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Research Article

Productive and Reproductive Performances of Sylhet mete Duck in the Habiganj Region, Bangladesh

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Abstract

The present study was conducted to know the production and reproduction potentialities of Sylhet mete duck found in Habiganj region of Bangladesh. Data on a total of 58 adult Sylhet mete ducks were collected from 10 duck owners having Sylhet mete duck flocks in the Habiganj region. Informations were accumulated by using a structured questionnaire through personal interaction. Age at the first egg of Sylhet mete duck was found to be 174.29 ± 1.16 days. The average annual egg production, peak production, egg weight and breeding ratio were 146.25 ± 6.27, 26.25 ± 0.17 weeks, 64.96 ± 0.59 g and 1.53 ± 0.04, respectively found in ducks raised by farmers in villages of Habiganj region. The present study provided some baseline information on Sylhet mete duck of Bangladesh, which could be useful for genetic characterization, conservation and future improvement programs in the country.

Keywords: Sylhet mete, reproduction, production, flock

INTRODUCTION

Poultry is one of the major animal protein sources in Bangladesh, of which ducks being an important poultry species, can contribute efficiently in increasing egg and meat production in the poultry production sector. Duck population in Bangladesh has been reported to be 45.12 million (BER, 2017) mostly of indigenous type although genetic dilution in some regions has occurred due to indiscriminate crossbreeding with high yielding breeds. Small-scale duck production has a significant contribution to household economies, food security, and improving the nutritional status of the rural poor, especially in developing countries like Bangladesh. Ducks are considered as the second most preferred poultry species in Bangladesh after chicken mainly used for egg and meat purposes. Ducks in Bangladesh are traditionally reared as family poultry following free-range scavenging system. Farmers, who cannot afford to keep large animals because of the big investment required, can easily maintain a few chicken or ducks within their homestead premises (Das *et al.*, 2008). The contribution of duck meat and eggs are about 30% of the total poultry meat and eggs produced in the country (Islam et al., 2003). Besides, Khaki Campbell, Indian Runner, Xinding, Pekin and their crosses are getting pop-

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ular due to better production and are being reared by limited farmers in some selected areas. Ducks thrive on the same food as chickens, but they graze and forage for a higher percentage of their own food than chickens, which means less economic cost. Duck eggs contain more protein, calcium, iron, potassium, and pretty much every major mineral than chicken eggs (Islam et al., 2003). Farmers prefer indigenous ducks in scavenging rearing system due to high adaptability to their farming conditions, unique foraging and disease resistance characteristics. They possess several attributes over chicken such as they are more prolific and produce 15-20 eggs in a clutch more than backyard chicken. Ducks have long productive and profitable life, i.e., they used to lay in the second and third year also. Marshy, swampy riverside, wetlands and barren lands are not suitable for chicken rearing but are suitable for duck rearing (Valavan et al., 2009).

Traditionally every household keeps just a few ducks in association with chicken throughout the country except in large water body areas.

Contrastingly ducks are concentrated in northeastern and coastal regions (southern) where large water bodies being associated with big duck flocks ranging from around one hundred to more than one thousand (Khanum et al.,2005). Duck farming in these areas is characterized by traditional, extensive, nomadic, and seasonal. There are several small sedentary groups of growers, breeders, and nomadic duck raisers keep moving their flocks in a cyclic fashion from one region to another, depending on the amount of feed available in the marshy land, canal, river and haor areas. Among the indigenous ducks, the "Sylhet mete", and "Nageswari" were two improved breeds/varieties available in and around the regions of Sylhet and Assam. However, these breeds are now at risk of extinction due to rampant crossbreeding with exotic breeds. Sylhet mete, an egg type native duck breed is found in few areas of greater Sylhet district of Bangladesh, Karimganj and Cochar districts of Assam. The original homeland of this variety of duck is believed to be the Sylhet district of Assam, which is now in Bangladesh (Zaman *et al.*, 2005). Sylhet mete ducks are found to be distributed in the Barak valley of Assam bordering Meghalaya, Tripura, Mizoram and adjacent region of Bangladesh (Islam *et al.*, 2002). The Barak Valley basin is an agriculture-based area surrounded by hills and rivers where an abundance of surface water and paddy fields and duck farming has traditionally become popular among the people of these regions. Over the years, indiscriminate crossbreeding and lack of scientific management have eroded this valuable germplasm in India (Zaman *et al.*, 2005) and the same scenario has been prevailed in Bangladesh.

Regarding its potentialities, Central Duck Breeding Farm (CDBF), Narayangonj and Bangladesh Livestock Research Institute (BLRI), Savar, Dhaka collected Sylhet mete ducks from greater Sylhet districts and has been maintained two nucleus flocks in the respective institutions (personal communication). CDBF has been distributing a small proportion of ducklings of other exotic pure breeds (Khaki-Campbell, Xending, Pekin, etc.) in potential duck areas for the last three decades. Therefore, the remnants of Sylhet mete duck could be seen in the large flocks of duck rearing zones. There is no scientific report available about this valuable genetic resource in Bangladesh. Considering the above facts and circumstances, the study was designed to know the productive and reproductive performances of Sylhet mete duck.

MATERIALS AND METHODS

Time and place of the study

The present study was conducted at greater Habiganj region. The duration of the study was from March 2018 to September 2018.

Selection of the study area

The study area was selected on the basis of concentration and availability of this duck breed, based on the preliminary information acquired from different livestock personnel as well as duck farmer's where Sylhet mete ducks are available. Randomly selected villages under Habiganj districts were taken under consideration for the primary level of data collection.

Preparation of questionnaire

A questionnaire was carefully designed, keeping in mind the core purposes of the study. The questionnaire contained both open and closed form questions. Simple and direct questions were included in the questionnaire for collecting information of Sylhet mete duck from the respondent farmers. The interview was conducted at the farmer's residences.

Collection of data

In this study, a total number of 11 Sylhet mete duck owner from different villages of Habiganj were interviewed randomly. In order to collect the relevant infor-

mation, personal interview and on spot recording were done on duck population. When the interview was over, the information was checked carefully before leaving the farmers house.

Production and reproduction performances-

Age at first egg (AFE): The days between from the date ducklings are hatched to the day when they lay the first egg. It was recorded based on the farmer's opinion.

Annual egg production (no.): The annual egg production data was collected from the farmer's opinion.

Peak production of egg per week: It is the period when duck lays her highest number of eggs.

Egg weight (g): Egg weight was measured by using digital electric weighing balance.

Breeding ratio: The ratio of adult male duck to adult female duck in the shed of the farm.

Statistical analysis

Data were first arranged and organized in Microsoft excel worksheet and then least square mean with standard error (LS Mean±SE) was estimated with the help of Statistical Analysis System (SAS, 1998) package.

RESULTS

Data of 58 Sylhet mete ducks selected from 11 farms are presented in Table 1.

Table 1: Distribution of Sylhet mete ducks selected from different farms during the study.

Farm	Flock Size	Number of Sylhet mete duck in the flock	Number of representative samples
Farm-1	45	20	10
Farm-2	32	17	6
Farm-3	21	9	5
Farm-4	18	10	6
Farm-5	27	19	9
Farm-6	10	4	1
Farm-7	7	2	1
Farm-8	15	6	3
Farm-9	60	35	8
Farm-10	43	22	7
Farm-11	11	5	2
Total representative sample			58

Table 2: Least square mean with standard error (LS Mean ± SE) of productive and reproductive performances of Sylhet mete ducks observed in study areas.

Trait	**LS Mean ± SE**
Age at first egg (days)	174.29 ± 1.16
Total number of eggs per year	146.25 ± 6.27
Peak production of eggs (weeks)	26.25 ± 0.17
Egg weight (g)	64.96 ± 0.59
Breeding ratio	1.53 ± 0.04

LS Mean- Least Square Mean; SE- Standard Error.

The age at first egg (AFE) was recorded as the age in days from the date duckling is hatched out to the day when she lays her first egg and average was taken into consideration.

Table 2 presents that observed values of age at first egg, total number of eggs per year, peak production of eggs, egg weight and Breeding ratio was 174.29 ± 1.16 days, 146.25 ± 6.27, 26.25 ± 0.17 weeks, 64.96 ± 0.59 g and 1.53 ± 0.04, respectively.

DISCUSSION

Sylhet mete duck breed is considered at the risk of extinction. The land ecology has a strong influence on duck production systems, distribution and demographic dynamics of the duck population in Bangladesh. This breed is sporadically distributed with very low concentration in the districts of North Eastern regions of Bangladesh. Most of the farmers have been rearing this breed along with other available ducks which indicated potential genetic admixture. But there is no sufficient scientific documentation in this regard. Therefore, the study was conducted to observe the productive and reproductive performances of Sylhet mete ducks maintained in free ranging and intensive system.

In the present study, the total number of eggs laid per year is 146 ± 6.27 eggs and peak egg productions were found in 26.25 ± 0.17 weeks. This result is in accordance with the findings of Mahanta *et al.* (2001) and Islam *et al.* (2002), where they mentioned that the average egg production of Sylhet mete duck varied from 140-160 eggs.

However, relatively lower egg number was found by Sharma *et al.* (2003) the average egg number at 40, 56 and 72 weeks of age were 64.62 ± 0.34, 85.54 ± 0.40 and 110.68 ± 0.75 eggs respectively. This might be due to malnutrition and poor management practices. In another study, Valavan et al. (2009) reported that average

annual egg production was 200-220 in Sylhet mete duck under intensive management system, which was higher than in the present study.

In Chara and Chemballi ducks of Kerala, Mahanta *et al.* (1998) reported the egg number up to 72 weeks of age (8 laying cycles of 28 days each) as being 116.09 and 124.95 eggs respectively with peak production in fifth laying cycle. On the contrary, indigenous ducks of Bangladesh produce only 60-80 eggs per year (Rahman *et al.*, 2009). Studies also reported the sexual maturity age to be 24-27 weeks (Hoque *et al.*, 2001; Rahman *et al.*, 2009). These results depicted a wide variation existed in egg production potentialities of Sylhet mete duck. Balanced nutrition, better management and selection over the years are the attributing factors for higher egg production.

The average egg weight was estimated as being 64.96 ± 0.59 g in the present study. Similar egg weight was reported by Sharma *et al.* (2003) in Sylhet mete duck and Murugan *et al.* (2009) in Charachamballi duck of Assam. Both findings reported the average egg weight of 62.45 and 71.6 g respectively. The average breeding ratio was found to be 1.53 ± 0.04. This result is similar to the findings of Zaman *et al.* (2005) and Islam *et al.* (2002) who reported male and female ratio of 1:5 in Sylhet mete duck. Mahanta *et al.* (2001) reported it as1:6 in the same duck breed of Assam.

Variation with superior quality was accounted like the study population are not delayed in first egg laying. While number of egg laying and egg weight are endorsing previous finding and the study population are in optimum production. Moreover the breeding ratio is consistent with prior findings. In spite of that the significant variation within the same genetic background might be due to better management, balanced nutrition, optimum feeding and selection practices.

From the interpretation of analyzed data and obtained results, it may be concluded that if proper management strategies can be taken, the productive and reproductive characteristics of Sylhet mete duck reared by the farmers could be increased and the existing findings could help duck farmers and Veterinarians to take breeding and management strategies.

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AUTHORS CONTRIBUTIONS

It is clearly stated that all author has contributed significantly to the study.

CONFLICT OF INTEREST

It is declared that there is no conflict exists among the authors.

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