



Study on Management Practices and Constraints of Village Chicken Production in Damot Sore District in Wolaita Zone, Ethiopia

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Abstract

A cross-sectional study was conducted in the Damot Sore district of Wolaita Zone to assess the major constraints and health management activities. A total of 384 households were selected randomly and assessed using a structured questionnaire survey. Accordingly, 90.62% of respondents use the backyard poultry production system and 9.38% semi-intensive. Most of the respondents (47.92%) have completed elementary school followed by college and university (20.83%). From those households, 56.25% purchased their chicken from government and private hatchery. Regarding the feeding activities, about 28.12% of chicken were scavengers whereas 44.80% were scavenging with the supplementary feed, and only 9.37% processed or purchased feed which contains a high nutritional value and 17.71% were homemade feed. About 2/3 of chicken owners provide supplementary feed for their chickens and 93.75% of the respondent has market access. The other 6.25% has no access to the market and sold on holidays or festivals. Only 27.08% of the respondents vaccinate their chickens and only 38.54% use traditional and modern drugs for deworming. Newcastle (22.92%) vaccine is the most frequently used vaccine in the area. Most respondents (89.58%) did not get the extension service from the health center and 93.75% of them didn't get the training about production to improve breeding and increase the sector. The major constraints of chicken production in the study area were disease (34.38%), predators such as cats, dog, rat, and wild birds (18.75%), and lack training on the poultry management practices (17.71%). Thus, practical based and continuous training should be given to the owner on the construction of improved housing, proper feeding activities, and control of diseases and predators.

Keywords: Major Constraints; Poultry Production; Health Management

Introduction

The total poultry population of Ethiopia is estimated to be about 56.53million. The large segment of the country's poultry comprises of chicks (41.35%) followed by laying hens (32.18%). Pullets, cocks, and cockerels are estimated to comprise about 5.85, 5.32, and 3.11 million, respectively. Regarding the breed, 94.31 percent, 3.21 percent, and 2.49 percent of the total poultry were reported to be indigenous, hybrid, and exotic, respectively [1,2].

From that indigenous chickens are largely dominated flock size and have good potential to adapt different agro-ecologies with the

habitual management systems. But they are non-descriptive types and vary in body size, conformation, feathers color, and other phenotypic characteristics. Mostly these large population indigenous chickens are found in traditional production systems. However, they are well adapted to the tropics, resistant to poor management, feed shortages, tolerate diseases, and provide a better test of meat and eggs than exotic chickens [3,4].

The poultry production systems in Ethiopia are categorized into three major production systems: large scale commercial poultry production systems, small-scale commercial poultry production

systems, and village or backyard poultry production systems. The classification is based on some selected parameters such as breed, flock size, housing, feeding, health, technology, and bio-security [5].

Backyard chicken production system is practiced in most rural areas of the country and the objectives of production are for household consumption and as a source of additional income for the household. It covers 95 - 98% of the chicken production system of the country and it is not profitable since it is not market-oriented. It contains small flock size (5 - 20 chickens per household) which are indigenous breed types mostly depend on locally available feed material as a supplement with low health services and other management practices [6,7].

The chicken does not have its own constructed chicken house rather maintained in the main house with the family. Most of the feed sources for chicken are obtained from free scavenging, legumes, cereals, and sometimes there is supplemental feed during feed shortage. The amount given is small and do not fulfill their nutrient requirement. Because of this, their productivity is low. Indigenous poultry breed in this system of production does not produce more than 60 eggs per hen per year [8].

A small-scale commercial production system is characterized by a medium level of feed, water, and veterinary service inputs. This production system modest flock sizes usually ranging from 50 to 500 exotic breeds kept for operating on a more commercial basis common in the urban and peri-urban at the different areas of the country. Within a low bio-security level birds are kept both indoor and outdoor. The source of foundation stock and feed for the most small-scale poultry farms is large scale commercial farms [9].

Vaccinations given in small scale poultry production are against coccidiosis, Newcastle Disease (NCD), Gumboro disease, and others are given by technicians. There are also emerging small scales intensive systems in urban and peri-urban areas; Under this system of production, a small number of exotic breeds of chickens are produced along commercial lines using relatively modern management methods. This activity is being undertaken as a source of income in and around major cities and towns such as the region [10].

Large scale commercial poultry production system is a highly intensive production system involves an average of greater or equal to 10, 000 birds kept under indoor conditions with a medium to high bio-security level This system heavily depends on imported exotic breeds that require intensive inputs such as feed, housing,

health, and modern management systems. It is estimated that this sector accounts for nearly 2% of the national poultry population. This system is characterized by a higher level of productivity where poultry production is entirely market-oriented to meet the large poultry demand in major cities. The existence of somehow better bio-security practices has reduced chick mortality rates to merely 5% [4,11].

Internationally, the largest number of chickens are reared in commercial poultry production systems. But the use of this production system in developing countries like Ethiopia is very rare and is limited to urban areas. It is characterized by dedicated housing and equipment for chickens and a comprehensive feeding program. Even though the poultry production system in Ethiopia is based mainly on the scavenging village production system, there are a growing number of commercial poultry producers. The capacity of commercial poultry producers varies according to the area they are located, technical know-how, and the resources required to start intensive poultry production. Therefore, most commercial poultry production in Ethiopia is comprised of small and medium-scale producers [4].

The local scavenging hens were slow productivity, low egg production potential, high chick mortality which was about 40 - 60%; this all is mainly due to feeding shortage, poor management practice, predator attack, and high disease prevalence. Despite the large contribution of village chicken production to food security in Ethiopian rural households and some towns, there are limited studies [12]. Over several decades, the performance of the poultry sector has been poor. The backyard small-scale chicken production is characterized by low input-output scavenging, with minimal investment in housing, feeding, and health care, and hence weak biosecurity, high offtake rates, and high mortality rates. The system is only partially market-oriented, production being targeted for both household consumption and the open market. The system generally does not involve investments beyond the cost of the foundation stock [13].

Chicken production and consumption provide different functions for the producer as compared to the other livestock production. Among the different functions, the following are the main ones: Immediate source of cash income, Provides meat and egg for household consumption, Contributes for food security and creates employment, Source of organic fertilizer, Requires low initial capital investment, small land, and low labor input, Efficient feed

converters and have a wide range of adaptability for different agro-ecologies, Their product is acceptable by most of the community and the meat and eggs contain, special proteins that allow children to grow strong and their brain to develop [4,14].

Poultry production and management practices in Damot Sore district were characterized by most of the backyard poultry production system and productivity of village chickens poor; due to disease prevalence, predators, and poor management activities. Also, the small size of unimproved indigenous and some exotic flocks per household with the traditional production system. Even though chickens are exposed to the above and other many challenges; there is no study done in the current area. Therefore, the objective of this study was to determine the major constraints and health management of poultry production at Damot Sore district in Wolaita Zone,

Poultry health management and production

Poultry management at the village

Village chickens are the most common type of livestock in many rural areas; almost every household, including those who have few labor resources and little or no land, normally keep some chickens with the following characteristics: Mainly indigenous (local) chickens with low productivity (but sometimes interbred with exotic stock); Few chickens per household (commonly 7 - 10 mature birds), with the daily feed requirements predominantly obtained by scavenging (including household waste and village leftovers); The required investment is minimal, with most of the inputs generated around the home (including the labor inputs) [4]. Chicken production is typically aimed towards home consumption and savings (a living bank) for small expenses such as school fees, accessible protein source, for income and exchange purposes and socio-culturally for hospitality and exchange of gifts to strengthen social relationships [15].

Constraints of poultry production

The major constraints of village poultry production in the different district in the country are predators, diseases, feed shortage, scarcity of the exotic breed (imbalance of demands and supplement of exotic breed from the hatchery), poor housing, sanitation, access of market, and others [16,17]. The main challenges mentioned by the village and sub-city urban poultry production offices were lack of transportation facilities so as to provide a regular technical support to the poultry farmers, High turnover of expertise due to lack

of incentives in motivating the urban agricultural experts and inadequate salary payment [3,14].

Additionally, inadequate on job training for the experts working on poultry production, Less attention given by NGOs (non-governmental organizations) for urban poultry production to work in collaboration with urban agricultural offices in each sub-city, Inadequate involvement of investors to establish poultry multiplication and distribution centers and feed processing plant so as to distribute day-old chicks and pullets with the required number and quality and also poultry feed with the required amount and quality, Difficulties in creating awareness for the urban dwellers to be engaged in poultry farming business due to disease risk and shortage of land, Illegal practices of changing poultry house into living house for renting after getting a license for construction of a poultry house [5].

Diseases

The disease is any abnormality which disturbs the daily movement/activity of an animal by injuring either the internal or external part of the body. If an animal's normal activity/movement is disturbed or decreased by injuring all of either the internal or the external part of the body that animal is called diseased/sick animal. A disease can be spread in various ways: infection from animal to animal, infection from the environment, people can spread disease by clothes or by air, all sorts of materials can spread disease and others [14,18]. The innumerable diseases that can affect a chicken can be divided into three categories: Those prevented by locally recommended vaccines (such as Newcastle), Those prevented by or treated automatically in a good management schedule (such as coccidiosis), Those for which good sanitation and nutrition are the best means of prevention (such as cholera or coryza) [13].

Predators

There are different types of predators such as snakes, rats, dogs, cats, and foxes are the main causes of losses the chickens in the many village levels of the country; especially in young birds [19].

Access to health service

According to the resent study, most of the poultry owners had access to extension services; but some are no access to extension services. Institutional supports like training, extension, and veterinary services were provided by the Sub-city urban agricultural offices, and credit services were also provided by the microfinance of the Sub-city. Most of the households received the training at the

time of starting the poultry farming. All of the poultry farmers got a commercial poultry rearing training before starting the business. The length of training provided to the households was for a few weeks and a few days. The training was provided by the collaboration of the Sub-city urban agricultural offices, micro, and small-scale enterprises, and technical and vocational training colleges situated in the Sub-city [20].

Marketing

The majority of the households covering planned was the most important reason for selling birds. Which are emergency household expenses, culling due to lack of productivity, culling due to sickness, poultry trading as a business, and other purposes. The poultry marketing structure has not been well studied in Ethiopia. The market outlets or channels available to producers are diverse at all markets, although their importance differs across markets. The major channels through which producers/farmers sell their chicken in the markets are direct-sold to consumers and/or to small retails that take the chicken to large urban centers [15].

However, the smallholder farmers do know how the market works and why the price fluctuates and has virtually no information on market conditions. Thus, most farmers sell chickens within their locality. This can attribute to the small number of chickens offered for sale, long distance to the high demanding urban and pier urban markets, and that selling of chickens is occasional and based on prevalent pressing needs of the family. Although local consumers generally prefer the indigenous birds. The high consumption associated only with holy days resulted in the largest take rates from the flock to occur particularly during holidays and festivals. In such circumstances, prices fall dramatically due to the high supply compare to demand [9].

Health care mechanisms

Health care is one management activity of village poultry production to improve chicken productivity. The majority of farmers are using traditional medicine by local herbs such as lemon and ginger with feeds to cure chickens when they are infected. Some use modern medicine with the help of a veterinarian. Farmers using modern medicine were lower probably because of lower veterinarian accessibility and lack of awareness. Health care practices such as avoiding feed contamination, water, and cleaning poultry houses were not practiced well. Which are increase disease condition and poultry to mortality [11,17,21].

Vaccination

The majority of the village poultry owners are did not vaccinate their chicken, some of them are vaccinated their chicken against Newcastle disease, infectious bursa disease, fowl typhoid, and fowl pox [22]. However, three vaccination strategies may be appropriate in different situations: First, routine vaccination program which may take place in areas where the disease is endemic. The aim should be to reduce the effects of the disease (including mortality) and may also contribute to eradication campaigns; Second, an emergency vaccination program is an option during the introduction of infection in a previously unaffected area. This may be used to reduce the impact of the disease in that area and help prevent spread to other areas; Third, preventive vaccination program may be applied wherever a high risk of introduction and further spread of a contagious poultry disease has been identified. Prophylactic vaccination should be applied while the risk of infection exists [4,14].

Biosecurity

Developing and practicing daily biosecurity procedures as best management practices on poultry production will reduce the possibility of introducing infectious diseases. Disease outbreaks (from pathogenic bacteria and viruses) in poultry can spread and significantly affect poultry growing enterprises. The risk of disease developing is influenced by many factors, including the management of litter, feed, and water; disinfection of poultry house; disposal of used litter and dead birds; and the effectiveness of biosecurity measures adopted for people and equipment [23].

Biosecurity measures are very crucial in the poultry production like wearing of protective clothes (Tuta and Boot), gloves and use the footpath in front of the entrance like formalin and braking [24]. Standards for bio-security measures are in progress. There must be an awareness program to farmers' level to update bio-security needs. A clean poultry production system will make hygienic food chain and contribute towards improved production. Bio-security will not only maintains a good environment but also minimize infectious and zoonotic diseases and subsequently enhance public health [25].

Materials and Methods

Study area

The study was conducted in the Southern Nations, Nationalities and Peoples Region of Damot Sore district in Wolaita Zone, Ethio-

pia from November 2019-June 2020. Damot Sore is bordered on the southeast by Sodo Zuriya, on the West by Kindo Koyesha, on the Northwest by Boloso Bombe, and the North by Boloso Sore. Damot Sore was separated from Boloso Sore district. The climatic condition is stable with temperature variation between 24 and 30°C all years round. The average rainfall is 1350 milliliters per year [26].

Study population

The study population included in the study were residents who live in the selected Damot Sore district of Wolaita Zone with different socio-demographic characteristics. This study includes individuals of both sexes, different age categories, different religions and occupations, different marital statuses, and those which were found on different educational levels. Besides, the target populations were interviewed with specific questions related to management practice and constraints of extensive poultry production in selected districts of the study area.

Study design

A cross-sectional study was carried out from November 2019-June 2020 to assess the management practices and constraints of extensive poultry production in Damot Sore district of Wolaita Zone. Accordingly, data on major constraints such as disease, health management, feeding, housing, and other challenges of village poultry production at Damot sore district in the Wolaita was collected using a structured questionnaire.

Sampling method and sampling technique

The study populations in each village was randomly selected and interviewed. The sample size required for the study was determined using the formula described by Thrusfield [27]. Moreover, using an estimated prevalence of 50%, a 95% confidence interval (CI), and a 5% precision or accuracy level, the sample size was calculated to be 384. The following formula was used to determine the sample size.

$$N = \frac{(1.96)^2 P_{\text{exp}} (1 - P_{\text{exp}})}{d^2}$$

Where, N= is the required sample size, P_{exp} = is the expected prevalence of mastitis, and d^2 = is the desired absolute precision which is 5%.

Accordingly, a total of 384 study participants who engaged in poultry production were randomly selected equally from each village (96 respondents) and interviewed. This size was proportion-

ally allocated to the four villages. During the study period, only those farmers who owned chickens and are willing to participate in the study were considered.

Method of data collection

A structured questionnaire was prepared and used to collect farm information. The collected data during the actual interview was supported by farm observations including records and discussions. The questionnaire was properly translated to the local language 'Wolaitgna' during the interview. Besides, they were briefed about the objective of the survey and asked for their consent before the interview was commenced. The questionnaire includes the purpose of keeping poultry, constraints, feeding, watering, health condition, egg production, and egg/meat marketing.

Data management and statistical analysis

The questionnaire data were entered into the Microsoft Excel spreadsheet and imported to STATA version-13 statistical software for statistical analysis. Descriptive data analysis was employed in summarizing the data regarding the prevalence of tick isolated in cattle and associated risk factors including age, sex, body condition, and seasons of the study period. Finally, the result was organized in the form of a table and a percentage.

Results and Discussion

Socio-demographic characteristics of respondents

The present study revealed that most respondents (47.92%) have completed elementary school, followed by college and university graduates (20.83%), illiterate (14.58%), and high school level (11.46%). Out of total households, 216(56.25%) purchased their chicken from government and private hatchery, 40.62% and 3.13% were hatching of eggs naturally at home and from agriculture research center respectively. According to Assefa, *et al.* [17] reported that owners their poultry source by the hatching of the egg at home and purchased from different sources. The results of the discussion made with key informants indicated that most of the respondents were educated, but the poultry production is traditional (Table 1).

Management activities of poultry production

Production system and housing condition

The study revealed that most of the respondents 348(90.62%) used backyard poultry production system whereas 9.38% used semi-intensive. About 192(50.00%) of the chicken owners constructed separate houses for their poultry, whereas 27.08% of

the respondents constructed the same house with other animals, 68(17.71)% provide night shelter only and 20(5.21%) shared the same house with the owner. This result was in accordance with the previous report of Abera and Geta, [28]; Some households keep poultry in the same room with humans, during night time only whereas others kept them separately. Moreover, most respondents

240(62.50%) in the study districts clean their poultry house on daily basis followed by twice a week (19.79%), weekly (16.67%), and cleaning after 6th months with litter (1.04%). This indicate that the back-yard poultry production system is common in the study area and half of the respondents constructed separated houses for their chickens.

Variables	Gununo 01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Level of education					
Illiterate	20 (5.21)	16 (4.17)	8 (2.08)	12 (3.13)	56 (14.58)
Read and write	0 (0.00)	16 (4.17)	4 (1.04)	0 (0.00)	20 (5.21)
Elementary School	36 (9.38)	48 (12.50)	64 (16.67)	36 (9.38)	184 (47.92)
High School	12 (3.13)	4 (1.04)	8 (2.08)	20 (5.21)	44 (11.46)
College and University education	28 (7.29)	12 (3.13)	12 (3.13)	28 (7.29)	80 (20.83)
Source of poultry breeds					
Purchased from hatchery	56 (14.58)	60 (15.63)	52 (13.54)	48 (12.50)	216 (56.25)
Hatching of eggs naturally at home	32 (8.33)	32 (8.33)	44 (11.46)	48 (12.50)	156 (40.62)
From agriculture research center	8 (2.08)	4 (1.04)	0 (0.00)	0 (0.00)	12 (3.13)

Table 1: The level of education in the household head and breed adopted.

Variables	Gununo 01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Management system					
Backyard	84 (21.88)	96 (25.00)	88 (22.92)	80 (20.83)	348 (90.62)
Semi-intensive	12 (3.13)	0 (0.00)	8 (2.08)	16 (4.17)	36 (9.38)
Housing of chickens					
Separate house	56 (14.58)	40 (10.42)	40 (10.42)	56 (14.58)	192 (50.00)
Share with other animals	24 (6.25)	24 (6.25)	28 (7.29)	28 (7.29)	104 (27.08)
Share same house with people	0 (0.00)	8 (2.08)	8 (2.08)	4 (1.04)	20 (5.21)
Provision of night shelter only	16 (4.17)	24 (6.25)	20 (5.21)	8 (2.08)	68 (17.71)
House cleaning frequency					
Daily	52 (13.54)	80 (20.83)	52 (13.54)	56 (14.58)	240 (62.50)
Twice a week	28 (7.29)	8 (2.08)	20 (5.21)	20 (5.21)	76 (19.79)
Weekly	12 (3.13)	8 (2.08)	24 (6.25)	20 (5.21)	64 (16.67)
After 6 th months with litter	4 (1.04)	0 (0.00)	0 (0.00)	0 (0.00)	4 (1.04)

Table 2: The production system and housing condition for poultry in the study area.

Feeding and watering activities

As indicated in table 3, the feeding activities of the poultry houses showed that 28.12% of chicken were scavengers whereas

44.80% were scavenging with the supplementary feed, only 9.37% processed or purchased feed which contains a high nutritional value and 17.71% were homemade feed. Most chicken owners

provide supplementary feed for their chickens about 66.67% and some were not about 33.33%.

The same result with Gebrewahd., *et al.* [29] reported as more than half of respondents give supplement feed for their chicken. As the respondent who give some types of supplement feed to chicken about 30.21% grain (maize, wheat, etc); 10.42% processed feed; 1.04% frushika, and 25.00% give both grain and frushika. But, remained 33.33% did not give any supplement feed. Similar research conducted by Kibreab., *et al.* [30] and Meskerem., *et al.* (2019)

also reported that feeding the village birds with grain, use home human consumption left overfeed (homemade feed), and others. The sources of water supply for the chicken about 39.58%-hole water, 8.33% river water, 48.96% tap water, and 3.13% use pond water. This also seems with Kibreab., *et al.* [30] reported that major sources of water were river, tap/pipe, and locally constructed underground water (hole water). As the results indicate that most chicken owners (more than 60%) of the give supplement feed for their chickens.

Variables	Gununo 01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Feeding system					
Scavenging only	16 (4.17)	36 (9.38)	24 (6.25)	32 (8.33)	108 (28.12)
Scavenging with supplement	48 (12.50)	44 (11.46)	40 (10.42)	40 (10.42)	172 (44.80)
Purchased feed	12 (3.13)	4 (1.04)	8 (2.08)	12 (3.13)	36 (9.37)
Homemade feed	20 (5.21)	12 (3.13)	24 (6.25)	12 (3.13)	68 (17.71)
Provision of supplementary feed					
Yes	68 (17.71)	56 (14.58)	72 (18.75)	60 (15.63)	256 (66.67)
No	28 (7.29)	40 (10.42)	24 (6.25)	36 (9.38)	128 (33.33)
Type of supplement feed					
Grain	24 (6.25)	24 (6.25)	40 (10.42)	28 (7.29)	116 (30.21)
Processed feed	16 (4.17)	12 (3.13)	8 (2.08)	4 (1.04)	40 (10.42)
Frushika	0 (0.00)	0 (0.00)	0 (0.00)	4 (1.04)	4 (1.04)
Grain and frushika	32 (8.33)	20 (5.21)	8 (2.08)	36 (9.38)	96 (25.00)
Source of water					
Hole water	40 (10.42)	28 (7.29)	36 (9.38)	48 (12.50)	152 (39.58)
River water	0 (0.00)	8 (2.08)	16 (4.17)	8 (2.08)	32 (8.33)
Tap water	56 (14.58)	52 (13.54)	40 (10.42)	40 (10.42)	188 (48.96)
Pond water	0 (0.00)	8 (2.08)	4 (1.04)	0 (0.00)	12 (3.13)

Table 3: The feeding and watering activities for poultry in the study area.

Marketing

The marketing of the poultry and its products at the study area reported at table 4; as about 93.75% of the respondent has market access and 6.25% there was no or poor market access; because it depends on the holy days or festivals. This result the same with Tegegne [22] more than (90%) had good market access and only 5.6% had poor market access to sale eggs and chicken. About 48.96% of respondents selling their poultry products at the village market, 5.21% at local shopkeepers, 22.92% at own doorstep, 3.13% whole seller, and 19.79% of them used at home. The most preferred breed of meat or eggs by the consumers was exotic (17.71%), local (55.21%), and equal at both of the products (27.08%), respectively (Table 4).

Health management

Health care is one of the management types of village chicken production to improve productivity and keep health. About 72.92% of respondents did not vaccinate their chickens to prevent diseases and some of them about 27.08% use vaccines. Some respondents used vaccines depending on the different types of diseases like Newcastle (22.92%), fowl fox (1.04%), and fowl typhoid (3.13%). But most (72.92%) do not know which type of disease occurred and give vaccines. Also according to Woldemichael., *et al.* [31] and Yitbarek., *et al.* [24] reported that Newcastle disease was the most commonly prevalent in the study area and almost all producers did not know the types of disease that occurred in their chicken.

Variables	Gununo 01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Presence market access to buy poultry production?					
Yes	84 (21.88)	96 (25.00)	92 (23.96)	88 (22.92)	360 (93.75)
No	12 (3.13)	0 (0.00)	4 (1.04)	8 (2.08)	24 (6.25)
Market areas for selling poultry products					
Village market	36 (9.38)	56 (14.58)	60 (15.63)	36 (9.38)	188 (48.96)
Local shopkeepers	16 (4.17)	4 (1.04)	0 (0.00)	0 (0.00)	20 (5.21)
Selling at own doorstep	24 (6.25)	20 (5.21)	24 (6.25)	20 (5.21)	88 (22.92)
Whole sellers	4 (1.04)	0 (0.00)	4 (1.04)	4 (1.04)	12 (3.13)
At home use	16 (4.17)	16 (4.17)	8 (2.08)	36 (9.38)	76 (19.79)
Preferred meat/eggs breed type by consumers					
Exotic	16 (4.17)	16 (4.17)	32 (8.33)	4 (1.04)	68 (17.71)
Local	52 (13.54)	56 (14.58)	48 (12.50)	56 (14.58)	212 (55.21)
Both are equal	28 (7.29)	24 (6.25)	16 (4.17)	36 (9.38)	104 (27.08)

Table 4: The marketing methods of poultry products.

About 61.46% of respondents didn't deworm their chicken and 38.54% use the traditional and modern drugs for deworming. most respondents (89.58%) did not get the extension service from the health center and only 10.42% of the respondents get this service. In the study area, most of the poultry owners (93.75%) didn't get

the training about production to improve breeding and increase the sector. However, only (6.25%) of owners got training. This the same result with Hailemichael, *et al.* [15]. Only one-fourth of the households participated in training on improved poultry.

Variables	Gununo-01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Practice of annual vaccination of chicken					
Yes	32 (8.33)	24 (6.25)	20 (5.21)	28 (7.29)	104 (27.08)
No	64 (16.67)	72 (18.75)	76 (19.79)	68 (17.71)	280 (72.92)
Types of diseases vaccine given to the chicken					
Newcastle	24 (6.25)	16 (4.17)	20 (5.21)	28 (7.29)	88 (22.92)
Fowl fox	0 (0.00)	4 (1.04)	0 (0.00)	0 (0.00)	4 (1.04)
Fowl typhoid	4 (1.04)	4 (1.04)	0 (0.00)	4 (1.04)	12 (3.13)
Deworming practice					
Yes	40 (10.42)	36 (9.38)	28 (7.29)	44 (11.46)	148 (38.54)
No	56 (14.58)	60 (15.63)	68 (17.71)	52 (13.54)	236 (61.46)
Access of extension service					
Yes	16 (4.17)	12 (3.13)	4 (1.08)	8 (2.08)	40 (10.42)
No	80 (20.83)	84 (21.88)	92 (23.96)	88 (22.92)	344 (89.58)
Training on poultry production					
Yes	12 (3.13)	8 (2.08)	0 (0.00)	4 (1.04)	24 (6.25)
No	84 (21.88)	88 (22.92)	96 (25.00)	92 (23.96)	360 (93.75)

Table 5: The health management activities.

Major constraints of poultry production

The major constraints of chicken production in the study area were presented in table 6. About 34.38% of most respondents reported that presence of disease, 18.75% were attacks of predators (cats, dog, rat, and wild birds), and 17.71% of respondents lack training on the poultry management practices (i.e. housing condition, feeding and types of feed use for chicken, health care, etc.). These three challenges (disease, predators, and lack of training) were the most common constraints at the study districts.

The results the same as Abera and Geta, [28]; Asresie., *et al.* [19]; and Assefa., *et al.* [17] reported that the diseases, the predators, the marketing, and the market related economic problem as the major problem to poultry production in the study areas. The remaining respondents mentioned the access of veterinary service (12.50%), lack of initial capital (9.38%), lack of marketing and stealing of chicken (3.13%), and source of poultry (one day/day old or 45 days chicks) from the government/private hatchery (1.04%). So that; marketing, health (veterinary) service, and others are minimum or less challenge to the study area. But they are the most important points for the improve poultry production.

Variables	Gununo 01 N (%)	Gununo 03 N (%)	Hancucho N (%)	Ladissa N (%)	Total N (%)
Major Constraints					
Diseases	28 (7.29)	32 (8.33)	28 (7.29)	44 (11.46)	132 (34.38)
Predators	12 (3.13)	16 (4.17)	20 (5.21)	24 (6.25)	72 (18.75)
Lack of marketing	4 (1.04)	4 (1.04)	4 (1.04)	0 (0.00)	12 (3.13)
Lack of veterinary service	20 (5.21)	8 (2.08)	16 (4.17)	4 (1.04)	48 (12.50)
Lack of training	20 (5.21)	20 (5.21)	12 (3.13)	16 (4.17)	68 (17.71)
Lack of initial capital	4 (1.04)	12 (3.13)	12 (3.13)	8 (2.08)	36 (9.38)
Stealing	4 (1.04)	4 (1.04)	4 (1.04)	0 (0.00)	12 (3.13)
From hatchery	4 (1.04)	0 (0.00)	0 (0.00)	0 (0.00)	4 (1.04)

Table 6: The major constraints for poultry production in the study area.

Conclusion and Recommendations

The major poultry production system in the study area was the back yard. At this production system, the chickens are exposed to predators (like a cat, dog, wild birds, and others) and different types of diseases. The feeding activities did not appreciable; because the feeding practice of the processed feed was low or poor. As this results the chicken do not fulfill their nutritional need. The health management activities were very poor due to less practice of deworming, giving annual vaccination, access to extension service, and others. In conclusion, the poultry management system should be improved by modern production systems. Besides, practical based and continuous training should be given on the construction of improved housing, proper feeding activities, and control of diseases and predators. Finally, poultry owners should be creating a strong relationship with the veterinary and extension service center.

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