

Prospect and Challenges in Broiler Farming of Barguna District in Bangladesh

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Abstract

A total of 21 farms and 10542 broiler birds from 12 villages of 3 upazila under Barguna district in Bangladesh during June 2014 to July 2014 were studied. Among selected farms, 47.62% were small (200-450 birds) and 52.38% were medium (500-1000 birds) and most of the farmers (71.40%) were with secondary level education while majority (61.90%) had no training in broiler farming. However, 42.86% farmers reared Hubbard Classic and 38.09% reared Cobb-500 while the rest farmers reared Arber Aceres, Ross and Lohmanh commercial hybrid broiler. Several poultry hatcheries and feed companies were involved to supply day old chicks and feeds through their respective dealers to the broiler farmers in the study area. All broiler houses were open sided and most of them (85.71%) were with gable type roof of corrugated iron sheet. Most of the farmers (95.20%) were using sawdust as litter materials and all farmers were using the disposed litter as fertilizer. All farmers were using electric brooder and brooding their birds for 7 days while 85.70% farmers were using hurricane lantern for standby power supply for brooding period. All farmers were using Newcastle and Infectious Bursal Disease vaccine and 81% farmers were deworming their birds. About 85.7% farmers reported that Marek's disease vaccine were administered in day old chicks at hatchery level while 81% farmers sale their live broiler at local market and about 52.40% farmers use their disposed feed bags of their own farm and household purpose. Mean live broiler weight at marketing age, feed conversion ratio and bird mortality rate were 1502.38 ± 35.27 gm, 1.93 ± 0.04 and 3.51 ± 0.65 %, respectively. Maximum broiler farmers had secondary level education and had no training. Broiler farming in Barguna district has generated employment opportunity in this sector. Bank loan with easy access and lower rate of interest might be helpful for the broiler farmers to run their enterprise without dependency on dealers. Field survey primary data and farmers opinion regarding day old chicks price and live broiler marketing suggested that selling live broiler at high price and buying day old chick at low price make the farm operation profitable and vice versa. Again farmer's opinion suggested that higher feed price is reducing the profitability of broiler farms. Hence, it might be concluded that higher feed price and day old chicks and live broiler market instability are the major challenges in broiler farming in Barguna district of Bangladesh.

Key words: Prospect, challenges, broiler farming, feed, chicks and market instability

I. Introduction

Bangladesh is one of the high density countries of the world has a population of 160 million people within the area of 1,47,570 square-km, both government and non-government organizations are actively promoting poultry development at all levels here. During last two decades this sector has grown with an annual rate of around 20 per cent. Poultry sector has enabled the opportunity to change

livelihood and food habit, reduced the dependence of beef and mutton as animal protein sources as well as helping to ensure food security (Islam *et al.*, 2014). This industry as a fundamental part of animal production is committed to supply the nation a cheap source of good quality nutritious animal protein in terms of meat and egg (Aker and Uddin, 2009) and creating purchasing power and reducing poverty at a large scale, about 44 per cent of daily human intake of animal protein comes from livestock products (Islam *et al.*, 2014). Investment in the sector stands at about Taka 200 billion. There are over a 100 thousand poultry farms, small and large, across the country, eight grand-parent (GP) stock farms, 130 parent stock farms and hatcheries, and 50 or 60 poultry feed mills. About five million people are involved, directly and indirectly, with the industry. A large section of the marginalized rural people earns their living through this industry. One-third of total agricultural contribution (18.60%) in GDP added from poultry industry (Khaled, 2014). Profitability of broiler production involves planning the activity size, demand assessment, integration of activities to bring down the cost of production, possible foresight into market price situations, prudent assessment of cost-benefits and finally the rate of returns in the activity (Sultana *et al.*, 2012). Factors associated with broiler farming could vary from region to region. Published data with systematic study regarding broiler farming in Barguna district is scanty. So to explore the present prospect and challenges of commercial broiler farming in Barguna district this study was under taken.

II. Materials and Method

The study was conducted to investigate the prospects and challenges of broiler farming in Barguna district. To pursue the study a pre prescribed questionnaire was used and 5 broiler farms from Amtoli upazila, 10 broiler farms from Barguna sadar upazila and 6 broiler farms from Patharghata upazila of Barguna district in Bangladesh were enumerated by door to door visit. Farmers characters like education level, training, experiences and work forces on broiler farming were recorded while farm management parameters like farm size, housing system, commercial hybrid broiler strains, litter materials, drinks during loading day old chicks in house, brooding system, vaccination, de-worming, growth promoter use, day old chicks purchase, feed purchase and live broiler marketing were studied. Data were collected on day old chick weight, live broiler weight at market age, feed consumption, number of birds sold and mortality during June 2014 to July 2014. Feed conversion ratio (FCR), mortality rate up to age of marketing (MTRT), feed cost in Bangladeshi Taka (BDT) per kg live broiler production (FCP), vaccination and growth promoter expenses per kg live broiler production (VGCP) were calculated using following formulae:

$$\text{FCR} = \frac{\text{Total feed (kg) consumed up to the age of marketing}}{\text{Total live weight (kg) of bird at marketing day}}$$

$$\text{MTRT} = \frac{\text{Total birds dead up to the age of marketing}}{\text{Total day old birds loaded in the house}} \times 100$$

$$\text{FCP} = \frac{\text{Total feed consumed in kg} \times \text{feed price in BDT per kg}}{\text{Total live broiler production in kg}}$$

$$\text{VGCP} = \frac{\text{Total vaccines and growth promoter expenses in BDT}}{\text{Total live broiler production in kg}}$$

Farm management and production performance data were analyzed using frequency and descriptive statistics menu in SPSS 11.5 software package.

III. Results and Discussion

Farmers and farm background

Educational background of the farmers, as observed in the present study (Table 1), 19% were within the primary level, 71.40% were secondary and remaining 9.50% were within the graduate level, suggesting that the maximum farmers handling broiler farms were within the secondary level of education. The results were consistent with the previous report of [Sultana et al. \(2012\)](#) and [Rahman et al. \(2002\)](#). About 38.10% farmers received short training on broiler farming whereas about 61.90% did not take any training at all and this might be indicative that majority of broiler farms are operating by untaught manpower. The result is contradictory with [Sultana et al. \(2012\)](#) and [Rahman et al. \(2003\)](#), who reported that 70% had training on broiler farming. Among the broiler farmers 66.70% had experience for below 3 years while the rest had experience for 3 years and above. This might be suggested that most of the broiler farmers were novice and less experienced. More interestingly it was reported that 81% farmers themselves were working in their farm while the family members of other farmer were also working with them in their broiler farm. This is indicating that broiler farming in Barguna district generating employment at farmers and family level.

Table 1. Farmer's characters and farm size

Parameter		Number	%	Total
Education	Primary Level	4	19.00	100
	Secondary Level	15	71.40	
	Graduate Level	2	9.50	
Training on broiler rearing	Yes	8	38.10	100
	No	13	61.90	
Experiences	Below 3years	14	66.70	100
	3 years and above	7	33.30	
Work forces	Owner of the farm	17	81.00	100
	Owner and family member	4	19.00	
Farm size	Small farm (200 to 450birds)	10	47.62	100
	Medium farm (500 to 1000birds)	11	52.38	
Commercial hybrid broiler strains	Cobb-500	8	38.09	100
	Hubbard Classic	9	42.86	
	Arber Acere	2	9.52	
	Ross	1	4.76	
	Lohmanh	1	4.76	

Present study revealed that about 47.62% were small farms (200-450 birds) and 52.38% medium (500-1000 birds) and the result was in line with [Sultana et al. \(2012\)](#). About 42.86% farmers reared Hubbard Classic, 38.09% reared Cobb-500 while the rest farmers reared Arber Aceres, Ross and Lohmanh commercial hybrid birds and the present result was contradictory to the previous report of [Hauque \(2005\)](#), [Sharma \(2003\)](#) and [Sultana et al. \(2012\)](#). These researchers reported that most of the farmers were rearing Cobb-500 commercial hybrid broiler birds.

Feeds and chicks supply

Several poultry hatcheries and feed companies were involved to supply raw materials like day old chicks and feeds through their respective dealers to the broiler farmers in the study area (Table 2) and this is suggesting that farmers have opportunity to collect feed and chick with competitive price but as the farmers are collecting chicks and feed from dealer, dealers might be taking opportunity instead farmers. However, [Sultana et al. \(2012\)](#) reported that most of the farmers were rearing the chicks of Kazi Farms Limited in Santhia upazila under Pabna district.

Table 2. Lists of Hatcheries and Feed companies involved

Name of Poultry Hatcheries	Name of Poultry Feed Company
Aftab Hatchery Ltd.	ACI Godrej Agrovvet Private Ltd.
Aman Poultry and Hatchery Ltd.	Aftab Feed. Products Ltd.
Bangladesh Hatchery Ltd.	Aman Feed Ltd.
C.P. Bangladesh Ltd.	Index Agro Industries Ltd.
Index Poultry (PVT) Ltd.	Lion Feeds Ltd
Kazi Hatchery Ltd.	Nourish Feeds Ltd.
Nourish Poultry and Hatchery Ltd.	
Paragon Poultry Ltd.	

Factors related to broiler farming

All broiler houses were open sided and about 85.71% were with gable type roof of corrugated iron sheet (CIS) and the rest were shed type roof with CIS (Table 3). Most of the farmers (95.20%) were using sawdust as litter materials while all farmers were using the disposed litter as fertilizer, all farmers were using electric brooder and brood their birds for 7 days while 85.70% farmers were using hurricane lantern and the rest were using solar power for standby power supply for brooding period. During loading the birds in the house most of the farmers use oral saline, vitamin C with water. Most of the farmers purchase feed from the dealer in credit and partial credit and about 66.70% farmers do not weigh the feed after purchase. Procuring feed in credit from dealer might be indicating the financial weakness of farmers and this might be making them dependable on dealer. All farmers were using Newcastle and Infectious Bursal Disease vaccine for the commercial hybrid broiler birds, 81% farmers were de-worming and the rest were not doing this job, 100% farmers were using growth promoter for rapid gain of body weight of broiler birds. However, [Sultana et al. \(2012\)](#) reported 90% farmers and [Rahman \(2004\)](#) 70% farmers were using vaccines regularly. Present study revealed, about 85.7% farmers reported that Marek's disease vaccine were administered in day old chicks at hatchery level while the rest reported that this vaccine was not given. About 81% farmers sale their live broiler at local market and about 52.40% farmers use their disposed feed bags in their own farm and household purpose.

Broiler production performances

Field survey primary data reported live weight of broiler 1502.38 ± 35.27 gm at marketing age, feed conversion ratio 1.93 ± 0.04 and mortality rate 3.51 ± 0.65 % (Table 4). Similarly, [Hauque \(2005\)](#) found 1.5 kg average market weight per bird but [Sultana et al. \(2012\)](#) reported live broiler market weight 1.5 to 1.8 kg and [Perry et al. \(1999\)](#) also found market weight 1.07 kg to 1.70 kg per bird. However, the feed conversion ratio of present study was similar to [Chand et al. \(2009\)](#), who reported the values to be 1.93 to 1.94 but [Kawsar et al. \(2013\)](#) reported that training and management intervention could contribute to lower the FCR value (1.49 to 1.53) and higher the productivity in hybrid broiler farming. This discussion might be suggested that training of farmers could contribute to reduce feed cost by reducing the FCR value.

Table 3. Factors related to broiler farming

Parameter		Number	%	Total
Drinks during shed	Oral saline mixed water	5	23.80	100
	Vitamin C mixed water	4	19.00	
	Glucose mixed water	1	4.80	
	Oral saline and Vitamin C mixed water	6	28.60	
	Oral saline, vitamin C and lemon juice mixed water	5	23.80	
Roof type of open sided broiler house	Shed type roof with C.I. Sheet	3	14.29	100
	Gable type roof with C.I. Sheet	18	85.71	
Brooding type	Electric	21	100	100
Standby power	Lantern hurricane	18	85.70	100
	Solar power	3	14.30	
Litter materials used	Rice husk	1	4.80	100
	Sawdust	20	95.20	
Vaccine used	Newcastle and Infectious Bursal Disease vaccine	21	100	100
De-worming	Yes	17	81.00	100
	No	4	19.00	
Uses of growth promoter	Yes	21	100	100
Feed purchase type	Cash purchase	3	14.30	100
	Credit Purchase	3	14.30	
	Partial cash purchase	8	38.10	
	Cash and Credit purchase	7	33.30	
Weighing feed after purchase	Yes	7	33.30	100
	No	14	66.70	
Broiler sales place	Market	17	81.00	100
	Farm gate	4	19.00	
Usage of disposed feed bag	Sold	10	47.60	100
	Own use	11	52.40	
Usage of disposed litter	Fertilizer	21	100	100
Marek's vaccine	Yes	18	85.70	100
	No	3	14.30	
Brooding period	7days	21	100	100

Table 4. Broiler production performance

Parameter	Mean±SE	Max	Min
Live weight of broiler at Marketing age in gm	1502.38±35.27	1800	1200
Mortality Rate in %	3.51±0.65	10	0
Feed Conversion Ratio	1.93±0.04	2.42	1.65

Benefit cost information in broiler farming

A total of 10970 day old broiler birds with 20 to 75gm body weight were loaded in the farms and a total of 10542 birds were sold with 1200 to 1800gm body weight at marketing. Broiler birds were

marketing at the age of 30 to 35 days. Feed price per kg was 45.89 BDT (Table 5). Day old chick's price varied in a wide range of 27 to 60 BDT. Average feed cost per kg live broiler production was 89.23 BDT while vaccine and growth promoter purpose expenses for per kg live broiler production was documented 3.70 BDT. However, live broiler market price was reported 120 to 160 BDT per kg. It might be indicative that day old chicks and live broiler market were highly fluctuating and this might be suggested that selling live broiler at high price and buying day old chick at low price make the farm operation profitable and vice versa. On the other hand [Sultana et al. \(2012\)](#) reported per kg live broiler production cost 90 to 104 BDT while live broiler price per kg body weight was 110 to 125 BDT and [Karim \(2001\)](#) reported wide range of fluctuation of live broiler market price.

Table 5. Benefit cost information of broiler farming in rural villages of Barguna district

Parameter	amount
Total number of day old chicks loaded in the house	10970
Day old chick weight in gm	20-75
Live broiler weight in gm	1200-1800
Marketing age of broiler in days	30 -35
Day old chick Price in BDT	27-60
Total number of broiler bird sold	10542
Total live broiler sold (kg)	15660.25
Total feed consumed (kg)	30449
Feed price per kg in BDT	45.89
Total expenses on feed purpose in BDT	1397304.61
Total expenses on vaccine and growth promoter purpose in BDT	57890.00
Feed cost per kg live broiler production in BDT	89.23
Vaccination and growth promoter purpose expenses per kg live broiler production in BDT	3.70
Per kg live broiler sold (BDT)	120-160

Challenges in broiler farming

About 66.70% farmers reported that they were getting the day old chicks lately while 33.30% were getting timely (Table 6). However all farmers were reported that live broiler market was highly unstable and day old chicks, feeds and growth promoter price were high and these minimized the profitability in broiler farming. Similarly [Sultana et al. \(2012\)](#) reported high price of feed and price variation of day old chick in Santhia upazila under Pabna district. This discussion might be indicative that feed and chicks price and live broiler market instability were the major challenges in broiler farming in Barguna district.

Table 6. Farmer's opinion

Challenges identified by farmers in broiler farming		Number	%	Total
Transportation delayed during chick collection	Yes	14	66.70	100
	No	7	33.30	
Live broiler market fluctuated	Yes	21	100	100
	No	0	0	
Cost of day old chicks, feed and growth promoter were high and these minimized the profitability	Yes	21	100	100
	No	0	0	

IV. Conclusion

Broiler farming has bright prospects in generating employment in Barguna district of the manpower with secondary level education and without training and having less experience. As several poultry hatcheries and feed companies are supplying chicks and feeds, farmers have opportunity to collect feed and chick with competitive market price but as the farmers are collecting chicks and feed from dealer, dealers might be taking opportunity instead farmers. Procuring feed in credit from dealer might be indicating the financial weakness of farmers and this might be making them dependable on dealer. Bank loan with lower rate of interest might be helpful for the broiler farmers to run their enterprise without dependency on dealers. Day old chicks price and live broiler marketing suggested that selling live broiler at high price and buying day old chick at low price make the farm operation profitable. The study revealed that higher feed price and day old chicks and live broiler market instability were the major challenges in broiler farming in Barguna district of Bangladesh.

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