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Research Article

Village Chicken Diseases and Production System in Niger State, Nigeria

MERA, U. M[1] and JIMADA, M.B[1]

[1]Department of Veterinary Medicine, Faculty of Veterinary Medicine, Usmanu Danfodiyo University, Sokoto

*Corresponding Author
MERA, U. M

Abstract: A study on village chicken production system in Niger state was conducted with the major objective of assessing chicken production system in the state as prelude to the introduction of interventions for control of poultry diseases and other programs for improving rural poultry productivity. A sample of 200 farmers in six farming communities Bia (33), Bosso (33), Kontagora (34), Kuta (34), Lapai (33) and Rijau (33) from six Local Governments Areas (LGAs) were surveyed using a structured questionnaires. The result showed that the ownership of the chicken flock was 38.5% for the family, 47.5% for women and children. Supplementary feeding was sourced from farm harvest (68%), purchase (18.5%), harvest or purchase (10.5%). Also revealed was that 45.5% of the owners allowed the birds to rest at night in the main house, 22.5% rest in the woven basket at night, 15.5% in the store or kitchen, 4% perch on trees, 16.5% rest in other for houses.

Keywords: Village chicken, production, Niger state, Nigeria.

INTRODUCTION

Village chicken production is widespread and an important activity in Nigeria. In rural communities almost every household including Fulani pastoralist keep local chicken purposely for meat, egg production, income, barter, special festivals, social obligations such as traditional ceremonies as well as traditional treatment of illness (Nwanta *et al*., 2006). The local chickens constitute the majority of the chicken population of Northern Nigeria, and are mainly kept under extensive management system where they roam freely and scavenge for food (Adu *et al*., 1986; Olabode *et al*., 1992, Musa, 2009). Their movement is uncontrolled and they hardly receive any prophylactic treatment or vaccinations. Poultry represents system to feed fast growing population and also plays an important role in house hold food security (Dafwang, 2009; Jimada, 2014). The importance of rural or village chicken production in the life of rural communities in developing countries has been widely recognized (Spradbrow, 1990, Kitalyi, 1998 and Sonaiya, 2007). Niger state is one of the major livestock producing state in Nigeria supplying the vast population with chickens, among other livestock products. There is presently no detailed study conducted in the state on assessment and identification of the existing village chicken production systems, production constrains and technological interventions that could be affordable to the resource poor, hence the need to conduct research in order to provide baseline data for further researches.

MATERIALS AND METHOD

Study Area

The study was conducted in Niger State, Nigeria. The state has three agricultural zones, each Zone with a marked climate pattern and a defined agricultural system. Zone I found in the southern part of the state comprises Agaie, Bida. Edati, Kate ha, Gbako, Eapai, Eavun and Mokwa local government areas while Zone II comprises Rail, Bosso, Shiroro, Chanchaga, Paikoro, Gurara, Eafa and Suleja local government areas and Zone III comprises Agvvara, Borgu, Kontagora, Magama. Mariga, Mashegu, Rijau and Wushishi local government areas. In this study, local government within the three /ones were randomly selected for the study.

Niger state is located in the middle belt of Nigeria. It lies between latitude 8° and 11 °20'N and longitudes 4°30' and 7°40'E and shares common boundaries with Kahuna State and EC I to north-east and south-east respectively; Zamfara State to the north, Kebbi Slate to the north-west. Kogi State to the South and Kwara State to the south-west, the Republic of

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Benin to the North-west. The state covers a land area of 76,363 square km (29.484 square miles), which is 10% of the total land area of Nigeria and about 85% of the land is arable. Minna with an estimated population of 304.113 is the capital city. Majority of the populace (85%) in the state are involved in agriculture while others constituting (15%) are involved in vocation such as white collar jobs, business, craft and arts (Niger State Government, 2011).

Sampling and Study Period

The population for the study comprised farming households in the study area. In order to obtain the sample for the study, six Local Government Areas (Bida, Bosso, Kontagora, Kuta. Lapai, and Rijau) were selected from where six farming communities were randomly selected, and then farming families were randomly selected with Bida (33). Bosso (33). konlagora (34), Kuta (34), Lapai (33) and Rijau (33) to give 200 respondents for the study. The data for this study was from primary sources. A structured questionnaire was used for collecting the data in the study area. Other data collection methods that were used to gather the primary data were informal discussion and personal interview with household heads.

Data Analysis

The data generated from the questionnaires survey from communities were checked for completeness, entered into Excel format (Microsoft R Excel 2003) after validation and the errors in data entry were corrected. The data were then recruited into Statistical Package for Social Sciences (SPSS) version 20.0 (SPSS Inc., Chicago, IL, USA) and analyzed based on activities units by descriptive statistics and reduced into tables. Values of $p \leq 0.05$ were considered significant.

RESULTS

Table 1: Ownership pattern of village chicken production in Niger State

Flock ownership	Percentage (%)
Who owns the flock	
• Adult Male	16.5
• Adult Female	13.5
• Boys	7
• Girls	4
• Collective Household	59

Table 2: Ownership and decision making in village chicken production system in Niger state

Variable	Women	Men	Children	Family	Women and children
Ownership (%) Decision making (%)	6.5	4	3.5	38.5	47.5
• Selling Eggs	66.6	12.5	3	18	0
• Selling Chicken	8.5	69.5	1.5	20.5	0
• Egg Consumption	26	17	2.5	54.6	0
• Chicken consumption	9	40	1.5	49.5	0
• Drug Purchase	6	77	2	16	0

Table 3: Division of labour in Village chicken production system in Niger State

Variable	Women	Men	Children	Family	Women and children
Cleaning (%)	39	3	39.5	3.5	15
Shelter construction (%)	0.5	73	12	14.5	0
Providing water (%)	47.5	6.5	37	9	0
Supplementary feeding (%)	46.5	32	11	10.5	0
Selling chicken (%)	10.5	66.5	3	15	0
Selling eggs (%)	56	26.5	4	13.5	0
Treatment (%)	7.5	73.5	0.5	18.5	0

Table 4: Shelter provision and labour activities in village chicken production in Niger State

Shelter	Percentage (%)
Housing	
• Don't know	3
• Store/Kitchen	15.5
• Main House	45.5
• Perch on Trees	4
• Woven Basket	22.5
• Others	9
Construction	
• Adult male	73
• Adult Female	6
• Boys	17
• Girls	3.5

Cleaning	
• Yes	94
• No	3.5
• N/A	2.5
Who is responsible for cleaning	
• Male > 18 yrs	2.5
• Female > 18 yrs	21
• Boys	35.5
• Girls	36
• Hired Labour	0
• Family	5
Cleaning frequency	
• Daily	73
• Weekly	17.5
• Monthly	5
• Less than once per month	4.5

Table 5: Feeding and Health Activities in Village chicken production in Niger state

Feeding and health	Percentage (%)
Disease occurrence in the flock	
• Yes	52.5
• No	47.5
Veterinary access	
• Yes	55
• No	45
Season with lost	
• Rainy	75
• Dry	13.5
• Both	11.5
Supplementary feeding	
• Harvest	68
• Purchase	18.5
• Harvest/Purchase	10.5
• N/A	3
Water provision	
• Yes	94
• No	4
• N/A	2
Provision frequency	
• Once daily	33
• Twice daily	35
• Once in 2 days	3.5
• Once a week	0.5
• 3 Times daily	7.5
• 2 times per week	11.5
• 2-3 times daily	8.5

Table 6: Uses of Manure, village chicken and place of selling in Niger State

Uses of village chicken	Percentage (%)
Use of manure	
• Family Farm	67
• Donation	10
• Dispose off	15.5
• Sell	1.5
• N/A	6
Uses of chicken	
• Use as food source	27.5
• Source of income	55
• Social function	16
• N/A	1.5
Place of selling birds	
• Same Village	16.5
• Neighbouring village	9
• Shopping centre	14
• In town	60.5

Table 7: Inter-household relationship in village chicken production in Niger State

Interhousehold relationship	Percentage (%)
Method of exchanging	
• Sell/Buy	73.5
• Gifts	13.5
• Barter	0
• Food/Feast	10.5
• Gifts/Food	2.5
Where you sell most chicken products	
• Same village	21.5
• Neighbouring village	12.5
• Shopping centre	16.5
• In Town	49.5

RESULTS AND DISCUSSION

A total of 200 questionnaires were administered and retrieved (100% retrieval), this was as a result of sensitization visits to communities prior to commencement of the study. The overall total percentages given in the result were based on the response of the farmers to the questions asked. The results indicated that the overall ownership of the chicken flock was found to be adult male 16.5%, adult female, 13.5%, collective household 59% and the least were girls 4% (Table 1). This is in disagreement with a report by Musa, (2009) in a study on village chicken production system in Plateau state, Nigeria that, majority (65.3%) of the respondents were males that were heads of the households visited. These men answered questions on behalf of their wives who could not be interviewed for cultural and religious reasons.

Decision making in village chicken production system in Niger state showed that 38.5% for the family, 47.5% for women and children, 4% for men only. 6.5% for women only, 3.5% for children (Table 2). This indicated that most of the women and children are responsible for chicken rearing while men are responsible for other off-farm activities. This is not in agreement with Mcainsh *et al*., (2004), Samson and Endalew (2010) who reported that 92.4% were owned by female and children.

Though, men were the heads of households visited, the women were responsible for most of the daily management routines, such as providing water (47.5%), supplementary feeding (46.5), cleaning the rural household chicken house (39%) and selling of eggs (Table 2),however when it comes to selling of chickens (66.5%) and treatment (73.5%), it was men activity. Men were also responsible for shelter construction (Table 3 and 4). Musa, (2009) reported that Majority of the farmers provided housing for their chickens which is mainly for night roosting to protect them against diseases and predators. This indicates that farmers were aware of the importance of housing and hence there is need to educate them to build proper housing so that they can realize more benefits. Provision of housing, improved feeding and general management have been reported by Mavale (2000) to reduce the incidence of and severity of diseases such as Newcastle disease (ND). Houses are also reported by Harun and Massango (2000) and Nwanta *et al.* (2006) to protect the chickens and chicks from predators, disease contamination and also provide warmth to birds during cold weather, thereby reducing the stress of the extreme cold which could aggravate ND being incubated by chickens. The construction of proper housing using cheap, durable, locally available resources and skills can improve rural household chicken production.

Various reports have shown that the poultry industry in rural areas is largely in the hands of women and children as they own or manage or both the rural poultry (Ogundipe, 1989; Dafwang, 2010; Kitalyi, 1998; Nwanta *et al*., 2006; Sonaiya, 2007). Although women and men own poultry, it was found that women ensure that these birds are attended (Kitalyi, 1998). It is also the women that decide which birds are to be sold or slaughtered (Nwanta, 2003).

The study also indicated that methods of exchanging chicken products were 73.5% sell/buy product of chicken, 13.5% exchange products as gifts. 10.5% exchange products for food/feast while, 2.5% exchange products for food/gilts. Uses of village chicken results revealed that, 55% kept chicken for source of income, 27.5% for food source, 16% for social functions while **1**.5% were not applicable (Table 5). This was in agreement with the work of Sonaiya *et a!*., (2004) who stated that sale of live birds for income generation was the primary goal of keeping family chicken in developing countries and also Samson and Endalew, (2010).

Supplementary feeding was found to be 46.5% for women, 32 % for men, 11% for children and 10.5% for family involvement in the supplementary feeding. Study revealed that the supplementary feeding is sourced from farm harvest (**68**%), purchase (18.5%), harvest/purchase (10.5%) and not applicable (3%). Majority indicated sorghum, maize, millet with few using ground nut to supplement. No farmer formulated his feed. This is in agreement with the work conducted by Halima (2007) in Northern Ethiopia who reported that 98% of farmers supplied partial supplementation of Iced. The study also revealed that 47.5 % of the family households are responsible for feeding the birds, father 16.5 %. mothers 14.5%, mothers and children 7.5%, children 13% and not applicable 1% for household member responsible for feeding the birds, l or water provision, the study was found to be 47.5% for women involved in water provision, 6.5% for men, 37% for children and 9% for family. Provision revealed that 35% of the respondents provide their birds with water twice daily, 33% provide once daily, 11.5% provide water once it finishes, 8.5% provide 2-3 times daily, 7.5% provide 3 times daily with 0.5% for once a week and 2 times a week provision respectively.

For selling chicken the result was found to be 66.5% for men, 15% for the family, 10.5% for women and 3% for children. 60.5% of the respondents showed that their birds were sold in the town, 16.5% in the same village, 14% in the nearest shopping centres while 9% sell their birds in the neighbouring villages.

Out of the 200 questionnaire, the decision making for selling eggs was observed to be 66.5% for women, 18% for family, 12.5% for men and 3% children. Based on decision making for chicken 69.5%

was found to be for men, 20.5% for family, 8.5% for women and 1.5% for children. Decision making for egg consumption showed 54.5% for family, 26% for women, 17% for men and 2.55 for children. For selling eggs, the study showed 56% involvement of women in selling eggs, 6.5% for men, 13.5% for family and 4% for children. Chicken consumption, decision making showed 9.5% involvement of the family in decision making, 40% for men, 9% for women and 1.5% for children.

Decision making for purchase of drug showed that 77% was made by men, 16% by family, 6% by women and 1% by children. Housing provision at night revealed that 45.5% of the owners allowed the birds to rest at night in the main house, 22.5% rest in the oven basket at night, 15.5% in the store/kitchen 4% perch on trees, 16.5% rest in other form of houses (cages etc) as against 35.8 % reported in Botswana by Badubi *et al.*, (2006). Result from the study revealed that 73.5% construction is carried out by men, 17% by boys less than 18 years old. 6% by adult females and 3.5% by young girls less than 18 years old.

Results also showed that 97% of the households are involved in cleaning the place of rest of the birds, 3.5% don't clean with 2.5% not applicable. Cleaning frequency revealed that 73% of the household interviewed cleaned the rest house of the birds on daily basis, 17.5% on weekly basis, 5% cleans monthly and 4.5% cleans less than once per month. The study also revealed that 35.5% of persons involved in cleaning the house are boys, girls are 35%, 21 % for adult female, family 5% and 2.5 % for adult male greater than 18 years old. The result of cleaning is in agreement with the work of Halima (2007) who reported that 74.02% clean the rest house of the birds daily. Shelter construction revealed 75% for men involved in the construction of shelter for the birds, 14.5 % for the family, 12% for children involved in shelter construction and 0.5% for women in shelter construction. Cleaning of the poultry pen was found to be 39.5% for children, 39% for women, 15% for women and children, 3.5% for family and .3% for men alone.

Study revealed that 52.5% of the respondents had encountered disease problem, while 47.5% did not experience any problem. A total of 55% of the respondent had access to Veterinary access in the area while 45% had no access to the service. However, Musa, (2009) reported that although, rural poultry farmers are aware of the need to keep birds in good health and when they are sick to source for prescription and procure medicaments for treating rural poultry suffering from ND, they often do so through the use of traditional (indigenous) method of medicare.

The season with most lost of birds showed that the rainy season with 75%. dry season with 13.5% while both seasons showed 11.5% block ownership pattern showed that 59% belonged to collective household ownership, 16.5% for adult male, 13.5% for adult male, 7% for young boys while 4% was for young girls. The study revealed that majority of the farmers disposed off their birds for town, (49.5%), Same village (21.5%), shopping centres (16.5%) and 12.5% for neighbouring village. by selling, as a gift or slaughter for consumption. This constitutes a danger to other susceptible birds and to humans. The introductions of sick birds to healthy susceptible flocks in the households have been reported to encourage the spread of the ND (Alders and Spradbrow, 2001). Likewise, deadly zoonotic diseases like Avian Influenza are reported to affect humans through handling of diseased poultry.

Study showed that 67% of the manure from the birds was used on the family farm, 15.5% of the respondents dispose off their manure as waste. 10% donate the manure. 1.5% sell their manure with **6**% not applicable.

CONCLUSION

The identified constraints of village chicken production were poor health care; lack of proper housing, poor feeding and incidence of diseases are factors limiting village chicken production in the study area. Interventions in the area capacity building on poultry housing, feed formulation and health control through extension can be suggested for the communities.

Recommendations

As most of village chicken production activity is managed by women, provision of capacity building in form of trainings on modern chicken husbandry practices would be essential for the improvement of chicken production and productivity.

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