study chicks population were higher in number, due to some management taken during the first eight weeks. According to the respondent view, during hatching period they care for their chickens by keeping them from predators like cat, eagle (locally called cullulee) and etc.

3.2. Breed types

The breed types in the study are is presented in Table 2.

Table 2
Types of breed in the study area.

Breed types	No. of respondent				Mean	SD	%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total			
Local	40	45	35	120	40	5	80
Cross and local together	6	3	9	18	6	3	12
Exotic and local together	4	2	6	8	4	2	8
Total	50	50	50	150	50		

From this study 80% of the households kept local chicken followed by 12% kept cross and local together and 8% of the households kept exotic and local under the same management. The majority of this chicken were managed under traditional (extensive) system due to lack of availability of feed labor and time shortage to manage tem the respondents choose free scavenging system. Form group discussion held with farmers, woman and children are the members of households take responsibility in chicken production in the study area.

3.3. Source of Parent Stock Flock

Table 3
The source of parent flock in the study area.

Source of parent	No. HHs						%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD	
Hatched	20	22	21	63	21	1	42%
Market	26	27	25	78	26	1	52%
Research center	4	1	4	9	3	1.7	6
Total	50	50	50	150	50	0	100%

The study indicated that producers purchase (bought) their chicken from research center, market and home hatched chicks. The major source of parent stock flock was from market (52%), some was from research center (6%), hatched (42%). This is approximately similar with the report of Hailu (2008) 41.5% were from open markets, 13.3% from government farm and 41.5% were from home breed. DebreZeit poultry research center was major source of parent stock those who obtained from research centers.

3.4. Purpose of village chicken production

Table 4
Purpose of village chicken in the study area.

Parameters	No. HHs						%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD	
Income source	13	14	12	39	13	1	26
Egg laying & hatching	30	32	28	90	30	2	60
Consumption	7	4	10	21	7	3	14
Total	50	50	50	150	50		100%

This result showed that the main purpose of village chicken production in the study area was for income source (26%), for egg laying and hatching 60% and consumption 14%. This is similar with that of Tadelle et al (2003) who reported that the main objective of poultry keeping by villagers were production of eggs marketing and for home consumption. In the study area the majority of respondents have been rearing chicken for egg laying and hatching. This may to replace generation of flock.

3.5. Chicken Husbandry Practice

Table 5
Types of feeds and feeding practice of chicken in the study area.

Parameters		No. of HHs						%
		Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD	
Source of supplementary feed	Farm produced	47	50	44	141	47	3	94
	Purchased	3	3	3	9	3	0	6
Feed used as supplementation	Wheat	35	33	37	105	35	2	70
	Barely	12	10	8	30	10	2	20
	Corn	5	6	4	15	5	1	10
Methods of feed provision	Using feeder	7	9	11	27	9	2	18
	Spread on ground	41	40	42	123	41	1	82

Under traditional management system, the major feed source of chickens scavenging feed source consisting of insets, grass and harvest left over's indicating that village chicken production system was friendly within the environment in the study area. As shown above, table the majority of respondents were depend on supplementing wheat (70%), barely (20%) and only 10% of respondents provide corn for their chickens. This may due to on is not produced in the study area. The result illustrate that village chicken producers have better initiation about poultry feeding system. Even if, the production system is extensive, this feed supplementing important to improve the productivity of chickens. Generally, good supplementation accelerates growth rate, fertility weight of chicken and avoid disease occurrence.

3.6. Housing system

Housing is very important to keep chicken from predators at night and day time. The type of houses of village chicken are shown in the table 6.

Table 6

Housing practice of local chicken in the study area.

Housing System	No. of respondents				Mean	SD	%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total			
Near outside house	7	9	11	27	9	2	18
Perch with in the family house	27	28	29	84	28	1	56
Building house for chicken	16	13	10	39	13	3	26
Total	50	50	50	150	50		100%

The majority of respondents 56% were housed their chicken by share perch within the family house and only a few number of respondents 18% were used near outside house for poultry. In the study area the housing of village chicken production were the same house with the people over night to protect from predators, which attach chicken during night time. This result agrees with Meseret (2010) who reported that chicken confined within family house during night time and released for scavenging early in the morning. So this result illustrated that respondents were not have enough knowledge about importance of constructing house. So they need assistant of professionals (expert) how they construct house for their poultry and why it is important.

3.7. Production and reproduction performance of village chicken

The average production and reproduction performance of village chicken in the study area where illustrated in table 7 below:

Table 7

Production and reproduction of chicken in the study area.

Parameter	Adadi Felle	Adadi Matta	Lay Kombolcha	Mean	SD
Average age at 1st egg laying(Month)	6	7	6.5	6.5	0.5
No. of egg /clutch/ hen	13	14	15	13	1
No. of brooding /hen/ year	2	3	4	3	1
No. of egg incubated	10	11	13	11	1.5
No. of chicks hatched	7	9	10	9	1.5
Clutch size	3	3	3	3	0
Hatchability	70%	82%	77%	76.%	0.5

The above table indicates that village chicken in the study area become sexual maturity and laying first egg at an average 6.5 months. The average number of eggs laid per clutch was 13, average number of clutch /hen/ year was 3 times with 76% of hatchability. The average number of chick hatched was 9 and the average number of egg incubated was 11. Farmers in the study area used local chicken for egg incubation. This study is nearly similar with the report of Tadelle etal (2003) a breeding female chicken attain sexual maturity at the age of 6.8 months and the overall mean egg laying performance of hens for the first, second and third higher clutch were 17.0, 20.9, and 24.8

egg respectively. In my result all mean of egg laying performance of hen is less than that of Tadelle etal (2003) report. Because farmers provide supplementation feed only during rainy season. They assume that chicken under scavenging find their feed during dry season from harvest over left.

3.8. Marketing of chicken and eggs

Table 8
Price of chicken and eggs in the study area.

Price of each	Birr					
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD
Cock	72	75	76	223	74.3	2.1
Hen	50	55	57	162	54	3.6
Pullet	36	35	39	110	36.7	2.1
Cockler	34	32	36	102	34	2
Egg	1.75	2.00	2.00	5.75	1.9	0.1

In the above table there were high price variation of chicken and egg in the study area due to festivals, coat color and size of birds. The price of cock, hen, pullet, cockler and egg on average were 74.3, 54,36.7,34 and 1.9 respectively during none fasting and festivals. The product of chicken was sold in sheno town. This market nearest to Debre Brahan and Addis Ababa and road accessibility and transportation is good. So the producer could fetch good price during festivals. According to respondent's answers, the price of chicken and egg is low during rainy season and high during New Year, Ethiopian Easter and etc. this result is line with Fisheha et al (2010) reported that the supply and demand of egg and chicken are not similar throughout the year. One of the functions of keeping village chicken by households is to purchase house consumption materials like salt, onion, kerosene and etc. Generally they engaged in chicken production for the purpose of fetch cash. This is similar with the report of Meseret (2010) small holder village chicken owner sell their chicken and eggs to get income or cash

3.9. Health care of village chicken

Table 9
Types of treatment mechanisms and local name of disease in the study area.

Parameters		No. of respondent						%
		Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD	
Traditional treatment		39	37	38	114	38	1	76
Modern treatment		6	7	8	21	7	1	14
Not used both		5	6	4	15	5	1	10
Local name of disease	Fengel (somba) (NCD)	39	37	41	117	39	2	78
	Other disease	11	13	9	33	11	2	28

In this study the producers used modern and traditional treatments for those sick chickens. The most of village chicken households were used traditional treatment (76%) such as tenadam. Feed local alcohol by mixing with Enjera and cut blood vessel those sick chickens. Some of them used modern treatment (14%) they used human related medicine and they take sick chicken to professional man that found around their environment. On the other land 10% of the respondents did not used both traditional and modern treatment due to less attitude forwards chickens. Fiseha et al (2010) reported that traditional treatment is used by the majority of chicken. In this study NCD disease were the common diseases that affect the production of village chicken in the study area.

3.10. Constraints of village chicken production

In this study, disease, predators, lack of professional assistant, lack of improved breed and shortage of feed were the common constraints of village chicken production. However, disease (54%) was the major challenges followed by predators (20%) in the study area. Fiseha (2010) also indicated that NCD is the most prevalence and that devastates village chicken production and the prevalence of NCD chicken mortality are higher at the start of

the main rainy season, ,mainly from April to June. Similarly, Hailu (2008) reported that the main cause of chicken mortality in North – West Ethiopia is found to be disease (82.8%) and mortality is more common in wet season (April – September) than dry season (October – March).

Table 10
The main constraints of village chicken production in the study area.

Constraints	No. of respondent						%
	Adadi Felle	Adadi Matta	Lay Kombolcha	Total	Mean	SD	
Predators	11	9	10	30	10	1	20
Disease	30	27	24	81	27	3	54
Feed shortage	5	6	4	15	5	1	10
Lack of improved breed	2	4	6	12	4	2	8
Lack of professional Assistance	2	4	6	12	4	2	8
Total	50	50	50	150	50		100%

Source: own survey

4. Conclusion

The study was describes of the most aspects of poultry production in Kimbibit Woreda. The majority of chickens are raised under traditional management practice with low feed supplementation. The main purpose of chicken production in the study area were for income (26%), egg laying and hatching, (60%) and consumption (14%). The production performance of local chicken were low due to lack of improved breed (8%), feed shortage (10%), predictors (20%),disease (54%) and lack of professional assistant (8%) were the main constraints that reduce productivity of local chicken. The chickens share the same perch room with the family house was (56%) and chicken reach to lay first egg at an average age 6.5 months and average number of clutch /hen/ year was 3 times. Generally chicken in the study area were reared under extensive system within low management and the farmers were used traditional medicine (76%) to treat chicken when they become sick.

Based on the result of this study the following points are recommended. Professional assistant was a major challenge for village chicken production in the study area, so should reduce this challenges by training the village households how to improve chicken productivity. Disease was the major challenges in the study area. So as to reduce chicken mortality and improve productivity, control of disease mainly NCD could be achieved through vaccination and improvement in veterinary and advisory services. The productivity of village chicken was low due to high mortality of chicks and low management. Therefore, to sustain the productivity obtained from village chicken, improving breeding and improved management will increase the production.

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