



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; 8(4): 2415-2417

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Received: 19-06-2020

Accepted: 10-07-2020

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Feeding practices of ducks and ducklings and their productivity in north-eastern zone of Tamil Nadu

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Abstract

Duck farming in India is characterized by nomadic, extensive, seasonal farming and it is still held in the hands of small and marginal farmers and nomadic tribes. A study was conducted with the objective of assessing the feeding practices and the productivity of duck farms in North Eastern Agro climatic zone. In Tamil Nadu, seventy percent of the duck population is concentrated in six districts namely, Kancheepuram, Thiruvallur, Villupuram, Cuddalore, Vellore and Thiruvannamalai, falling under northern agro-climatic zone. A sample of 100 duck farmers were selected for this study by proportionate random sampling method based on district duck population. The results of the study revealed that almost all the duck farmers fed their ducklings with supplementary feed (mostly rice and cumbu) up to one month of age. They gradually increased the particle size of the feed as well as the quantity of feed according to the age of the birds. Most of the egg-type duck farmers (56.92 percent) were following foraging alone to feed their ducks and 43.07 percentage of duck farmers were practicing foraging and supplemented feeding (Rice, paddy and cumbu) at lean seasons. Highest proportion of the duck farmers (70.00 percent) chose post-harvested paddy field as a major foraging area due to more availability of paddy field in the study area followed by lakes (11.00 percent) and others (19.00 percent). The study on productivity revealed that Weight of adult duck ranged from 1.2 to 1.5 kg with an average of 1.27 kg. In the flock of 1000 female birds, the average egg production was 300 eggs per day and the peak production was about 600 eggs per day. Egg production ranged from 80-150/ duck/ year and weight of duck eggs ranged from 55-62 g with an average of 58.04 g.

Keywords: Ducks, ducklings, feeding, foraging, productivity

Introduction

Asia which is considered as the motherland for ducks as around 87 percent of the world duck population was found in. China occupied first position with a duck population of 665.06 million in 2014 followed by India which registered at an annual growth rate of 0.88 percent. Duck farming in India is characterized by nomadic, extensive, seasonal farming and it is still held in the hands of small and marginal farmers and nomadic tribes. There are three systems of duck rearing in India i.e., free range system, Confined system and Indoor system. Duck rearing can also be integrated with other farming such as fish farming and/or paddy cultivation. For better production, extra feed supplements are necessary. Rajput *et al.*,^[1]. The natural tendency of foraging on aquatic weeds, fallen grains, snails, earthworms, small fishes, algae, green legumes, fungi and various types of insects etc., reduce the feed cost. The life span of duck is more than that of chicken and has less mortality rate. In-case of egg production, ducks lay eggs for a long-time period and, they lay almost 90 percent of the eggs in the early morning. Duck has higher red muscle fibre in breast compared to chicken and is considered as red meat. Ducks are resistant to common avian diseases. Duck products such as eggs and meat have a great demand as they are good source of protein and iron. Tai and Tai^[2]. The current report on main duck meat producer countries indicates that, eight countries from Asia are among the top fifteen countries worldwide.

Annual daily consumption of indigenous duck is about 50 kg. It requires nearly 3-4 kg feed for a dozen of egg and 3.22 kg feed for 1 kg of meat. Gupta^[3]. The desirable sex ratio for good fertility and hatchability for ducks is 1:6 for intensive rearing and 1:15-20 for extensive rearing system. Ducks are more vigorous and less subject to diseases than chicken and turkeys. For better disease prevention vaccination is necessary. Rajput *et al.*,^[1].

Composition of amino acids and fatty acid in duck meat is making it highly nutritious especially because of valuable omega 6 to omega 3 fatty acid ratios, so that it can be utilized to meet the animal protein needs of the present world. This renders the duck as an important alternative poultry venture. Pingel [4]. Taking the above said information into consideration the study was conducted with the objective of studying the feeding practices followed and subsequent productivity in the duck farms of North Eastern Agro climatic zone of Tamil Nadu.

Materials and Methods

Sampling design

For this study, the top three duck populated districts were selected from the north eastern agro climatic zone, viz., Thiruvallur, Kanchipuram and Villupuram district. These three districts alone accounts for 58.34 per cent of the total duck population of Tamil Nadu. From the three selected districts of north eastern agro climatic zone, 100 duck farmers were selected for this study by proportionate random sampling method based on district duck population. In which 53 duck farmers were from Thiruvallur, 26 farmers were from Kanchipuram and 21 farmers from Villupuram districts of Tamil Nadu.

Data collection

The primary data was collected by personal interview method with the help of a well fabricated interview schedule. Among the feeding practices, particulars on the source of feed, whether sufficient quantity of feed is provided to the ducklings or not, use of feed ingredients and time of feeding the ducks were collected. The collected data were analysed by conventional average and Percentage analysis.

Results and Discussion

Feeding practice followed by the duck farmers in the study area

Feeding is the most important economic variable which influences total cost of duck farming. The two types of feeding practice followed by duck farmers in the study area is presented in the table 1. They are natural (forage) and supplemented feed which matches with the report of Jha *et al.* [5]. In the forage feeding system, farmers were not sure about the presence of essential nutrients in required proportion. Three major types of feed ingredients used in the study area were broken rice, paddy and cumbu. Previous report by Jha *et al.* [5] also stated that, feed ingredient like rice and broken rice were the major ingredient used to feed ducks in Bangladesh.

Table 1: Feeding pattern followed by the duck farmers in the study area

Feeding pattern	Egg type	Meat type	Total
Only scavenging	28 (43.07)	25 (71.42)	53 (53.00)
Scavenging+ Feeding	37 (56.92)	10 (28.57)	47 (47.00)
Total	65 (100.00)	35 (100.00)	100 (100.00)

Figure in the parenthesis indicates per cent to the total

Feeding of ducklings

Feeding of duckling is a major part in duck farming. To reduce the percentage of mortality, care should be taken while feeding ducks along with supplementary feeding. Almost all the duck farmers were feeding their ducklings with

supplementary feed (mostly rice and cumbu) up to one month of age. They gradually increase the particle size as well as the quantity of feed according to the age of the birds. Ducklings were fed with rice flour mixed with adequate water for first 4 to 5 days, followed by one-fourth size of broken rice for next 5 to 6 days followed by half rice for the next one week and full-size rice for rest of their rearing period. Majority of the duck farmers stop hand feeding at the age of 25 days and allow them in the water body.

Feeding of adults

Most of the egg-type duck farmers (56.92 percent) were following foraging alone to feed their ducks and 43.07 percentage of duck farmers were practicing foraging and supplemented feeding (Rice, paddy and cumbu) at lean seasons. While most of the meat-type duck farmers (71.42 percent) were following foraging alone to feed their ducks in order to reduce the feed cost, and only 28.00 percentage of the duck farmers were practicing foraging along with the supplemented feed to meet out the feed requirement. The reason might be due to the availability of post- harvested paddy field in the study area since the cultivation of paddy crop is more predominant in the study area. Ghose *et al.* [6] reported that most of the farmers depended on natural feed sources (60 percent) while some provided supplementary feed (40 percent) for their ducks in southern areas of Bangladesh. Halder *et al.* [7] reported that 76.67 percent of the duck farmers provided supplemental feeds besides ranging. Tamizhkumaran *et al.* [8] stated that the adult ducks are allowed for forage mainly on post-harvested paddy fields for grains and in ponds and channels for snails and fishes.

Foraging area chosen by the duck farmers

Foraging area chosen by the duck farmers is presented in the table 2. Majority of the duck farmers (70.00 percent) were choosing post-harvested paddy field as a major foraging area because of more availability of paddy field followed by lakes (11.00 percent) and others (19.00 percent) which includes rivers, ponds and canals. Jha *et al.* [5] stated that 46.50 percent of the duck farmers maintain their ducks by scavenging alone whereas 53.50 percent of the duck farmers gave supplementary feeding to their ducks to increase egg production. Halder *et al.* [7] reported that 76.67 percent of the farmers in West Bengal were practicing foraging alone and 23.33 percent of the duck farmers practice foraging as well as supplementary feeding.

Table 2: Place of foraging by duck farmers in the study area

Foraging area	No. of duck Farmers
Paddy field	70.00 (70.00)
Lake	11.00 (11.00)
Others	19.00 (19.00)
Total	100.00 (100.00)

Figure in the parenthesis indicates per cent to the total

Productivity of duck farming in the study area

The productivity parameters in duck farming conceded in the study were age at sexual maturity, adult body weight, egg production and egg weight. Age at sexual maturity of duck varied from 140 to 180 days with an average of 153.12 days. Among the Desi ducks of Kerala, Ravi *et al.* [9] observed an

age at sexual maturity of 149.03 ± 2.5 days under cage system of rearing. While, Gajendran *et al.* ^[10] recorded the age at sexual maturity of 24 weeks of age (154 days) in non-descript ducks of Tamil Nadu under semi-intensive system of rearing. However, Mahanta *et al.* ^[11] reported that age at first egg of Chara and Chemballi ducks of Kerala under range condition in Assam as 142 days.

Weight of adult duck ranged from 1.2 to 1.5 kg with an average of 1.27 kg. The highest proportion of the farmers stated that the weight of adult duck was found to be 1.2 to 1.4 kg. Pervin *et al.* ^[12] also observed an average adult body weight of duck ranged from 1.3kg to 1.5 kg.

In the flock of 1000 female birds, the average egg production was observed as 300 eggs per day and the peak production observed was about 600 eggs per day. Egg production ranged from 80-150/duck/year. Non-descriptive ducks usually lay up to 160-200 eggs per annum (Gajendran and Karthickeyan, ^[13] however in this study, average egg production of *Arani cross* breed was found to be 127.75 eggs with a standard deviation of 21.22. Islam *et al.* ^[14] reported that the average egg production per duck per year in Bangladesh was observed to be 117.5 eggs. The average egg production of 130-140 eggs per duck per annum in Kerala state which is in contrary with the findings of Halder *et al.* ^[7], who reported that the average egg production per annum per non-descriptive duck was found to be 96.2 eggs in West Bengal. The average egg production of nomadic duck farms was 100 eggs per duck per year Tamizhkumaran *et al.* ^[8]. Pervin *et al.* ^[12] also observed that the average annual egg production of scavenging Desi ducks was found to range from 51 to 70 eggs /duck/year and maximum egg production was attained in the rainy season.

The present study revealed that the weight of duck eggs ranged from 55- 62 g with an average of 58.04 g. The average egg weight of duck egg was observed as 61.11 grams. Gajendran and Karthickeyan ^[13].

Conclusion

The results of the study concluded that almost all the duck farmers fed their ducklings with supplementary feed (mostly rice and cumbu) up to one month of age. They gradually increased the particle size of the feed as well as the quantity of feed according to the age of the birds. Highest proportion of the duck farmers chose post-harvested paddy field as a major foraging area due to more availability of paddy field in the study area. The productivity would be improved further by enhancing the role of technology in scientific feeding practices for adult ducks and ducklings. Hence, the extension efforts have to be stepped up to disseminate the knowledge of latest technology in duck farming by the line departments and other extension agencies.

Acknowledgement

The authorities of the Tamil Nadu Veterinary and Animal Sciences University, MMC, Chennai are gratefully acknowledged for their permission to conduct the study.

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