International Journal of Natural and Social Sciences
ISSN: 2313-4461

Women livelihood improvement through sheep (*Ovis aries*) rearing in Sirajganj district of Bangladesh

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ARTICLE INFO

Article history

Accepted 10 May 2018
Online release 17 May 2018

Keyword

Livelihood improvement
Loan recovery
Sheep rearing
Women household

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ABSTRACT

The study aimed to evaluate the feeding and management practices, income generation and livelihood by rearing sheep in Sirajganj district. The study was conducted on women rearing at least five sheep at the village of Uttor Gupirpara of Songachha union of Sirajganj district. The period of data collection was from February 2014 to January 2015. The studied sheep was taken of second production cycle stage. Both descriptive and inferential statistics were used to analyze the data. The woman family members were poor and illiterate (27%). The annual total cost of production of sheep was BDT 2200, while gross return and net return of household were 16800 and 14600 BDT, respectively. Food purchase, cloth purchase Educational status, social status, healthcare and housing were increased at 22; 23, 19, 21 and 16%, respectively by rearing sheep in the studied area. Employment for women and status social acceptance of rural poor women was also increased in the studied area. The result clearly showed that creation of self-employment, good loan realization and woman livelihood improved positively through sheep rearing in the studied area by applied improved technology and scientific approaches of sheep rearing management practices.

INTRODUCTION

Bangladesh is the home to a huge population of about 160.29 million (BBS, 2017), cannot escape the fact of severity of poverty. The depth and severity of poverty in rural areas is higher than that of urban areas and the declining trend of urban poverty is higher than that of rural poverty (BER, 2013). To combat against poverty, the government of Bangladesh along-with development partners and Non-government Organizations (NGOs) have been working hands in hands since independence in 1971. Accordingly, the absolute poverty dropped at 24.8 percent in 2015 from 56.6 percent in 1990 based on Head Count Ratio (BBS, 2015). In fact, to attain the Sustainable Development Goals (SDGs- 2030) particularly goal one to eradicate extreme poverty & hunger and creation employment in every family of Bangladesh, the Government is committed to reach the target of SDGs- 2030 by the year 2030. As part of this commitment, the Government has put in place a Perspective Plan (2011-2021, 2031 & 2041) outlining its long term vision and strategies. The principal thrust of both the documents is to reduce the poverty level to 15 percent from its current level of 24.8 percent (Seven Five Year Plan, 2016). The agriculture alien sub-sector including livestock can play a crucial role to improve the livelihood of the resource poor.

The present livestock sector in Bangladesh is producing 71.54 lakh metric tons of meat which is sufficient to meet the requirement on a daily basis of 120 g/head/d (DLS, 2017). For this, we need to have sustainable production to meet the demand of the huge populations living in a vulnerable and natural catastrophic environment. Different non-popular species including sheep might be emphasized as a meat animal. Bangladesh has 3.401 million sheep which secure 3rd position in number among the ruminant species of Bangladesh (DLS, 2017). Most of the sheep are indigenous, with few crossbreds (Bhuiyan, 2006)

How to cite this article: Hossain MA, Akhtar A, Easin M, Islam MS, Rahman MF and Islam MS (2018). Women livelihood improvement through sheep (*Ovis ories*) rearing in Sirajganj district of Bangladesh. International Journal of Natural and Social Sciences, 5(3): 01-08.

and are capable of bi-annual lambing and multiple births. During the last twelve years, sheep population increased 2.5 times, with annual growth rate of 5% (BBS, 2008). About 50% peoples are partly dependent and 20% of the total population is directly dependent on livestock sector in Bangladesh and livestock contribute about 1.60% of Gross Domestic Products (DLS, 2017). Interestingly 25.32% of total number (920) of sheep breeds are found in Asia and majority (64.43%) of total sheep population in the world are found in Asia (FAO, 2003). Though the number of animals is satisfactory but their performance is very poor. Nutrition is one of the major limiting factors of livestock production in Bangladesh. We know that more than 90% of the feed consumed by the ruminants are roughages. Under traditional feeding systems, the sheep are raised on harvested or fallow lands, roads, and canal sides (Sultana et al., 2010) and also graze on aquatic weeds and grass in knee-deep water without any supplementation. This system of production causes reduced growth rate and poor reproductive performance, which in turn results in severe economic losses.

Farming of ruminants has an unquestionable importance to the economic and food security of many regions of the world, especially for tropical and semi-arid regions (Mlambo and Magpie, 2015), where sheep are highly relevant (Toro-Mujika et al., 2015). The farmer can, for example, option to obtain production rates and carcasses with different characteristics depending on the sex of the animals (Sales, 2014,). In tropical and semi-arid regions, animals can be submitted naturally to periods of feed restriction (FR) due to feed supply variations or due to feed management planning, which is commonly used to save resources and reduce costs (Bezerra et al., 2013). The objective of the present work is to provide a focus for future research on improving flock performance. Yet no works in details has been carried out in Bangladesh on supplementation and grazing and impact of sheep production towards livelihood improvement in rural areas. Therefore, commercial sheep production from native sheep could be an alternative approach to meet the sustainable meat requirement and livelihood improvement of poor farmers in Bangladesh. Therefore the proposed study was taken the practices on sheep production developed at rural farm situation in Sirajganj district towards livelihood improvement of poor woman household.

MATERIALS AND METHODS

Selection of study villages

The village Uttor Gupirpara under union named Songachha in Sirajganj district was selected for this study. The village was based on poor human resource and available green fodder and straw with 5 sheep reared per household. Songachha union is located at 10 km north from Sirajganj district town. This area is very much suitable for sheep (*Ovis aries*) rearing to the improvement of livelihood of poor women.

Selection of respondents

Thirty women villagers were selected from the village Uttor Gupirpara of Sirajganj district. One best woman respondent was chosen from the village having five sheep rearing in her house and collection data to serve the purpose of research objectives. The duration of sheep rearing was 12 month of second production cycle was studied.

Preparation of interview schedule

The interview schedule was carefully prepared based on objectives of the study. A draft schedule was developed before preparing the final schedule. The draft schedule was then pre- tested with selected farmers in area and then it was rearranged and modified as required of study. The schedule was developed so simple manner to avoid misunderstanding and to get accurate information from respondents of research area. Then it was finalized according to the experience gathered in primarily field level survey. This helped the respondents to understand the interview schedule easily and the information was gathered by respondents was recorded directly on the interview card.

Procedure of data collection

The researcher was collected all information through personal interview from individual respondent in their own house. An introductory

visit was made to study area when the aims and objects of study were explained to the most of the respondents. This helped to create a friendly atmosphere of respondents. Brief information regarding the nature and purpose of study was made to the respondents before actual interview. The researcher also established desired rapport building systematically and explained whenever it was felt necessary. The information supplied by respondents was recorded directly on the interview schedule. The information was cross checked carefully before leaving study area to avoid errors. Data was collected in local unit. These were subsequently converted into desirable standard level unit. The respondents were interviewed at their house, so they could give proper information without any hesitation. Data were collected during February 2014 to January, 2015. The selected variables in this study were as follows: educational status, occupational status, socio-economic status, livestock status, feeding, housing condition, disease and health care, routine activities of farmers for sheep rearing, annual cost of production, income, and impact of income for improvement livelihood of poor women.

Tabulation of data

After completion of field survey all interview schedules were set for its data tabulation for coding and reduction. All individual variables of interview schedules were transferred to master sheet to facilitate tabulation.

Daily routine works of farmers for sheep

Sheep was kept inside the farmer's house of studied areas. The house was cleaned every morning. They were taken sheep outside the house for 4-6 hours daily. Sheep was supplied with pure drinking water. The farmer used mosquito curtain to protect mosquito for her sheep in the studied areas. All tube wells were done arsenic test by the technician of the Department of Public Health and Engineering (DPHE). All test cost was paid by Social Development Foundation (SDF). Some supplements were fed in the morning. Regular combing was done twice daily, As a result external parasites and dust would be removed. Green grass, fodders, rice straw, protein concentrates were fed as routine wise of animals. All the activities were done by the rural woman in the studied areas with the help of her male partner.

Loan taken and repayment of installment

The respondent was received loan from Gram Samity (GS) Office of SDF. Interest percentage was 10. The repayment installment was 50 per year with principal amount and interest. The respondent paid her installment weekly basis. She paid her savings money to GS office weekly basis at the amount of Tk.20-50 for her future security.

Statistical analysis

Data were analyzed by descriptive statistics such as number, tabular, mean, percentage etc. A number of tables were prepared keeping in view the objectives of the study. The data was analyzed with the help of SPSS-v-16 computer package program.

RESULTS AND DISCUSSION

Socio- economic condition of sheep owner

Status of sheep owners

The age, education and occupational status of sheep rearing woman are presented in Table 2. The sheep rearing was practiced by the middle (70%) and old aged (30%) farmers. About 60% are primary level of education of sheep rearing farmers but only 13% is under SSC and 27% are illiterate. This result was less than the finding of Hossain et al., (2018). Islam et al., (2012) reported that 46, 10.7 and 5% had primary, SSC and HSC level of education, respectively.

Training skill and source of capital of sheep woman farmer

Training skill and source of capital of sheep rearing farmers are presented in Table 1. The farmers received training from SDF district and regional livelihood officers in collaboration with Livestock Department. She has practiced sheep rearing as the family profession. The farmer received loan from GS office to purchase sheep when needed.

Purchasing ability of sheep farmers and duration of sheep rearing

The purchasing ability of sheep and the duration of rearing sheep are presented in Table 1. Most of farmers purchased 2-5 sheep in studied area and during of sheep rearing was 12 months of second cycle production stage. Loan recovery rate was 98-100%. The recovery rate of Grameen Bank was 97% (Mamun et al., 2002).

Availability of feeds and fodders in the selected locations

Availability of feeds and fodders and their usage are presented in Table 3. Various types of feed ingredients were used in study areas for sheep. The common ingredients were roadside green grass wheat bran, rice bran and tree leaves. The farmer used sesame oil cake as protein source for sheep. The farmer was mainly depended on green grasses and tree leaves because of their availability. A reasonable amount of feed was different trees leaves, so feed cost was lower in the selected area. More than 85% farmers used fodders and tree leaves and 100% farmers reported that feeds are available in selected areas.

Feeding system

The feeding system in studied areas is presented in Table 3. The farmer practiced semi intensive (80%) and extensive (20%) system in studied areas.

Table 1
Status of sheep rearing farmers and duration of sheep rearing in studied areas.

Parameter	Category	Frequency	Percent (%)
Age	Middle aged (30-40)	20	67
	Old aged (.>40)	30	33
	Total	30	100
Education	Primary	18	60
	Bellow SSC	4	13
	Illiterate	8	27
	Total	30	100
Occupation	Beef cattle	8	30
	Dairying	9	27
	Crop farming	3	10
	Sheep	5	17
	Goat	5	16
	Total	30	100
Training skill	With training	30	100
	Total	30	100
Source of capital	Loan from SDF	30	100
	Total	30	100
Purchasing ability	2-5 sheep	5	100
	Total	5	100
Duration of rearing	One year	5	100
	Total	5	100
Repayment rate	98-100%	5	100
	Total	5	100

Major diseases of sheep

Major diseases of sheep in the studied areas are presented in Table 2. Five major diseases were found where the occurrences of Skin disease 80%, followed by pneumonia, diarrhea, FMD and Brucellosis. Skin disease and pneumonia were found almost 80% and 60%, respectively in studied area. Hossain et al., (2017) showed 73% skin disease of a study on goat of Mymensingh district.

Table 2
Availability of feeds and fodders and feeding system in studied areas.

Types of feed	Frequency	percent
1. Roadside grass (Durba, Helencha, Noll)	5	100
2. Cultivated fodders (Napier, Maize, Sugarcane top, rice straw)	5	100
3. Tree leaves (Jackfruit, Banana, Mulberry and Bamboo etc.)	5	100
4. Sesame oilcake , rice bran	5	100
Feeding system		
Extensive	2	40
Semi-intensive	3	60
Semi-intensive	0	0
Total	5	100

Table 3
Disease and Health care practices of sheep in studied areas.

Name of diseases	Frequency	percent
Skin disease	4	80
Pneumonia	3	60
Diarrhea	3	60
Brucellosis	1	20
Total	5	100
Vaccination and de-worming		
Yes	5	100
No	0	0
Total	5	100
Sources of vaccine and de-worming tablets		
Local market	5	100
Upazila Livestock Office (ULO)	3	60

Vaccination, de-worming and sources

The vaccination practice, deworming, and their sources are presented in Table 3. 100% farmers performed vaccination (FMD and HS) and de-worming tablets to their sheep like endex, levex, paraclear etc. collected from local market and livestock office. They used to fed tablets for sheep on fasting condition

Cost of sheep rearing

Cost of sheep is presented in Table 4. Price of one sheep ranged from 4000- 6500 BDT in studied areas. Cost of feeding, breeding, housing, equipment and healthcare of sheep are presented in Table 7. To analyze the cost return, it is necessary to describe the feed cost, breeding cost, housing cost and equipment for sheep rearing. Cost per year of housing and equipment was more or less similar with feed cost. The major cost of healthcare is medicinal cost followed by vaccination program. Some Local Service Provider (LSP) of study areas were engaged to serve several programs on vaccination, de-worming and treatment. All LSP were well trained by SDF as training of trainers (TOT) on Para vet build up program and they are certificate holder. As a result it was very helpful to sheep rearing women of the studied area. Average rearing cost of one sheep was 2200 BDT (Table 5) which was almost similar with Hossain et al., (2017).

Cost of farmers family members

Food cost was found highest among the total expenditure (Table 6). The second highest expenditure was to purchase clothing followed by the cost for social status, healthcare, education, and housing.

Table 4
Cost of per sheep.

Cost per sheep(BDT)	Frequency	Percent
4000-5000	4	80
6000-6500	1	20
Total	5	100

Average sheep cost **5375** Bangladesh taka (BDT)

Table 5
Different cost of per sheep in studied areas.

Category	Expenditure (BDT)
Average feed cost (12 month)	1500
Average housing and equipment cost (12 month)	200
Average AI and medicine cost	450
Average vaccine cost	50
Total	2200

Total cost **(5375+2200) =7575** BDT.

Table 6
Average expenditure (BDT) per farmer per year in studied areas.

Category	Average expenditure	Minimum	Maximum
Food	14600	11200	18000
Cloth	1120	940	1300
House	350	300	400
Education	1100	800	1400
Healthcare	600	300	900
MSS	950	500	1450

MSS, maintaining social status (decoration, gift, furniture, recreation, attend various festival, invitation, Bangla New Year celebration etc.)

Table 7
Total and net income from sheep rearing in studied areas.

Category	Average expenditure	Minimum	Maximum
Four kids value	16500	4000	6400
Manure value..	300	200	450
Total	16800		
Net income (16800-2200)	14600		

Table 8
Impact of sheep rearing on livelihood activities in studied areas.

Category	Initial value(BDT)	Final value(BDT)	Percent	Ranking
Food purchasing	14600	19800	26.26	1
Cloth purchasing	1120	1450	22.76	2
Social status	950	1200	20.87	3
Health care	600	750	20.00	4
Education	1100	1350	18.52	5
Housing	350	415	15.66	6

Total and net income

The average income and net income from per sheep was 16800 and 14600 BDT, respectively (Table 7). This result was higher than the findings of Hossain et al., (2017). The net income of 14600 BDT excluded mother sheep cost. Farmers are well equipped by practicing of sheep rearing and leaning mistaken from 1st production cycle of sheep and find legal market and sale their products to actual consumer avoiding market actors. They maintained strong linkage with well known market and consumers for sheep to ensure real price. Their mental strength were strong and well known to all rearing practicing, medication and well communicated to ULO and other service providers. As a result they were more benefitted from sheep in studied area.

Livelihood improvement of sheep rearing woman

Sheep rearing increased livelihood status of farmers especially for the farm women through considerable impact on socio-economic impact. The improvement of livelihood were uplifting of this sector is the potential path to rural areas (Hossain et al., 2017).

Impact on purchase capacity

The food and cloth purchasing capacity of sheep farmers are presented in Table 8. Before rearing sheep, farmers spent only 14600 for purchasing food but they were able to spent 19800 BDT after they have started rearing sheep which was 26.26% more than the previous state. On the other hand,

farmers spent only 1120 for purchasing cloths but they were able to spend 1450 BDT after they have started rearing sheep, which was 22.76% more than previous state.

Impact on social status, education and healthcare

Before rearing sheep, woman was able to spent only 950. 1100 and 600 BDT to maintain their social status, education and health care but they were able to spent 12000,1350 and 750 BDT for maintaining their social status, education and healthcare after they have started rearing sheep, which was 20.87 18.52, and 20.00%, respectively more than previous status (Table 8).

Impact on housing

Before rearing sheep, farmers spent only 350 for their housing purpose but they were able to spent 415 BDT for their housing after they have started rearing sheep, which was 15.66 % more than the previous status indicated that sheep rearing farmers are less interested to spent money for housing rather than other purposes (Table 8).

CONCLUSIONS

Considering all the parameters studied, sheep rearing is a profitable practices in the selected areas and improvement their livelihood of women and loan recovery rate was better than other microfinance institutions due to better income generation through applied good rearing practices and improved scientific approaches and technology. Skill Development training and refreshers training need to be better awareness and creation of self employment for women and also need to help the male partner of the family for better livelihood and woman decision making.

ACKNOWLEDGEMENT

The financial support and continuous cooperation and encouragement of SDF District office and Gram Samity office are highly appreciated to complete the experiment successfully. Great thanks to the Livestock Department of Sirajganj district for their excellent support on disease prevention and treatment of SDF beneficiaries.

REFERENCES

BBS (2015). Statistical Year Book of Bangladesh, Bangladesh Bureau of Statistics. Ministry of Planning, Government of the People`s Republic of Bangladesh.

BBS (2017). Statistical Year Book of Bangladesh, Bangladesh Bureau of Statistics. Ministry of Planning, Government of the People`s Republic of Bangladesh.

BBS (2008). Statistical Year Book of Bangladesh, Bangladesh Bureau of Statistics. Ministry of Planning, Government of the People`s Republic of Bangladesh.

BER (2013). Bangladesh Economic Review.Ministry of Finance, GOB, Dhaka, Bangladesh.

Bezerra LR, Neto SG, de Medeiros AN, Mariz TM de A, Oliveira RL and Cândido EP (2013). Feed Restriction followed by real emendation in prepubescent Zebu females. Trop. Anim. Health Prod.; 45:1161–9.

Bhuiyan AKFH (2006). Livestock genetic resources in Bangladesh. Preservation and Management International conference on livestock services. Chinese Academy of agricultural Science (CAAS). Beijing, China, 16-20 April.

DLS (2017). Department of Livestock Services, Farm gate, Dhaka, Bangladesh.

FAO (2003). FAO Production Year Book. Rome, Italy, 51:218.

Hossain MM, MK Alam and M Haque (2017). Livelihood improvement of poor farmers through goat rearing in Mymensingh district of Bangladesh. Bangladesh Journal of Animal Science, 46(1):29-34.

Hossain MA, MS Islam and MA Hashem (2018). Phenotypic and productive traits of kurbani bulls as livelihood changes of farmers during Eid-Ul-Azha in Mymensingh. International Journal of Natural and Social Sciences, 5(1):44-51.

Islam MH, Hashem MA, Hossain MA, Islam MS, Rana MS and Habibullah M (2012). Present status on the use of anabolic steroids and feed additives in small scale cattle fattening in Bangladesh. Progress Agriculture, 23(1&2): 1-13.

Mlambo V and Mapiye C (2015). Towards household food and nutrition security in semi- arid areas: What role for condensed tannin-rich ruminant feedstuffs? Food Research, 76: 953–961.

Mamun AI, Haque AIB and Ahmad S (2002). International Replication of Grameen Bank: A Framework for poverty alleviation. Journal of the Institute of Bankers, Bangladesh, 49:40-65.

Sales J (2014). Quantification of the effects of castration on carcass and meat quality of sheep meat analysis. Meat Science, 98: 858–68.

Sultana N, Rakib MRH, Talukder MAI and Hossain SMJ (2010). Effect of replacement ofconventional concentrate in a rice straw diet by Moringa foliage on lamb production performance. Journal of Experimental Agriculture International, 15(5): 1-14.

Toro-Mujica P, Aguilar C, Vera R, Rivas J and García A (2015). Sheep production systems, case study in Central Chile. Livestock Science, 180:209–219.