

A production report on the problem and prospects of turkey production in Bangladesh



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A production report on the problem and prospects of turkey production in Bangladesh



A Production report submitted as per approved styles and contents

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Abstract

The present study was done to know the feeding system, management practice, problems and prospects of turkey farming in different turkey farms of Mymensingh division of Bangladesh. Data were collected from 6 turkey farms under the Mymensingh region. The observation was taken of status of farmers, source of technical support, the turkey flock size (according to age variation), feed intake, housing system, feeding system, quantity of feed supplied to each turkey/day, floor space, feeder space, waterer space uses in turkey marketing age, weight, price of turkey. Among 6 farms only 66% of farms maintain a common vaccination schedule, other farms use only new-castle disease vaccine. Most of the turkey farmers rear turkey in small scale semi-intensive system (50%) was generally practiced by the rural farmers. They have very little idea about breed and variety of turkey and prevention of diseases of turkey. But farmers have very little knowledge about turkey management procedure. There is no specific feeding standard for turkey. Farmers used to feed their turkey according to broiler and layer feeding manual. So, research needed to improve the status of turkey.

Keywords: Turkey, Production, Fertility, Diseases, Vaccination.

Chapter-1

Introduction

Introduction Poultry sector of Bangladesh has been expanding day by day and therefore, is providing a source of protein as well as employment in the country. Turkey production may not be very common in Bangladesh, but district livestock officer and the farmer who have found financial success in turkey production certified that it could be a good way for the Asian country to prosper [1]. However, the domestic turkey *Meleagrisgallopavo*, a large poultry bird, is one of the two species in the genus *Meleagris* and the same as the wild turkey [2]. Commercial turkey farming is a profitable business idea in Bangladesh. Turkey grows faster like broiler chickens and become suitable for slaughter purpose within a very short time. Turkey farming for meat production is very popular than egg production in Bangladesh. Although some people keep one or several toms (a mature male turkey) as a pet. Turkey farming is similar to other poultry birds farming like chickens, ducks, quails etc [3]. It provides valuable amounts of protein, and therefore, turkey is often regarded as a high-protein food. Skinned turkey breast provides the most protein per serving, (34 g in 4 oz). Besides this the consumers get 31 g and 21 g of protein from 4 ounces of turkey leg and thigh respectively [4]. Turkey is an excellent source of vitamin B3 (niacin) and provides over 13 mg in 4 oz, or over 80% of the Dietary Reference Intake (DRI). It is also a very good source of vitamin B6, amounting 0.92 mg in 4 oz (54% DRI). By providing 22% DRI for choline in 4 oz, turkey also ranks as a good source of this B vitamin. In terms of minerals, turkey is the richest in containing selenium and provides over 60% of the DRI in a single 4-oz serving [4]. Therefore, zinc, copper, phosphorus, magnesium, potassium, and iron are also provided by this turkey meat with noteworthy amounts [4]. For these reasons, turkey is more resistant to disease compared to other poultry species like chicken, duck and quail. It has also been reported that mortality rate of turkey is very low compared to other poultry bird as it is resistant to Marek's and Infectious bronchitis, and commonly encountered with other diseases like mycoplasmosis, fowl cholera, erysipelas and hemorrhagic enteritis [5]. Turkey is a unique bird, which is suitable for rearing in hot humid climatic condition like Bangladesh. But due to unknown reasons, it has not been explored in Bangladesh and other developing countries. In fact, turkeys are adaptable to wide range of climatic conditions and can be raised successfully almost anywhere in the world if they are well fed and protected against diseases and predators. The meat of turkey is considered by many peoples as a luxury meat. Moreover, it has an aesthetic value due to their beauty [6]. Because of the above reasons, turkey is becoming popular gradually in developing countries like

Bangladesh [7]. There is no doubt that exciting times lie ahead for the Bangladesh poultry industry. The combination of basic low input-low output, subsistence level growers, and all combinations up to end including large scale commercial production, presents a daunting and stimulating prospect to the government preoccupied with poverty and malnutrition. Nevertheless, the poultry industry represents one way of accomplishing several national goals under a single banner. Employment, poverty alleviation and improved nutrition, for example, are all potential benefits arise from continued support and encouragement of poultry development. The poultry sub-sector is crucially important in the context of agricultural growth and improvement of diets particularly important in that it is a significant source of protein and nutrition in the household's nutritional intake in Bangladesh. Turkey farming is undoubtedly an attractive economic activity, especially for the rural women and poor population in the country [8].

Chapter-2

Materials and Methods

Study areas

The study area included Jamalpur, Muktagacha, Fulbaria, Valuka, Sherpur, Netrokona of Mymensingh division of Bangladesh. These areas are suitable for turkey rearing. We visited six farms during our study period.

Sample size

Name of areas	No. of the farmers house	No. of birds
Jamalpur	1	64
Muktagacha	1	12
Fulbaria	1	25
Valuka	1	34
Sherpur	1	7
Netrokona	1	100

Time of data collection

The data were collected during the period from 5 February 2020 to 5 August.

Questionnaire

Sl. No:	Date:
Name of the Farmer:	Occupation:
Address:	Mobile no:
Farm size:	Breed:
Age:	Month
No. of Tom:	No. of Hen:
No. of poult:	Materials use:
Types of housing:	Management Practices:
Feed supply:	
Name of Disease:	Health status:
Marketing System:	Vaccine:
Investment:	Income:
Housing cost:	Feed cost:
Profit (average):	Others cost:

Data collection procedure

For successfully acquisition of the study, the farmers were selected randomly, and data were collected through direct field observation and face to face interview with the pre-tested questionnaire. A direct questionnaire was composed of the number of turkeys in the farm, rearing system, breeding system, feeding system, housing system of turkey, utensils used as feed ingredients, brooding pattern, poult rearing system and information regarding the marketing system of turkey eggs and meat, cost and annual income from turkey, were recorded effectively as possible. Moreover, information about diseases and vaccination was also recorded.

Data analysis

The data were evaluated in total and mean form.

Chapter-3 Results and Discussion

Numbers of turkey farm

In Mymensingh, the turkey rearing farms are very few. Most of them started their farm with one or two pairs of turkey. But now they have many turkeys.

Table 01: Turkey rearing Farm.

Farms	Name of Farmer	Number of turkeys
F1	Sfafiq Ahmed	64
F2	SumonMiah	12
F3	Jakir khan	30
F4	RuhelHasan	34
F5	Nurul Islam	75
F6	Olid Ahmed	150
Total		365
Mean		60.83

The number of turkeys in different category

Most of them farmer prefers to sell their turkey eggs in the local market and that's why the number of poults is few. They also sell Tom and Hen in the local market.

Table 2: Turkey in the different category.

Farms	Number of Tom	Number of Hen	Number of Poults
F1	12	48	4
F2	3	7	2
F3	8	7	15
F4	4	18	12
F5	10	35	30
F6	35	55	60
Total	72	170	123
Mean	12	28	20.5

Litter materials of Turkey

Most of the farmer does not use litter for their turkey. They rear their turkey on ground. Very few farmers

Feeding

The study showed that 75% farmers used commercial, homemade, and both homemade and commercial feed, respectively for feeding their turkey (Figure 4). None of the interviewed turkey farmers calculated feed efficiency (FE) and wastage of feed found happened in many farms due to lack of using proper feeding methods). use litter materials. They use sawdust, soil, rice husk as litter materials.50% farmer does not use any litter material. 17% farmer use soil, 16% farmer use rice husk, 17% farmer use sawdust for litter material. They change the litter in every 15-20 days.

Number of times serves feed for Turkey

67% of farmers serve the feed three times and 33% farmer serve two times in a day.

Table 4: No. of times serves feed.

Farms	Times of feeding		
	8 am	12 pm	4 pm
F1	1	1	1
F2	1	-	1
F3	1	-	1
F4	1	-	1
F5	1	-	1
F6	1	1	1

Most of the farmer rear turkey on ground. Very few farmers use sawdust, soil, rice husk as litter materials. 50% of the respondent farmer does not use any litter materials. 17% farmer use soil,16% farmer use saw dust as litter materials that were changed in every 15-20 days.

Table 5: Litter materials of turkey.

Farms	Litter
F1	No
F2	Soil
F3	No
F4	No
F5	Rice Husk
F6	Saw dust

Feed ingredients for turkey

33.33% of farmers use commercial feed, 16.67% farmer use homemade and 50% farmer use both commercial and homemade feed for their turkey.

Vaccination

67% of the farmers vaccinate their turkey regularly and 33% of the farmers vaccinate irregularly. They mostly collect ND vaccine from Upazila Veterinary Hospital. Some farmer also uses Fowl Pox vaccine for their turkey. They use BCRDV at 3-7days and a booster dose at 21 days as the eye drop, RDV at 1.5-3 month of age and booster dose after 6 months of age as intramuscularly.

Egg production

The egg production of turkey is usually between 80-100 eggs per year. But the average production is 90 per year. In my study, the production is beyond their standard production. This may be due to inadequate feed and management system, stocking density, lack of scientific knowledge, diseases, improper treatment, ignorance of vaccination, etc. In F1, 35 hens give 3045 eggs and average. egg production is 87% roundly for each hen. In F2, 6 hens give 490 eggs and average. egg production is 82 per year roundly for each hen. In F3, average. egg production is 72% which is lower than F2. It's may due to the age of flock or improper management. The lowest % of egg production in F5 than the others. It's may due to improper feeding and management.

Table 6: Egg production.

Farms	No. of laying hen (Number)	Annual egg production (Number)	% of egg production
F1	35	3045	87%
F2	6	490	82%
F3	5	360	72%
F4	12	815	68%
F5	25	1625	65%
F6	40	2800	70%
Total	123	9135	74.26%
Mean	20.5	1522.5	74%

Marketing

The meat of turkey has nutritional and sensorial properties which make it an almost ideal raw material for rational and curative nutrition. The turkey can produce 30gm of digestible protein from the 100gm feed. The dressing percentage of turkey is 80-87%, which is highest of all farm species.

- The body weight of tom and hen turkey at the 16th week is 7.26 kg and 5.53kg. This is the optimum weight for marketing the turkeys.
- The cumulative feed efficiency at the marketing should be 1:2.8 for toms and 1:2.7 for hens.

In our study area, we found that the farmer used to TAKA 300-350 for selling four egg. The poult price may vary but commonly TAKA 140-150 (15 days) and TAKA 700-800 (2 months) for per young. Price of adult one varies with weight. 8 kg bird regards at 5000-5500 TAKA.

Problems of turkey farming

Low fertility, hatchability and use of turkey reproduction technology

From the present study it was found that none of the farmers used AI technique and even they had not heard about it earlier regarding turkey breeding. In fact, adult body weight of tom has been increased over time due to advance researches and become too large to achieve natural fertilization. Anthony (2001) reported that modern White Turkey was developed for rapid growth rate through a selection process, which makes it so different from their wild ancestors that they are unable to mate naturally because of their heavy weight and AI has become necessary. Moreover, it has been reported that the hatchability of medium sized turkey eggs is better than that of small or large eggs (Kaygisiz et al., 1994). Age of the breeder is important factor which affects egg weight, internal and external quality egg, hatching performance and the quality of poult. It was reported that as hen age increases, the weight of egg increases and both shell quality and internal egg quality decrease (Erensayın, 2000). In addition to low egg yield, unsatisfactory egg fertility and hatchability constitute a major problem for turkey breeding enterprises (Ozcelik et al., 2009).

Inadequate access to technical information and support

The farmers did not have adequate access to necessary information regarding turkey rearing and in case of problems they did not get enough technical support from different government and non-government line agencies. This situation is also prevailed in other developing countries. Mbanasor

and Sampson (2004) also reported that there was obvious lack of information on specific requirements for turkey production in Nigeria.

Low marketing facilities

Market of turkey is unlike broiler and layer in Bangladesh. There is absence of well-organized market for turkey and its products. No structured market value chain has been identified yet in Bangladesh. Farmers buy and sell turkey mainly through personal communication, Internet services (bikroy.com, Facebook etc.) and at the market of ornamental birds. Turkey selling problems is also identified in other developing countries as stated by Peters et al. (1997) in a study conducted on small holder local turkey production in Ogun State Nigeria, found that sale of turkeys were more during Christmas and festive period than other periods of the year. Although, turkey meat is being sold in department stores in capital city Dhaka, a large numbers of consumers were not habituated of taking turkey meat.

Poor housing

Farmers did not know the scientifically accepted space requirement for rearing turkey. They gave space on the basis of assumption. Moreover, they were not aware of about using of suitable litter materials and their management. Many farmers did not take special care during extreme hot and cold situation which ultimately hampered the production performance of birds.

Non availability of manufactured feeds and feeding standard

Feeds for turkey are not manufactured by any feed mill in Bangladesh. So farmers fed their turkeys by their homemade feed as well as a mixture of homemade and broiler/layer feed. They did not know the scientific requirement of energy, protein and other nutrients for different categories of turkey. Similar things was happened in Nigeria as reported that turkey production in Nigeria has largely remained at the smallholder level due to high cost of feed, inconsistency in feeding program, as well as lack of knowledge of the adequate levels of nutrient requirement (Ojewola et al., 2002). Although turkey is a good forager, some of the farmers did not know this fact so that they could not reduce feeding cost. Farmers did not have expertise to formulate balanced rations for turkey, thereby relying on rations originally formulated for layer and broiler chicken, with the assumption that chicken feed could bring same or better results. In this connection Etuk (2005) reported that lack of knowledge of limitations of feed ingredients used in turkey feeds leads to poor growth. But proper nutrition is a

basic prerequisite for successful poultry production (Kekeocha, 1984), to increase resistance to diseases and explore genetic potentiality.

Inadequate capacity building facilities

There is absence of opportunity for capacity building of turkey farmers in terms of receiving training, getting information, participating in workshop and seminar. As most of the concern stakeholders are not aware enough about turkey farming in Bangladesh, farmers are not getting required knowledge and skill. Therefore they are using traditional procedure for rearing turkey. But egg weight, fertility, hatchability and late embryonic mortality varied greatly between traditional and modern breeding management system (Lariviere et al., 2009).

Prospects of turkey farming

Adapted to the climate of Bangladesh

Turkey is a unique bird which is suitable for rearing in hot humid climatic condition like in Bangladesh. But due to unknown reasons it has not been explored in Bangladesh and other developing countries. In fact, turkeys are adaptable to wide range of climatic conditions and can be raised successfully almost anywhere in the world if they are well fed and protected against diseases and predators. The meat of turkey is considered by many as a luxury meat. Moreover, it has an aesthetic value due to their beauty (Ogundipe and Dafwang, 1980). For this reason turkey is becoming popular gradually in developing countries like in Bangladesh. Anandh et al. (2011) reported that commercial turkey farming is becoming popular in India.

Low disease prevalence

Turkey is more disease resistant in comparison to other poultry species like chicken, duck and quail. Mortality rate of turkey is very low in comparison to other poultry bird. Sampath (2012) reported that turkeys are resistant to Marek's and Infectious bronchitis and commonly encountered with other diseases like mycoplasmosis, fowl cholera, erysipelas and hemorrhagic enteritis. Farmers mostly do vaccination only for New Castle disease and Fowl cholera.

Low feeding cost

In fact, feed cost represents two thirds of the total costs in a poultry production system and consequently it would be valuable to identify animals that eat less but perform at the same level as their contemporaries. Turkeys are good foragers and it could reduce feeding cost. However, other poultry species such as geese and turkey can obtain added nutrients from forage because they are better able to digest fiber due to larger microbial population in their digestive tracts (Brad et al., 2010). On the other hand, Soliven (1984) reported that according to opinion of farmers of the Philippines, turkey rearing is profitable as long as the poults are properly fed and taken care of, and cost of production is cheap as almost 50% of the feed they eat is green vegetables and field grasses as supplement to commercial feeds.

Higher market demand

At present turkey market is limited to some particular customers as an ornamental bird as well as for meat purposes; and its price is higher than other poultry species. There are a good number of Christian people in Bangladesh who are fond of turkey meat in Christmas day. So there is huge opportunity to expand turkey market in Bangladesh as well as in abroad.

Alternative source of income and protein

While broiler meat market is facing problems of higher diseases and lower taste, turkey meat could be an alternative for consumers. So it could be an effective alternative source of protein. Moreover, this bird is quite suitable for uplifting livelihoods of small and marginal farmers as it can be easily reared in free range and under both intensive and semi-intensive system with little investment for housing, equipment and management. It may create good opportunity for unemployed youths to start farming and earn income. Turkey bird has a promising potential to be an alternative to livestock in meat production (Nixey, 1986). In the context of competitive feeding and management cost different countries searched such alternative source for protein. Ok oruwa et al. (2006) reported that with the continued rise in the cost of production of cattle, sheep and goat, which are the primary sources of animal protein in Nigeria, it has become very necessary to explore efficient and less common but potential sources of animal protein for economic viability. Male and female British United Turkey reached, at 16 weeks of age, 14.60 kg and 10.25 kg, respectively (BUT, 2005). Moreover, the turkey has high dressing percentage that could amount to 87% of slaughter weight (Turkey management guide, 2012).

Opportunity to use artificial reproduction technique

As natural mating is not resulting fertile egg, so there is an opportunity to promote AI technique in turkey for the production of commercial hatching eggs. It will decrease cost for rearing more tom. It is reported that a well developed pectoral muscle in turkeys, has prevented turkey toms to mate naturally (Etches, 1996), and making AI a necessity. Fertility could be improved in turkeys by using AI. In addition, efficiency of use of semen could be increased because each tom can produce enough sperm to inseminate approximately 30 hens (Childress, 2003).

Availability of educated farmers

Most of the surveyed farmers are comparatively educated and they were self-starter. So there is huge possibility to develop turkey entrepreneurs in Bangladesh. They will be able to receive technical knowhow on selection, brooding, breeding, feeding, housing etc. on turkey rearing easily.

Chapter-4

Conclusions

There is considerable scope for turkey rearing in Mymensingh region, as turkey can be reared in free-range or semi-intensive systems especially in rural areas for economic enhancement of landless laborers, marginal and small farmers. Free-range turkey rearing method requires low investment in facilities and equipment's, and it is a viable and sustainable bird both for the backyard and commercial venture in an economic point of view. Turkeys are suitable birds for the tropical climate of Indian sub-continent. So, to improve the turkey production, vigorous public extension service, training for farmers, opening of different avenues for research on turkey and identifying marketing strategies, are immediately needed in Bangladesh.

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