

**Original Article**

**Characteristics of buffalo traders and their business status at Bhola district in Bangladesh**

**M. R. Habib, M. M. Sarkar<sup>1</sup>, M. S. I. Sojib, M. Z. Islam, M. K. Alam<sup>2</sup>, M. K. Rahman<sup>3</sup> and M. A. Islam\***

Department of Dairy Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh.

<sup>1</sup>Palli Karma-Sahayak Foundation, Agargaon, Dhaka.

<sup>2</sup>Bangladesh Livestock Research Institute, Savar, Dhaka-1341, Bangladesh.

<sup>3</sup>Grameen Jano Unnayan Sangstha, Altajer Rahman Road, Chornoabad, Bhola-8300.

**ABSTRACT**

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**\*Corresponding Author**

M. A. Islam, E-mail: [m.a.islam@bau.edu.bd](mailto:m.a.islam@bau.edu.bd)

**Keywords**

Buffalo, traders, best sold, buffen and price-fixed.

The study was carried out to investigate the demographic characteristics of buffalo traders, current buffalo business status, and challenges of this business in the Bhola district of Bangladesh. Hence, a face-to-face interview with 16 buffalo traders (male, age above 25 years) was conducted using simple random sampling. Among the traders, 75% have completed primary education, 12.5% have passed higher secondary certificate (HSC), and the remaining 12.5% were illiterate. Approximately 75% of the traders sold female buffalo as surplus stock, and 56.25% traders indicated that both males and females had an excellent selling demand in the market. Roughly 81.25% of the buffalo traders think that they could not meet the consumer demand for buffalo; however, buffalo availability increased in 2021 compared to 2016-2020, as indicated by 87.5% of the buffalo traders. Generally, buffalo pricing was fixed by assuming the live weight only. Over the year, buffen costs at the local market ranged from 478 to 586 BDT per kg, with an average of 523 BDT. About 37.5% of the buffalo traders thought that minimizing buffen price volatility is a key challenge in the studied area, followed by transportation issues (12.5%) during buying or selling live buffalo. Data obtained in the present study could provide some background to develop a sustainable buffalo value chain in Bangladesh.

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**Introduction**

Buffalo (*Bubalus bubalis*) is known as 'Black gold' in Bangladesh and is used for draft power, milk, meat, hides etc. Bangladesh has various indigenous domestic buffalo stocks dominated by riverine-type populations except for some swamp types, mainly in the eastern region of Bangladesh (Hamid *et al.*, 2016). Buffaloes are traditionally being raised under extensive husbandry practices in South-East Asia, which represents an indispensable role in their economy. Buffalo contributes significantly to GDP through meat, milk, and hide production, accounting for approximately 27.0, 23.0, and 28.0 percent of total livestock in Bangladesh, respectively (Islam *et al.*, 2017). Buffalo can deliver outstanding results to meet long-term animal protein demands. Therefore, it is an emerging area for the buffalo professionals and promoting the socio-economic conditions of farming people by creating employment and increasing

household income, particularly for small and marginal farmers. Despite their important role in the economy, buffaloes have usually ignored animals in Bangladesh. Like other developing countries, buffalo production systems differ greatly owe to Bangladesh's climate, soil, and socio-economic possibilities (Saadullah, 2012). Buffalo can convert coarse feed to meat and milk that resist natural calamities and diseases (Canbolat, 2012). Economic profits from buffaloes depend on their lifetime performances, and these performances could not reach it's potential if there is shortage of good husbandry practices and lower amount of feeds (Rahman *et al.*, 2019). The farmers frequently raise buffaloes in a free-grazing system with tree leaves and natural grasses, but stall feeding at coastal areas in Bangladesh is rare.

Bhola is the largest island and is known as the compact buffalo zone in Bangladesh. Bangladesh has an

approximately 1.493 million buffalo population, with coastal regions accounting for 40% of the total population of buffalo (DLS, 2019). Owing to the lack of a buffalo improvement program, the contribution of buffalo to buffalo meat (buffen) production in Bhola has remained traditional and inefficient. Most of the buffen comes from the termination of the career of any buffalo or emergency slaughtered animals. Buffen is not widely consumed in Bangladesh due to extremely sticky meat fiber and difficulties in chewing, mostly due to the spared animals. Again, health-conscious consumers prefer buffen very much owe to its lesser cholesterol and fat contents. According to Sinclair *et al.* (1982), the cholesterol content of buffalo, sheep, and goat meat was 46, 68, and 58%, respectively. Generally, draft, unproductive emaciated milch buffaloes and often young animals are sold and slaughtered in Bangladesh. However, many buffaloes were slaughtered daily in the market and sold as beef at a lesser price than cattle meat (Hamid *et al.*, 2016).

Rearing and selling buffaloes for meat is typically a residual activity, not a planned farm business (FICCI, 2013). Still, no systematic linkage exists in the Bhola district among the producers, traders, and processors in response to the fluctuations in meat demand. Several studies have been undertaken in the Bhola district of Bangladesh focusing on the productive and reproductive performances of buffalo, socio-economic status of buffalo keepers, management practices, milk production systems (Uddin *et al.*, 2016; Rahman *et al.*, 2019), buffalo diseases like prevalence of balantidiasis (Biswas *et al.*, 2020) and subclinical mastitis (Aliul *et al.*, 2020). Buffalo buying-selling is a common phenomenon in the Bhola district caused by the affluent buffalo population. But no other research work concerned the authors regarding the buffalo trader characteristics and their business conditions in the Bhola district. That is why the current study was carried out to (i) reveal the demographic features of buffalo traders (ii) explore the business status (variety of buffalo sold, best-selling buffalo, market demand attainment, buffen pricing, and market-buffalo potentiality), and (iii) know buffalo meat marketing status and challenges of this trade.

## Materials and Methods

### Study areas and participants

The research was conducted in the Bhola district (which covers 3737.21 km<sup>2</sup>) of Bangladesh which is a delta island and known as the coastal region. The latitude and longitude of this district are 22.6903°N and 90.6525°E, respectively. The density of the human population in this district is 480/km<sup>2</sup>, extensive and semi-intensive systems for buffalo rearing, having 40% of the total buffalo population in Bangladesh, average environmental temperature of 27.66°C, 71% relative humidity, and tropical wet and dry climatic conditions. This study included 16 buffalo traders as participants who were from the Bhola district in Bangladesh.

### Questionnaires

A face-to-face interview was taken with 16 buffalo traders from the Bhola district in Bangladesh using simple random sampling. A questionnaire was used as the instrument for collecting information. It was divided into six (6) sections: 1) demographic information of the traders 2) types and best-types of buffalo sold 3) fulfillment of buffalo requirement based on market demand 4) availability of buffalo and types of buffalo sold 5) fluctuation of buffen price and 6) challenges faced at purchasing and selling of buffalo. The

questionnaire was designed focusing the purposes of this work and had not previously been used in any other studies. Using the finishing questionnaire, we conducted a pilot survey with 3 participants to assess the questions' clarity, the precision of answer options, technical terminology, and overall survey flow.

### Statistical analysis

The interviews were exposed to exploratory, descriptive analysis of categorical variables. Data gathered from buffalo traders was compiled and tabulated using Microsoft Office Excel 2010 version (Microsoft Corp., Redmond, WA). Categorical and ordinal data were shown as frequencies and percentages from each question.

### Results and Discussion

The distribution of buffalo traders among different demographic categories in this research work is presented in Table 1. It was found that altogether traders were male, and their age was above 25 years, reflecting that males were further likely to conduct buffalo trade than females. Among the buffalo traders, 12.5% were illiterate, 75% completed their primary education, and 12.5% passed HSC. However, all traders had more than five years of business experience.

**Table 1. Characteristics of buffalo traders interviewed (n=16) in the Bhola district.**

Characteristic	Frequency (n)	% of individuals
Gender		
Male	16	100
Female	0	0
Age (years)		
Below 25	0	0
Above 25	16	100
Education (highest level)		
Illiterate	2	12.5
Primary	12	75
SSC	0	0
HSC	2	12.5
Above HSC	0	0
Experienced in business		
<5 years	0	0
>5 years	16	100

The business status of buffalo traders is given in Table 2. Results revealed that 6.25% of the traders sold male buffalo while 75 and 18.75% traders sold female buffalo and calves, respectively. Most of the traders (56.25%) mentioned that they sold mixed-sex (both male and female) buffalo, which were assumed as best-selling types in the market, followed by male buffalo (37.5%) and buffalo calves (6.25%). This finding agrees with Kumar *et al.* (2015), who mentioned that most dairy farmers in India sold their buffalo calves at an early stage, and butcher slaughtered them to produce veal. In this, male buffaloes were also sold before reaching the economic age for meat production, indicating that male germplasm is at threat to continue sustainable reproduction. However, female buffalo alone was nil regarding the best-selling choices.

**Table 2. Business status of buffalo traders in the surveyed areas.**

Characteristic	Frequency (n)	% of total respondents
Types of sold buffalo (n=16)		
Male buffalo	1	6.25
Female buffalo	12	75.0
Buffalo calves	3	18.75
Best types of buffalo sold (n=16)		
Male buffalo	6	37.5
Female buffalo	0	0
Buffalo calves	1	6.25
Both male and female buffalo	9	56.25
Fulfillment of buffalo requirements based on market demand (n=16)		
Yes	3	18.75
No	13	81.25
Availability of buffalo increased or decreased recently (n=16)		
Increased	14	87.50
Decreased	2	12.50
Buffalo selling increased or decreased (n=16)		
Increased	16	100
Decreased	0	0
Fixation of buffalo price (n=16)		
Assumption of DP	0	0
Body weight measurement	0	0
Assumption of body weight	16	100
Seasonal fluctuation of buffalo price (n=16)		
Yes	16	100
No	0	0
Types of buffalo sold in the near future (n=16)		
Fattened male buffalo	11	68.75
Grass-fed male buffalo	2	12.50
Grass-fed female buffalo	1	6.25
Both fattened and grass-fed male buffalo	2	12.50

DP, dressing percentage.

It was noted that only 18.75% of traders believed they could meet market buffalo demand. In contrast, 81.25% of traders did not meet the buffalo requirements based on consumer demand. These indicated the limitations of buffalo production in this district, and there is ample scope to do work on buffalo production. The necessity for buffalo in the market increased owing to the health-conscious of consumers as buffalo meat is superior to beef regarding the lower cholesterol and higher nutritional content (Giordano *et al.*, 2010).

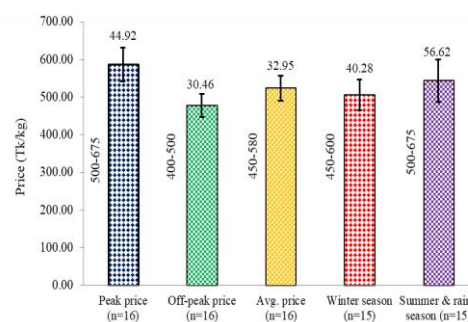
However, buffalo availability increased in 2021 compared to 2016-2020, as indicated by 87.5% of the buffalo traders. That due to the intervention of buffalo rearing through an improved management system project taken by several different GO's and NGO's. All buffalo traders firmly believed that the selling of buffalo increased at Bhola district due to more available buffalo in the market.

Generally, buffalo price-fixing is done considering the assumed live weight, dressing percentage, and estimation of body weight measurement. All traders mentioned that they fixed buffalo prices by assuming the live weight only. However, the price of buffalo seasonally fluctuated, and all buffalo traders were given affirmative replies (Table 2). In India, price fixation for female buffalo was done based on its milk yield. With the lack of any formal marketing, the herd

owners are forced to pay an unduly higher price for purchasing buffalo, and the middleman gets a very high margin (Kumar *et al.*, 2015).

From the open-ended question, it was recorded that fattened male buffalo (68.75%) will be sold more in the near future, subsequently the grass-fed male (12.50%) and female buffalo (6.25%). The fattened buffalo might be one of the income-generating activities that type of intention inspired both farmers and traders to sold fattened male buffalo soon. Generally, buffalo herd size varies from 51 to 200 in coastal areas and is entirely reared under natural grazing system with nearly no additional feed supply (Hamid *et al.*, 2016). Devkota and Kolachapati (2008) described that buffalo calf fattening using concentrate supplementation with a forage-based diet has positive impacts on the growth performance of buffalo and meat quality. According to Angulo *et al.* (2006), buffalo is considered as a valuable meat-producing animal in grazing systems due to its faster growth than other ruminant species.

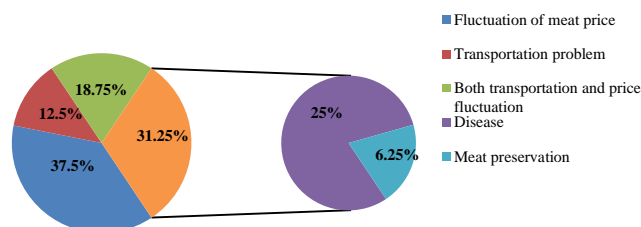
The price fluctuation of buffalo meat in the Bhola district is depicted in Figure 1. The per kg buffalo meat (buffen) price varied from 478 to 586 BDT throughout the year. The average buffen price was recorded as 523 BDT per kg in the studied district. However, fluctuation of buffen price is influenced by the availability of market buffalo in a particular area. When slaughtered buffalo availability increases, then buffen price falls than that of average price. However, peak and off-peak buffen prices were 63 and 46 BDT/kg more and less, respectively, compared to the average buffen price. Buffen prices typically rise during Muslim religious festivals such as Eid-ul-Fitr and Eid-ul-Adha. Butchers sometimes buy more attractive and healthy buffalo that are displayed and advertised before slaughtering, which encourages customers to buy more, causing buffen prices to skyrocket. However, the price of buffen drops when it is sold in the wet market without any announcement or when it is mixed with cattle meat (beef). Again, buffen price was fluctuated by the seasons. Data indicated that the cost of buffen was 36 BDT/kg more in the summer and rainy seasons than in the winter season. In Bangladesh, buffen production methods are traditional and unproductive, which may cause price fluctuations. However, most buffen is derived from the termination of the buffalo's career or emergency slaughter animals (Hamid *et al.*, 2016).



n, number of observations; value at the top of the error bar indicates the standard deviation of the mean price of that bar; Values alongside each bar indicates minimum and maximum price range of that bar. Peak price includes price of/during festival, animal with show value, slaughtering by non-commercial social group, advertised animal etc. Off-peak price includes mostly the animals slaughtered at the wet market or mixed with beef or known emaciated one. Winter season; mid-December to mid-February, Summer and Rainy Seasons, mid-April to mid-June and mid-June to mid-August.

**Figure 1. Fluctuation of buffalo meat (buffen) price at Bhola district.**

Challenges faced during purchasing and selling of buffalo are represented in Figure 2. It was found that 37.5% of buffalo traders thought buffen price fluctuations were a significant challenge, followed by transportation problems (12.5%). The buffalo's transport cost is the essential component of marketing costs (83%) in India, as Bardhan *et al.* (2019) described. However, problems of buffalo disease (25%) and meat preservation (6.25%) are also significant challenges in the Bhola district. Aside from repeat breeding, the most common buffalo diseases in Bangladesh are hemorrhagic septicemia (HS), calf pneumonia, helminthiasis, enteritis, and mastitis (Habib *et al.*, 2017). Again, such diseased animals remain unsold in the market by altering buyers' attitudes and subsequent consumer behavioral intentions.



**Figure 2. Challenges faced at purchasing and selling of buffalo.**

### Conclusions

Overall, buffalo traders were male and above 25 years of age with more than five years of business experience. About 75% of traders completed their primary education, 12.5% passed HSC, and the remaining 12.5% were illiterate. About 75% of traders sold female buffalo and, 56.25% of the traders mentioned that mixed male and female buffaloes were best sold in the market. Approximately 81.25% of buffalo traders said that they did not fulfill the requirement of buffalo according to consumer demand. The price of buffalo meat per kg ranged from 478 to 586 BDT, with an average price of 523 BDT. Mitigation of buffalo meat worth fluctuations and live buffalo transportation complications are significant challenges in the studied district. However, the outcomes of this research work will be helpful to boost up buffalo production in coastal areas, and the creation of solid buffalo marketing linkage with the meat industry is recommended.

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