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Original Article

Livelihood improvement of farmers through cattle fattening of Mymensingh District: A socio-economic study

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A B S T R A C T

The experiment was conducted to investigate the livelihood improvement of farmers through cattle fattening in selected areas (Mymensingh Sadar and Fulbaria Upazilla) in Mymensingh district of Bangladesh through field survey. Total of 30 respondents were randomly selected from the three villages. Each village consists of 10 respondents. Data were collected from randomly selected 30 farmers who were involved in small scale cattle fattening through personal interviews. The selected characteristics were the socio-economic conditions of the farmer such as age, level of education, occupation, household size, land size, source of capital, family income from cattle fattening, farm size, etc. The respondents were aged from 25 to 60 years. The highest proportion (56.7 percent) of farmers was in the middle-aged. The education levels among the respondents were 46.7 percent illiterate, 33.3 percent primary level, 13.3 percent up to S.S.C level and 6.7 percent of H.S.C or above. Among the respondents, 33.3 percent were involved in cattle fattening as primary occupation and 67.3 percent were involved in cattle fattening as a secondary occupation. About 83.3 percent of respondents were used own capital for fattening purpose and 16.7 percent respondents had bank loan or NGO loan facilities for fattening purposes. The income of the respondents' family from cattle was BDT 11283.33 which was contributed 31.39 percent to the increased family income. The results show that cattle fattening could be the most suitable way to increase the socio-economic status of the poor farmers in terms of net income.

Introduction

Bangladesh is a low-lying densely populated country of more than 150 million people, 75% of those who live in rural areas; rural poverty rate is 63%, of which 36% are extremely poor (Hodson, 2006). Bangladesh mainly depends on agriculture and livestock is one of the most important component of agriculture in the country. At present agriculture sector of Bangladesh contributes 17.02 % of Gross Domestic Product (GDP) whereas livestock contributes 2.50 % of GDP of the economy (BER, 2011; MOF, 2013). The livestock industry is mainly based on cattle, goat, sheep, buffalo, and poultry in Bangladesh. The present population of livestock is 23.79 million cattle, 1.47 million buffalo, 25.77 million goats and 3.34 million sheep (DLS, 2015-16). Beef fattening is an emerging sector for employment and income generation for the rural poor, especially landless, destitute as well as divorced women. Cattle fattening is an effective tool for poverty alleviation for the rural poor. Cattle fattening for beef production has become an important business of the smallholder farmers in Bangladesh. One of the advantages of the cattle fattening by the rural farmers is that they use locally available cattle feed resources (Rahman *et al*., 1997, 1998 & 2013; Baset *et al*., 2002; Begum *et al*., 2007). In recent years the women farmers of Bangladesh have been involved and sustained beef fattening programs in rural areas of the country (Hossain *et al*., 1996, Huq *et al*., 1997, Hashem *et al*., 1999). Although the cattle concentration per unit land area is high, but their productivity is too low due to poor genetic makeup, inadequate feed supply, lack of scientific knowledge in housing and management (Pandit, 2005). As a result growth performance is very poor. The planned beef cattle production system usually is not practiced in Bangladesh. Livestock resources necessarily encompass animal health care and welfare, quality production factors, and effective rearing to keep pace with the expansion of entrepreneurship related to concerned industries. About 20% of the

population of Bangladesh earns their livelihood through work associated with raising cattle and poultry. Besides, being a Muslim country, there is a seasonal demand for beef cattle during Eid-ul-Azha. About 1.8 million cattle are sacrificed at this time each year (Sujan *et al*., 2011). This demand is increasing day by day. Approximately 64% of the livestock farmers practiced fattening round the year and rest of the respondents followed fattening for period of 3 months; before Eid-ul-Adha and about 86% farmers reared uncastrated males instead of steer for fattening (Kamal, 2019). The Department of Livestock Services (DLS), Bangladesh has taken beef fattening as an action program to generate income for the rural poor farmer as well as to meet the country's demand. Cattle are bought by the farmers usually 3-6 months before Eid-ul-Azha (Muslim festival) and then they are fattened and sold. In recent years the women farmers of Bangladesh have been involved and sustained beef fattening programs in rural areas of the country. The women farmers borrow money from local banks or NGOs or other credit organizations. The shortage and high cost of animal feed are the greatest problem of the farmers for rearing cattle. The information related to cattle fattening by rural farmers in Bangladesh is very poor. A detailed study is needed in different districts of Bangladesh to recommended cattle fattening programs for the rural poor farmers as income-generating activities. With the rising demand for quality beef and reasonable beef prices, the availability of a relatively large supply of bull calves is from small scale dairy is justifiable to study cattle fattening as an income-generating activity in Bangladesh. To make the cattle fattening as a sustainable technology the socio-economic aspect of the farmers needs to be investigated. Therefore, the present study was designed to investigate the feeding, management and marketing system of small scale cattle fattening as well as to explore the livelihood improvement of farmers through cattle fattening.

Methodology

Area Selection and Duration of the Study

The present study was conducted at two Upazilas of Mymensingh District namely Mymensingh Sadar and Fulbaria. The duration of the experiment was for 90 days from 15th January, to 15th April 2017. A total of 30 farmers were chosen from the selected experimental area for collecting data to satisfy the objectives. Data were collected by face-to-face interview method with respondents.

Preparation of a Standard Questionnaire

The preparation of the questionnaire is of crucial importance in any socio-economic study. A standard questionnaire was designed and prepared for collecting data in details keeping the views of objectives of the livelihood improvement of farmers through cattle fattening in selected areas of Mymensingh, Bangladesh.

Data Collection

Data were collected following the direct interviews and making frequent personal visits. Interviews were normally conducted on the station, the market or in the respondent's house during their leisure time. Secondary data were collected from BBS, journals, reports and various published articles. The interview schedule contained the following items of information. The data was taken regarding the cattle fattening owners, farmer's sex, age, education, social status, livestock population, management of the fattening cattle, expenditure and household size as well as some factors associated with cattle fattening such as breed, source of fund, feeding and nutrition, de-worming treatment, indigenous knowledge on rearing cattle and marketing of cattle.

Data Processing and Statistical Analysis

At the end of data collection, the collected data were coded, compiled, tabulated and analyzed. The local units were converted into standard units. The qualitative data were transferred into quantitative data by an appropriate scoring technique. The collected data were analyzed statistically by using simple statistical tools like average and Percentages as well as Chi-square through SPSS software.

Results and Discussion

Socio-economic characteristics of respondents

In this study, some major characteristics of the respondents were selected to find out the socio-economic condition of the farmers. Number and percentage distribution of respondents according to age of the farmers, family size, education, occupation, land size are shown in Table 1. According to data, the farmers' age ranged from 25 to 60 years. The mean age was 43 ± 12.11 years (Mean ± SD). The respondents were classified into four categories, such as very young aged (up to 25 years), young aged (25-35 years), middle-aged (35-45 years) and old-aged (above 45 years) based on their age. The findings indicated that the highest proportion (56.7 percent) of the farmers in the study was in the middle-aged category compared to 6.7 percent belonging to the young aged category and 36.7 percent to the old aged category (Table 1).

The sex of the respondents are divided into male and female and the mean was 1.03 ± 0.87 (Mean ± SD). Table 1 showed that out of 30 respondents, 96.7 percent of farmers were male and 3.3 percent were female. In case of household size, the families were classified into three categories. These were small families (up to 4 members), medium family (4-6 members) and large family (above 6 members). In this study, it was found that 26.7 percent of the farmer had small-sized family, 56.7 percent medium-sized family and 16.7 percent in large-sized family (Table 1).

Table 1. Distribution of cattle farmers according to age, sex, family size, level of education, land size (n=30)

Parameters	Categories	Frequency	Percentage
Age (years)	<25	2	6.7
	25-35	9	30
	35-45	8	26.7
	>45	11	36.7
	Mean ± SD		43.00± 12.11
Sex	Male	29	96.7
	Female	1	3.3
	Mean ± SD		1.03 ± 0.87
Household size	Small (<4)	8	26.7
	Medium (4-6)	17	56.7
	Large (>6)	15	16.7
	Mean ± SD		5.40 ± 1.75
Level of education	Illiterate	14	46.7
	Primary	10	33.3
	SSC	04	13.3
	Graduate or above	02	6.7
	Mean ± SD		2.3 ± 1.84
Land size	Marginal (0.020- 0.20) ha	14	46.7
	Small (0.21-1.00) ha	14	46.7
	Medium (Above 1.00) ha	02	6.7
	Mean ± SD		0.34 ± 0.29

Source: Field survey data, 2018

The average family size 5.40 of the respondents in the study area was ower than that of the national average of 4.9 (BBS, 2008). The results of this study found inconsistence 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 families.

The level of education of the farmers ranged from illiterate to above HSC level. To examine the literacy level of the respondents, literacy level was classified into four categories: a) Illiterate b) Primary c) Up to S.S.C d) H.S.C to above. In this study it was found that the respondent farmers were 46.7% illiterate, 33.3% primary level, 13.3% were up to S.S.C level and 6.7% of H.S.C to above level. Their educational status was implying their limitation to gather technical and business skills as well as improving their livelihoods. Education broadens the outlook of the people and leads them to explore new ideas to solve problems. It is assumed that people having higher education are more progressive and innovative than those of illiterate and they could perform better in fattening their cattle. Educated farmers are expected to be more receptive to improved farming techniques (Okoye *et al*., 2007). But during data collection, it was found that the families are now very conscious about education and trying to educate their children at best within their financial limitation. Sarma *et al*. (2002) found almost similar results with the present study.

Table 1 also showed that the total land (homestead and cultivable) of the respondents which were classified into three categories such as marginal, small and medium farmers. Out of 30 respondents, the major category belongs to marginal (46.7%) and small (46.7%) farmers whereas about 6.7% were belonged to medium farmer which is almost similar with the result of Kumar (2014).

Table 2. Distribution of respondent according to their occupation, source of capital, source of cattle and their breed type (n=30)

Parameters	Categories	Frequency	Percentage
Occupation	Primary occupation	10	33.3
	Secondary occupation	20	66.7
Source of capital	Own capital	25	83.3
	NGO loan	5	16.7
Source of cattle	Raised from own herd	9	30
	Purchase	21	70
Breed	Indigenous cattle	21	70
	Cross breed	9	30

Source: Field survey data, 2018

Occupational status, source of capital, source of cattle and breed type reared by the respondents for fattening are shown in Table 2. Out of 30 respondents, 33.3 percent are involved in cattle fattening as primary occupation and 67.3 percent are involved in cattle fattening as a secondary occupation which found consistent with the results of Rahman *et al*. (2012).

In this study, about 83.3 percent of respondents used own capital for fattening purpose and 16.7 percent respondents taking bank loan or NGO loan for fattening purpose. The results of this study found almost similar to Sarker (2014) who reported that 57 percent used own capital, 10 percent used bank loan and 33 percent from other sources such as NGO loan and lending for fattening purpose. Table 2 showed that out of 30 respondents 30% of farmers were raised from own herd and 70% of farmers were purchase from markets. Usually, they purchase cattle at the age of 2 to 2.5 years for fattening purposes. In the present study, It was found that 70% of the cattle were deshi and 30% were crossbred cattle. The average weight of the cattle was 104.67 ± 25.83 (Mean ± SD).

Cost and return of the cattle fattening enterprise

Table 3 showed the cost of production per cattle in the study area. The cost items were purchase cost, transportation cost, feed cost, labor cost, housing and equipment cost, medicine and vaccination cost. Purchase cost and gross feed cost found the major cost of beef cattle fattening in the study area. High feed cost is also a problem associated with beef fattening program in Bangladesh.

Table 3. Cost of production

Parameters	Union				Total	
	Gagra		Deokhola			
	Mean	SD	Mean	SD	Mean	SD
Purchase cost/cattle	42150.00	5607.78	39975.00	5425.27	40700.00	5489.17
Transportation cost/cattle	400.00	71.69	440.00	78.81	426.67	77.66
Labour cost/hr	52.50	0.00	55.75	2.00	54.67	2.25
Housing cost/month	255.00	236.23	272.50	93.15	266.67	151.90
Instrument cost/month	157.50	65.84	208.75	81.63	191.67	79.46
Medicine and vaccination cost/month	199.00	104.53	201.25	62.55	200.50	77.17
Feed cost/day	157.00	30.5	188	39.50	172.5	35.7

Source: Field survey data, 2018

Total income from each cattle along with the family expenditure in different livelihood improvement activities are shown in Table 4. Food, cloth, education, health, social event, and recreation are included in family expenditure along with the percentage. Income was recorded average BDT 17800 per cattle at Gagra and BDT 8400 per cattle at Deokhola in Mymensingh. These data indicates that it is possible to improve the livelihood of the farmers though cattle fattening program. Rahman *et al*. (1999) stated that rural people of Mymensingh district applied indigenous knowledge in feeding cattle for fattening. Landless and marginal farmers earned a sufficient amount of money through cattle fattening during Eid ul Adha that helped to improve their livelihood.

Table 4. Income and family expenditure

Parameters	Union				Total	
	Gagra		Deokhola			
	Mean	SD	Mean	SD	Mean	SD
Income/ cattle	17800.00	2575.70	8025.00	1689.56	11283.33	15008.44
Cattle purchase (%)	66.00	8.43	70.00	6.49	68.67	7.30
Food (%)	13.80	4.21	6.80	6.58	9.13	6.72
Cloth (%)	7.70	3.83	7.30	2.43	7.43	2.91
Education (%)	4.30	4.97	7.80	2.65	6.63	3.88
Health (%)	5.20	2.20	5.00	1.81	5.07	1.91
Social event (%)	1.90	1.29	1.80	0.83	1.83	0.99
Recreation	1.20	0.42	1.35	0.49	1.30	0.47

Source: Field survey data, 2018

Managemental and marketing Problems

The problems including both managemental and marketing faced by the respondents of the study area are shown in Ta-

ble 5. High feed price (100%) found the most prominent problem along with cattle theft problem, price fluctuation, bank loan complexity, housing problem during the rainy season, non-availability of pasture land, high market tax, and high transportation cost. Almost similar problems were stated by Hossain *et al*. (2016). Suggestions to improve the situation also listed down from the respondents (Table 5). Lowering the feed cost by providing Government support, ensure bank loan facilities, strong market monitoring, availability of cattle feed could be the way to solve the problem faced by the respondents.

Table 5. Managemental and Marketing Problems as well as suggestions to improve cattle fattening.

	Parameters	Frequency	Ranking
Managemental Problems	High price of feeds	30	100 %
	Cattle theft problem	28	93.33 %
	Price fluctuation	24	80 %
	Complexity of Bank loan	24	80 %
	Lack of cattle shed	18	60 %
	Housing problem during rainy season	16	53.33 %
	Non availability of pasture land	12	40 %
Marketing problems	Entrance of Indian cattle	28	93.33 %
	High market Tax	22	73.33 %
	Unfair price from dalal	15	50 %
	Higher transportation cost	14	46.67 %
Suggestions to improve	Lowering the feed cost	30	100 %
	Providing bank loan facilities	23	76.67 %
	Price fluctuation should be checked	16	53.33 %
	Cattle feed should be made available	8	26.67 %

Source: Field survey data, 2018

Suggestions to improve the existing situation

High feed cost affect the whole fattening process and profit as well. Lowering feed price could play vital role in livelihood development through cattle fattening in rural area (Table 5). Improvement of bank loan facility, cattle feed availability; price stability may improve the present obstacles faced by the farmers.

Conclusion

Cattle fattening could be the most suitable way to increase the socio-economic status of the poor farmers in terms of net income.

Conflict of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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