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Profitable broiler farming at the villages of Khulna district in Bangladesh

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ABSTRACT

Data from a total of 49 broiler farmers in the villages of Khulna in Bangladesh were collected to seek suggestions from the farmers to explore the knowledge how to make broiler farming a profitable and sustainable enterprise. Many (40.8%) of the broiler farmers were secondary school certificate holder and took broiler farming as their main occupation (59.2%) and most of them (71.4%) received training in broiler farming. Most of the broiler farms were small in scale of operation and majority of the farmers (73.5%) reported high price of day old chicks at their end. However, 51% farmers informed that Marek's disease vaccines were administered at hatchery by the day old chick producing company and most of the farmers were using Newcastle Disease and Infectious Bursal Disease Vaccine in their farm. All farmers were brooding their broiler bird for a period of 5 to 7 days and most of them using electric brooder and hurricane lantern was using for standby power supplier in all enumerated broiler farm. Farmer and his family members were the main worker in the operation and all farmers sold their live broiler bird to the traders at their farm gate. Live broiler's body weight at marketing, feed conversion ratio, day old chick weight, mortality and average daily body weight gain were 1.73 kg, 1.44, 48.39± 0.39 g, 4.64% and 50.39 g, respectively. Feed price per kg, day old chick price per piece and per kg live broiler price were 45.56, 56.90± 0.56 and 127.35± 0.92 Bangladeshi Taka (BDT), respectively. Present study explored the opinion of farmers, which suggested that, providing the broiler farmers with bank loan in a lower rate of interest, making loan easy and available, supplying feed from factory to the farmers directly in credit and stabilizing market price of day old chicks, feed and live broiler at marketing age could make the broiler farming a profitable and sustainable enterprise and which could contribute lot more in rural economy of Bangladesh.

Key Words: Broiler production, Profit, Production performance and Farmer suggestions

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I. Introduction

Broiler farming at small scale level is a very important issue to address for the rural economy of Bangladesh. Hybrid broiler of today is the results of the long periodical efforts of many more poultry geneticists and breeder in the broiler industry. This great complete protein source is one of the blessings of the Almighty. Poor peoples of the third world country are having complete protein in a cheaper rate for the expansion of broiler farming at rural village level. In Bangladesh, the per capita poultry meat intake is only 11.2 grams per day (HIES, 2011). During the 2010/11 financial year about 2.58 percent of GDP came from animal farming (MoF, 2012). Three points suggestions reported for the development of Poultry Industry in Bangladesh in a discussion arranged by Bangladesh Poultry Industry Coordination Committee at Shahid Abu Jahid auditorium in Comilla, were : a) reduce bank interest in single digit, b) keep poultry industry tax free up to 2021 and c) prevent unauthorized import of day old chicks and eggs through border (BPICC, 2016). About 100 millions of commercial broiler and layer day old chicks are produced per week in Bangladesh (PKB, 2016) and present investment in poultry industry in Bangladesh is about 2,50,000 millions Bangladeshi Taka (BB and ACI, 2016). The national share of commercial and family poultry in terms of meat production was 60:40 (Bhuiyan, 2011) and the number of chickens and ducks were 228.04 million and 42.68 million, respectively (BBS, 2010). Poultry feed is growing faster than any other species and it has the leading market share (47% of total global feed). The top ten feed producers in the world remain unchanged and those are China, USA, Brazil, India, Mexico, Spain, Russia, Germany, Japan and France (AFS, 2016). However in Bangladesh 0.3 millions metric tones of feed for fish, poultry and dairy cattle could be manufactured per month using about 170 feed mills (Majumder, 2016). A study on performances of broiler farms on chickens of different ages sent to processing plants suggested that bird age should be included as a factor in the calculation of farmer's payment (Schmidt, 2008). However, problems identified in broiler farming were: high price of day old chicks and feed, insufficient growth, lack of electricity, lack of credit, low price of broiler, outbreak of disease and environment pollution (Rana et al., 2012). Moreover by keeping track of production costs and performance indexes financial performance can be improved (Kassai et al., 2003). Identification of factors affecting poultry production profitability may contribute for the development of public and private policies and is essential for the farmers' economic progress. Profitability is one of the most convenient measures of success (Duffy and Nanhou, 2003). Finance Minister of Government of People's Republic of Bangladesh proposed to allocate BDT 409.75 billion for the agriculture and rural development sector in his BDT 2.95 trillion national budget in parliament. Bangladesh Bank will soon start a credit program for development of livestock under which loan will be provided at 5 percent interest rate for purchasing and raising livestock. The budget proposed to reduce tax on income from poultry, poultry feed, dairy, shrimp, fish hatchery, mulberry, horticulture, pisciculture and apiculture (Bdnews24, 2015). Many educated unemployed youngsters are coming in broiler farming to lead their life and lead their families. At the same time this lucrative enterprise is also facing a good numbers of challenges. So to know broiler farming, the major study objectives of this study was designed to seek suggestions from the marginal broiler farmers at village level to make the enterprise a profitable and sustainable.

II. Materials and Methods

A total of 49 broiler farmers were enumerated at 27 villages under 2 upazilas of Khulna district in Bangladesh from April 2015 to May 2015. A pre-prescribed questionnaire was used to collect the information. Data were collected from door to door visit in farmers point. Data on farmers' characters, farm size and farm management system, production parameters and farmers suggestions were documented. Observation numbers in different parameters was not equal. So, the statistical design of this study was unbalanced factorial in nature. Collected data were analyzed for having mean value, frequency and percentage through descriptive statistics menu under the Statistical Package for the Social Sciences version 14.0 (SPSS, 2005). To calculate FCR (feed conversion ratio), Feed cost for per kg broiler production (FCBP), Mortality in percent and ADG (average daily body weight gain) following formulae were used:

$$\text{FCR} = \frac{\text{Total feed consumed up to age of marketing in kg}}{\text{Total live body weight of broiler bird at the age of marketing in kg}}$$

$$\text{FCBP} = \text{FCR} \times \text{Per kg feed price in BDT}$$

$$\text{Mortality \%} = \frac{\text{Number of day old chicks housed} - \text{Number of live broiler birds sold at marketing}}{\text{Number of day old chicks housed}} \times 100$$

$$\text{ADG} = \frac{\text{Live body weight at marketing in g} - \text{DOC weight in g}}{\text{Marketing age in days}}$$

III. Results and Discussion

Farmer characteristics

Primary school pass to graduate level educated peoples were involved in broiler farming, though many (40.8%) of them were secondary school certificate holder (Table 01). Broiler farming was main occupation (59.2%) of the studied farmers and most of them (71.4%) received training in broiler farming and this report contradicts with Islam *et al.* (2015). However, nearly everyone had experiences in broiler farming of about 2 to 5 years.

Table 01. Farmers character

Character	Category	Number of farmers
Education	Primary Education Certificate	1 (2.0%)
	Junior School Certificate	19 (38.8%)
	Secondary School Certificate	20 (40.8%)
	Higher Secondary Certificate	5 (10.2%)
	Graduation (B.A. / B. Sc. etc)	4 (8.2%)
Main Occupation	Broiler farming	29 (59.2%)
	Service	3 (6.1%)
	Business	4 (8.2%)
	Agriculture	10 (20.4%)
	Others	3 (6.1%)
Training in broiler farming	Received	35 (71.4%)
	Did not receive	14 (28.6%)
Training institute offered training	Youth development center	23 (46.9%)
	BRAC	19 (38.8%)
	Others	7 (14.3%)
Experience in broiler farming	2-5 years	40 (81.63%)
	6-10 years	9 (18.37%)

Farm size and farm management system:

Most of the farms were small in size. Majority of the farmers (73.5%) reported high price of day old chicks at their end and 51% farmers informed that Marek's disease vaccines were administered at hatchery by the day old chick (DOC) producing company. However, problems identified in broiler farming were: high price of DOCs and feed (Rana *et al.*, 2012). All farmers were brooding their broiler bird for a period of 5 to 7 days and most of them using electric brooder and hurricane lantern was using as standby power supply in all enumerated broiler farm.

Table 02. Farming character

Traits	Category	Farmer opinion
Day old chicks price status	High price	36 (73.5%)
	Rationale price	3 (6.1%)
	Much more higher price	10 (20.4%)
Marek's disease vaccination at hatchery	Yes	24 (49.0%)
	No	25 (51.0%)
Brooding period	5-7 days	49 (100%)
Brooding type	Electric	43 (87.8%)
	Coal	1 (2.0%)
	Hurricane lantern	5 (10.2%)
Standby power supply	Hurricane lantern	49 (100%)
Who works in the farm	Owner	20 (40.8%)
	Owner and family members	28 (57.1%)
	Owner and employee	1 (2.0%)
Buyer	Live broiler traders	49 (100%)
Vaccines used	Infectious bursal disease vaccine (IBDV)	3 (6.1%)
	Newcastle disease vaccine (NDV) and IBDV	46 (93.9%)
Farm size	300-500 DOC in each farm	37 (75.51%)
	600-1000 DOC in each farm	12 (24.49%)

Farmer and his family members were the main worker in the operation and all farmers sold their live broiler bird to the traders at their farm gate (Table 02). Farmers were using Newcastle Disease and Infectious Bursal Disease Vaccine in their farm. Similarly, [Islam et al. \(2015\)](#) documented that Farmers for their commercial hybrid broiler birds were using Newcastle and Infectious Bursal Disease vaccine in central and southern Bangladesh.

Production performance

Feed conversion ratio (1.44) and live body weight (1.73 kg) at marketing age were better than that of broiler birds reared in village farm of Mymensingh (1.84±0.07 and 1581.58±46.08 g) and Barguna (1.93±0.04 and 1502.38±35.27 g) districts ([Islam et al., 2015](#)) in Bangladesh. However, DOC bodyweight/bird was documented 48.39± 0.39 g and mortality rate was 4.64%.

Table 03. Production parameters

Trait studied	Amount per unit
DOC price per piece in BDT	56.90± 0.56
Live broiler price per kg in BDT	127.35± 0.92
Average number of DOC housed by each farmer	567.34± 24.67
Average number of Live broiler sold by each farmer	541
Broiler starter feed price per 50 kg bag in BDT	2285.00± 4.50
Broiler grower feed price per 50 kg bag in BDT	2283.98± 4.99
Broiler finisher feed price per 50 kg bag in BDT	2158.80± 5.50
Broiler starter feed price per kg in BDT	45.70
Broiler grower feed price per kg in BDT	45.68
Broiler finisher feed price per kg in BDT	43.18
Total starter feed consumed in kg	15765
Total grower feed consumed in kg	47155
Total finisher feed consumed in kg	3167
Total feed consumed in kg	66087
Total live body weight in kg of broiler bird at the age of marketing	45890
Live marketing weight per bird in kg	1.73

DOC weight per piece (g)	48.39± 0.39
Total number of DOC housed	27800
Total number of broiler bird sold	26509
Total dead birds number	1291
FCR	1.44
Feed cost per kg in average in BDT	45.56
Feed cost for per kg live broiler production (FCBP) in BDT	65.61
Mortality in %	4.64
Marketing age in days	33.37± 0.30
Average daily body weight gain (g)	50.39

Per kg feed price was 45.56 BDT at farm gate and which was in line with 45.89 BDT reported by [Islam et al. \(2014\)](#). Average DOC price per piece was 56.90± 0.56 BDT and per kg live broiler was sold at 127.35± 0.92 BDT (Table 03). On the other hand, according to [Islam et al. \(2014\)](#) DOC and live broiler market price were 27 to 60 BDT per piece and 120 to 160BDT per kg respectively. However, feed cost for per kg live broiler production was (65.61 BDT) lower than that of reported by [Islam et al. \(2014\)](#). Average daily body weight gain was 50.39 g per bird. Mentioned that, birds were marketed at the age of 33.37± 0.30 days.

Farmer suggestions to run the broiler farm

Like [Rana et al. \(2012\)](#), present study revealed broiler farming a profitable enterprise (Table 04) but it could be more profitable, if broiler farmers could be capacitated. Farmers could be capacitated through providing them with bank loan in a lower rate of interest, make loan easy and available for farmers and supply feed from factory to the farmers directly in credit. Similarly, [Islam et al. \(2014\)](#) observed that, dependency on dealers of broiler farmers might be minimized by providing them with bank loan in lower rate of interest. But interestingly it could be noted that broiler farmers at northern Bangladesh did not know about the recent instructions of Bangladesh Bank (central bank in Bangladesh) to the private and public banks at district and upazila level in Bangladesh to provide with loan to the broiler farmers in a group or through setting a guarantor ([Choudhury, 2016](#)).

Table 04. Suggestions to make broiler farming profitable

Traits	Category	Farmer opinion
Broiler farming is a profitable enterprise	Yes	49 (100%)
	No	00
Suggestions to capacitate the farmers to run the broiler farming with farmers own efforts	Bank loan with lower rate of interest to the farmers	31 (63.3%)
	Bank loan easier, at present interest rate to the farmers	7 (14.3%)
	Feed miller supply feed directly to the farmers in credit	11 (22.4%)
Suggestions to make the broiler farming more profitable	Stable market of DOC, feed, live broiler	24 (49.0%)
	Quality feed available at farm gate	12 (24.5%)
	Feed price reduce and market stability	6 (12.2%)
	Quality feed and chicks available at the farm gate.	7 (14.3%)
	Rationale live broiler market	

Broiler farming could be made more lucrative through stabilizing market of day old chicks, feed and live broiler at marketing age but according to [Rana et al. \(2012\)](#) controlling the high price of feed and day old chick, develop improved breed for higher production could make broiler farming profitable. Though, major challenges in broiler farming were: higher feed and day old chick's price and instable live broiler market in Barguna district of Bangladesh ([Islam et al., 2014](#)).

IV. Conclusion

Broiler farming was the main occupation of majority of the studied farmers and most of them were secondary school certificate holder and nearly everyone had experiences in broiler farming of about 2 to 5 years. Most of the farmers received training and the main contributing institute was government youth development centre. Small scale broiler farmers were claiming high price of DOC, though most of the broiler farmers were working in the farm with their family members. Farmers sold their live broiler to the traders at farm gate. However, farmers marketed the live broilers at the age of 33.37 ± 0.30 days and average daily body weight gain was 50.39 g per bird. To make the broiler farming a profitable and sustainable one, farmers made some suggestions such as, a) providing them with bank loan in a lower rate of interest, b) make loan easy and available for farmers, c) supply feed from factory to the farmers directly in credit, and d) stabilizing market of day old chicks, feed and live broiler at marketing age.

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