



Rhode Island Red Poultry Production and Management in Halaba Special Woreda, Southern Ethiopia

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Abstract

This research was studied to assess the production and management system of Rhode Island Red chickens in Halaba special Woreda, southern Ethiopia. For the study 7 Kebeles were selected purposively based on the number and intensity of Rhode Island Red poultry production. Fifteen respondents were selected from each Kebeles purposively based on the experience of RIR poultry production. Thus, a total of 105 respondents were included in the study. The research used both primary & secondary data. The required primary data was gathered using interview, observation while the secondary data used were obtained from written document. The collected data was analyzed by using descriptive statistics. About 78.0% of the respondents were male headed while 22.0% were female headed. From the interviewed respondent about 31.4% completed primary educations. In the study area, chicken production and management system were mainly reared based on cereal crops and household wastes. About 55.2% of the respondents used semi-extensive methods of management system. With regard to flock composition about 42.8% of the Rhode Island Red was layers. The majority (60%) of the respondents used cereal crops, such as wheat, corn, sorghum and etc as a main feed source for their poultry. About 51.4% of respondents supply feed for RIR poultry in addition to scavenging twice per-a-day early on the morning and late in the evening. Majority of the respondents (80%) used non-separated housing system, which they live together with human and livestock. In the study area about 31.4% indicated that disease was the main constraints of poultry production. The study also recommended that in order to increase the production of RIR in the study area improving the management of RIR poultry breed should be of primary practice. Moreover, improvements of feeding, housing, and the overall managements of poultry, vaccinating them before disease and treating them is highly needed to increase for poultry production.

Keywords: production and management system, Rhode Island Red chickens, RIR poultry, semi-extensive methods.

Introduction

In Ethiopia poultry plays an important role in the economy of household and national level. The chicken population of Ethiopia is estimated to be 56.53 million of which about 94.33%, 3.21% and 2.47% of the total poultry were reported to be indigenous, hybrid and exotic, respectively (CSA, 2016). Poultry are mainly kept for meat and egg production and do not require high initial investment cost compared to other large farm animals. Average carcass yield per live weight for poultry is 70% which is higher than the most common meat of animals. Local poultry conduct and even produce egg and meat under scavenging

conditions and serve as immediate source cash for children and women (Abera, 2000).

Even though, Ethiopia has large poultry population, the poultry industry remain highly undeveloped, unorganized and the country export almost no poultry meat (Averyn, 2004). Different attempts have been made to introduce different exotic poultry breeds to small holder farming systems of Ethiopia because of low performance of indigenous chicken (Haftu, 2016). According to Meseret (2010) there is no recorded evidence indicating the exact time and locations of

introduction of the first batch of exotic breeds of chickens into Ethiopia for genetic improvement. But it is widely believed that the importation of the first batch of exotic breeds of chicken was done by missionaries. Exotic poultry breeds of chickens like Rhode Island Red, Australorp, New Hampshire and White Leghorns were imported to Ethiopia since the 1950's. Since then higher learning institutions, research organizations, the Ministry of Agriculture and Non-Governmental Organizations (NGO's) have disseminated many exotic breeds of chicken to rural farmers and urban-based small-scale poultry producers (Solomon, 2007).

Among the different breeds introduced Rhode Island Red (RIR) poultry breeds are widely and commonly reared in Ethiopia. Similarly, in Halaba special Woreda RIR breed is used for egg and meat production. Even though, the climatic condition is favorable to poultry production, the productivity is low due to lack of awareness of the farmers with regard to handling and management of poultry. Moreover, RIR has a great economic importance, the production and the management of this breed is not well studied and documented so far at Halaba special Woreda, Southern Ethiopia. Therefore the present study was designed to determine the existing RIR production and management in the Halaba special Woreda.

Materials and Methods

Description of the study area

The study was conducted in Halaba special woreda in Southern Nations, Nationalities and People's Region (SNNPR). The woreda is located 85 km away from the region's capital, Hawassa and 240 km from Addis Ababa the capital city of Ethiopia. The woreda is located in 7° 17' N latitude and 38° 06' E longitude. Altitude of the woreda ranges from 1554 to 2149 m a.s.l with majority found at about 1800 m a.s.l. Except for few hills, the woreda has suitable land for agriculture in terms of topography. Agro-ecology of the woreda is classified as dry to moist "Woyina dega". The annual rainfall varies from 857 to 1085 mm and occurs in a bimodal pattern with small rains between March and April and main rains from July to September. The annual mean temperature varies from 17 °C to 20 °C with a mean of 18 °C (IPMS, 2005).

Data collection

Both primary and secondary sources of data were used for the study. To collect the primary data, a semi-structured questionnaire were designed, pre-tested and then modified before the actual data collection was commenced. The secondary data were collected from published and unpublished documents.

Sampling techniques

A stratified random sampling technique was used to stratify the agro-ecological zones (high lands ("Dega"), mid altitude ("Woyna dega") and lowland ("Kola")). Halaba special district (the smallest administrative unit) has a total of 79 Kebeles which are distributed in three agro-ecological zones (i.e. 1, 21 and 56 Kebeles are "Daga"(highland), "Woyna daga"(mid altitude) and "Kola"(lowland) respectively). The numbers of kebeles surveyed were randomly selected from each agro ecology on proportional base to the size of the woreda. Thus, 1, 2 and 4 Kebeles were selected purposively from "Daga", "Woyenadaga" and "Kola" agro-ecology respectively. Then from each Kebeles, 15 respondents were selected purposively based on the experience of RIR poultry production. Thus, a total of 105 respondents were included in the survey study (i.e. 7 Kebeles * 15 household).

Data analysis

The data obtained after the interview were analyzed by using SPSS version 16 (2007). Survey results were reported using descriptive statistics such as frequency and percentage and presented in the form of tables and graphs.

Results and Discussion

Socio economic characteristics of the respondents

The Socio economic characteristic of the household in the study area is presented in table 1. From the total respondents the majority (78.0 %) were male headed and 22.0% were female headed. This finding is in line with Abera and Hussen (2016) who indicated that from the total of 100 households' interviewed 80% were males and 40% were females in Marako Woreda, Gurage Zone, Southern Ethiopia. The overall mean age of the household was 46.1 year. The average family size of sample respondents is 4.6 (ranged 1-10), which is lower than the national average of 5.2 persons (CSA, 2013) and 5.4 for northwest Amhara (Halima et al., 2007).

Table 1. Sex composition, Age structure and Family size of household in the study area

Sex	NO. Respondents (N=105)	Percentage	Family size (Mean)	Age (Mean)
Male	82	78.0	4.9	45.8
Female	23	22.0	4.3	46.4

Educational back ground of respondents

Educational level was assessed to know the level of technology adoption of the respondents. According to the information collected about 35.2% of the respondents were illiterate while 25.7, 31.4% of the respondent can read and write and completed primary school education respectively. Moreover, about 7.7%

of the respondents completed high school (table 2). This result are different from Adem and Teshome (2016) in Yeki Woreda, Southwestern Ethiopia indicated that about 22.55% of respondents can't read and write, while 27.5% of the respondents have basic education (can read and write), 31.67% have primary education (1-4) and 15% have secondary education (5-8), and only 3.33% have reached high school (9-10).

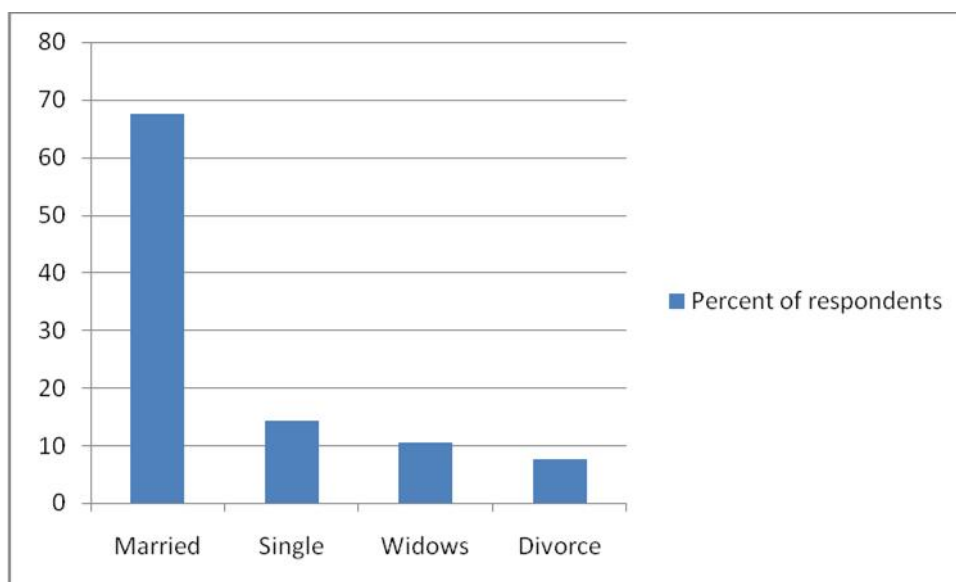
Table-2 Educational back ground

No.	Educational status	Number of respondents	Percentage
1	Illiterate	37	35.2
2	Read and write	27	25.7
3	Elementary	33	31.4
4	Grade 9-10	8	7.7

The marital status of the respondents is presented in table 4. Accordingly, the majority of respondent (67.6%) who participated on Rhode Island Red chicken production were married while 14.3, 10.5 and 7.6% were single, widowed and divorced in the study

area. The married proportion of the present study is lower than that of Gebreegziabher and Tseraye (2016) who indicated that the majority (81.5%) of the respondents were married in Wolaita Zone, south Ethiopia.

Figure 1. Marital status of respondents



The type of chicken breeds reared in the study area

Majority of poultry (61.9%) in the study area were local breeds as presented in table 3. In the same manner about 26.2 and 11.9% respondents rear cross and exotic chicken respectively. This result is slightly

different from that of Adem and Teshome (2016). Who indicated that the majority of chickens in the study area were raised from the local breeds (95.07%) and the rest from cross breed (3.29%) and exotic breed (1.64%), respectively in Yeki Woreda, Southwestern Ethiopia.

Table-3 Type of breeds reared in the study area

No	Breed type	Number of respondents	Percentage
1	Local	44	61.9
2	Cross	38	26.2
3	Exotic	23	11.9

Production of Rhode Island Red chicken

The flock size of the study area is presented in table 4. Accordingly, about 42.8% of the Rhode Island Red was Layers, 26.2% were pullet, 23.5% were Cocks and the remaining 7.5% were chicks. This was because Rhode Island Red chickens were most popular for dual purpose. Mainly for egg production and

pullets were used as a replacement flock. The cocks which account were mainly kept for breeding purpose. The present report is different from Wondu et al., 2013 who indicated that the average flock size was 10.44 in north Gonder, Amhara region, Ethiopia. The flocks were dominated by chicks (47.03%) which were followed by hens (20.21%), cocks (9.5%), pullets (14.75%) and cockerels (8.52%), respectively.

Table-4 Flock size of the respondents in the study area

No	Flock size	Number of chicken (N=105)	Percentage
1	Layer	360	42.8
2	Pullet	220	26.2
3	Cock	62	7.5
4	Chicks	198	23.5

Feeds and feeding for chicken

The major feed resource for poultry in the study area were cereal crops as presented on table (5). The majority of the respondents (60%) used cereal crops, such as wheat, corn, sorghum and etc as a main feed source for their poultry. This shown that agriculture by products were the major feed source for rural poultry producers. Next to cereal crops 32.4% of poultry feed

source was house hold wastes. The remaining 15.2% was the industrial by-products. This shown that industrial by-products were no more used because of not access to the area and the products were too expensive. This result is in agreement with Salo et al., 2016 who indicated that home produced grains were the major (65.1%) kinds of feeds stuffs in District, Hadiya Zone, Ethiopia supplemented by farmers.

Table-5 Source of feeds of the respondents in the study area

No	Source of feeds	Number of respondents (N=105)	Percentage
1	House hold waste	34	32.4
2	Industrial by product	16	15.2
3	Cereal crops	55	52.4

Feed Supplementation for Rhode Island Red Chicken

The feed supplementation for RIR on the study is shown on table (6) about 51.4% of respondents supply feed for RIR poultry in addition to scavenging twice

per-a-day early on the morning and late in the evening, 40.3% of the respondents were supply feed for RIR in addition to scavenging three times par-a-day early in the morning on the afternoon and the remaining 13.3% of the respondents were supply feed for RIR once a day in addition to scavenging.

This finding indicates that lower supplementation rate than the previous work done by Halima *et al.* (2007) in northern Ethiopia about 96.8% of the farmers supplied

partial supplementation of feeds and 95.5 % of the feed was produced locally.

Table-6. Feeding system of Rhoad Island Red Chicken

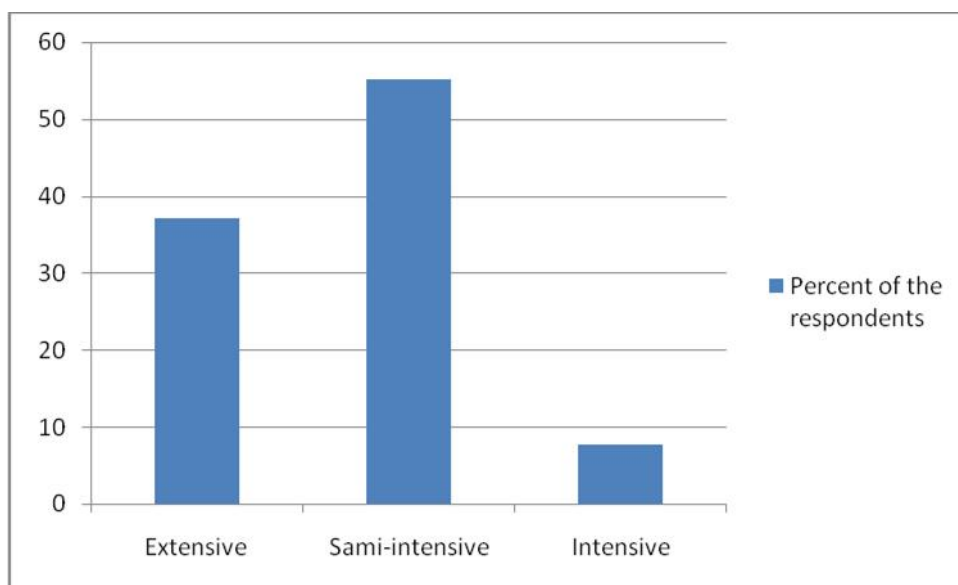
No	Feeding allowance par-day	Frequency	Percentage
1	Once	14	13.3%
2	Twice	54	51.4%
3	Three times	37	40.3%

Management system

Most of the RIR are managed semi-intensively as shown on figure 2, about 55.2% of the respondents used semi-intensive management system whereas about 37.1 and 7.7% of the respondents used extensive and intensive system of management respectively.

This indicated that most the farmers no came to modern poultry production system. This result is different from Salo *et al.*, 2016 who reveled that scavenging (extensive)was the major (90.0%) feeding system practiced in Lemo District, Hadiya Zone, Ethiopia ,

Figure 2 Management system of Rhode Island Red Chicken

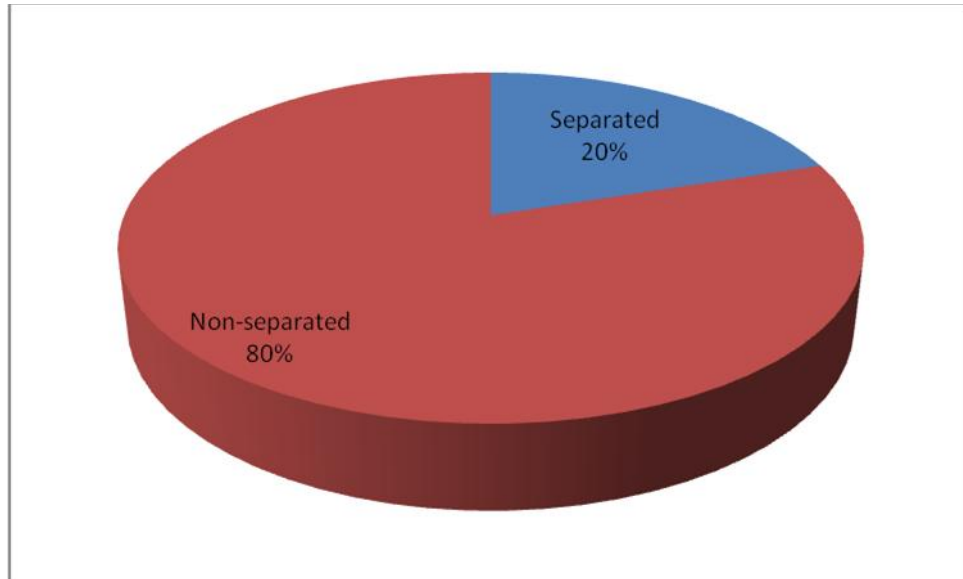


Housing

Housing is very important to protect chickens from predatos and harsh weather conditions like rainfall, wind and high temperature. As represented in figure 3, most of the respondents (80%) used non-separated housing system, which were they live together with human and livestock. The chickens rest at the night

time in the corner or on somewhere in the house. In this system chickens live with the large animals and exposed to zoonotic disease and feed contaminations. Only about 20% of respondents used separated housing system, which is separated from livestock and humans. This finding is slightly similar with Salo *et al.* (2016) who indicated that about 76.7% of the respondents have no separate poultry house

Figure 3 Housing system of Road Island Red Chicken



Main constraints that affect Road Island Red chickens production

The major constraints for RIR production was disease as presented on table (7). about 31.4% of the respondents reported that disease was the major production problem for RIR. According to 27.6% of the respondents, the second difficult problems for production of RIR were predators due to their high scavenging system. In the same manner about 21% of respondents reported that lack of awareness is the

major constraints poultry production and management system. Finally 20% of the respondents reported that shortage of feed availability unbalanced ration was major constraints for Road Island Red chicken production in rural area. This result is in line with the reports In line with current result, Halima (2007) reported that diseases and predator were major factor that causes loss of chicken in Northwest Ethiopia. Predator like hawk, wild animals and cat were main cause of mortality in study area.

Table-7 Main constraints affecting Road Island Red chicken production and productivity

No	Types of constraints	Frequency	Percentage
1	Disease	33	31.4
2	Lack of awareness	22	21.0
3	Shortage of feed	21	20.0
4	Predators	29	27.6

Conclusion and Recommendations

This research was studied to assess the production and management system of Rhode Island Red chickens in Halaba special Woreda, southern Ethiopia. About 78.0% of the respondents were male headed while 22.0% were female headed. In the study area, chicken production and management system were mainly reared based on cereal crops and household wastes. About 55.2% of the respondents used semi-extensive methods of management system. With regard to flock composition about 42.8% of the Rhode Island Red is Layers. The majority (60%) of the respondents used cereal crops, such as wheat, corn, sorghum and etc as a main feed source for their poultry. About 51.4% of

respondents supply feed for RIR poultry in addition to scavenging twice per-a-day early on the morning and late in the evening. Majority of the respondents (80%) used non-separated housing system, which they live together with human and livestock. the main constraints for poultry production are disease, lack of awareness, feed shortage and predators. Based on the present findings and conclusion the following points were recommended.

- Improve the management system including disease control and housing system
- Provide training for farmer how to supplement feed chicken and construct house for chicken separately from human and live stocks.

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