

Duck production in Ibadan metropolis area of Oyo State, Nigeria

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ABSTRACT: Ducks are domesticated birds that are reared for their meat and eggs like other poultry, but in Nigeria many are yet to see opportunity in duck production as it is less embraced compare to other types of poultry. This is mainly because duck rearing is not economically viable as its eggs and meat are not widely consumed as that of chickens in many homes in the country. On these premises, this study was carried out to investigate duck production in Ibadan metropolis of Oyo State. A random sampling technique was used to select four local governments from the six in Ibadan less city. Thirty respondents were purposively chosen from each selected local government area. The results showed that female dominates duck production and were raised majorly for household consumption. The paper identified restricted market access and non-availability of improved husbandry as major constraint to duck production in the area. The paper concluded that although duck meat has no big market but is widely consumed in rural areas. Thus, rural communities can be encouraged to rear and eat duck, to bridge noticed protein gap in rural communities. In this regard, educating the populace about the significance of duck farming and promotion of research in improved duck husbandry becomes imperative.

Keywords: Duck, husbandry, market, metropolis, production.

INTRODUCTION

Over the years, concerted efforts have been made to improve animal protein production by the Nigerian government. These efforts include enhancing the production of animal protein from fast growing but prolific livestock such as chicken, fish, pigs, rabbits, snails (Umeh et al., 1999) and financing researches in animal production of all kinds. In all these efforts, duck as a source of animal protein has always been of lesser significance and usually not considered in all these efforts.

Although, few farmers in Nigeria have embraced the rearing of ducks, while many poultry farmers are yet to see opportunities in duck production. This is mainly because duck rearing is not usually considered economically viable as it is not widely consumed as chickens in many homes in the country. For this reason, in Nigeria, ducks are produced mostly by rural, small scale, backyard production units for household consumption mainly due to religion and superstitious belief, and apparently because it is considered by some as dirty and not too pleasant around homestead. Despite all, duck production has progressed rapidly in the past few decades and will, without doubt,

continue to play an increasingly important role in the world with respect to food production and security (Huang et al., 2012). Duck meat production was increased from 1.3 million tons in 1991 to 3.6 million tons in 2007 (Pingel, 2009), with 65% of the world production coming from China. Duck production in 2010 was six-fold that of 1961 (FAOSTAT, 2012). In Nigeria, the duck population was ranked third (9,553,911) after chicken (101,676,710) and guinea fowl (16,976,907) respectively (NBS, 2012). Muscovy ducks make up about 74% of the ducks in Nigeria, and its meat is lower in fat and hence considered to be healthier (Adesope and Nodu, 2002). Ferdus (1999) reported that increased duck rearing would be a great addition to total poultry output since they do not interfere with chicken production due to different rearing and scavenging venues.

Due to its good foraging and incubation behaviour, Muscovy ducks are especially suitable for scavenging systems and they have a better adaptability to hot climates than chickens (Raji et al., 2009).

Interestingly, ducks are considered as one of the most

versatile avian species that are of commercial significance, because they can subsist under a wide range of climatic and nutritional conditions. Specifically, some of the advantages of raising ducks over chickens include inexpensive and non-elaborate housing facilities, little attention and less space per head for rearing. Again, ducks have shown to be relatively hardy and resistant to common avian diseases and the bird feed on a variety of food and subsist on low cost diet. Also, when locally raised, hatchability in ducks is higher compared to chicken because of their plumage that ensures effective incubation of most eggs. With regards to duck eggs, ducks lay more eggs than chicken with one duck laying about 40 to 50 eggs. This translates into higher profits in case a farmer rears duck for eggs. Again, duck eggs are larger in size, have thicker shells and unique flavor, and are also more suitable for processing into value-added products.

Therefore, there is a compelling need to integrate commercial duck production into Nigerian poultry industry, for they are not only important as source of nutritious meat and eggs for human consumption but a veritable source of income for rural small holder farmers. On these premises, this study was carried out to investigate duck production in Ibadan metropolis of Oyo State. This is to suggest strategies to stimulate duck production in the area, as ducks have profit potential and ability to produce high quality protein for small farmers or big land owners alike.

METHODOLOGY

Study area

The study was carried out in Ibadan metropolis between February and May 2017. The population of Ibadan was estimated to be 3,847,500 (Ayeeni, 1994), this makes Ibadan to be referred to as the largest indigenous city in West Africa. The rainfall pattern is bimodal with peaks in June and September. There is a distinct dry period between December and February. The annual rainfall of between 1250 and 1800 mm allows for the practice of rain-fed agriculture on which poultry industry as a lucrative business thrives. Ibadan serves as gateway to other south west states and to Lagos for anyone coming from the northern part of Nigeria. Like other parts of Oyo state and Nigeria in general, the number of people engaged in the various agriculture activities in Ibadan region has continued to decline (Gbadegesin and Olusesi, 1994). Majorly, Ibadan people are traders with many public servants, while fewer people in Ibadan less city are still farmers producing a variety of agricultural items to meet the food needs of the urban population (Gbadegesin, 1991).

Sample

Administratively, Ibadan is made up of 11 Local Govern-

ment Areas (LGA), with 5 in urban areas and 6 in peri-urban areas. Primary data were collected for the purpose of the study by use of structured questionnaire. The 6 LGA in Ibadan less city were selected for the study, as pre-field investigations indicated that ducks are reared to a reasonable extent in those areas. A random sampling technique was used to select four local governments from the six in Ibadan less city for the study. The selected LGAs for the study include Lagelu, Egbeda, Iddo and Oluyole. Thirty respondents were purposively chosen from each selected local government area. In all, a total of 120 respondents were used for the study. On arrival at the communities, the researcher explained to the respondents the purpose of the study to allay fears and reduce misinterpretation of the items in the questionnaire. Finally, the researcher assured confidentiality of all information provided. Those with no formal education were assisted to interpret the question and also to write their responses with minimum bias.

Measures

Constraints

This variable was measured using 11 items questionnaires designed by the researchers. The questionnaire was measured on a 4-point Likert scale ranging from 1 (not an influence) to 4 (very important influence). It has a reliability coefficient of 0.68.

Motivators

This variable was measured with an 8 items questionnaire measured on a 4-point Likert scale ranging from 1 (not important) to 4 (very important). It has a reliability coefficient of 0.77.

Data analysis

The information collected was presented using descriptive statistics of frequency tables, percentages, range, and mean, as frequency tables are useful in knowing the trend related to a particular variable (Ayanwale and Adeyemo, 2011).

RESULTS AND DISCUSSION

Profile of the respondents is represented in Table 1. About 51.67% of the respondents were female and 48.33% were male. The result showed that female dominates duck production in the study area as they were the one who generated and disposed the household waste fed to duck. This finding is in agreement with report of Gueye (1998), McAinsh et al. (2004) and Mogesse (2007) who found out

Table 1. Profile of the duck farmers in the study area (n=120).

Parameters	Frequency	Percentage
Sex		
Male	58	48.33
Female	62	51.67
Age (yrs)		
21-40	60	50.00
41-60	38	31.67
61 and above	22	18.33
Household size		
1-5	24	20.00
6-10	96	80.00
Education		
Primary	24	20.00
Secondary	60	50.00
Post-secondary	24	20.00
No-formal	12	10.00
Occupation		
Civil servants	16	13.33
Traders	50	41.67
Artisans	16	13.33
Farmers	38	31.67
Religion		
Islam	81	67.50
Christian	39	32.50

Source: Field survey (2017).

that in a number of African countries poultry flocks are largely owned by women. Also, this corroborates the reports of Kitalyi (1998) and Mapiye and Sibanda (2005) who submitted that ownership of village poultry is more to the female than the male and added that women dominate most domestic activities thus have control over domestic poultry and keep more. Majority (50.0%) of the respondents were within 21-40 years followed by age group 41-60 (31.67%). The result showed that the farmers were within the physical productive age (i.e. between ages of 21-40 and 41-60 years). This is an indication that these people can be encouraged for active participation in duck production. This is an indication that duck rearing in the study area is mostly common among the middle age people contrast to chicken rearing which is reported among women and the children (Gueye,1998). With regards to household size, the average household size was seven (7).

Considering the educational background, majority (50.00%) of the respondents' possess secondary education followed by those with post-secondary education

Table 2. Distribution of respondents by husbandry methods n=120.

Parameters	Frequency	Percentage
Duck rearing experience		
<5 Years	20	16.7
6-10 Years	46	38.3
11-20 Years	30	25.0
>20 Years	24	20.0
Genetic makeup of duck		
Indigenous	105	87.50
Crossbred	15	12.50
Hybrid	0	0.00
Vaccination		
Yes	17	14.2
No	103	85.8
Yes	120	100
No	0	0.0
Types of treatment		
Veterinarian	5	4.17
home remedies	115	95.83
Disposal of dead animal		
Buried	17	14.00
Thrown away	71	59.00
Eaten	32	27.00

Source: Field survey (2017).

(20.00%) and basic education 20%. Majority (41.6%) of the duck consumers were self employed and have their businesses around the home, about 21.7% of the respondents were students while 0.8% were not gainfully employed (full-time house wives). With regards to the respondents' religion, majority of the farmers were Christians (67.50%) who usually slaughter these animals during festive periods for household consumption while Muslims (32.50%) usually raise and sell this animal for cash purposes.

Table 2 shows the distribution of respondents according to the methods of rearing. Years of duck rearing experiences are in the order 38.3% (6-10 years), 25% (11-20 years), 20% (above 20 years) and 16.7% (less than 5 years). Majority of the farmers (65%) were involved in rearing indigenous ducks followed by crossbred (24.2%) and hybrid (10.8%). This work is in line with Halder et al. (2007) who observed that higher numbers of farmers (96.88%) were rearing indigenous duck with lower crossbred and hybrid. Rahman et al. (2005) found that 82% farmers reared *desi*, 12% crossbred and hybrid 6% in the same coastal areas. Number of ducks reared show that

Table 3. Constrains to duck production.

Item	Very important influence	Influences	Minor influence	Not an influence	Mean	Rank
Restricted market access	72 (60.00%)	36 (30.00%)	10 (8.33%)	02 (1.67%)	3.48	2nd
Societal misconception about duck	28 (23.33%)	71 (59.17%)	16 (13.33%)	05 (4.17%)	3.02	7th
Non-availability of improved breed for initial stock	81 (67.50%)	27 (22.50%)	10 (8.33%)	02 (1.67%)	3.55	1st
Taboo/superstitious belief	43 (35.83%)	57 (47.50%)	09 (7.50%)	11 (9.17%)	3.10	5th
Dirty nature of duck	56 (46.67%)	44 (36.66%)	15 (12.5%)	05 (4.17%)	3.26	3rd
Non-acceptability of duck products by society	45 (37.50%)	46 (38.33%)	15 (12.5%)	14 (11.67%)	3.02	7th
Inadequate knowledge on improved husbandry	42 (35.00%)	57 (47.50%)	11 (9.17%)	10 (8.33%)	3.09	6th
High incidence of disease outbreak	07 (05.83%)	13 (10.83%)	22 (18.34%)	78 (65.0%)	1.58	10th
Shortage or high cost of feed	11 (9.17%)	13 (10.83%)	10 (8.33%)	86 (71.6%)	1.58	10th
Availability and affordability of other poultry products relative to duck	45 (37.5%)	60 (50.00%)	5 (4.17%)	10 (8.33%)	3.17	4th
Non-existence or low profit	12 (10.00%)	16 (13.34%)	10 (8.33%)	82 (68.33%)	1.68	9th

Source: Field survey 2017.

Table 4. Motivators to duck farming.

Item	Very important	Important	Fairly important	Not important	Mean	Rank
Cheap source of protein for family	84 (70.00%)	27 (22.50%)	2 (1.67%)	7 (5.83%)	3.57	1st
Opportunity to earn income	75 (62.50%)	31 (25.83%)	11 (9.17%)	3 (2.50%)	3.48	3nd
Duck is meatier than chicken	72 (60.00%)	37 (30.83%)	11 (9.17%)	0 (0%)	3.51	2nd
Ease of management	42 (35.00%)	58 (48.34%)	13 (10.83)	07(5.83%)	3.13	7th
Taste and nutritional value	61 (50.83%)	29 (31.67%)	18 (15.0%)	12 (10.0%)	3.16	6th
High rate of return	66 (55.00%)	32 (26.66%)	18 (15%)	4 (3.34%)	3.33	4th
Availability of market	5 (4.16%)	10 (8.33%)	15 (12.51%)	90 (75.0%)	1.42	8th
Personal interest/passion	49 (40.83%)	54 (45.0%)	8 (6.67%)	9 (7.50%)	3.19	5th

Source: Field survey 2017.

majority (55.8%) of the respondents have between 5 and 10 ducks, 34.2% having between 11 and 15 ducks while 10% have more than 15 ducks. This result was in consistent with an Indian study where Halder et al. (2007) found that the majority of flocks comprised of 6 to 10 ducks. But contradicted the finding of Islam et al. (2002) who reported that 85.6% of the flocks comprised 20 to 50 ducks within an overall range of 20 to 200 birds in Assam, 200 to 360 ducks in Tamil Nadu, India (Gajendran et al., 1992) and 1000 to 2000 ducklings in South Vietnam (Nind and Tu, 1998). Most of the respondents (38.3%) made their duck house by wood, 15.8% with wood and tin, tin 5.8%, brick 20%, a combination of both tin and brick 4.2% and with other materials 15.8% (Table 2).

Health management and purpose of duck production according to the respondents was represented in Table 3. From Table 3, majority (85.8%) does not vaccinate their duck or administer any form of medication. All the farmers according to the respondents always treat their animals when sick. Only about 28.3% of the respondents call on

veterinarian when their animals fall sick while majority 71.7 percent use home remedies. Disposal of dead animals reveals that most (59.2%) of the respondents throw away the dead animal, 26.7% consumed while 14.2% were buried. With regards to purpose of duck production in the study area, Table 2 shows that 58.3% of the duck producers raised duck for home consumption, 29.2% for cash while 12.5% raised duck for consumption and little cash.

Table 3 give an overview of constraints and problems to duck farming. Non-availability of improved breed for initial stock, restricted market access, dirty nature of duck, relative availability or affordability of other poultry products, taboo/superstitious belief sets limitations on duck farming development and are usually a serious problem. Societal misconception about duck and inadequate knowledge on improved husbandry were also considered as important constraints to duck production in the study area.

Table 4 outline the main reasons respondents engaged in duck farming. The primary driving forces are to provide

a cheap source of animal protein for the household, and duck is meatier and gives high rate of return than chicken and opportunity to earn supplementary income. Again, to many duck farmers in the area ease of management, personal interest, taste and nutritional value are also important factors.

Conclusion and recommendations

Despite the facts that ducks have potential to reproduce quickly and require less care than other forms of poultry as chicken, and thus rearing them can yield high profits as the cost incurred are less, rearing within the study areas are low. This is mainly because duck rearing is not economically viable as not many homes eat duck meat and eggs. However, with the increasing prices of chicken eggs, duck eggs can provide effective alternative as they can be used for everything the chicken eggs can be used for and this also applies to duck meat. To these effects, rearing of ducks will not only provide a viable alternative but can supplement other forms of poultry farming.

Meanwhile, this study identified factors such as non-availability of improved breed for initial stock and inadequate knowledge on improved husbandry, dirty nature of duck, restricted market access and relative availability of other poultry products, taboo/superstitious belief sets limitations on duck farming development. With regards to reasons for engaging in duck husbandry motivators such as provision of a cheap source of animal protein for the household and opportunity to earn supplementary income were found to have very important influence. Again, to many duck farmers in the area, ease of management, personal interest, taste and perceived nutritional value were also found to be important factors.

Finally, even though duck meat has no big market, if farmers rear and eat them, it can bridge noticed protein gap in rural communities and infants. Therefore, to promote duck production, the following were recommended:

1. Awareness campaign both on the advantages of consuming duck meat and its nutritive values should be done by relevant agencies and associations.
2. The farmers should be empowered and supported to develop appropriate and acceptable duck products and established duck meat shops, as a result of increasing urbanization, to improve acceptance and stimulate consumption of the meat.
3. Encouragement of establishments of more duck farms and processing enterprises should be done by relevant agencies in order to solve the problem of unavailability of duck and duck products.
4. Access to improved breeds and information on improved husbandry should be made readily available to duck farmers. In this regard government and development agencies should blaze the trail by supporting and financing extension programme and

research in duck production and marketing to make researchers engage in researches on improved duck breed and husbandry.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

REFERENCES

- Adesope, O. M., & Nodu, M. B. (2002). A note on acceptance of duck as table-meat among inhabitants of selected communities in the Niger Delta zone, Nigeria. *Livestock Research for Rural Development*, 14(6). Retrieved from <https://www.lrrd.cipav.org.co/lrrd14/6/ades146.htm>
- Ayanwale, A. B., & Adeyemo, V. A. (2011). Gender and urban agriculture: The case of vegetable marketing in Lagos State of Nigeria. In Adeyemo, R., (ed.); *Urban agriculture, cities and climate change*; Chapter 30. Cuvillier Verlag Gottingen, Germany.
- Ayeni, B. (1994). The metropolitan area of Ibadan: Its growth and structure. *Ibadan region*, Pp. 72-84.
- FAOSTAT (2012). FAOSTAT Database on Agriculture. Food and Agriculture Organisation of the United Nations. Rome, Italy. Retrieved from <http://faostat.fao.org/default.aspx>.
- Ferdus, A. J. M. (1999). Reproduction, growth and meat yield performance of different genotypes of ducks. M.Sc. Thesis, Department of Poultry Science, Bang Agricultural University.
- Gajendran, A. K., Kothandaran, P., Prabhakaran, R., & Babu, M. (1992). Duckling production – an economic appraisal. *Indian Journal of Animal Science*, 7(2), 157-162.
- Gbadegesin, A. (1991) Farming in the urban environment of developing nation: A case study from Ibadan in Nigeria. *Environmentalist*, 11(2), 102-111.
- Gbadegesin, A., & Olusesi, B. B. (1994). Effects of land clearing methods on the properties and productivity of an Alfisol in south-western Nigeria. *Environmentalist*, 14(4), 297-303.
- Guèye, E. H. F. (1998). Village egg and fowl meat production in Africa. *World's Poultry Science Journal*, 54(1), 73-86.
- Halder, G., Ghoshal, T. K., & Samanta, G. (2016). Socio-Economic background of duck owners and status of duck rearing in West Bengal. *Indian Research Journal of Extension Education*, 7(3), 55-59.
- Huang, J. F., Pingel, H., Guy, G., Łukaszewicz, E., Baéza, E., & Wang, S. D. (2012). A century of progress in waterfowl production, and a history of the WPSA Waterfowl Working Group. *World's Poultry Science Journal*, 68(3), 551-563.
- Kitalyi, A. J. (1998). Family poultry management systems in Africa. First INFPD/FAO Electronic Conference on Family Poultry, FAO, Rome, Italy.
- Mapiye, C., & Sibanda, S. (2005). Constraints and opportunities of village chicken production systems in the smallholder sector of Rushinga district of Zimbabwe. *Livestock Research for Rural Development*, 17(10), 1-7.
- McAinsh, C. V., Kusina, J., Madsen, J., & Nyoni, O. (2004). Traditional chicken production in Zimbabwe. *World's Poultry Science Journal*, 60(2), 233-246.
- Mogesse, H. H. (2007). Phenotypic and genetic characteristic of indigenous chicken population in northern Ethiopia. Ph D. dissertation submitted to Department of Animal and Wildlife and Grassland Service University of Free State Bloem

- Fountain, South Africa.
- NBS (2012). Collaborative Survey on National Agriculture Sample Survey (NASS), 2010/2011-Draft Report, May, 2012. National Bureau of Statistics/Federal Ministry of Agriculture and Rural Development.
- Nind, L., & Tu, T. D. (1998). Traditional systems of duck farming and duck egg incubation in South Vietnam. *World's Poultry Science Journal*, 54(4), 375-384.
- Pingel, H. (2009) Waterfowl production for food security. *Proceedings of the IV World Waterfowl Conference*, 11-13 November, 2009, Thrissur, India. Pp. 5-15.
- Rahman, M. M., Khan, M. R. A., Khan, M. J., Shahjalal, M., Mostafa, M. G., & Bell, J. (2005). Duck rearing system in the coastal regions of Bangladesh during rainy season. *Bangladesh Journal of Animal Science*, 34(1&2), 137-149.
- Raji, A. O., Igwebuike, J. U., & Usman, M. T. (2009). Zoometrical body measurements and their relation with live weight in matured local Muscovy ducks in Borno State, Nigeria. *ARPJN Journal of Agricultural and Biological Science*, 4(3), 58-62.
- Umeh, A. P., Doma, U. D., Kushi, D. H. (1999). Observation on the management practices of smallholder duck production in Bauchi LGA. *Proceedings of 26th Annual Conference of Nigerian Society for Animal Production* held 21 – 25 March at Ilorin, Pp. 219-222.