Open Access

Status of Chicken Production and Marketing Systems in the Dandi District of the West Shewa Zone, Oromia Region, Ethiopia

Abera Teshome Aleli* and Kasahun Bekana Kitila

Department of Veterinary Science and Technology, Ambo University, Addis Ababa, Ethiopia

Abstract

Background: The study was conducted to assess chicken production and marketing systems. Fifty respondents were randomly selected from three purposively selected kebeles based production potential. Data were analyzed using the SPSS version 20.

Results: Among the respondents, 82.78% were male. The age of (53.41%) respondents was between 30-60 years. Most of the respondents (43.88%) can read and write while 25.39% were illiterate. Backyard systems of chicken production were predominantly (69.47%) practiced. Dual purpose Sasso-44 breeds were abundantly reared. The respondents obtained (59.06%) of improved breeds from government hatchers. The overall chicken flock size was 17.6 ± 1.26 per respondents. Scavenging with supplement was the dominant (68.56%) chicken feeding practices, (14.73%) of the respondents used homemade meals, and only (3.93%) of the respondents used purchased commercial feed. Respondents replied that (31.87%) of them kept chicken in separate houses, (32.33%) provided shelter only during the night, and 21.87% shared the same place with residents. The marketing access for chic inputs like feed and drugs were low. The demand for chicken and chicken product was high. Majority of the respondents (74.25%) sold and bought chicken products from local markets. The cost of chickens vary based on breeds, size, age, and sex of the chickens hence (80.65-251.4 ETB for improved layers and 72.9-215.57ETB) for local hens.

Conclusion: Generally, coordinated work with all concerned bodies should be manipulated to update chicken production systems, and to enhance productivity.

Keywords: Chicken • Marketing • Production • Status • Scavenging

Introduction

Poultry production in tropical countries is traditional scavenging system. Chickens are the most crucial poultry species [1,2]. Chickens are the most widespread, and almost every rural family owns chickens, which provide a valuable source of family protein, and income in Ethiopia.

The latest estimate for chickens in Ethiopia is 56.05 million which consists of 49.44 million (88.19%) indigenous, 3.62 million (6.45%) exotic, and 3.004 million (5.36%) hybrid chickens respectively. The Oromia Regional state stands first in poultry population with about 19.01 million (33.9%) chickens; West Shewa Zone is among the top three zones producing chicken in the region. In spite of the higher number population of chicken, their contribution to individual households and national income is still meager (2-3%). The annual growth rates in egg and meat output were estimated at about 1.0 and

2.6% as compared to the sub-Saharan African countries, 5.7 and 6.8%, respectively [3,4].

Poultry production has a significant economic, social, and cultural benefit and plays a significant role in family nutrition in developing countries. Proportional contribution of poultry to the total animal protein production of the world by the year 2020 increased to 40% in developing world [5]. Traditional chicken smallholder farmers sometimes keep poultry for cultural and religious purposes related to the color of a chicken and the season. Some families keep poultry to meet immediate cash needs, while others hold them to meet social obligations such as gifts during weddings.

The Ethiopian indigenous chickens are characterized by slow growth, late maturity, and low production performance. The mean annual egg production of indigenous chicken is estimated at 60 small eggs with thick shells and deep yellow yolk color. An egg laying period and number of eggs laid per period are to some extent higher in urban than in rural areas.

*Address for Correspondence: Abera Teshome Aleli, Department of Veterinary Science and Technology, Ambo University, Addis Ababa, Ethiopia, Tel: 251946379170; E-mail: abera0989@gmail.com

Copyright: © 2023 Aleli AT, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Received: 01 August, 2023, Manuscript No. JVST-22-84582; Editor assigned: 03 August, 2023, PreQC No. JVST-22-84582 (PQ); Reviewed: 17 August, 2023, QC No. JVST-22-84582; Revised: 23 March, 2023, Manuscript No. JVST-22-84582 (R); Published: 31 March, 2023, DOI: 10.37421/2157-7579.2023.14.167

Productivity of local scavenging hens is low, not only because of low egg production potential but also due to high chick mortality. Around 40%-60% of the chicks hatched die during the first eight weeks of life, mainly due to disease and predation [6,7]

It is believed that nutritional status and income levels of rural populations could be enhanced through improved productivity of local chicken populations. However, compared to improved chicken breeds, the general performance of local chicken populations is low. Such situation can be changed if the low genetic potential of local chickens is upgrading through crossbreeding programs with improved chicken breeds. Several studies have evaluated the egg production potentials of crossbreds between local and exotic chicken genotypes with variable results under on-station conditions [8,9].

To improve chicken productivity, different breeds of exotic chickens (Rhode Island Red, Australop, New Hampshire and White Leghorns) were imported to Ethiopia in 1950's. Then higher learning institutions, research organizations, ministry of agriculture and, non-governmental organizations have disseminated many exotic breeds of chicken to rural farmers and urban-based small-scale poultry producer. To improve the performance of local chicken, additional exotic breeds (White and Brawn Leghorns, Rhode Island Red, New Hampshire, Cornish and, Light Sussex) were imported. Improved chicken breeds require high input and thus promoting them is possible if and only if farmer's production potential improved like access to market, transportation, veterinary products, and timely availability of replacement new stock using high-yielding breeds cannot be a sustainable option for improving village poultry [10].

It is difficult to design and implement chicken-based on development programs that benefit rural people without understanding village chicken production and marketing systems. Sympathetic of village chicken operation and market structure is a prerequisite for the development of marketing system.

Objectives

General objective: To assess the production and marketing systems of chickens in the study area.

Specific objectives: To study the production system of chicken in Dandi district.

To assess chicken marketing systems.

Materials and Methods

Description of the study area

The study was conducted in the Dandi district, the west Shewa zone of Oromia regional state, Ethiopia. Dandi is located 78 km from Addis Ababa in the western direction and has an altitude ranging from 1600 to 3268 meters above sea level. A mean annual temperature of the area varies from 9.323.8°C. A district has 500-1172 mm annual rainfall. It has highland (71%) and midland (29%) agroecologies. Around 114,176 chickens are found auto, of which 108,468 are local breeds and 5,708 are improved/exotic breeds (Dandi community Livestock, and Fishery Development Office, 2019).

Data collection

Household selection and sampling techniques: Three kebeles were purposively chosen based on chicken production potential and accessibility. Consequently, Dano Ejersa Gibe, Yubdo Laga Batu and Gare Arera kebeles were selected from the study district. The producers who own either local or improved chicken were listed, and taken as a sampling frame. A simple random sampling technique was applied to choose respondents from sampling frame. Hence a total of 50 respondents (20, 17 and, 13 respondents from Dano Ejersa Gibe, Yubdo Laga Batu and Gare Arera, respectively) randomly designated because the target population in each study kebeles varies, as indicated in Table 1. It is because of this that an unequal proportion of the sample size was taken to obtain representative sample.

Sample size determination: The total households included in the study kebeles were determined according to the formula of Bowley.

Study area		Fo	rmula	Remark
District	Kebeles	Bowley: n=nNi/N		i=1,2,3
		Target population	Sample size	n: sample size
	Dano Ejersa Gibe	602	20	Ni: population size of the ith strataand
Dandi	Yubdo Laga Batu	504	17	N: population size
	Gare Arera	394	13	
	Total	1500	50	

Table 1. Sample size determination.

The sources and methods of data collection: Both primary and secondary data were used for this study. Secondary data were collected from livestock and fishery development office like report, journals, magazines and books.

Primary data were collected by formal interview methods using semi-structured questionnaires. Consequently socio-characteristics of the respondents; chicken flock size, flock structure, breeds of chickens available, production systems, available chicken feed resources, methods of feeding, and marketing system were collected. The data analysis: The collected data were entered into a Microsoft excel spreadsheet and analyzed using the Statistical Package for Social Science (SPSS) version 20. Descriptive statistics such as percentages, mean, and standard error was used to present the data

Results and Discussion

Household profile of the respondent

The household profile of the respondents in the study areas in terms of gender, age, and educational status were presented in Table 2.

Gender and age of the respondents: The result of the study revealed that among the respondents, 82.78% were male and 17.22% were female. This difference might be due socio-cultural background that females were rarely get interviewed that suspect males are more confident and good sources of information. The other reason might be due to workload on women (caring children, cooking, and nursing whole families). Regarding the age of the respondents, (53.41%) of them was within the age group of 31-60 years. This age group indicated that most of the respondents were in the productive age and could undertake chicken management.

The educational level of the respondents: The educational status of the respondents ranged from illiterate to those who completed university degree. Out of the total sample household (Table 2), 26.71% of the respondents attended elementary school and 25.39% of the respondents were illiterate. Nearby 33.33 and 10.35% of the literate respondents can read and write (attained adult education) and joined high school, respectively. It was observed in the study areas where farmers were educated, the use of modern poultry products and consumption was high. This indicated that education influenced the adoption of modern agricultural techniques in general and that of the poultry sector in particular.

Variables (%)		kebeles			
		D/E. Gibe (n=20)	Y/L Batu (n=17)	Gare area (n=13)	Overall mean
Sex of the respondents	Male	86.7	78.34	83.3	82.78
	Females	13.3	21.66	16.7	17.22
	15-30 years old	30	26.75	35.6	30.78
	30-60 years old	55.6	50.24	54.4	53.41
	above 60 years old	14.4	23.01	10	13.81
	Illiterate	35.5	23.7	21.6	25.93
Educational level of the	Able to read and write	21	52.01	27.5	33.33
respondents	Attained grades 1-4	10.5	6.3	0	5.6
	Attained grades 5-8	23.4	8.3	39.2	21.11
	Attained grades 9-10	5.6	6.5	11.8	7.96
	Attained grades 11-12	4.03	3.16	0	2.39

Table 2. Results of gender and age of the respondents.

Chicken flock size and structure in the study district

The overall mean chicken flock size 17.6 ± 1.26 SD. chickens per household ($13.7 \pm .93$ SD local + 4.53 ± 0.33 SD improved chickens per household) were reported by respondents in the study areas (Table 3). The flock size in the current study was relatively reliable to the reports of and. Contrary; it was higher than those Mekonnen G. The high chicken flock kept per households which might be resulted from high population growth and shortage of grazing land for other livestock production in the stud area. The respondents reported that they engaged in chicken rearing to get more income from selling of chicken and chicken product to buy grain for the family consumption, cover school payment, paying land tax, purchasing cloth for their family, and other expense.

Table 5 presents the chicken flock structure in the study district. The flock structures were dominated by layers (35.4%), chicks (25.97%), pullets (18.63%), cocks (11.05%), and cockerels (8.43%) was reported in the order of importance for local chickens. Chickens flock structures of improved breed was dominated by layer (61.55%) followed by pullet (16.81%), cockerels (8.46%), chicks (7.5%) and cocks (5.68%). The results of current study agree with the result. It was observed that majority of the chicks (71.8%) were local compared to exotic (28.2%). That might due to the type of incubation they used in the study area (as there is no access to electric power they used natural brooding). Table 5 showed that higher percentage of Flock sizes of local chickens was kept per household.

Chicken types		Flock sizes and structure	
		Flock structure (%)	Flock size (Mean+SE)
Local chickens	Chicks	23.47	3.07+0.40
	Pullet	18.88	2.45+0.25
	Layers	36.31	4.74+0.56
	Cocks	12.5	1.63+0.09
	Cockerels	8.84	1.16+0.16
Total		100	13.07+0.93
mproved chickens	Chicks	5.15	0.23+0.086
	Pullet	22.79	1.03+0.13
	Layers	54.17	2.34+0.17
	Cocks	10.54	0.48+0.08
	Cockerels	9.8	0.44+0.091
Total		100	4.53+0.33

(%): percentage, Se: standard error.

Table 3. Chicken flock size and structures in the study district.

Sources of improved/exotic chicken breeds

The current result revealed that the majority (60.36%) of the household adapted to improved chicken production. However considerable percentages of the surveyed respondents were not assumed to improve chicken production. That was because of their higher need like feed, medical drug, and is susceptible to diseases as compared to local chicken. As the current result indicates, out of the improved chicken adopter, about 48.5% of the respondents were continuously adopted to improved chicken rearing while 11.86% of

the respondents discontinuously adapted to improved chicken production.

Regarding accessibility of improved chickens in the study areas, dual purpose Sasso-44 breeds were abundantly reared by the respondents followed by Bovine Brown, Rhodes Island Red, bovine brown and Sasso-44 and White leg horn. Concerning sources of improved chicken breeds, the majority (59.06%) the farmers in the study district were obtained improved chicken from government/private hatchers. Whereas, 31.81% of the respondents purchased from local markets and 9.13% of the farmers were donated by different NGOs (Table 4).

				aonacoa og antoroner	
Variables (%)		D/E/G (n=20)	Y/L/B (n=17)	G/A (n=13)	Overall (n=50)
Did you adapted to exotic	Yes	62.64	77.89	40.56	60.36
chicken?	No	37.36	22.11	59.44	39.64
Adoption level	Continuously	60.4	51.11	34	48.5
	Discontinuously	2.24	26.78	6.56	11.86
	B/B	31.1	12.2	24.09	22.46
	D/P/S-44	43.3	49	50.32	47.54
	B/B/S	10	2.2	0	4.07
	R/I/R	15.6	34.4	0	16.67
	B/B and S-44	0	2.22	25.59	9.27
Sources of improved	local market	27.1	29.9	38.44	31.81
chicken	hatchery	57.9	63.3	56	59.06
	NGO	15	6.7	5.56	9.13

B/B: Bovine brawn; B/B/S: Bovine brown and Sasso-44; D/E/G: Dano Ejersa Gibe; D/P/S: Dual purpose Sasso; G/A: Gare Arera; (%): Percentage; R/I/R: Rhodes Island Red; White leg horn, Yubdo Laga Gibe.

Table 4. Level of adoption and sources of improved chicken.

Management systems of chicken in study areas

The chicken's production systems in the study areas: In the study kebeles, the dominant chicken production system (69.47%) was a free range or extensive systems. Most of the farmers still followed and practiced the traditional ways of production. This result differs from the finding. Who concluded that production system in the study area was totally pervasive? It is due to the difference population or flock structure, and type of breed they used, while that of in Getu and Birhan only local chicken present. Chickens managed mainly on free ranging, utilizing various feed sources searching to their own in the field, with conditional feed supplementation. During the rainy season mostly the chickens were fed different types of insect, worms and leaves of different vegetables and grasses sown at the garden because there is shortage of grain yet for human being. The input offered for the chickens and the output harvested was low. The quality and quantity of the products obtained from extensive system of production were also poor compared to the semi-intensive or intensive chicken production systems. However, about 24.83 and 5.7% of the respondents were kept chickens semi-intensively and intensively, respectively. The result of type of house used in the study area was indicated in Table 5. Accordingly 21.87% share the same house with people, 31.87% constructed separate house for their poultry, and 32.33% provide shelter only during night, 9.7 use kitchens and the rest of 4.44% rest under roof.

Feeding, watering and housing systems: The feeding, watering and housing systems provided for chickens in the study areas were presented in Table 5. The current study result revealed that, about

68.56% of the respondents was practiced scavenging with supplements feeding systems in the study areas. However, 14.73% of the respondents were used homemade feed as a source of chicken feed followed by only scavenging systems. As the respondents mentioned, only 3.93% of the respondents were provided purchased commercial feeds for the chickens.

Regarding watering systems, in the study areas, about 51.54% of the surveyed respondents were offered water in the form of free access for the chickens. On another hand, 22.93% of the interviewed respondents were provided water for chickens during morning and evening while 12.23% of the questioned respondents were supplemented water for the chicken's only morning time. Higher percentages of the water provided for chickens were sourced from river followed by pond, tap and whole water. Relating to housing systems, the majority (32.33%) of the respondents were providing only night shelter for their chickens. Whereas, about 31.87% of the asked respondents were kept chicken in separate house constructed for poultries. On another hand, 21.87% of the respondents were responded as they share the same house with chickens. However, insignificant percentages of the interviewed respondents were kept their chickens on perch made under the roof. In the study areas, the major chicken diseases identified by the respondents were New Castle Disease (NCD), Fowl Typhoid, Marek's disease and Gumboro according their accessibility. Among to the identified chicken diseases, New Castle Disease was highly affecting the chickens followed by Fowl Typhoid. The current finding is in line with that.

Variables (%)		Kebeles	Kebeles				
		D/E /G (n= 20)	Y/L/B (n=17)	G/A (n= 13)	Overall (n= 50)		
Feeding	Scavenging only	12.2	6.7	19.45	12.78		
practice of chickens	Scavenge + supplement	64.4	82.2	59.09	68.56		
	Purchase concentrate	10	1.1	0.68	3.93		
	Homemade meal	13.3	10	20.78	14.73		
Watering Frequency	Free access	56.7	62.2	75.71	51.54		
	Only morning	15.6	11.1	10	12.23		
	Morning and evening	27.8	26.7	14.29	22.93		
Sources of water	Hole water	6.7	22.2	15.44	14.78		
	River	61.1	38.9	56.09	52.03		
	Tap water	20	6.7	20.47	15.72		
	Pond water	12.2	32.2	8	17.47		
United another a	live with producer	35.6	10	20	21.87		
Housing systems	Night shelter only	23.3	33.3	40.4	32.33		
	Separate house	27.8	37.8	30	31.87		
	Kitchen	8.9	12.2	8	9.7		
	Perch under the roof	4.4	6.7	1.6	4.23		
Major chicken diseases	Newcastle diseases	71.1	44.4	51.82	55.77		
	Marek's disease	2.2	13.4	7.89	7.83		
	Fowl typhoid	15.6	42.2	34.09	30.63		
	Gumboro	11.01	0	6.2	5.77		

D/E/G: Dano Ejersa Gibe, D/P/S: Dual purpose Sasso, G/A: Gare Arera, (%): percentage, Y/L/G: Yubdo Laga Gibe.

Table 5. Management practices provided for chickens in the study areas.

Marketing systems

Marketing access for production inputs and chicken products: The analysis made for market access to buy production inputs and sale chicken products were presented in Table 6. As the current result revealed, the majority (70.99%) of the respondents haven't market access to procure chicken production inputs like feed and drug. In the study areas, about 17.33% of the respondents had less market

access to purchase chicken production inputs. In comparison 11.68% of the surveyed households had good market access to procure chicken production inputs. In the study areas, the majority (91.3%) of the questioned respondents had a good market to sell chicken products like eggs and chickens. in contrast, small percentages of the respondents have less market access to sell their chicken products.

Kebeles	Market access	for inputs (%)			Market access for output (%)	
	n	No access	Less access	Good access	Less access	Good access
D/E/G	20	56.67	21.1	22.22	7.78	92.22
Y/L/B	17	80	16.67	3.33	14.4	85.56
G/A	13	76.3	14.22	9.48	3.89	96.11
Total	50	70.99	17.33	11.68	8.69	91.3

Table 6. Market access for production inputs and chicken products.

Places of selling chicken and chicken products: In the study areas, higher proportions (74.25%) of the respondents were sold their chicken and chicken product at village markets, while 11.75% of the surveyed households were sold chicken at doorsteps. Also 7.83 and 3.17% of the producers were sold their chicken and chicken product to whole sellers and retailers, respectively.

Price of chicken and chicken products: The average price of chicken and chicken product is presented in Table 7. The current result revealed that, respondents sold chickens that have different sex, age, size and breeds in the study areas. As result of the analyzed data shows, there was variation of chicken price based on age, sex, size, and breeds. As mentioned in Table 7, the average prices of small, medium and large sized local pullet were 72.9, 140.23 and 169.11 Birr; while the mean prices of small, medium, and large sized improved pullet were 80.65, 175.11 and 199.49 Birr, respectively.

Respondents also revealed that the average prices of small, medium, and large sized local hens were 177.67, 202.34 and 215.57 Birr; whereas, the average prices of small, medium, and large sized

improved hens were 211, 223.22 and 251.40 Birr, respectively. The mean prices of small, medium and large sized local cockerels were 89.1, 155.56 and 240 Birr. Whereas, the average prices of small, medium and large sized improved cockerel were 90.66, 186.33 and 217.56 Birr in the study areas.

Furthermore, the average prices of small, medium and large sized local cock were 270.48, 305.55 and 378.9 Birr; however, the average prices of small, medium and large sized improved cock were 234.19, 352.26 and 412.71 Birr in the study areas. Regarding egg prices, the average age prices of local chicken was 3.5 birr while the mean prices of improved chicken egg were 4 birr. The mean prices of small, medium, and large-sized local cockerels were 89.1, 155.56 and 240 Birr. Whereas, the average prices in small, medium, and largesized improved cockerel were 90.66, 186.33 and 217.56 Birr in the study areas. Furthermore, the average prices of small, medium, and large-sized local cock were 270.48, 305.55, and 378.9 Birr; however, the average cost of small, medium and large-sized improved cock were 234.19, 352.26 and 412.71 Birr in the study areas. Regarding egg prices, the average egg cost of local chicken was 3.5 birr while the mean prices of improved chicken eggs were 4 birr.

Average price of chickens and its product (Birr)				
variables	Breeds			
Size and group of chickens	Local	Improved		
Small pullet	72.9	80.65		
Medium pullet	140.23	175.11		
Large pullet	169.11	199.49		
Small hen	177.67	211		
Medium hen	202.34	223.22		
Large hen	215.57	251.4		
Small cockerel	89.1	90.66		
Medium cockerel	155.56	186.33		
Large cockerel	240	217.56		

Small cock	270.48	234.19	
Medium cock	305.55	352.26	
Large cock	378.9	412.71	
Egg	3.5	4	
Source: (own; from collected and calculate	ed data)		

Table 7. Average price of chicken and chicken product.

Conclusion

The study was aimed for the objective of assessing chicken production and marketing systems in the study sites. In the study areas, large flock sizes of chickens kept per households. As the current finding revealed, the flock structure of chickens was dominated by layers. Most of the respondents assumed improve chicken production in the study areas. As cited by respondents, higher proportions of the respondents were continuously adopted to improved chicken production. The dominant improved chicken breeds in the study areas were Sasso-44 breeds followed by bovine Brown, Rhodes Island Red, bovine brown and Sasso-44 and White leg horn. Higher proportions of the respondents were purchased improved chicken breeds from government/private hatcheries.

In the study areas, backyard/extensive systems of chicken production were predominantly practiced by the respondents. As reported by respondents, the major feeding systems practiced by chickens were scavenging with supplements feeding systems. In the study areas, more than half percentages of the surveyed respondents was offered water in the form of free access for chickens. The water provided for chickens was vastly sourced from rivers. As the current finding shows, the major chicken diseases identified in the study areas were New Castle Disease (NCD), Fowl Typhoid, Marek's disease, and Gumboro according to their accessibility.

Regarding chicken and chicken product marketing systems, the respondents decided the prices of chicken based on the age, breeds, sex and sizes. Comparatively, improved chickens were sold at an expensive price than local chicken breeds in the study areas. As noted from the analyzed data, the majority of the respondents sold their chicken and chicken product at village markets.

performance valuation and chicken products and socio-economic functions of chicken." *Livestock Res Rural Devel* 15 (2003).

- Ajayi, F. O. "Nigerian indigenous chicken: A valuable genetic resource for meat and egg production." Asian J Poult Sci 4 (2010): 164-172.
- Guèye, El Hadji Fallou. "Village egg and fowl meat production in Africa." World's Poult Sci J 54 (1998): 73-86.
- Hellin, Jon, Alison Griffith, and Mike Albu. "Mapping the market: marketliteracy for agricultural research and policy to tackle rural poverty in Africa." Beyond Agarical making markets work poor (2005): 109-148.
- Melese, G and B Melkamu. "Assessment of chicken production under farmer's management condition in East Gojam Zone, Amhara Regional State, Ethiopia." Greener J Anim Breed Genet 11 (2014): 1-10.
- Gebre-Egziabher MM. "Characterization of smallholder poultry production and marketing system of Dale, wonsho and loka abaya weredas of southern Ethiopia." PhD diss., Hawassa University, (2007).
- Meseret, Molla. "Characterization of village chicken production and marketing system in Gomma wereda, Jimma Zone, Ethiopia." An Msc Thesis presented to the school of graduate studies of Jimma University, Ethiopia, (2010).
- 8. Demeke, Tarekegn. "Characterization of village chicken production and marketing systems in Chiro district, West Hararghe zone, Oromia regional state, Ethiopia." *Adv Biosci Bioeng* 8 (2020): 56-62.
- Getu, Addis, and Malede Birhan. "Chicken production systems, performance and associated constraints in North Gondar Zone, Ethiopia." British J Poultry Sci 3 (2014): 27-35.
- Mamo, Wondu, Mehiret Melaku, and Berhan Tamir. "Characterization of urban poultry production system in Northern Gondar, Amhara regional state, Ethiopia." Agric Biol J North Ame 4 (2013): 192-198.

References

1. Dessie, Tadelle, Million Tadesse, Alemu Yami, and Kurt J. Peters. "Village chicken production systems in Ethiopia: 2. Use patterns and **How to cite this article:** Aleli, Abera Teshome and Kasahun Bekana Kitila. "Status of Chicken Production and Marketing Systems in the Dandi District of the West Shewa Zone, Oromia Region, Ethiopia." *J Vet Sci Techno* 14 (2023): 163.