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Research Report

Socio-Demographic Study of the Farmers of Barind Area of Bangladesh

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Abstract

Study was carried out to evaluate the role of sheep in the food production systems, the socio-demographic scenarios, the constraints, opportunities to sheep production and indigenous knowledge of the sheep keepers. Structured questionnaires administered in 150 households were used to study the ownership patterns of livestock specially sheep and socio-economic condition of the owners at Barind areas of two upazilas in Rajshahi district of Bangladesh. The ownership of cattle, goats was higher (70.67% and 45.33% respectively) than sheep (18.67%), because cattle and goats are not affected by any ethnic, religious or cultural restrictions but the no. of sheep per family is higher (12.71%) than goat (4.94%) and cattle (3.74%). The frequency of keeping and flock size of sheep are inversely co-related to the amount of owning and accessing of land because of requiring minimum capital and easy management. In addition to cultural factors, sheep are less popular and thus less numerous than goats because of negative publicity of taste and quality of their meat. Owners of sheep are less likely to be involved in off-farm activities (10.67%) and would often have no access to credit facilities. Women represented 63% of the keepers of sheep but they have fewer facilities (36%) to access the earnings. The results showed that middle aged (56%), married (92%) household members specially women (63%) are more likely to own small ruminants. Natural grass and tree leaves are available all over the areas but abundant besides the canals and rivers. These findings highlighted the financing and social supporting roles that small ruminants, particularly sheep are playing in the study area. In order to develop suitable technologies, formulate policies through eradicating constraints to improve productivity and enhance livelihoods these findings might be strong instruments.

Keywords: Barind areas; Keepers of sheep; Livelihoods; Natural grass; Socio-demographic; Small ruminants; Upazila

Introduction

There are about 3.34 million sheep in Bangladesh [1]. Bangladesh is a sub-tropical country, favorable for sheep rearing, as they can be maintained under rural conditions because of their ability to adapt to harsh environment, poor management and feeding practices. Native sheep are extremely resistant to infectious diseases including PPR [2]. Sheep rearing is directly involved with poverty alleviation, employment generation and good quality nutrients supply. Soon, it will be apparent that sheep could be an important healthy meat producing animal of the country. Sheep rearing are practicing throughout the country, but higher concentration is found in the Barind region of Rajshahi and Rangpur division of Bangladesh, Jamuna river basin, Coastal region of Noakhali and some char lands of Cox's bazar. As human population is increasing day by day in the Barind region of the country, the access of rural families to land, capital, and labor diminishes while opportunities for income from off-farm activities become scant. As a result, households are often forced to enter small ruminants rearing and face consumption and income shocks [3]. In these situations, where there are absent to access industrial and secured beneficial agricultural facilities, formal financial and insurance institutions, small ruminants are "easy to cash" assets [4]. Small ruminants are also important in a diversification strategy that aims to reduce market and climatic risks and optimize the use of available resources [5]. In Barind region of Bangladesh, the roles of small ruminants in the livelihoods of rural households have not been comprehensively investigated. The objectives of this study were designed to assess the role of sheep in the food production systems of this region, examine their advantages and disadvantages, analyze the constraints limiting their further contribution to the welfare of small farm/low income rural producers, prescribe measures for overcoming these constraints and make recommendations related to potential donor involvement in

support of the development of sheep production. To achieve these objectives, at first the socio-demographic study at the targeted area was done.

Materials and Methods

Study area

The study was carried out in Barind region of Rajshahi district in Bangladesh. Among the rural activities, rain fed agriculture (51.33%) is the most important, followed by livestock keeping (13%) and off-farm activities (3%). Poultry, goat, sheep and cattle were the main livestock species kept. The Barind tract lies in the monsoon region of the summer dominant hemisphere. The climate of the area is generally warm and humid. This region has already been designated as draught prone. The average temperature ranges from 25^0C to 45°C in the hottest season and 5^0C to 15°C in the coolest season with an average relative humidity of 75%. The research area was located between $24^0.18'$ and $24^0.36'$ North latitude and between $88^0.17'$ and $88^0.43'$ East longitude.

Data collection

Data were collected through a prescribed questionnaire. One hundred and fifty farmers were randomly investigated to select thirty farmers in each of the upazilas as sampling frame of whole farmers of mentioned two upazilas of 35 villages. This list was updated in conjunction with the local authorities, people's representatives, officers and field worker of livestock department on the basis of all criteria necessary for conducting good practices of sheep rearing. Out of 150 respondents there were 28 sheep owners. All of sheep rearers were interviewed comprehensively about sheep management. Collected data was coded after ending of data collection and then compiled, tabulated and analyzed through SPSS-v-23 computer package program.

Results and Discussion

Age status: The figure 1 shows that the respondents were classified into three categories, such as young age (up to 30 years), middle age (31-50 years) and old age (above 50 years). The findings indicate that the highest proportion (56%) of the farmers studied was in the middle-aged category (56%) compared to belonging to young (17.33 %) and old (26.67%) aged categories. The results of this study were almost similar with Rahman Z [6] where they reported that 45.3%, 16% and 38.7% farmers were in middle aged, young and old aged category respectively. Particularly the middle aged farmers were well experienced and more acquainted with the sheep production.

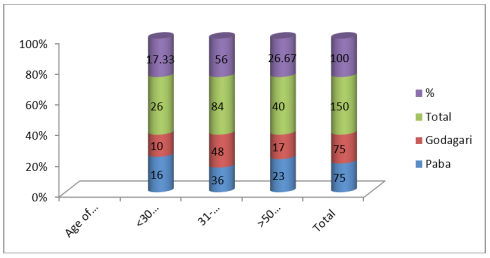

Figure 1: Age status of respondents.

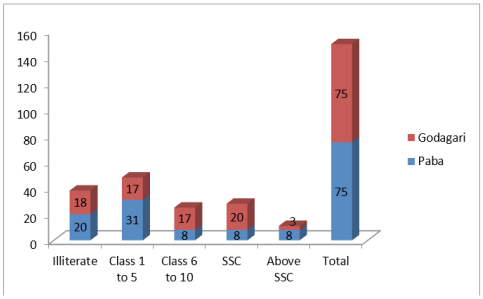

Figure 2: Education status of respondents.

Education status: The respondents were classified into five categories, such as Illiterate, Class 1-5, Class 6-10, SSC and above SSC on the basis of their level of education shown in Fig. 2. Among the total respondents Illiterate, Class 1-5, Class 6-10, SSC and above SSC were 25%, 32%, 17%, 19% and 7%, respectively. Findings indicated that majority of the farmers (57%) belonged to Class 1-10. The results of this study were near to similar with Begum *et al*. [7]. Where they reported that 20.0% farmers were illiterate, 40%, 30% and 10% farmers were primary, secondary and above secondary level respectively.

Parameter	Category	No. of respondents	% of respondents
Sex of respondents	Male	56	37.33
	Female	94	62.67
Marital status of respondents	Married	137	91.33
	Unmarried	13	8.67
Religion of respondents	Muslim	138	92
	Christian	12	8

Table 1: Sex, marital and religion status.

Sex, marital and religion status: Table 1shows that most of the respondents were female (63%). Among female, majority (63%) were belonged to middle aged group. Female farmers were more prone to livestock rearing. Highest proportion (91.33%) of the respondents was married and rest (8.67%) was unmarried. Among them 138 (92%) were Muslims and rest were Christian. The impact of religion on sheep rearing was not observed.

Parameter	Category	Upazila		Total	%	Average member/ family
		Paba	Godagari			
Family members of respondents	Male	157	166	323	48..42	4.44
	Female	162	182	344	51.58	
Income generating members of respondents	Male	83	90	173	73.93	1.56
	Female	28	33	61	26.07	

Table 2: Family members and earning information of respondents.

Family members and income generating information: The household size of respondents ranged from 2 to 8 numbers. On the basis of their household size the families were classified into three categories; small (up to 3 members), medium (5-7 members) and large (above 7 members). Data of Table 2 shows that the majority (46%) of the farmers had medium sized family, 41% small and 13% in large sized. Siddiki M *et al*. [8] observed average household size were small (43%), medium (37%) and large (20%). These finding was almost similar with the present study. The average family size (4.44) of the respondents in study area was lower than that of the national average of 4.9 [9]. In that area earnings from outside homestead work are considered as real contribution to the family and Considering this concept average earning members per family were 1.64 and 1.48 in Godagari and Paba upazila respectively.

Parameter	No. of farmer	Total area	Average Land/farmer
Household	150	1433	9.55
Cultivable	82	5911	72.09
Orchard	10	155	15.5
Pond	8	102	12.75
Total	150	7601	50.67
<1 acre	122	3783	31
>1-3 acre	27	3414	126.44
>3-8 acre	1	404	404

Table 3: Land status of the respondents.

Land status: According to ownership of land the respondents were classified into four categories; marginal (<1acre), small (1-3 acre), medium (>3-8 acre) and large (>9 acre). Table 3 shows that the most of farmers (81%) were in marginal class which was also a representative of typical land size of Bangladesh. About 18% farmers were in small and 1% was in medium category. In the observation of Hassan *et al*. [10] 40% farmers were in small class that was markedly higher than this study. Rahim *et al*. [11] observed that land size of marginal, small and medium class was 17%, 53% and 30% respectively. These findings differed a lot to the present study.

Name of species	No. of farmer	Deshi	Cross	Total	Average/farmer
Buffalo	10 (6.66%)	19	0	19	1.90
Cattle	106 (70.67%)	276	120	396	3.74
Goat	68 (45.33%)	272	64	336	4.94
Sheep	28 (18.67%)	262	191	353	12.61

Table 4: Livestock Ownership of the respondents.

Livestock Ownership: Table 4 shows that owning of cattle (70.67%) and goat (45.33%) of the respondents was higher than sheep (18.67%). Because cattle and goat were not affected by any ethnic, religious or cultural restrictions but the no. of sheep (12.61) per family was higher than goat (4.94) and cattle (3.74). All sheep keepers were marginal farmer. Notion is that, unlike cattle and goat, keeping sheep did not require high capital and special feed. In addition to cultural factors, sheep was less popular and thus less numerous than goats because of negative publicity of taste and quality of their meat.

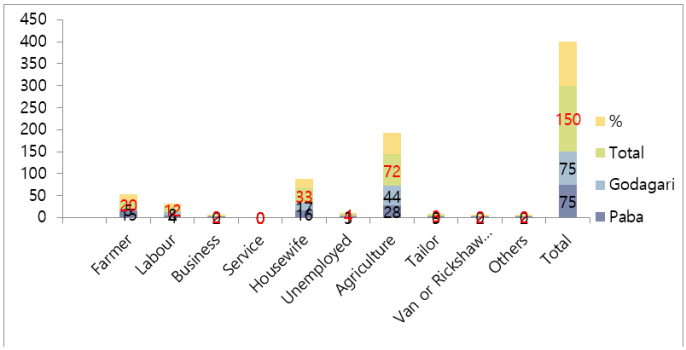

Figure 3: Occupation of respondents.

Occupation: Total respondents were classified into nine categories. Figure 3 shows that the major category 98 (65.33%) of the respondents were belong to agriculture with small livestock farming. There were 2 (1.33%) businessmen and 12 (8%) labors. The results of this study were more or less similar with Ahmed *et al*. [4] where they reported that 70 % farmers were involved in agriculture. In another study Siddiki *et al*. [8] reported that 60% farmers were engaged in agriculture with livestock rearing but 40% farmers reared only livestock.

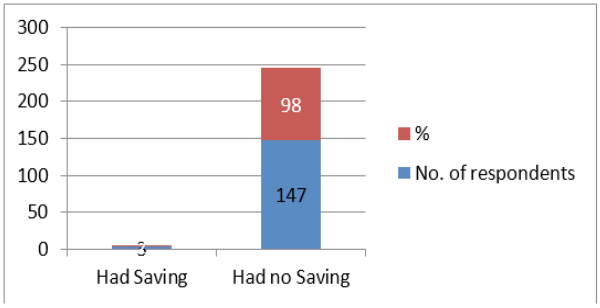

Figure 4: Saving information of the respondents.

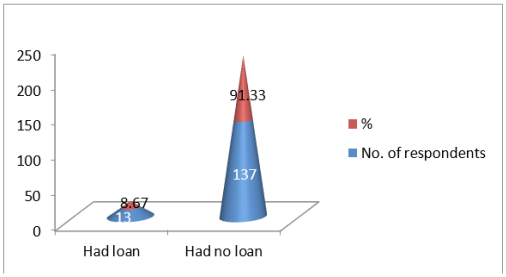

Figure 5: Loan access information of respondents.

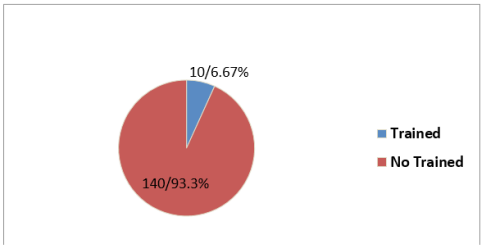

Figure 6: Training information of respondents

Saving, loan and training: Figure 4 shows that about all of the respondents had no saving to protect scarcity. Most of the farmers (91.33%) were not accessed loan (Figure 5) from any Public or private organization because of involving small scale rearing and owning insufficient permanent assets to mortgage. So, accessing loan facilities may be an important tool to expand rearing scale and to able improved technologies. Training experience is an important factor which enhances the level of knowledge and improves skill on various aspects of agricultural technologies. Figure 6 shows that only 6.67% respondents received three to seven days long training in Livestock Office or Youth development office at upazila on cattle and poultry rearing. Rest 93.33% were untrained on livestock rearing.

Parameter	Category	No. of respondents	% of respondents
Recording of parameters	Record	8	28.57
	No record	20	71.43
Identify sheep	Identify	5	17.86
	No identify	23	82.14
Weighing of sheep	Weigh	2	7.14
	No weigh	26	92.86

Table 5: Recording production parameters by respondents

Recording production parameters: Record keeping is an important tool to verify the status of production trend of animals. The study shows that though only 28.57% farmers used to record few parameters, 71.43% of them ignored it completely. Hossain *et al*. [12] showed that only 3% farmers kept records. In spite of being an important factor only 7.14% sheep farmers weighed their sheep and rest (92.86%) did not. Majority of them (82.14%) did not use any technique to identify their sheep.

Parameter	Category	No. of respondents	% of respondents
Shearing of sheep	Shear	28	100
	No Shear	0	0
De- worming practice	Practice	20	28.57
	No Practice	8	71.43
Weaning of sheep	Practice	13	46.43
	Not practice	15	53.57
Collection of wool	Practice	5	17.86
	Not practice	23	82.14

Table 6: Information of shearing, de-worming, weaning and wool collection.

Shearing, de-worming, weaning and collection of wool: All sheep rearers practiced shearing their sheep by traditional means after winter and before onset of monsoon. Majority sheep owners (71.43%) did not ingest/inject anthelmentic to control worm. Table 6 shows that 13 (46.43%) sheep rearers continued weaning and remaining (53.57%) did not. Only 17.86% farmers collected wool because of low price and inadequate market facilities of it.

Parameter	Category	No. of respondents	% of respondents
Feeding milk replacer to orphan lamb	Practice	10	35.71
	Not practice	18	64.29
Castration of male lamb	Practice	28	100
	Not practice	0	0
Vaccination of sheep	Vaccinate	20	71.43
	No vaccinate	8	28.57

Table 7: Information of feeding milk replacer, castration and vaccination

Health care: Table 7 shows that about 64% farmers did not offer milk replacer to their lamb. All sheep owners practiced castration of male lamb by open method to rear them for meat purpose. Most of the sheep keepers (71.43%) practiced vaccination to control PPR.

Parameter	Category	No. of respondents	% of respondents
Having tree leaves	Have	28	100
	Have not	0	0
Purchasing feed for sheep	0%	20	71.43
	1%	3	10.71
	1.5%	5	17.86
Source of roughage	Grazing	18	64.28
	Cultivated	5	17.86
	Both	5	17.86

Table 8: Information of feeds of sheep.

Sheep feeds: Considering a compound stomach animal, Sheep feeds were classified into two categories; roughage and concentrate. All respondents mentioned that leaves of different trees were available for sheep rearing in the study area. Table 8 shows that Majority sheep farmers (71.43%) did not purchase feed to offer their sheep. Only 17.86% and 10.71% sheep farmers supplied 1% and 1.5% concentrate feed respectively to their sheep as live weight basis by purchasing from local market.

Parameter	Category	No. of respondents	% of respondents
Rearing pattern of sheep	Reared in separate house	23	82.14
	Same house with other animal	5	17.86
	At living room	0	0
Frequency of cleaning sheep shelter	Every day	28	100
	2/3 days in a week	0	0
	Once a week	0	0
Breed of sheep reared	Local	8	28.57
	Cross	2	7.14
	Both	18	64.29

Table 9: Information Breed, Cleaning and rearing pattern of sheep

Rearing pattern of sheep: Most of the farmers (82.14%) reared sheep in separate house which had been cleaned by all of them once in everyday. It has been observed that two types of sheep were reared by the respondents; local and Garole crossed. About 64% rearer used to rear both types sheep.

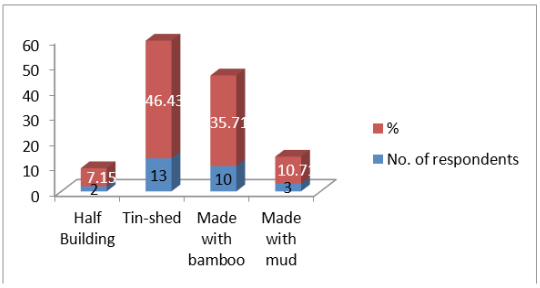

Figure 7: Type of shelter.

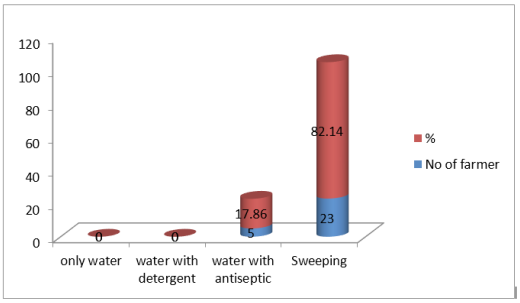

Figure 8: Process of cleaning sheep shelter.

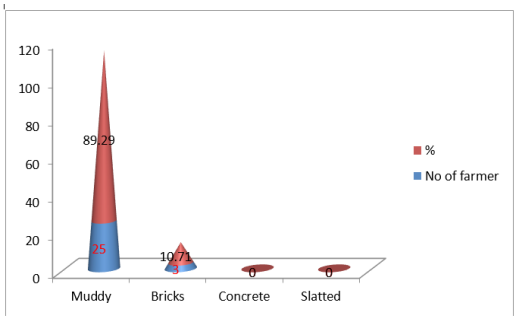

Figure 9: Floor type of sheep shelter

Types and cleaning of sheep shelter: Most of the sheep owners (46.43%) provided tin-shed and bamboo (35.71%) made shelter to their sheep. Remaining keepers used mud made (10.71%) and half-building (7.15%) shed respectively. Mainly the floor of shelters (89.29%) was muddy and rests were made of bricks. Sweeping was the main way to clean the sheep shelter. Twenty three respondents (82.14%) cleaned their sheep shelter only by sweeping and remaining five (17.86%) by using water with antiseptic solution (pottassium permanganate, Dettol, savelon etc.).

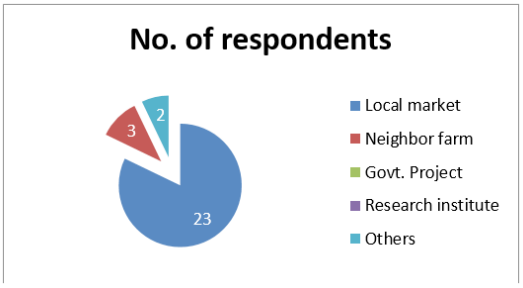

Figure 10: Source of collection of sheep.

Source of collection sheep: Figure 10 shows 23 (82.14%) respondents informed that the main source of collecting sheep was local market. Other sources (10.72%) were neighbor farm and traders (7.14%).

Consumed					Sold			
No. of farmer	No. of sheep consumed	Average No. of sheep consumed	Average price of single sheep consumed (Tk.)	Average value of sheep consumed each farmer (Tk.)	Total no. of sheep sold	Average price of single sheep sold (Tk.)	Cumulative price of sold sheep (Tk.)	Average earning of farmer from sheep sold (Tk.)
28	38	1.36	4500	6120	114	3445	392730	14026

Table 10: Information of yearly sold and consumed sheep-by-sheep farmers at selected area.

Income from sheep rearing: In Barind areas sheep did not emphasize as income generating activity. For this reason, minimum return obtained through sheep keeping. Generally keepers eat sheep meat only at festival of Eid-ul Azha. Average 1.36 sheep were consumed by each owner yearly. About 14026 taka was earned by sheep selling of each rearer yearly.

Conclusion

From the study, it reveals that all sheep farmers in Barind areas were marginal in type and they used traditional extensive sheep rearing. Barind sheep were gentle, capable on simple grazing of natural feed without or little bit concentrate supplementation and easy to handle even to a woman. Sheep farmers were less educated, untrained, savings less, miserable life leaded people. They did not offer environment friendly shelter to their sheep. Most of them did not capable and habited to proper vaccination, treatment and de-worming. The yearly earning from sheep rearing per farmer was only 14026 taka. All the farmers mentioned about abundant market facility of sheep. So, adopting improved technologies through training and awareness and minimizing reviled constraints, sheep rearing might be a valuable instrument of women empowerment, availing education facilities, improved livelihood and after all the source of improved and safe animal protein.

Acknowledgement

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