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Chicken Production Constraints in Lume District, East Shoa Zone, Oromia Region State, Ethiopia

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Abstract: The study aimed at chicken production constraints in Lume district, East Shoa Zone, Oromia Region, Ethiopia. Random samplings were employed to select sample kebeles based on chicken population and purposively select respondents. Administrations of pretested questionnaire were employed on three kebeles of 90 respondents' from scavenging chicken keepers and 10 intensive farms keeping exotic chicken were interviewed. The kebele respondents' were categorized in to 1st, 2nd and 3rd strata having 1-10, 11-20 or 21-49 chicken, respectively for scavenging system. About 61% of respondents have separate poultry house other than family dwelling while 39% did, not have separate poultry house other than family dwelling. Disease was one of the constraints (40) and different symptom observed. From total 88.9% of the respondents provide treatment to their chicken whereas 11.1% don't treat their chicken. Poultry feed and nutrition is one of the most critical constraints to poultry production under both the scavenging and intensive farms. Strong efforts have to be made to address constraints and improve the productivity of scavenging chicken in sustainable ways. Increasing productivity of chicken in households belonging to each stratum and focusing on market oriented production with holistic and multidisciplinary extension, research and trainings are important areas of action.

Key words: Chicken Production Constraint · Disease · Intensive · Scavenging · Strata

INTRODUCTION

Village poultry are a valuable asset to local populations throughout Africa and they contribute to food security, poverty alleviation and promote gender equality, especially in the disadvantaged groups (HIV/AIDS infected and affected people, women, poor farmers) and less favored areas of rural Africa where the majority of the poor people reside [1]. In Ethiopia birds are kept for household consumption, sale, reproduction and other social and cultural roles [2]. Rural poultry production contributes over 98% of national egg and over 99% of poultry meat production [3]. The local chickens of Ethiopia are estimated to be over 56.87 million [4] and traditional chicken rearing is practiced by virtually every family. More than 95% of Ethiopian poultry production system consists of local chickens which are traditionally considered to be disease resistant and adaptive to the prevailing harsh environmental conditions. Village chicken production plays a strategic role and occupies a unique position in terms of its contribution to the provision of high quality protein foods and additional income to rural smallholder farming families. Women involved in different village chicken production activities like; cleaning chicken house, provision of supplementary feed, selling of chicken and eggs. Children alone and together with other family members were also found participated in various village chicken production activities like; cleaning of chicken house, selling of chicken & eggs and provision of supplementary feed and water to birds. Men on the other hand, were mostly involved in crop cultivation and other off-farm activities including; shelter construction and taking sick birds to get treatment mainly at district veterinary health office [5].

Rural poultry production suffers from the constraints of disease, insufficient feeding, lack of appropriate housing and inbreeding. If these constraints are removed, productivity would be increased to the direct benefit of the marginal farmer. Chicken mortality accounts for high losses in all production systems. Therefore, ddevelopmental options for improving the productivity of indigenous chickens in the short term should be aiming at improving the basic managerial practices such as health care and providing shelter [6]. Unfortunately the

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productivity of indigenous chicken and the production system at which the indigenous chicken are exposed is little. As a result, the estimate of total number of eggs produced during the year is about 106.57 million [4] which is less than other developing country. This condition calls for a scientific study in the area of scavenging chicken production constraint in Lume district, East Shoa zone of Oromia, Ethiopia.

MATERIALS AND METHODS

Description of Study Area The study was conducted in Oromia regional state; East Shewa zone Lume district. The district is located 70 kms South-East of Addis Abeba.

Sampling Method: Purposive random sampling technique was employed to administer the questionnaires to collect data. The survey was carried out under scavenging and intensive poultry production system constraints. Survey for scavenging poultry production constraints was conducted by stratifying based on number of chicken in the household. Households having 1-10 chicken were first stratum and 11-20 chicken second stratum and 21-49 chicken was third stratum from three *kebeles (Tulu Re'e, Ejere Walkite and Ejersa Joro*) and from each *Kebele* 10 households per strata were selected purposively. Also 10 intensive exotic chicken production farms available in study area were selected purposively and interviewed. Data collection relevant secondary data were collected from various reports and sources including, Lume district office of agriculture & rural development. Primary data were collected intensively through personal and house to house interviews using a well-organized and pre-tested structured questionnaire.

Statistical Analysis: The qualitative and quantitative data were analyzed by SPSS, version 20 [7]. The Duncan multiple range test and LSD were used to locate treatment means that are significantly different. More specifically descriptive statistics and General Linear Model (GLM) were used for this study. Also mean, SD and percentage are statistics summarized.

RESULTS AND DISCUSSIONS

Household Characteristics, The average ages of respondents of household across the three strata are fairly similar (42.97±12.997, 42.30±12.893 and 42.57±13.57) years. Generally, the average of household respondent in the study area was (42.61±12.932) years. This result was lowers than the (46.51±12.05) [8], but higher than the (36.9 and 37.7) [9], respectively. But it is fairly similar with (43±10.9) years [10]. Pertaining to cultivated land size (hectare), the average total cultivated land and owned cultivated land of 1st stratum of per household were significant difference than 2nd stratum but not significant difference from the 3rd stratum. However, there was no significant variation with respect to average rent cultivated land size per household across the three strata. Generally the total own, rent and total cultivated land per household were (1.93±1.34, 1.02±0.78 and 2.49±1.52), respectively. This result is lower than (6.24±1.5, 6.93±10.14 and 13.15±20.9) hectare reported by Markos [8], respectively. But the result was higher than 1.28 hectares and (1.23±1.13) hectare reported by Hassen [11] and Moges *et al* [12], respectively. The result of finding rent cultivated land per household comparable with national average landholding/ household of 1.02 hectare [13].

Chicken Flock Composition and Size Flock Structure: The survey disclosed that the mean indigenous layers, pullet, chickens and total indigenous flock size per household in the strata was significantly varies across the three strata. But the mean number cock and cockerels 3rd stratum was significantly higher than both 1st and 2nd strata. This might be 3rd stratum were produce chicken for market oriented. The overall, the average number of layers, cock, pullet, cockerels, chicks and total indigenous flock size per household were (5.39±3.43, 2.37±1.68, 4.81±5.01, 3.94±2.42, 6.86±5.48 and 15.62±10.17), respectively. This result is higher than the mean chicken flock size/household of cock (0.75±0.67) and cockerels (2.51±1.82) and lower than the mean chicken flock size/household of pullet (5.67±3.52), chicks (8.41±5.09) and total indigenous (22.83±10.60) comparable with mean indigenous layers/hen of (5.50±3.50) reported by Markos [8]. The mean values of chickens in different age category breed difference and proportion of the respondent owning different size of chickens are shown on Table 2. Regarding to the mean exotic flock size per household, the mean exotic layers per household in the 3rd stratum (12.00±15.56) was significantly greater than both 1st (5.00±0.00) and 2nd strata (7.00±00), also the mean exotic layers per household 2nd stratum were significantly greater than 1st stratum, indicating that, to have more number of chicken needs numbers of layers/hens. The mean exotic cocks 1ststratum were significantly higher than 2nd and 3rd strata. Significantly higher mean exotic layers per house hold were obtained in 3rd stratum (7.00±15.56) than 1st stratum & (5.00±15.56) than 2nd stratum and the 2nd stratum were

Table 1: Characteristic of household

Parameters	1st stratum	2nd stratum	3rd stratum	Overall
Age respondent (years)	42.97±12.99	42.30±12.89	42.57±13.57	42.61±12.932
Cultivated land (hectare)				
Owned	2.09±1.39[a]	1.87±1.49[b]	1.84±1.14[b]	1.93±1.34
Rent	1.11±1.12[a]	1.02±0.60[ab]	0.95±0.59 [ab]	1.02±0.78
Total	3.2±1.71[a]	2.89±1.53[b]	2.79±1.35[ab]	2.95±1.52

Table 2: Chicken flock structure and size in the three strata (Mean ± SD)

Parameters	1st stratum	2nd stratum	3rd stratum	Overall
Indigenous chicken				
Hen/layers	2.82±1.47[c]	5.10±2.58[b]	8.07±3.55[a]	5.39±3.43
Cock (>20wks)	1.74±1.10[b]	1.87±1.06[b]	3.39±2.11[a]	2.37±1.68
Cockerels (8-20wks)	3.33±2.52[b]	3.50±1.45[b]	5.76±6.32[a]	4.81±5.01
Pullet (8-20wks)	2.25±0.71[b]	3.21±1.55[b]	5.24±2.83[a]	3.94±2.42
Chicks (0-8wks	3.00±1.36[c]	5.27±2.55[b]	10.74±6.65[a]	6.86±5.48
Exotic chickens				
Hen/layers	5.00±0.00[c]	7.00 ±00[b]	12.00±15.56[a]	8.3±9.66
Cock (>20wks)	3.00±0.00[a]	1.00±0.00[b]	1.67±1.16[b]	1.60±1.09
Cockerels (8-20wks)	-	-	-	-
Pullet (8-20wks)	-	-		-
Chicks (0-8wks)	-	-	12.00±00[a]	4.00±00
Cross Chicken				
Hen/layers	1.00±0.00[c]	15.00 ±00[a]	4.00 ±2. 83[b]	5.00±5.96
Cock (>20wks)	2.00±0.00	1.00±0.00	1.00 ±0.00	1.33±0.58
Cockerels (8-20wks)	-	3.00 ±1.00[a]	-	1.00±0.33
Pullet (8-20wks)	-	4.00±0.00[a]	-	1.33±0.50
Chicks (0-8wks)	1.00±0.00[a]	-	-	0.33±0.33
Total chickens				
Hen/layers	2.87±1.53[c]	5.67±6.31[b]	9.13±4.75[a]	5.89±4.36
Cock (>20wks)	1.90±1.17	1.80±1.04	3.00 ±2.13	2.29±1.65
Cockerels (8-20wks)	3.33±2.52[b]	3.40±1.35[b]	5.76 ±6.32[a]	4.67±4.84
Pullet (8-20wks)	2.25±0.71[c]	3.25±1.52[a]	5.24±6.32[a]	3.94±2.39
Chicks (0-8wks)	3.00±1.36[c]	5.27±2.55[b]	11.12 ±6.58[a]	7.15±5.65

The values in the same row followed with different letters are significantly different ($p<0.05$) while values followed by the same letter are not significantly different ($p \geq 0.05$).

(2.00±0.00) than 1st stratum. Similarly, significantly greater mean exotic cock per household was obtained in 1st stratum (2.00±0.00) than 2nd stratum and (1.23±1.16) than the 3rd stratum. The mean exotic pullet and cockerels across the three strata and chicks in the 1st and 2nd strata was not significant number observed. Overall, the mean exotic layers and cock and total exotic flock size per household were (9.00±9.66, 1.80±1.09 and 7.13±7.62), respectively.

Pertaining to the mean crossbred chickens flock size per household, the mean crossbred layers flock size per household 2nd stratum (15.00±0.00) was significantly higher than 3rd (4.00±2.83) and 1st strata (1.00±0.00) and the mean crossbred layers flock size per household 3rd stratum (4.00±2.83) was significantly higher than 1st stratum (1.00±0.00). The mean crossbred cock chickens flock size per household of no significantly across strata. The mean crossbred cockerels and pullet in the 1st & 3rd strata and chicks 2nd & 3rd strata were no number mean observed. The overall mean crossbred layers and total cross bred flock size per household were significantly different among the three strata. The survey revealed that the overall mean of layers, cock, cockerels, pullet, chicks and total flock size regardless of breed were (5.89±4.36, 2.29±1.65, 4.67±4.84, 3.94±2.39, 7.15±5.65 and 16.76±10.22), respectively. This result was fairly comparable overall mean chicken flock size per household of layers (6.00±3.60) and higher overall mean chicken flock size per household of cock (0.95±0.75) & cockerels (2.81±0.75) but lower overall mean chicken flock size per household of pullet (6.17±3.59), chicks (9.44±4.95) and total flock size (24.35±10.69) reported by scholar [8]. The result of the study discovered that the average flock size per stratum varied mainly due knowledge has to chicken production, economic status of chicken owners, availability of feed resource and the occurrence of diseases & predators.

Constraints of Chicken Production: Diseases are the major constraints to the production of scavenging chickens which was rated (40%) of the respondents followed by chicken at chick age need high management (16%), lack feed (9%), lack improved local chicken (8%), absence of medicine (6%), lack of regular vaccination (5%), predator (4%), lack of market chain and lack government favor chicken producers are equal (3%) and lack of capital, high management especially at chick age, lack exotic chicken and weak extension account equally (1%). The result similar with Bogale [14] reported that disease (48.8%) shortage of supplementary feed (19.4%) were the most important chicken production constraints. Diseases (60.13%), feed shortage (20.59%), predators or theft (19.8%) were most commonly important constraints of chicken production reported by Addisu, *et al* [15]. The study conducted by Solomon *et al.* [16] also seasonal outbreak of disease and predators were major factors cause loss of chickens and lack of credit services, limited skill of management practice and low productivity of local chicken were outlined as major constraints of chicken's production. The household interviewed listed the symptom observed and the mostly observed symptom were standing, not feeding & drinking and yellow diarrhea (34%), followed by standing, not feeding & drinking, dullness and white diarrhea (26%) and dullness, yellow & green diarrhea (21%). In costrast that, chicken owner farmers, occurrence of white/yellow color diarrhea (54.6%), dullness of birds (locally termed as *'kufif malet'*) (24.4%) and poor appetite (18.9%) were some of the main symptoms of village chicken when infected with Newcastle disease [12]. Sixty percent of the respondent said name of disease Newcastle disease *fengil* whereas 39% said the name of the disease I do not know the name. These results were lower than Moges *et al*. [12] finding that Newcastle disease (NCD) was the most prevalent and economically important (98.2%) disease problem affecting village chicken production in the study district. But similarly, Hassen [11] reported that the major causes of death for local chicken ecotypes in North-West Amhara were seasonal outbreaks of chicken disease, especially Newcastle disease diarrhea. Mostly affected age group of chicken were significantly different ($p<0.05\%$) across the strata. Adult were mostly affected 1st stratum (80%) than lower from 2nd (60%) & 3rd strata (60%) and intensive production (60%). All age group chicken get at once the disease 2nd stratum (33.3%) were higher than from 1st (13.3%) & 3rd (20%) strata and intensive (20%). According to response of the household summer (July-Sept) (54.5%) were the season mostly affected by disease. This result is somewhat comparable with the finding of EEA [13] identified that NCD affected every chicken breed and age group. However, hens lying and incubating eggs were the most affected and sensitive age groups in the flock. Chicken owners also reported that the prevalence of the disease (NCD) and chicken mortality were higher at the start of rainy season, mainly April to June. The survey indicated that 88.9% of the respondent treats their chicken.

The overall respondents treat their chicken by traditional drug and drug from veterinarian pharmacy (74.4%), drug from pharmacy (13%) and traditional drug methods (10%). From traditional drug, the respondent used mainly used *neem* leaf, local alcohol ('*Areke*'), green paper, white onion, hyena onion and Almond '*senafich*'(35.6%) followed by *neem* leaf (25.6%) but (97.8) of the respondent not used vaccination chicken, (72.2%) of the fate of the chicken was died. Provision of a mixture of local alcohol ('*Arekie'*), lemon and onion to sick birds against NCD was the most widely used (42.9%) type of traditional treatments and some plant materials (herbs like *'semiza'* &*'endod'*) (33.2%), use of tetracycline capsule (11.8%) and cutting around the wing of chicks to remove 'infected' blood (7.1%) reported by Moges *et al*. [12]. The survey revealed that the cause of disease were come from different angle, the majority source of infection chicken disease was fluctuation of season (35.6%), brought from neighbors (25.6%) the source of infection chicken disease unknown (12.2%). It is similar finding have been reported by Markos [8] revealed that source of infections were either of chicken from market (26.2%), chicken from neighbors (2.9%), both chicken from market and neighbor (2.3%) contaminated feed (dead chicken body and some waters pet animals, wild birds and domestic chicken (1%) and dirty poultry house and non-chemical spraying properly (0.5%) while the remaining 64.7%of the respondent replied that chickens infections arose unknowingly. Also similarly, Bogale [14] reported that incoming flock (chicken from market) (51.4%), own flock (3.5%) and flock from neighbors (20.8%) were found to be major sources of chicken infections in Fogera district. The survey also indicated that control free movements of chickens were not significant difference at study area. (83.3% and 16.7%) of the respondent not control free movement and control free movement, respectively. However, this result is higher than from the result of Dana *et al.* [18] who respond that (8.3%) of the households practiced free movement of the chickens during disease outbreak.

Table 3: Chicken production constraints %

Variable	1st stratum	2nd stratum	3rd stratum	Intensive	Total	X^2-test	P-value
Separate poultry house other than family dwelling						7.106(*)	0.029
Yes	19(63.3)	13(43.3)	23(76.7)	-	55(61.1)		
No	11(36.7)	17(56.7)	7(23.3)	-	35(38.9)		
Chicken production constraints						74.444(*)	0.000
Disease	10(33.3)	15(50)	12(40)	3(30)	40(40)		
Lack of regular vaccination	2(6.7)	2(6.7)	1(3.3)	-	5(5)		
Absence of medicine	2(6.7)	-	4(13.3)	-	6(6)		
Lack of market chain	1(3.3)	2(6.7)	-	-	3(3)		
Lack of capital	-	-	1(3.3)	2(20)	3(3)		
Chick need high management	5(16.7)	4(13.3)	7(23.3)	-	16(16)		
Lack feed and knowledge	5(16.7)	1(3.3)	2(6.7)	1(10)	(9)		
Predator	2(6.7)	1(3.3)	1(3.3)	-	4(4)		
Lack improved local chicken	2(6.7)	5(16.7)	1(3.3)	-	8(8)		
Weak extension	1(3.3)	-	-	-	1(1)		
Lack wood to contract house	-	-	1(3.3)	-	1(1)		
Lack Gov't favor chicken producers	-	-	-	3(30)	3(3)		
Lack improved breed chick	-	-	-	1(10)	1(1)		

($p<0.05$) or significant at p (0.05), ns ($p.>0.05$) or insignificant at P (0.05)

Table 4: Occurrence chicken diseases (%)

Variable	1st stratum	2nd stratum	3rd stratum	Intensive	Total	X^2-test	P-value
Is their chicken disease in your area						0.1456 (ns)	0.674
Yes	30(100)	30(100)	30(100)	10(100)	100(100)		
No	-	-	-	-	-		
What symptom shown						90.261(*)	0.000
Dullness. yellow & green diarrhea	7(23.3)	5(16.7)	8(26.7)	1(10)	21(21)		
Green diarrhea and eye swelling	1(3.3)	6(20.0)	1(3.3)	1(10)	9(9)		
Head dawn & standing, not feeding & drinking	2(6.7)	-	-	-	2(2)		
Head down, yellow diarrhea & standing, not feeding & drinking	-	1(3.3)	-	1(10)	2(2)		
Quick died	-	1(3.3)	-	-	1(1)		
Standing, not feeding & drinking & yellow diarrhea	8(26.7)	10(33.3)	13(43.3)	3(30)	34(34)		
Standing, not feeding & drinking, dullness and white diarrhea	11(36.7)	6(20.0)	8(26.7)	1(10)	26(26)		
Yellow diarrhea	1(3.3)	1(3.3)	-	-	2(2)		
Leg problem, neck problem and shrink	-	-	-	3(30)	3(3)		
What is disease name						102.047(*)	0.001
I do not know the name	8(26.7)	11(36.7)	13(43.3)	7(70)	39(39)		
Newcastle disease *fengil*	22(73.3)	19(63.3)	17(56.7)	3(30)	61(61)		
Which age group at mostly affected						97.000(*)	0.000
Young	24(80)	18(60)	18(60)	6(60)	66(66)		
Grower	-	2(6.7)	-	-	2(2)		
Adult	2(6.7)	-	6(20)	2(20)	10(10)		
All age group at once	4(13.3)	10(33.3)	6(20)	2(20)	22(22)		

($p<0.05$) or significant at p (0.05), ns ($p.>0.05$) or insignificant at P (0.05)

Table 5: Season disease outbreak, control, medication, vaccination practice (%)

Variable	1st stratum	2ndstratum	3rd stratum	Total	X^2-test	P-value
Which season/month disease occurs mostly					9.976(ns)	0.266
Autumn (Apr-Jun)	2(6.7)	1(3.3)	2(6.7)	5(6.7)		
Bega (Jan-Mar)	5(16.7)	6(20.0)	-	11(12.2)		
March, April, June & July	-	1(3.3)	3(10)	4(4.4)		
Summer (July-Sept)	17(56.7)	16(53.3)	17(56.7)	50(54.5)		
No have specified season	6(20)	6(20)	8(26.7)	20(22.2)		
Do you ever treat your chicken 2.925(ns) 0.232						
Yes	25(83.3)	26(86.7)	29(96.7)	80(88.9)		
No	5(16.7)	4(13.3)	1(3.3)	10(11.1)		
What is your trial to control disease					14.858(*)	0.021
Drug from pharmacy	8(26.7)	3(10)	1(3.3)	12(13.4)		
Traditional drug methods	4(13.3)	4(13.3)	1(3.3)	9(10)		
Traditional drug and drug from Vet. Pharmacy	18(60)	21(70)	28(93.3)	67(74.4)		
No control measure used	-	2(6.7)	-	2(2.2)		
What is traditional medicine/drug used					16.359(ns)	0.292
Gas and oil with feed	1(3.3)	-	-	1(1.1)		
Green paper	3(10)	2(6.7)	5(16.7)	10(11.1)		
Local alcohol Areke	1(3.3)	2(6.7)	3(10)	6(6.7)		
Neem leaf	9(30)	6(20)	8(26.7)	23(25.6)		
Neem leaf, Areke, green paper, White onion, hyena onion, Almond Senafich	8(26.7)	14(46.7)	10(33.3)	32(35.6)		
Almond sanafichi	-	1(3.3)	-	1(1.1)		
White onion	-	-	2(6.7)	2(2.2)		
None	8(26.7)	5(16.7)	2(6.7)	15(16.6)		

p<0.05) or significant at p (0.05), ns (p.>0.05) or insignificant at P (0.05)

Table 6: Season disease outbreak, control, medication, vaccination practice (%)

Variable	1st stratum	2ndstratum	3rd stratum	Total	X^2-test	P-value
Do you use vaccine					4.091(ns)	0.129
Yes	-	-	2(6.7)	2(2.2)		
No	30(100)	30(100)	28(93.3)	88(97.8)		
What is the sick fate of the chicken					10.675(ns)	0.221
Died	25(83.3)	24(80)	16(53.3)	65(72.2)		
Kill immediately	-	-	1(3.3)	1(1.1)		
Partial recover	5(16.7)	5(16.7)	11(36.7)	21(23.3)		
Recover	-	1(3.3)	1(3.3)	2(2.2)		
Slaughter for home consumption	-	-	1(3.3)	1(1.1)		
Do you control free movement chicken					6.531(ns)	0.163
Yes	3(10)	3(10)	8(26.7)	15(16.7)		
No	27(90)	27(90)	22(73.3)	75(83.3)		
What do think about source of infection disease					25.342(ns)	0.115
Dew	-	2(6.7)	-	2(2.2)		
Brought from neighbors	9(30)	7(23.3)	7(23.3)	23(25.6)		
Come from other animals	-	2(6.7)	2(6.7)	4(4.4)		
Fluctuation of season	10(33.3)	9(30)	13(43.3)	32(35.6)		
Fluctuation of season and dew	6(20)	3(10)	-	9(10)		
From market infected chicken	2(6.7)	-	2(6.7)	4(4.4)		
Genetically	-	-	1(3.3)	1(1.1)		
Lack of water (thirsty)	-	-	1(3.3)	1(1.1)		
Market	-	3(10)	-	3(3.3)		
Unknown	3(10)	4(13.3)	4(13.3)	11(12.2)		

(p<0.05) or significant at p (0.05), ns (p.>0.05) or insignificant at P (0.05)

Table 7: Extantion service %

Variable	1st stratum	2nd stratum	3rd stratum	Intensive	Total	X2-test	P-value
Have you get extension service						6.130(ns)	0.105
Yes	16(53.3)	9(30)	15(50)	2(20)	42(42)		
No	14(46.7)	21(70)	15(50)	8(80)	58(58)		
Extension or training who provide						148.036(*)	0.000
DA	16(53.3)	10(33.3)	13(43.3)	1(10)	40(40)		
NGO	-	-	1(10)	-	1(1)		
Private	-	-	1(3.3)	1(10)	1(1)		
Research center	-	-	-	-	1(1)		
Not get	14(46.7)	20(66.7)	15(50)	8(80)	57(57)		
Where do get the training/extension						148.036(*)	0.000
Agriculture office	3(10)	2(6.7)	7(23.)	-	12(12)		
Farmer training center	12(40)	10(33.3)	15(50)	-	37(37)		
Kebele meeting	7(23.3)	4(13.3)	-	-	11(11)		
House to house	6(20)	-	2(6.7)	1(10)	9(9)		
Research center	-	-	1(3.3)	1(10)	2(2)		
Not get (none)	2(6.7)	14(46.7)	6(20)	8(80)	30(30)		
How frequently do get the extension						42.795(*)	0.010
Every day	2(6.7)	1(3.3)	6(20)	-	9(9)		
Every week	-	14(46.7)	-	-	14(14)		
Every 15 day	-	2(6.7)	-	-	2(2)		
Every month	-	4(13.3)	2(6.7)	-	6(6)		
Every 3 months	2(6.7)	1(3.3)	4(13.3)	-	7(7)		
Every 6 months	12(40)	6(20)	9(30)	2(20)	29(29)		
Once per year	13(43.3)	1(3.3)	7(23.3)	-	21(21)		
On meeting	2(6.7)	4(13.3)	6(20)	-	12(12)		

*($p<0.05$) or significant at p (0.05), ns (p.>0.05) or insignificant at P(0.05)

Extension Service: The study revealed that (42%) of the respondents confirmed they have discussed about their chicken production related problems with the majority development agent whereas (58%) of the household has not discussed about their chicken production in Table 7, it might be because of the development agent assigned in the area were focus only on crop production. Three development agents per each farmer *kebeles* of most administrative districts of the region, including the study district assigned by ministry of agriculture and rural development has given a due attention towards improving agricultural productivity.

The result was higher than Moges[5] also revealed that (37.5%) of chicken owner farmers getting proper agricultural input, facilities extension service related to village chicken production like; advisory service, trainings, credit & also lack of access to get extension agents (31.8%) and (52.5%) reported by Hassen [11]. There was no significant different at ($p<0.05$) were observed with respect to the proportion of households who have discussed about poultry husbandry across the strata and intensive. The study revealed that in the 1st, 2nd, 3rd and intensive production were (53.3%, 30%, 50% and 20%) were, respectively have get extension service poultry husbandry. The household got the training or extension services were significantly different across the strata. The 1st, 2nd, 3rd strata and intensive production were (40%, 33.3%, 50% and 0%), respectively, discussed about their chicken production at farmer training center (FTC). The frequently get the training or extension were significantly varies across the strata. The respondents was can get the extension every day in (6.7%, 46.7%, 20% and 0%) were 1st, 2nd, 3rd strata and intensive production, respectively, followed by ever six month was (40%, 20%, 30% and 20%) were 1st, 2nd, 3rd strata and intensive production, respectively and once a year 1st, 2nd, 3rd strata and intensive production were (43.3%, 3.3%, 23.3% and 0%) were, respectively. However the extension service available the frequency the household gets the service was low, that needs governmental intervention to increase the frequency and the effective to play role in the food security and increase available protein source food.

Breeding and Culling Practice: The result of the study indicate that farmers practiced control and uncontrolled mating system not significant ($p>0.05$) different across the three strata in the study area. From the overall household uncontrolled mating (81.1%) and control mating system (18.9%). Likewise uncontrolled mating practice of 1st stratum, 2nd stratum and 3rd stratum (90%, 83.3% and 70%)

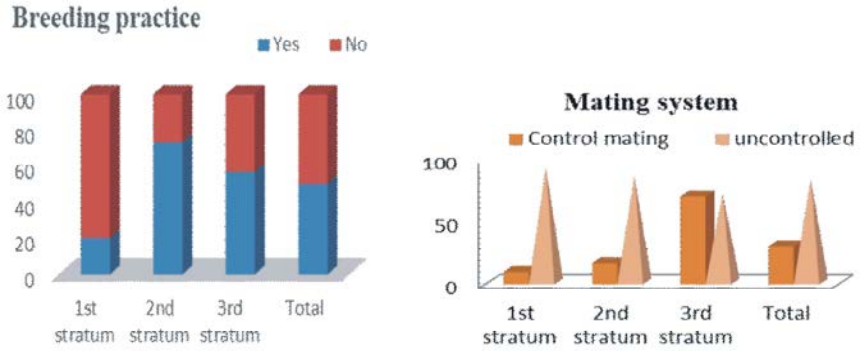

Fig. 1: Breeding practice and mating system

Table 9: Breeding practice

Variable	1st Stratum	2nd stratum	3rd stratum	Total	X^2-test	P-value
Way control mating					12.433(*)	0.053
Culling poor productive	1(3.3)	3(10)	1(3.3)	5(5.6)		
Cull at early age male	9(30)	13(43.3)	14(46.7)	36(40)		
Culling poor productive & cull at early age male	-	4(13.3)	5(16.7)	9(10)		
Not do any	20(66.7)	10(33.3)	10(33.3)	40(44.4)		
Breeding method					22.028(*)	0.001
Improved indigenous	6(20)	18(60)	13(43.3)	37(41.1)		
Importing exotic	-	5(16.6)	4(13.3)	9(10)		
None	24(80)	7(23.3)	13(43.3)	44(48.9)		
Way of improving indigenous					18.438(*)	0.003
Cross Breeding	1(3.3)	3(10)	4(13.3)	8(8.9)		
Lines breeding	5(16.7)	19(63.3)	12(40)	36(40)		
None	24(80)	8(26.7)	14(46.7)	46(51.1)		

*(p<0.05) or significant at p (0.05), ns (p.>0.05) or insignificant at P(0.05

and control mating system 1st stratum, 2nd stratum and 3rd stratum (10%, 16.6% and 30%) of them practice because of scavenging production system. In the survey area, farmers have their own criteria and strategies way of control mating such as cull at early age male (30%, 43.3% and 46.7%) of 1st stratum, 2nd stratum and 3rd stratum, respectively, culling poor productive (3.3%, 10% and 3.3%) of 1st stratum, 2nd stratum and 3rd stratum, respectively and culling poor productive and cull at early (0%, 13.3 and 16.7%), of age male, respectively. Also there a farmer not does any things to control mating (66.7%, 33.3% and 33.3%) of 1st stratum, 2nd stratum and 3rd stratum, respectively. Generally way control mating was significantly different (p<0.05) among the strata, in the study area. The result was similar with Addisu *et al*. [15] revealed that (89.2%) of village chicken owners had uncontrolled natural mating system while (10.79%) of them had practice mate control of the flocks though their retaining best indigenous or exotic cock with layers (52.79%), preventing mate (24.37%), cull at early age (19.19%) or culling poor productive (3.55%) from North Wallo zone of Amhara regional state. Moreover the result of the studies conducted by Dana *et al.* [18] in different part of Ethiopia revealed that village chicken breeding as completely uncontrolled and replacement stock produced though natural incubation using broody hens. Method breeding and way of improving indigenous was significantly different across the three strata of the study area (p<0.05). Table 9 reveals that majority of respondents in all three strata cull their bird for selling purpose (income) with an overall average of 83.3% in the study area followed by culling for home consumption and income (12.2%) and for only home consumption 3.3%) while a small number of respondents not culling practice (1.1%). The result was fairly similar with Bekerie [19] reported cull their bird for selling purpose (income) with an overall average of 72.3 % in the study area followed by culling for home consumption and income (16.9%) and for only home consumption (9.1%) while a small number of respondents cull their birds to sacrifice for religious rituals from Southwest Showa and Gurage zones of Ethiopia.

CONCLUSION

From survey only (61.1%)a constructed shelter, even if the shelter was not well designed and does not consider age of the chicken. whereas (38.9%) of the households has no any shelter for chicken. From the chicken production constraints, diseases were 40% counted but the vaccine and veterinary service where not easily available in study area. Farmer practices tradition medication for their chicken like gas, oil, white onion, hyena onion, almond (*Senafich)*, local alcohol (*Areke*), *neem* leaf and green paper provide with feed for chicken. In this current study average chicken flock sizes of indigenous, exotic and cross breed chicken per household were (15.62, 7.13 and 6.78), respectively. The chicken populations show decrease in indigenous chicken and increase in exotic chicken and their crosses. This indicates that the households have mix of chicken genotypes which creates favorable condition for unplanned indiscriminate crossbreeding among the variable genotypes.

Recommendations: Governmental and non-governmental intervention on training for both farmer and extension service focusing on disease control, housing, breeding and market entrepreneurship. In the intensive modern poultry farms there is strong need for the setup of input supply system (day old chicks, feed packages and quality, vaccines, medication) through the encouragement of the private sectors.

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