



Socio-economic status of sheep farmers and the management practices of sheep at Gafargaon upazila of Mymensingh district

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ABSTRACT

The experiment was conducted to investigate the present socio-economic status, potentialities of sheep production and management practices of sheep rearing in Mymensingh district of Bangladesh through field survey. The study was conducted at three villages of Gafargaon upazila on sheep production family as their profession from September 2017 to February 2018. Sixty percent farmers used roadside grass and 40% used cultivated and roadside grass. Most of farmers used mixed feed which was bought from local market and 20% farmers used vitamin-mineral supplementation. About 100% farmers used natural breeding. Eighty and 80% farmers practiced vaccination and de-worming, respectively. Ten percent farmers used hormone, antibiotic and growth promoter and 25% farmers removed sick animal from healthy stock. All farmers allowed access to outdoor and pasturing during winter season and none reared male and female sheep separately. Only 10% farmers kept their animal record. Most of farmers were middle aged categories (53%) and education level of farmers was 63, 30, and 7% primary, secondary and higher secondary. Out of 30 respondents 50% were farmers and 23% businessman. About 57% farmers used own capital, 10%, farmers took bank loan and 33% took NGO loan for sheep production. About 37% farmers purchased sheep occasionally from local market. The major problems in safety sheep production of high cost of vitamin-mineral supplement, unavailable organic fertilizer, lack of technical knowledge and lack of pasture land were 10, 27, 83 and 43% respectively. There are great opportunities and potentialities for safety sheep production in Bangladesh both for satisfying animal protein requirement, production of quality sheep and improve the socio-economic status of farmers.

INTRODUCTION

Livestock play a pivotal role in the economy of Bangladesh which is an integral component of agriculture in Bangladesh and make multifaceted contributions to the growth and development in the agricultural sectors. About 3.401 million sheep heads are distributed throughout the country (DLS, 2017). Although the growth of livestock production is the second highest among all other sub-sector of agriculture in Bangladesh (BER, 2012), The increasing trends of meat consumption have already been evident in several Southeast Asian countries such as Indonesia, Malaysia, Philippines and Thailand (Skunmun et al., 2002). The requirement of meat per head per day is 120 g whereas the availability is 121.74 g (DLS, 2017). Sustainable meat production is the main objectives of DLS to ensure protein security for building

meritorious nation of country. To satisfy the animal protein requirements, sheep can play an important role.

Good nutrition and management plays a vital role on sheep production. But now a day's inorganic fertilizer, pesticides, growth stimulating substances like hormones, steroids, feed additives etc. are using in Bangladesh for sheep production. Day by day consumers are becoming more aware of safety and quality food products consumed by them. Further, as Purchasing Power (PP) of common people is increasing persistently, they are interested to consume safer product without bothering to pay more. So, the production of safer sheep products without any chemical and microbial residues is the demand of the day. Therefore, greater emphasis on safe sheep farming can help us to produce safer sheep products

without compromising the animal welfare. Many agencies, non-government organizations (NGOs) and individuals have started experimenting with organic methods of food production in the recent years. Organic livestock production is productive and sustainable (Reganold et al., 1993).

In Mymensingh district large numbers of sheep are found. They used inorganic substances; growth promoting steroids and feed additives for sheep production but in safe sheep production use of these substances is strictly prohibited. The information related to sheep production by the farmers in Bangladesh is very limited. No attention has been paid in respect of using growth promoting steroids and feed additives in small scale farming. Problems, prospects and health hazard on the use of these substances are not well documented in Bangladesh. Detailed study is needed in different district of Bangladesh to know the present status and recommended safe sheep production program for farmers as an income generating activities. There is a great opportunities of safe sheep production both for satisfying animal protein requirement and production of quality sheep. Hence, it is a prime importance to find out present socio-economic status and rearing practices of sheep production in Bangladesh. Considering above point of view the study was undertaken to know the present status of sheep production, explore the potentialities and identify the existing problems of sheep production.

MATERIALS AND METHODS

Study area and selection of farmers

The study was conducted in three villages namely, Charani Bazar, Kharua Mukundo and Athharodana of three unions under Gafargaon upazila of Mymensingh district. Preliminary visits were made for selection of studied areas. Data were collected through interview schedule of selecting 30 respondents from three unions who were involved in sheep production. Farmers were randomly chosen from each union.

Table 1
The layout of the experiment.

Name of village	Name of union	No. of farmers	No. of sheep
Charani Bazar	Rsaulpur	10	58
Kharua Mukundo	Rawna	10	42
Athharodana	Jashora	10	62
Total: 03	03	30	162

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 studied area. The pre-test facilities the researchers to identify faulty questions in the draft schedule and necessary corrections and modifications were made on the basis of pre-test results. .

Collection of data

The data were collected by one-to-one interview method from respondents following the direct interviews and making frequent personal visits. Before making actual interview, the objectives of the study 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. Respondents had no specific written documents. So, they had to rely mainly from their memory. In order to minimize owner's memory bias, two visits were made in a season and questions were asked in a logical sequence so that the respondents could recollect the facts easily. To obtain accuracy and reliability of data, care and caution were taken in the time of data collection. Attention was given to the mood of farmers and cordial relationship was

established between the farmers and the researchers. Interviews were normally conducted in respondent's house during their leisure period. 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 researchers were given thanked to the respondents for their cordial help and cooperation during data collection.

Parameter studied

The interview schedule contained the following information.

A) Check list for organic Sheep production (Chander et al., 2011).

Origin of livestock, feeds and feeding, breeding, health care, living condition and record keeping of sheep for farmers.

B) Factors related to organic sheep production

Gender, age of farmers, education level, household size, occupation, land size, training, source of capital, number of sheep, description of the sheep like breed, age, weight and problems and probable solutions

Data analysis

Collected data were coded after ending of data collection and then compiled, tabulated and analyzed the data. The local units were converted into standard units. The qualitative data were transferred into quantitative data by appropriate scoring technique. 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- v-16 version computer package program.

RESULTS AND DISCUSSION

Origin of sheep

Origin of sheep was classified into two categories. One was indigenous and another was crossbred. Table 2 shows that all of the farmers used

indigenous sheep. Most of the sheep are indigenous, with few crossbreds (Bhuiyan, 2006) and are capable of bi-annual lambing and multiple births. Most of the farmers (77%) used own source of sheep for sheep production and 23 percent farmers purchased sheep occasionally from market. All farmers practiced natural breeding system.

In safety sheep production indigenous breeds are preferable than crossbred because indigenous breeds are adapted to local condition and resistance to disease. In the study area most of farmers used indigenous sheep.

Table 2

Origin, source and breeding method of livestock.

Parameter	Categories	Number of respondents	Percent of total respondents
Origin of sheep	Indigenous	30	100
	Crossbred	0	0
Source of sheep	Own source	23	77
	Purchase	7	23
Breeding method	Natural	30	100
	A.I.	0	0

Livestock feeds and feeding

Livestock feeds were classified into two categories. One was roughage and another was concentrate. Table 3 shows that most of the farmers (60%) used roadside grass, 3% cultivated fodder and 37% farmers used both cultivated fodder and roadside grass during rainy season. Different concentrates feed like wheat bran, rice polish/bran, kheshari bran (*Lathyrus sativas*), til oil cake, mustard oil cake, broken rice, salt etc were used for sheep production.

These concentrate ingredients were buying from local market. Feed additives, hormones, and growth promoter are not mixed in these concentrate mixture which is prohibited in sheep production. About 16.7 percent farmer used vitamin mineral supplement in feed and 83.3 percent farmers not used vitamin mineral supplement in feed for sheep production.

In safety sheep production producers were required to feed of sheep agricultural feed products that were 100 percent safety and should also provide vitamin-mineral supplements but in the study area most of the farmers used inorganic agricultural feed products and small number of farmers provide vitamin-miners supplement for sheep production. Hovi et al. (2003) stated that organic standards offer a good framework for animal health and welfare management in these fields it is nevertheless necessary to solve certain green areas among the organic farming objectives. A review of the literature by Worthington (1998) states that animals fed organically grown feed shows better growth and reproduction than animals fed conventionally grown feed.

About 90 percent cultivated fodders were inorganic because 100 percent farmers used different inorganic substances and pesticides for fodder production which was prohibited in safety sheep production. About 100 percent farmers used own prepared mixed feed where feed additive, hormones and growth promoter were not mixed with feed ingredients which meet the safety standard of sheep production. In safety sheep production vitamin mineral supplementation was essential but only 16.7 percent farmers used vitamin mineral supplement feed which were considered to be safety sheep. Sarkar et al. (2013) showed that no farmers used any concentration feed for organic animal production.

Table 3
Livestock feeds and fodder.

Parameter	Categories	Number of respondents	Per cent of total respondents
Roughage	Roadside grass	18	60
	Cultivated fodder	1	3.3
	Both	11	36.7
Concentrate	Compound feed/pellet	0	0.0
	Mixed feed	30	100
Vitamin mineral supplement	Yes	5	16.7
	No	25	83.3
Source of concentrate feed	Produce themselves	3	10
	Buy locally	27	90
Fertilizer use	Yes	30	100
	No	0	0

Health care

Table 4 shows that 80% farmers were vaccinated their sheep and 20 percent farmers did not vaccinate their sheep regularly. Most of the farmers (86.7%) not used hormones, antibiotic and growth promoter for higher meat production and only 13.3 percent farmer's used hormones, antibiotic and growth promoter for sheep production. About 66.6 percent farmers did not remove their sick animals from healthy stock and 33.3 percent farmers removed their sick animals from healthy stock which is important for safe sheep production.

Eighty three percent farmers groomed their sheep regularly and 17 percent farmers did not groom

their sheep regularly. Eighty percent farmers practiced de-worming for their sheep regularly. Safety raised animals should not be given hormones to promote growth, or antibiotics for any reason. Preventive management practices, including the use of vaccines, will be used to keep animals healthy. Producers are prohibited from withholding treatment from sick animal stocks; however, animals treated with a prohibited medication would be removed from safety operation. In the study area most of the farmers maintain vaccination schedule to keep animals healthy but majority of the farmers not removed sick animal from healthy animals.

The results of this study were similar with Begum et al. (2007) where they reported that 83% farmers

used vaccination, 80% farmers practiced de-worming and 63% farmers bathing their cattle regularly. In the parameter of vaccination about 80 percent sheep are considered to be safe because farmers vaccinated their sheep regularly. About 13% sheep are considered to be conventional

because hormone, antibiotic and growth promoter are not used in sheep production which is prohibited in safe sheep production. Removal of sick animal 33% sheep is safe because sick animal were separated from healthy stock which meets the standard of safety sheep production.

Table 4
Livestock health care and living condition.

Parameter	Number of respondents practice	Percent of respondents practice
Access to outdoor	30	100
Access to pasture	30	100
Grooming	25	83
De-worming	24	80
Vaccination	24	80
Removal of sick animals	10	33
Hormone, antibiotic and growth promoter	4	13.3
Separate male and female sheep	10	33.3
Did not separate male and female	20	66.7

Livestock living condition

Table 4 shows that 100% farmers allowed animal's access to outdoor and pasture during winter season. Most of the farmers cleaned housing, pens, equipment and utensils regularly. About 100 percent farmers kept male and female animals together.

All safety raised animals must have access to the outdoors, including access to pasture for ruminants. In the study area most of the farmers reared their sheep in existing traditional shed and 100% farmers allowed animal access to outdoor and pasture. Livestock living condition 100% sheep are considered to be safe because animals are allowed access to outdoor and pasture.

Factors related to sheep production

There were many factors and constituents attribute that characterize an individual form and integral part in the development of one's behavior and personality. In this study 30 respondents were interviewed to find out the socio-economic condition. The selected characteristics included age of farmers, family size, education, occupation, and land size, training, and knowledge, source of capital and purchase time of sheep.

Age of the farmers

According to data farmer's age ranged from 30 to >40 years. The respondents were classified into three categories, like young age (up to 30 years), middle age (33-40 years) and old age (>40 years) on the basis of their age shown in Table 5. The findings indicate that the highest proportion (67%) of the farmers in the study was in the middle aged category compared to 23% belonging to young aged and 10% to old aged category.

The results of this study was not similar with Rahman et al. (2012) where they reported that 45.3 percent farmers was in middle aged category, 16.0 percent and 38.7 percent farmers was in young and old age category, respectively. Almost similar findings were found by Begum et al. (2007), Ahamed et al. (2010) and Sharmin (2005). It was expected that young and middle aged farmers were more active, energetic and enthusiastic in performing sheep rearing activities. Particularly the middle aged farmers were well experienced and more acquainted with sheep production.

Level of education

The level of education of farmers ranged from Primary to Graduate. The respondents were

classified into four categories, viz. Primary to below SSC on the basis of education level shown in Table 6. Among the total respondents 60% had primary, 13 % had below secondary and 27% had illiterate (Table 6). Findings indicate that majority of the farmers had primary education. The results of this study were more or less similar with Begum et al. (2007), where they reported that 20% farmers are illiterate, 40%, 30% and 10.0 percent farmers in primary, secondary and above secondary level of education, respectively. Almost similar findings were found by Sharmin (2005) and Sharmin (2010). It was assumed that people having higher education are more progressive and innovative than those of illiterate and they could perform better in sheep production.

Occupation

The total respondents were classified into three categories. The major category 25 of the respondents belongs to farming categories, 3 businessmen and 2 government job. Number and percentage distribution of respondents according to the occupation are shown in Table 6. Out of 30 respondents 83% were involved in farming, 10% in business, and 7% in government job, respectively. The results of this study were not similar with Ahamed et al. (2010) where they reported that 70% farmers were involved in agriculture and 11.2% in business.

Training

Training experience was an important factor which enhanced the level of knowledge and improves skills on various aspects of agricultural technologies. Table 5 shows that only 10% respondents had experience short time training usually for one to two days from Upazila Livestock Office in Gafargaon, Mymensingh for sheep and goat production. Rest 90% had no experience of training on sheep production. The sheep farmers were not aware about various training courses offered by different organizations

Source of capital

The capital source for sheep production varies from farmers to farmers. According to the farmers

were classified into three categories. Table 5 is shown that about 57% respondents used own capital, 10% taking bank loan and 33 percent from other sources such as NGO for sheep production

Purchase time of sheep

Purchase time of sheep was classified into three categories. One was around the year, which means there is no definite time in the year for purchasing sheep. Another was occasionally and other was not purchased. Table 5 shows that 77% farmers were not purchased, they used own sources of sheep, 6% occasionally and 17% farmers purchase around the year for sheep production.

Land size

Table 5 shows that the total land (homestead and cultivable) of respondents were classified into four categories like marginal, small and medium. The major category (50%) of the farmers belongs to marginal class, 33% farmer's small, and 17% medium size of land. The results of this study were not similar with Hossain (2013) where he reported that 23% farmers had marginal land, 40% farmers had small land, 30% farmers had medium land and 7% farmers had large land size.

Household size

The household size of the farmers ranged from 4 to >8 and the mean was 6.05. On the basis of their household size, the families were classified into three categories like small family (up to 5), medium family (6-8 and large family (>8 members). Data contained in table 5 showed that 80% farmers had small sized family, 20% medium sized family and zero in large sized family. The average family size was 6.05 of the respondents in the study area was higher than that of the national average of 4.9 (BBS, 2008). The results of this study are similar not with Rahman et al. (2012) where they reported that 52 per cent farmers had small sized family, 31 percent medium and 17 per cent farmers in large family. Findings from Sharmin (2010) were much closed to the present study.

Table 5
Associated factors related to organic and conventional sheep production.

Parameter	Category	No. of respondents	Percent (%)
Age	Young age up to 30	7	23
	Middle aged (30-40)	20	67
	Old aged (>40)	3	10
	Total	30	100
Education	Primary	18	60
	Bellow SSC	4	13
	Illiterate	8	27
	Total	30	100
Occupation	Farming	25	83
	Business	3	10
	Govt. job	2	7
	Total	30	100
Training skill	With training	3	10
	Without training	27	90
	Total	30	100
Source of capital	Own capital	17	57
	Loan from bank	3	10
	Own source (NGO)	10	33
	Total	30	100
Purchasing time	Not purchased	23	77
	Occasionally	02	06
	Around the year	05	17
	Total	30	100
Land size (acre)	Marginal(upto1)	15	50
	Small (1-3)	10	33
	Medium (>3-8)	05	17
	Total	30	100
Household size(No.)	Small family(up to5)	24	80
	Medium family (6-8)	06	20
	Large family (> 8)	0	0
	Total	30	100

Breed type

Most of the respondents selected their sheep on the basis of breed, age, sex and weight respectively. Usually 1- 2 years old sheep were used for sheep production. The average weight of sheep was 12 Kg. 100% farmers used indigenous breed of sheep. Distributions of respondents according to breed type are shown in table 6. Hossain (2013) stated that 20% respondents have indigenous and 80% have crossbred for animal fattening.

Record keeping of sheep

Safety production generally required more record keeping than conventional production. However, records are also important to verify the status of

animals and production, harvesting and handling practices associated with their products but in the study area majority of the farmers did not keep record of sheep production. Table 6 shows that 90% farmers did not keep record and 10% farmer kept birth, breeding, feed, and health record for sheep production. The results of this study are not similar with Hossain (2013) where he reported that 3% farmers kept record regularly.

Problems faced by the farmers and their suggestions

83% farmers reported that, lack of technical knowledge, 60% reported lack of training facilities, 27% reported unavailable organic fertilizer, 10% reported lack of high cost of

vitamin mineral supplementation, and 43% reported lack of pasture land is the major problem of organic sheep production. Problems and suggestions to improve safety sheep production are presented in Table 7. Providing training facilities, pasture land should be available, awareness of the farmer and motivation of the farmers were the most important suggestions by, 76, 56, 53 and 16 per cent of the respondents, respectively. Ali and Anwar, (1987) and Hossain et al. (1996b) found that high feed cost and shortage of animal feed were the greatest problems of the farmers for rearing sheep.

Table 7
Problems and suggestions to improve safety sheep production.

Problems of organic sheep production		
Problems/Suggestion	Number of respondents	Per cent of total respondents
Lack of technical knowledge	25	83
Lack of Training facilities	18	60
Lack of pasture land	13	43
Unavailable organic fertilizer	8	27
High cost of vitamin mineral supplementation	3	10
Suggestions to improve organic sheep production		
Providing training facilities	23	76
Pasture land should be available	17	56
Awareness of the farmer	16	53
Motivation of the farmers	5	16

CONCLUSIONS

From the study it reveals that all farmers used indigenous breed for sheep production. Safety sheep production can uplift animal health condition, keeping safety environment and sustainable rural living standard of Bangladesh. Hence, there are great opportunities and potentialities for safety sheep production in Bangladesh both for satisfying animal protein requirement and production of quality sheep. So, there was an ample opportunity of applying scientific technology and approaches for better rearing practices of farmers for uplifting their socio-economic status in the studied areas.

REFERENCES

Ahamed T, Hashem MA, Khan M, Rahman MF and Hossain MM (2010). Factors related to small scale

Table 6
Present status of organic and conventional sheep production.

Check list of safety sheep production	Criteria	Safety (%)	Conventional (%)
Breed	Indigenous	100	0
Breeding Record keeping	Natural Kept/not kept	100 10	0 90

cattle fattening in rural areas of Bangladesh. Bangladesh Journal of Animal Science, 39 (1-2): 116-124.

Ali MA, Anwar ABMN (1987). Cattle problem confrontation in a union of Mymensingh. Bangladesh Journal of Extension Education, 2 (1): 41-49.

BBS (Bangladesh Bureau of Statistics) (2008). Preliminary Report of Agricultural Census, Bangladesh Bureau of Statistics, Ministry of Planning, Government of the People's Republic of Bangladesh.

Begum MAA, Hossain MM, Khan M, Rahman MM, Rahman SME (2007). Cattle fattening practices of selected farmers in Panchagarh district. Bangladesh Journal of Animal Science, 36 (1-2): 62-72.

BER (Bangladesh Economic Review) (2012). Ministry of Planning, Government of the Peoples Republic of Bangladesh.

Bhuiyan AKFH (2006). Livestock genetic resources Preservation and Management in Bangladesh.

- International conference on Livestock Services. Chinese Academy of Agricultural Science (CAAS). Beijing, China, 16-20 April.
- Chander M, Subrahmanyeswari B, Mukherjee R, and Kumar S (2011). Organic livestock production: an emerging opportunity with new challenges for producers in tropical countries. *Revue scientifique et technique (International Office of Epizootics)*, 30 (3): 969-983.
- DLS (Directorate of Livestock Services) (2017). General information related to livestock. *Annually Fisheries and Livestock Bulletin*, published by Fisheries and Livestock Information Office, Khamarbari, Farmgate, Dhaka, Bangladesh.
- Hossain MD (2013). Present status of organic beef cattle production in Shahjadpur upazila of Sirajgong district. MS thesis, Department of animal science, Faculty of animal husbandry, Bangladesh Agricultural University, Mymensingh.
- Hossain MS, Hossain MM, Hashem, MA, Ali RN (1996b): Transfer of feeding technology to promote cattle production of village level. *Bangladesh Journal of Animal Science*, 25 (1-2): 51-56.
- Hovi M, Sundrum A, Thamsborg SM (2003). Animal health and welfare in organic livestock production in Europe. current state and future challenges. *Livestock Production Science*. 80. 41–53.
- Reganold JP, Palmer AS, Lockhart JC, Macgregor AN (1993). Soil quality and financial performance of biodynamic and conventional farms in New Zealand. *Journal of Soil Science*, 260:344-349.
- Rahman Z, Hossain MM and Hashem MA (2012). Cattle fattening program in Dinajpur district of Bangladesh. *Progressive Agriculture*, 23 (1-2): 1-13.
- Sharmin H (2005). Rural womens participation of benefits of involvement in income generating activities under non-government organization. An unpublished M S Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mynensingh, Bangladesh
- Sharmin J (2010). Knowledge and attitude of farmers towards the rearing of Red Chittagong Cattle in an area of Mymensingh district. An unpublished M S Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh, Bangladesh
- Sarkar S, Hossain MM and Amin MR (2013). Socio-economic status of buffalo farmers and the management practices of buffaloes in selected areas of Bagerhat district of Bangladesh. *Bangladesh Journal of Animal Science*, 42(2):158-164.
- Skunmun P, Chantalakhana C, Pungchai R, Poondusit T and Prucsasri P (2002). Comparative feeding of Nale Dairy, Beef Cattle and Swamp Buffalo. *Economics of Beef Production. Asian-Aust. Journal of Animal Science*, 15(6): 878-883.
- Worthington V (1998). Effect of agricultural methods on nutritional quality a comparison of organic with conventional crops: *Alternative, Therapies in Health and Medicine*, 4: 58–69.