

SOCIO ECONOMIC STATUS OF FARMERS AND PRODUCTION PERFORMANCE OF KHAKI CAMPBELL DUCKS REARED UNDER BACKYARD FARMING IN BANGLADESH

Mst. Nusrat Zahan¹, Md. Kaosar Niaz Bin Sufian¹, Md. Khalilur Rahman¹, Md. Shafiullah Parvej^{2*}, ¹Department of Animal Breeding and Genetics, Faculty of Animal Science and Veterinary Medicine, Patuakhali Science and Technology University, Barisal - 8210, Bangladesh, ²Department of Microbiology and Hygiene, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh

Corresponding author:- drparvejbd@gmail.com

Duck production strategy and profile of duck farmers were studied in northern region of Bangladesh. The objectives were to assess the farmers profile, production performance of Khaki Campbell and the constraints of duck husbandry in the region. A total of 15 farmers having at least 200 ducks were selected for the study. Most of the respondent farmers were middle age group (73%) having secondary level of education (60%). About 80% farmers have poor knowledge on duck diseases, they (67%) consult to government veterinary hospital during diseases outbreak and 60% farmers vaccinate their duck against infectious diseases. Highest proportion of the duck houses were made of tin-shed (60%). Most of the farmers feed the duck with mixture of rice polish to wheat bran (67%). Under the scavenging system each Khaki Campbell duck produce 233.67egg per year, weight of egg 58.73 grams, average age at sexual maturity was 119.26 days and average body weight of duck at first egg laying was 1.543 kg. The study indicates that there are great potentials for an improvement of Khaki Campbell duck population in northern areas of Bangladesh through improving nutrition and other management practices.

Keywords: Farmers, Khaki Campbell duck, Production Performance, Bangladesh.

Duck population in Bangladesh has been reported to be 45.12 million (Bangladesh Economic Review 2012) mostly are indigenous type although genetic dilution in some regions has occurred due to distribution of high yielding breeds or strains. Duck ranks second, next to chicken

in the country in terms of total egg and meat production (Ahmed, 1986).

It has been stated that national share of egg production from commercial and family poultry is almost equal and that of meat production is 60:40 (Bhuiyan, 2011) in Bangladesh. The species is traditionally reared as family poultry following free range scavenging system in the country. Farmers, who cannot afford to keep large animals because of the big investment required, can easily maintain a few ducks within their homestead premises (Das *et al.*, 2008). Duck production has many unique advantages such as: 1) rearing is profitable and simple in management, 2) less hazardous (3) more disease resistance capacity, (4) longer economic egg-production life, (5) eggs are heavier and get a better price, (6) good forager and hence need less food, (7) meat is very delicious and is preferred by the people, (8) do not need elaborate housing and (9) act as biological means of pest control by eating snails and other crop pests. Also there are good number of beels, ponds and other natural wetlands facilitating duck rearing in Bangladesh.

The geographical location, climate and environmental condition of Bangladesh in some northern and southern districts particularly coastal areas are favorable for duck rearing. Therefore, duck rearing is getting popularity day by day in the country. Most of the ducks in the country are reared in the rural areas under scavenging condition. Duck provides more eggs than deshi chicken (khaleque, 1999). The weight of duck egg is more than that of chicken egg. Moreover, duck can be reared in flood

affected area where chicken rearing is not possible. It has been also found that ducks are more habituated with the ordinary feeding management provided by the small farmers as well as landless farmers. Traditionally women and children are involved in rural duck keeping which is the most appropriate income generating activity for poor, landless and destitute women and youth. In the small scale duck units, which support the landless, production per bird may be low, but distribution of benefits will be more equal and have great effect on human development. Duck rearing is suitable for wide spread implementation as it is of low cost, requires little skills, is highly productive and can be incorporated into the household works (Saleque, 1996).

Backyard duck production gives increase economic stability to farm households by serving as cash buffer reserve that can be a key income supplement for the landless and otherwise asset for the poor in Bangladesh. In backyard duck farming natural feed resources like aquatic weeds, various types of insects, tadpoles, earthworms, oysters, snails and crabs, a variety of small fishes, green forages and different fallen grains are good sources of nutrients for ducks. In backyard duck production system most popularly reared ducks are Deshi black or white, Indian Runner, Khaki Campbell etc. As the Khaki Campbell is one of the most famous and popular duck breed due to its excellent egg production, this study was undertaken to know the backyard rearing status of the bird in Pirganj, Thakurgaon which may suggest to overcome the lack of knowledge regarding production and better utilization patterns of backyard duck rearing in the area.

MATERIALS AND METHODS

The survey was carried out in some villages of Pirganj upazilla under Thakurgaon district during January 2014 to December 2014. Data was collected from the report recorded by the owners of the farm and management related data like feeding, housing medication was collected by cross questioning to the owner. A total of 15 farmers were selected randomly from the study area. Simple random sampling techniques were followed

to collect the data. Farmers having at least 200 ducks reared under scavenging condition was included in the study. Management data include- Housing practice, feeding practice, Vaccination, Medication and Production data include- Age at first egg laying, body weight at first egg, total egg production, weight of the egg.

The profile of farmers was recorded including- education level, knowledge about duck rearing and diseases of duck, vaccination of duck, feeding and management of duck. Education level of farmers was measured in terms of one's year of schooling. According to the level of education the farmers were classified into four categories namely: Illiterate, primary, secondary and above secondary. Means, percentages, standard deviations were used to explain data scientifically.

RESULTS

The northern part of Bangladesh contains a lot of low land with free ranging area for duck and most of the peoples rear duck in scavenging system for minimum feed cost. Most of the duck farmers (73%) in the study area were middle age category about 60% were educated up to secondary level of school and 20% farmers were illiterate. Most farmers (80%) have no knowledge about duck diseases, 60% farmers vaccinate duck regularly and consult with government hospital (67%) during disease outbreak. About 60% duck house were made with tin shed and 67% farmers feed their duck by rice polish and wheat bran (Table 1).

A temperature of 29 to 32°C (85 to 90°F) is maintained during the first week. It is reduced by about 3°C per week till it reaches 24°C (75°F) during the fourth week. But in backyard system brooding temperature is not maintained as so. In backyard system duckling of Khaki Campbell were confined in a small area and brooding is done with some electric bulb. The average feed consumption per bird per week was 0.110kg and average body weight gain was 0.120 kg under backyard system of rearing of the studied farm. The average age at first egg 119.26 and average body weight was found 1543 g under backyard system of rearing of the studied farm (Table 2).

Table - 1: Status of farmers and their duck rearing system

Characteristics	Catagories	Farm/Farmers (n = 15)	Percentage (%)	Mean \pm SD
Age	Young (<35 years)	3	20	33.33 \pm 34.96188
	Middle (36-50 years)	11	73	
	Old (>50 years)	1	7	
Education	Illiterate	3	20	25 \pm 23.93045
	Primary	2	13	
	Secondary	9	60	
	>Secondary	1	7	
Knowledge about duck diseases	Poor	12	80	33.33 \pm 41.63332
	Good	3	20	
	Very good	00	00	
Mode of treatment	Village doctor	5	33	50 \pm 24.04163
	Government hospital	10	67	
Vaccination	Regular vaccination	9	60	50 \pm 14.14214
	No vaccination	6	40	
Types of duck house	Tin shed	9	60	33.33 \pm 23.09401
	Bamboo - straw	3	20	
	Soil made	3	20	
Feeding of duck	Rice polish	3	20	33.33 \pm 29.36551
	Rice polish and broken rice	2	13	
	Rice polish and wheat bran	10	67	

DISCUSSION

Farmers profile

About 60% farmers were educated up to secondary level of school and 20% farmers were illiterate (Table 1). Haque et al. (2010) stated that in Bangladesh women were the main caretakers of ducks and around 34% of farmers were illiterate. Rahman et al. (2009) found the majority of the farmers (39%) belonged to middle-aged category and thirty per cent have got primary level of education in Bangladesh. Alam et al. (2012) found the most of the duck farmers were young (60%) having secondary level of education (69%). All these study revealed that the duck farmer's awareness increased simultaneously and life style of the people also increased in a positive manner due to increased level of education in the farmers of the country and/or in present time educated populations are going to rearing duck at commercial level.

In our study area 60% farmers vaccinate duck regularly and 67% farmers feed their duck by rice polish and wheat bran (Table 1)

whereas Rahman et al (2009) found about 39 per cent farmers reared ducks under scavenging system with only natural feed resources and 61.5 per cent farmers used supplemental feed, mainly rice polish (118 g/bird/day) in summer season. Eighty-five per cent farmers in did not use vaccines against duck diseases.

Alam et al. (2012) explained that highest proportion of the farmers (72%) followed vaccination program strictly but 71% farmers consult with village doctor but in our study area most of the farmers (67%) consult to government hospital (Table 1).

Duck production

The average feed consumption per bird per week was 0.110kg and average body weight gain was 0.120 kg under backyard system of rearing of the studied farm. The average age at first egg 119.26 and average body weight was found 1543 g under backyard system of rearing of the studied farm (Table 2). Haque et al. (2010) stated that the local ducks attained sexual maturity at >22 weeks of age in Bangladesh. In our suty area the average

Table – 2: Feed consumption and body weight gain at the time of brooding period, Age and body weight at first egg laying of Khaki Campbell with egg production and average weight of egg in backyard farming system

Farm No.	Feed (Kg/bird/week)	BW gain (kg)	Age at first egg (day)	BW at 1 st laying (kg)	Total egg production /year/duck	Egg weight (g)
1	0.110	0.120	118	1.550	230	58
2	0.108	0.125	120	1.425	220	59
3	0.112	0.115	119	1.585	239	57
4	0.106	0.130	120	1.600	230	62
5	0.111	0.110	122	1.480	235	58
6	0.110	0.125	118	1.500	228	57
7	0.108	0.120	118	1.570	245	57
8	0.112	0.120	121	1.625	237	59
9	0.111	0.115	120	1.520	222	62
10	0.110	0.130	118	1.490	248	58
11	0.109	0.110	121	1.550	230	58
12	0.113	0.120	117	1.600	229	60
13	0.108	0.115	120	1.460	242	59
14	0.110	0.125	116	1.575	230	57
15	0.112	0.120	121	1.620	240	60
Mea±	0.101±	0.12±	119.26±	1.543±	233.66±	58.73±
SD	0.00337	0.00703	1.70992	0.0612	8.08585	1.66762

egg production per year and average egg weight was found 233.67/bird and 58.73g/egg respectively. Haque et al. (2010) reported the annual egg production of local duck in Bangladesh was 79 eggs per layer with a weight of 48 g and a hatchability rate of 87%. The production performance and weight of eggs produced by Khaki Campbell duck was higher than local Bangladeshi ducks with minimum cost in scavenging system at rural area of northern part of Bangladesh.

CONCLUSION

Socio-economic profile of the duck farmers, management practices followed in duck farming and production performance of Khaki Campbell ducks in rural scavenging system were the main focus of the present study. The study indicates that most of the respondent farmers have secondary level education, vaccinated duck regularly, consult with government hospital during disease outbreak and the productive performance of duck is better than the local duck of Bangladesh in scavenging system. In this system under village condition Khaki

Campbell duck produce average 233.67egg per year, average age at sexual maturity was found 119.26days, average weight of egg was 58.73grams and average body weight at first egg was 1543 grams. As found, Khaki Campbell ducks are habituated with the ordinary feeding management provided by the small farmers in the studied scavenging system. It indicates that there are great potentials for an improvement of duck production in rural Bangladesh for household small scale farmers. Regular vaccination and use of balance diet can have a positive effect on Khaki Campbell duck rearing providing quality products for human consumption and reducing nutritional deficiencies and poverty of the country. Training in duck rearing has come out as felt need by the farm families. However, the introduction of training and input supply with scientific housing, feeding and breeding management and creating more extended provision from both government and NGO will definitely improve the current status of rearing Khaki Campbell ducks with the livelihood of the households of Pirganj

upazila of Thakurgaon district in Bangladesh engaged in scavenging duck rearing.

REFERENCES

1. Ahmed, S. (1986). Duck production in Bangladesh. In: Duck Production Science and World Practice, (Farrell, D.J. and Stapleton, P. Ed). University of New England, Armidale, Australia. pp.342-350.
2. Bangladesh Economic Review. (2012). Ministry of Finance, Government of the People's Republic of Bangladesh,
3. Bhuiyan, A.K.F.H. (2011). Implementation of National Livestock Development Policy (2007) and National Poultry Development Policy (2008): Impact on smallholder livestock rearers. Keynote paper presented at the South Asia Pro Poor Livestock Policy Programme (SAPPLP)-BRAC workshop held at BRAC Centre, Dhaka
4. Das, S.C., Chowdhury, S.D., Khatun, M. A., Nishibori, M., Isobe, N. and Yoshimura, Y. (2008). Poultry production profile and expected future projection in Bangladesh. *World's Poultry Science Journal* 64:99-116. Dhaka.pp.92-93.19
5. Hoque, M.A., Skerratt, L.F., Rahman, M.A., Beg, A.B. and Debnath, N.C. (2010). Factors limiting traditional household duck production in Bangladesh. *Trop Anim Health Prod.* 42:1579-1587.
6. Khaleque, M.A. and Alam, A.B.M.M. (1999). Evaluation of bio-economic performance of duck farming in Haor area. *Bangladesh Journal of Training and Development* 12 (1 & 2):93- 98.
7. Saleque, M.A. and Mustafa, S. (1996). Landless women and poultry: The BRAC "Model in Bangladesh". In Frand Dolberg and Paul Henning Peterson (eds). *Integrated Fanning in Human Development, Proc. Of the Workshop on 25-29, March. Tune Landboskole, Denmark.* 38-55.
8. Alam, M.B., Uddin, A.B.M.S., Bablu, M.A.Z.H., Kamaly, M.H.K., Rahaman, M.M. (2012). Socio-economic profile of duck farmers and duck management practices in Rajshahi region. *Bang. J. Anim. Sci.* 41: 96-105
9. Rahman, M.M., Khan, M.J., Chowdhury, S.D. and Akbar, M.A. (2009). Duck Rearing System in Southern Coastal Districts of Bangladesh. *Bangladesh Journal Animal Science.* 38: 132 – 141.