



### Original Article

## Socio economic status of beef fattened farmers of Kaunia upazila at Rangpur district of Bangladesh

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### ABSTRACT

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The study was aimed to assess the socio economic status of livestock farmers and ongoing beef fattening practices at some selected areas of Rangpur district of Bangladesh. The study was carried out through a structured questionnaire among 45 selected farmers during February to May, 2020. Parameters studied were the farmers age, level of education, occupation, household size, land size, source of capital, family income from cattle fattening, farm size, net income from cattle fattening, problems regarding cattle fattening. It was found from the study that the respondents were aged from 25 to 60 years and most of them were male. Majority of the farmers (44%) farmers belong to middle-aged category compared to young (31%) and old aged (24%) farmers. Majority of the farmers family size were small (42%). It was found that the majority of the marginal farmers engaged in beef fattening (46%). About 47% beef fattening farmers had primary education followed by SSC level education (24%) and 16% farmers had no education. About 56% farmers used own capital for fattening, while 33,7 and 4% farmers got loan from NGO, other people and bank respectively. Majority of the farmers (42%) reared 2-5 beef cattle and the herd size was found reciprocal with number of farmers. Most of the farmers (44%) reared indigenous bulls compared to crossbred (24%) and mixture of both (31%). A significant number of farmers reared uncastrated bulls (89%) and nobody reared cow or heifer for fattening. Majority of the farmers' fattened cattle only before Eid-ul-Adha (58%) and only 24% farmer fattened cattle round the year and the rest of the farmers practiced seasonal fattening. Majority of the beef fattened farmers used the cow dung as fuel (44%) rather than other beneficial utilization. Compost and vermicompost production practices were done by 22 and 2% farmers, respectively in the study area. Therefore, it would be stated that rural people had a great contribution on beef production in Bangladesh.

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### Introduction

Beef fattening is arising sector for employment and income generation for the rural people, especially landless and low income generating people of Bangladesh. The main livestock species are cattle, goat, sheep, buffalo, and poultry in Bangladesh. It is estimated that a total of 375 million livestock animals in Bangladesh, including 24 million cattle, 25 million goat, 3 million sheep and 1.9 million buffalo where chicken population is about 255.31 million (Hamid *et al.*, 2017). Most of the people reared livestock in the rural areas and majority of them are landless, marginal and small

farmers. Livestock may be considered as cash crop to rural farmers that are instantly available for sale or barter (Kamal *et al.*, 2019). Cattle fattening is an effective tool for poverty alleviation for the rural poor people. Beef cattle fattening has become a profitable business of the small farmers in Bangladesh (Baset *et al.*, 2002; Mustafa *et al.*, 2020 and 2021). Utilization of is that they use locally available feed is the advantages of the cattle fattening by the rural farmers during the Eid festival (Ahmed *et al.*, 2010; Baset *et al.*, 2003; Rahman *et al.*, 1997, 1998 and 1999). Bangladesh is a low-lying densely populated country of more than 160

million people, 75% of them live in rural areas; rural poverty rate is 63%, of which 36% are extreme poor (Hodson, 2006). Livestock are an integral part of agriculture and make multifaceted contributions to the growth and development in the agricultural sectors. The agriculture sector of Bangladesh contributes 17.02% of GDP of the economy (MOF, 2013). About 20% of the total population of Bangladesh depends on livestock and poultry especially on beef fattening, dairying, broiler and layer rearing. Locally available feed resources help the rural farmers in the fattening program during the Eid ul Adha. Recently, women are actively involved in beef fattening program in rural areas of the country (Baset *et al.*, 2003; Begum *et al.*, 2007; Hashem *et al.*, 1999).

Although the cattle population is high, but the production is too low due to poor genetic makeup, inadequate feed supply, lack of scientific knowledge in housing and management. The growth and overall performance is very poor due to the above reasons. Planned beef cattle production system usually is not practiced in Bangladesh. Livestock production depends on feeding and nutrition, hygienic housing facilities, animal health care and management along with marketing facilities. Besides, being a Muslim country, there is a seasonal demand of beef cattle during Eid ul Adha. To satisfy the animal protein requirement, beef fattening can play an important role. The Directorate of Livestock Services (DLS) of the Government of Bangladesh has taken beef fattening as an action program to generate income for the rural poor farmer. Cattle are bought by the farmers usually 3-6 months before Eid-ul-Adha (Muslim festival) and then they are fattened and sold. In recent years the women farmers of Bangladesh have been involved and sustained beef fattening program in rural areas of the country. The women farmers borrow money from local bank or NGO or other credit organizations. The shortage and high cost of animal feed are the greatest problems of the farmers for rearing cattle.

In rural areas, beef fattening is practiced as a subsidiary enterprise in addition to crop production. The cattle management practices including feeding, housing, breeding practices including artificial insemination, health care including cleaning and sanitation activity, marketing of beef cattle and manure management are being done directly by rural people (Barman *et al.*, 2017; Kawsar *et al.*, 2006; Mazed *et al.*, 2004; Rahman *et al.*, 2002; Islam *et al.*, 2004; Sarkar *et al.*, 2008; Sarker *et al.*, 2018; Quddus and Rahman, 1998). Beef fattening enterprise provide additional income and gainful employment to the members of the family throughout the year are being practiced by rural people. Therefore, the study was undertaken with the following objectives:

1. To investigate the socio economic status of rural people engaged in cattle fattening.
2. To explore the problems and suggestions to improve the existing conditions of cattle fattening.

## Materials and Methods

### Study area and selection of farmers

The present study was conducted in three unions namely Kursha, Sarai, Haragachh and at Kaunia upazila in Rangpur district. Preliminary visits were made for selection of study area. The data were collected through interview schedule by selecting 45 respondents from three unions who were involved in cattle fattening under Kaunia upazila. A total of 45 farmers (3 unions, 15 farmers from each union) were chosen for collecting data to satisfy the objectives.

### Preparation of interview schedule

A structured interview schedule was carefully prepared keeping the objectives of the study in mind. The questions and statement contained in the schedule were simple, direct and easily understandable by the respondents. The schedule contained closed and open form of questions. Some scales were included in the schedule, wherever necessary. The draft interview schedule was pre-tested in the study area. To identify the faulty questions in the draft schedule and necessary corrections were made on the basis of the pre-test results.

### Methods of data collection

Data were collected from respondents by one-to-one interview method. The data were collected following the direct interviews and making personal visits. Before making actual interview, the objectives of the study and importance of using hormones and feed additives of cattle fattening were explained clearly to the respondents. Then the questions were asked in a very simple manner with explanation wherever necessary. To collect the necessary information from the respondents both interviewing and observation were applied. The relevant data for this study were collected without biasness. Some respondents had specific written documents and many of them had no specific written documents of their own. So, they had to reply mainly from their memory. To obtain accuracy and reliability to data, care and caution were taken in the course of data collection. Attention was paid to the mood of farmers and cordial relationship was established between the farmers and the researcher. Interviews were normally conducted in respondent's house during their leisure time. It was found that the respondents were very cooperative when the aims of the study were explained to them. After completion of each interview, the researcher thanked the respondents for their co-operation and help.

### Processing of data

At the end of data collection, the collected data were coded, compiled, tabulated and analyzed. The responses of the respondents that were recorded in the interview schedule were transferred into a master sheet for entering the data into the computer.

### Data tabulation and analysis

Data were carefully tabulated and analyzed with simple statistical method to fulfill the objectives of the study. The collected data were first transferred to master sheets and compiled to facilitate the needed tabulation. Tabular technique was applied for the analysis of data using simple statistical tools like average and percentages through SPSS software.

## Results and Discussion

In this study 45 respondents were interviewed to find out the socio-economic condition of the respondents. In this study some major characteristics of the respondents were selected to find out the socio-economic condition of the farmers. The selected characteristics included age of the farmers, family size, education, occupation, land size, source of capital and training. Number and percentage distribution of respondents according to their age of the farmers, family size, education, occupation, land size, source of capital and training on cattle fattening are shown in Table 1.

### Age of the farmers

All the socio economic information of the beef fattened farmers was presented in Table 1. According to data, the farmer's age ranged from 19 to 62 years and most of them were male (57.78%). The respondents were classified into three categories, such as young age (up to 30 years), middle age (31-50 years) and aged people (above 50 years) on the basis of their age. The findings indicated that the highest proportion (44.44%) of the farmers in the study area was in the middle-aged category compared to young aged category (31.11%) and old aged category (24.44%). The results of this study are similar with Rahman *et al.* (2012) where they reported that 45.3 per cent farmers was in middle aged category 16.0 per cent and 38.7 percent farmers was in young and old age category, respectively. Almost similar findings were found by Begum *et al.* (2007), Sharmin (2005), Sarker (2014) and Hossain (2013). It was expected that young and middle-aged farmers (About 76%) were more active, energetic and enthusiastic in performing beef fattening activities. Particularly the middle-aged farmers were well experienced and more acquainted with the beef cattle production.

### Family size

The family size of the farmers ranged from 3 to 12 numbers was classified into three categories. These were small family (up to 5 members), medium family (6-8members) and large family (above 8 members). It was found that the majority (42.22 percent) of the farmer had small sized family, (37.77 percent) medium sized family and (20 percent) in large sized family. The average family size 4.23 of the respondents in the study area was lower than that of the national average of 4.9 (BBS, 2008). The results of this study are similar with Rahman *et al.* (2012) where they reported that 52 percent farmers had small sized family, 31 percent medium and 17 percent farmers in large family. Findings from Sharmin (2010), Hossain (2013) and Sarker (2014) were closed to the present study.

### Land size

The present study found that the total land (homestead and cultivable) of the respondents were classified into four categories such as marginal, small, medium and large farmers. The major category (46.47%) of the farmers belongs to marginal class which was also a representative of typical land size of Bangladesh. About 26.67% farmer's small, 20% medium and 6.67% farmers had large size land which is almost similar with result of Kumar (2014).

### Level of education

The level of education of the farmers ranged from zero education to HSC level. The respondents were classified into five categories, such as illiterate, primary, SSC, HSC and graduate on the basis of their level of education. Among the total respondent 15.55% illiterate (only signature), 46.67% had primary, 24.44% had secondary and 13.33% had higher secondary level of education but no graduates were found among the beef fattening activities. Findings indicate that majority of the farmers had primary education. The results of this study are similar with Begum *et al.* (2007), where they reported that 20.0 percent farmer's illiterate, 40.0 percent, 30.0 percent and 10.0 percent farmers in primary, secondary and above secondary level of education respectively. Almost similar findings were found by Sarker (2014), Hossain (2013), Kumar (2014) and Sharmin (2010). Hossain *et al.*

(2021) also stated that majority of the livestock farmers belongs to primary education.

**Table 1. Distribution of respondents according to age, household size and land size (n =45).**

Parameter	Categories	Number of respondents	% of total respondents
Age (years)	Young (< 30)	14	31.11
	Middle (31-50)	20	44.44
	Old age (> 50)	11	24.44
Sex	Male	26	57.78
	Female	19	42.22
Family size (person)	Small family (<5)	19	42.22
	Medium family (6-8)	17	37.77
	Large family (>8)	09	20
Land size (Acre)	Marginal (<1)	21	46.47
	Small (1-3)	12	26.66
	Medium (3-8)	09	20
	Large (>9)	03	6.67
Level of education	Illiterate	07	15.55
	Primary	21	46.67
	SSC	11	24.44
	HSC	06	13.33
	Graduate	00	00
Source of capital	Own capital	25	55.55
	Bank loan	02	4.44
	NGO loan	15	33.33
	Lending	03	6.67
Training	Have	15	33.33
	Have not	30	66.67

### Source of capital

The source of capital for cattle fattening varies from farmers to farmers. According to the capital source regarding beef fattening, farmers were classified into four categories. About 55.56% respondents used own capital for fattening purpose, 4.44% farmers taking bank loan and 33.33% farmers taking loan from NGO and 6.67% lending from others people for fattening purpose. The results of this study are similar with Sarker (2014) where he reported that 57% used own capital, 10% used bank loan and 33% from other sources such as NGO loan and lending for fattening purpose.

### Training

Training experience was an important factor which enhanced the level of knowledge and improves skills on various aspects of agricultural technologies. Present study showed that 33.33% beef fattened farmers had experience on short time training usually for three to seven days in different govt. & non-govt. organizations for cattle fattening purpose. Rest 66.67 percent had no experience of training on cattle fattening purpose. Sarker (2014) and Hossain (2013) stated that 97 percent farmers have no training on sheep and goat production respectively. Ahmed *et al.* (2010) found that 20.5% farmers were trained and 79.5% were not trained. Barman *et al.* (2017) also stated that only 3% farmers have training on livestock rearing practices.

### Factors associated with cattle fattening

#### Beef cattle type

Existing beef cattle status and management activities of the farmers are shown in Table 2. It was found that 44 and 24% farmers reared indigenous and crossbred bulls, respectively and 31% of the farmer's reared both indigenous and crossbred cattle. Rahman *et al.* (2012) reported that about 60% farmers reared both indigenous and crossbred cattle for

fattening, solely 28% reared indigenous and 12% reared crossbred bulls. Hossain *et al.* (2019) stated that about 12% cattle were indigenous and 88% crossbred in origin.

Sex is the crucial point for fattening, because customer preferably chooses beef from bull or steer more than the beef from cow. Most of the farmers (89%) fattened uncastrated male (bulls) and only 11% of them fattened castrated male cattle (steer) and nobody fattened the cow or heifer in the study area. Starting age of cattle fattening also varied farmer to farmer. Islam *et al.* (2012) reported that majority (81%) of the beef fattened farmer reared uncastrated male and rest 19% of them fattened the steer before Eid ul Adha.

**Table 2. Distribution of respondents according to breed type, farm type, sex of animal, pattern of the program, fattening period, and marketing (n = 45).**

Parameter	Categories	Number of respondents	% of total respondents
Breed type	Indigenous	20	44.44
	Crossbreeds	11	24.44
	Both	14	31.11
Sex of animal	Castrated male	05	11.11
	Uncastrated male	40	88.89
No. of cattle for fattening	2-5	19	42.22
	6-9	15	33.33
	10-12	08	17.78
	>12	03	6.67
Pattern of beef fattening	Just before Eid ul Adha	26	57.78
	Round the year	11	24.44
	Seasonal	08	17.78
Fattening period	3 months or less	03	6.67
	3-6 months	20	44.44
	6 months-1 year	14	31.11
	>1 year	08	17.78
Marketing	Direct sale	35	77.78
	Through Butcher/others	10	22.22
Manure management	Produce biogas from manure	0	0
	Produce compost from manure	10	22.22
	Produce vermicompost from manure	1	2.22
	Used as fuel	20	44.44
	Directly used to the land	14	31.11

### Farm size

Farm size is also an important issue in rural beef fattening program. Landless and marginal farmers couldn't rear large number of cattle. Present study showed that the majority of the farmers (42%) reared 2-5 beef cattle, 33% farmer reared 6-9 beef cattle, 18% farmers reared 10-12 cattle and only 7% farmers reared more than 12 cattle for fattening. Beef cattle number for fattening is very much related to the socio economic status of the farmers. Financially solvent farmer's reared more cattle and marginal farmer's reared less number of cattle. Begum *et al.* (2007) stated that 70% farmer reared 1 to 4 cattle, 27% farmers reared 5-8 cattle and only 3% farmer reared more than 8 cattle. Similar pattern of farm size for beef cattle fattening were described by Islam *et al.* (2012). They stated that 79% farmer reared 2 to 5 cattle, 17% farmers reared 6-9 cattle and only 3% farmer reared more than 12 cattle.

### Period of fattening

Fattening period is the most important factor because it measured profit percentage of the farmers. The fattening time of the present study indicated that the majority of the beef fattened farmers (44%) practiced 3-6 months fattening, 7% farmer practiced fattening only before Eid-ul-Adha and 24% farmer practiced fattening round the year. Islam *et al.* (2012) showed that majority of the respondents started fattening 3-6 months before Eid-ul-Adha (58%), 24% farmers fattened for 6 months to 1 year and 7% farmer fattened less than 3 months. Begum *et al.* (2007) also stated that 60% cattle farmer fattened their cattle just before 3-6 months of Eid ul Adha. Rahman *et al.* (2012) stated that most of the beef farmers fattened cattle for 3 months (44.7%) and rest of them were fattened for 6 months or one year.

### Marketing

Beef cattle farmers were sold their cattle directly to the local market after completion of the fattening program or through the butchers. It was found from the present study that 78% farmers sold their fattened cattle in the local cattle market. On the other hand, rest fattening cattle were consumed by the butchers and neighboring people.

### Manure management

Manure management is also an important issue in beef cattle fattening. It was found that nobody produced biogas from cattle manure in the study area. About 22% farmers prepared compost from beef cattle manure and only one farmer prepared vermicompost from manure. Majority of the farmers (44%) used the manure for cooking (as fuel) 31% farmers applied their cattle manure to the crop land as fertilizer. Rahman *et al.* (2002) stated that 10% cattle farmers of Sylhet region used cow dung as fuel and 19% farmers used it as manure. Direct application of manure to the crop land is not a good practice. Manure should be decomposed through composting, vermicomposting or anaerobic digestion before applied to the soil (Al Amin *et al.*, 2020; Rahman *et al.*, 2020a, 2020b; Rana *et al.*, 2020; Roy *et al.*, 2013; Sarker *et al.*, 2021). Manure can be converted into valuable resources through proper treatment; otherwise it may be the cause of environmental pollution (Ahsan *et al.*, 2013; Alam *et al.*, 2013; Lee *et al.*, 2009; Islam *et al.*, 2010; Rahman *et al.*, 2013; Sarker *et al.*, 2009; Won *et al.*, 2016).

### Public perception on beef fattening

Most of the beef fattened farmers (89%) in the study area want to get more profit within a short time (Table 3). About 73% farmers used locally available grass, straw and household concentrate for the beef fattening purpose. It was found that about 58% farmers had idea of health status of cattle, but 47% farmers stated that they had the knowledge of deworming activities along with vaccination program. Only 18% farmers used growth promoter for fattening and 4% of the farmers had knowledge on carcinogenic effect of steroid hormone and no farmers used harmful feed additives or steroids for the beef fattening activities. Barman *et al.* (2017) stated that 93% of the rural farmer wants to get more profit within a short time, although 50% of them had no idea about livestock health management.

### Problems and suggestions regarding beef fattening practices

The farmers faced some problems regarding management, financial and health issues during fattening practices.



**Table 3. Public perception regarding beef fattening in the study area.**

Public perception	Number of respondents	% of total respondents
Want to get more profit within short time	40	88.89
Feeding of local grass, straw & low amount of concentrate	33	73.33
Idea about health status	26	57.78
Knowledge on deworming and vaccination program	21	46.67
Utilization of growth promoter	8	17.78
Knowledge on carcinogenic effect of steroid hormone	2	4.44
Used harmful feed additives	0	0

Table 4 shows that the 100% farmers faced the problem regarding high price of concentrate feed along with straw. Recently, the price of straw increased several folds from the previous years and the availability of straw also reduced. About 80% farmers claimed about market price fluctuation of beef cattle before Eid ul Adha. Complexity of Bank loan, thief problem and lack of cattle shed were stated by 71, 64 and 62% farmers respectively. Shortage of green grass and straw was stated by 36% respondents, and lack of extension services was stated by 33% respondents. High labor wage was stated by 29% respondents and 27% respondents stated that they have faced problems with cattle disease specially FMD. High price of medicine also stated by 27% respondents and 20% of them didn't have sufficient knowledge about beef fattening. Islam *et al.* (2012) stated that the most important problem faced by the cattle farmer was the high price of concentrate feed (34%), followed by lack of knowledge for the selection of appropriate breed (27.33%), capital problem (20%) and lack of knowledge about feed additives and anabolic steroids (8.7%). They also stated that the lack of training, credit facilities, feed price hiking, disorganized marketing system were also problems related to cattle fattening in Bangladesh.

The beef fattening farmers suggested some important points that will help to improve the existing fattening practices. It needs government subsidy on concentrate feed as well as straw (100%), easier bank loan with low interest (71%), monitoring of beef cattle market to prevent the fluctuation of price (53%), fixation of beef cattle price according to live weight throughout the country (44%), cattle feed market should be developed so that the cattle feed will available throughout the year with a reasonable price (29%). Islam *et al.* (2012) suggested that selection of breed is the key factor for cattle fattening, followed by good feeding and management, deworming activities, reduction of concentrate feed cost and providing training facilities regarding cattle fattening practices.

### Conclusions

It can be concluded that majority of the beef fattening farmers were low educated, marginal and smaller family size. Most of the fattened cattle were indigenous uncastrated male (bull) and the farm size was also smaller (2-5 cattle). Majority of the farmers reared beef cattle before Eid ul Adha and fattening period was 3-6 months. Majority of the farmer used beef cattle manure as fuel and few of them were prepared compost from cattle manure. All the farmers used local feeds for fattening and nobody used steroids.

**Table 4. Management Problems and suggestions for beef fattening.**

Management problems	Number of respondents	% of total respondents
High price of straw and concentrate feeds	45	100
Fluctuation of the fattened cattle price	36	80
Complexity of Bank loan	32	71.11
Cattle theft problem	29	64.44
Lack of cattle shed	28	62.22
Shortage of green grass and straw	16	35.56
Lack of extension services	15	33.33
High cost of labor	13	28.89
Disease attack	12	26.67
High price of medicine	12	26.67
Lack of knowledge about fattening	09	20
<b>Suggestions</b>		
Provide subsidy on concentrate feeds	45	100
Providing bank loan facilities	32	71.11
Fluctuation of beef cattle price should be monitored and checked	24	53.33
Beef cattle price should be fixed according to live weight throughout the country	20	44.44
Cattle feed should be made available with a reasonable price by establishing cattle feed market	13	28.89

Therefore, the beef produced from fattened cattle might be safe for human consumption. Rural farmers' reared beef cattle with lots of problems regarding feed, house, treatment and marketing live cattle. They suggested for monitoring cattle market, fixation of beef cattle price on the basis of live weight. It was also suggested to establish cattle feed market so that concentrate feed, straw and green grass would be available with a reasonable price.

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