

## The Status of House Hold Level Dairy Farms Under Thakurgaon District, Bangladesh

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### Abstract

### Original Research Article

This study intended to investigate to present condition of household level dairy farms of four upazila in Thakurgaon district. Household to household survey was conducted in about four months period where 100 farm owners were interviewed. From the survey it was reported that the major occupation of farmers was agriculture (59%). The most dairy farm owners have land size 15% above 3 acre. Average monthly income of four upazila farmer 9,990.00 taka, monthly expenditure 6,065/=, monthly expenditure on food 2,502.50/=, average milk production per day of four upazila farmer was 3.37 liter and average value of produce milk of four upazila was 89.82/=. The average indigenous cattle was 3.42, average number of cross bred cattle was 0.72 and average total number of cattle was 4.14 of Thakurgaon district. The average number of animal was increase with the increase of owners land size. About 13% percent farm owners found educational status was HSC & above. About 20% farm owners had taken training and 80% did not take any training for cattle rearing. Handsome profitable farm was about 22%, some profitable farms were 68% and looser farm was 10%. Housing system in this area were semi building 16%, tin shed 75% and straw shed 9%. The most of the farm owners (68%) cultivate others except Napier & Maize for their livestock feeding. Highest 91% farmers was utilization of milk for sale and family use. Highest 38.2% farmer was inseminated their cattle by Frisian semen. The main problem for fodder production was scarcity of land 36%. About 72% farm owner was practice stall & grazing feeding and 6% grazing feeding system. About 95% farmers were taken loan. Prevention and control strategies for all disease were not available. Anthrax vaccine was available and FMD, BQ and HS vaccine had great shortage. For management purpose disease problem is highest 60%. It is expected that if all these facilities are available dairy farming in four upazila of Thakurgaon district will be improved.

**Keywords:** House Hold upazila Thakurgaon.

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## INTRODUCTION

Bangladesh is approaching a population inflection point as the numbers are projected to rise sharply by over 300 million between 2000 and 2030 which is more than twice the population increment [1]. Urgent attention is required to provide food for this growing demand. Much of the demand for dairy products will be concentrated in the urban and peri-urban area [2]. Given suitable government policy support and access to market and services, there is a great potential to develop small-scale dairy householder dairy schemes in peri-urban and urban areas of Bangladesh. Small-scale dairy farmers are at the centre of concerns about globalization and rightly so because they are the largest employment and small business group among the world's poor [3]. Smallholder farmers

predominates agricultural sector in Zambia, Tanzania and other Sub-Saharan Africa countries [4]. Like other developing countries, Bangladesh is the endeavour of smallholders [5]. Bangladesh has 24 million cattle, out of which 6 million are dairy cattle of local and crossbreds [6]. The majority of the dairy cattle are in the hands of smallholder dairy producers. Also dairying is part of the mixed farming systems in Bangladesh [7] and a predominant source of income, nutrition and jobs [8, 9]. Dairying is also considered a strong tool to develop a village micro economy of Bangladesh [10] in order to improve rural livelihoods and to alleviate rural poverty. Potentially, therefore, small-scale dairying is a viable tool to spur economic growth and alleviate poverty and malnutrition. Among other reasons, low agricultural productivity, and high population growths

not matching with the available resources to support them are associated with high incidences of poverty in many countries [12]. Smallholder farming has been characterized by low productivity. This situation is partly attributed to lack of capital and uses poor farming technologies by smallholder farmers, drought, and lack of market for the produce [11].

Dairy accounts for about 12% [13] of agricultural GDP and contributes to the livelihoods of many small-scale farmers in our country through income, employment and food [14]. Smallholder dairy production has thrived since independence in 1972 owing to supportive subsidized services, and guaranteed milk markets and prices for farmers. In order to take advantage of emerging market demands for reducing their poverty, smallholders have to face challenges to improve production costs and productivity [15]. The recent historical rise in world food prices has further aggravated the situation of dairy input prices which has also increased farm costs and ultimately affects farm profitability. In addition, there is a lack of institutional support, research and training, which would be beneficial to the farming environment [4]. As in many other parts in Bangladesh, therefore, there is a growing need for information about detail householders and small-scale dairy production parameters to enhance household life styles in the study area. Previous studies concentrated on evaluating operational productive and reproductive performance of the animals to most other parts of the world [16, 17]. Based on the above background, present research was to determine the role of small scale dairy cattle farming in improving their life styles of producer and to identify the problems of dairy cow raising and suggestions for improvement. Hence the present study was undertaken with following objectives:

- To know the present socio-economic condition of Household level dairy farmers in study area.
- To identify feed and fodder related attributes of dairy farmers.
- To determine milk production related attributes of dairy farmers.
- To fine out the problems related attributes regarding rearing of cattle.

## MATERIALS AND METHODS

A farm business study usually involves collection of information from individual farmers. Collection of data for farm business analysis involves compromises and the judgment of the analyst in the selecting data collection methods within the limits imposed by the resources available for the work [45]. For this study farm survey method was adopted for collecting data due to its two major advantages:

- Survey enable quick investigations of large number of cases and
- Its results have wider applicability

There are three main methods by which farm survey data can be gathered [45]. These are:

- Direct observation
- Interviewing respondent
- Records kept by respondents

Since the farmers of Bangladesh do not usually maintain records and accounts of their farm operation, the second method was followed to achieve the objectives of this study. However, survey method is not free from drawbacks. The main drawback of this method is to rely on the memory of the respondents. However, to minimize errors repeated visits were made to collect data and in case of any omission or contradiction the farmers were revisited to obtain the missing information.

### Selection the study areas

According to Yang [46] “the area in which a farm business survey is to be carried out depends on the particular purpose of the survey and the possible co-operation from the farmers”. There were four upazila are purposively selected namely Thakurgaon sadar, Haripur, Raanisankail and Baliadangi of Thakurgaon district for this study. Reasons of selecting these areas are, a large number of household level private dairy farms were raised in this area and for well communication to the areas for data collection by me.

### Sample selection

It is not possible to select all the household dairy farms in the selected four upazila’s because of resource constraints and time consuming. So selection the 100 household level dairy farm owners which were taken 25 in each selected upazilas randomly, but less than one years’ experience farmer was not considered for the study.

### Survey schedule preparation

The interview schedule was prepared to full fill the objectives of the study. The details of interview schedule are presented in Appendix. The interview schedule contained easier form of questions. These questions were set chronologically, so that the farmers could provide information in a systematic manner. These interview schedule initially prepared was pre tested with 12 farmers before using it for final collection of data. This pre-testing facilitated the surveyor to examine the suitability of different questions and statement of schedule.

Necessary correction, additions and rearrangement were made in the interview schedule based on pre- tested experience. The survey schedule was then copied in its final form for the collection of data. The schedule contained the following key items of information.

- Socio-economic aspect of household level dairy farms.
- Cattle population.

- Housing system
- Feeds and feeding system.
- Milk production related parameters.
- Artificial insemination.
- Credit system
- Profit and loss in household level dairy farms.
- Vaccination and Treatment.
- Problem related to household level dairy farms.

### Study period

The data was collected during the period from February 2011 to May 2011. For obtaining reliable data the researcher himself collected the data and visited the study areas frequently.

### DATA COLLECTION METHOD

There are several method for collecting the farm management data among the survey methods were followed in the present study by considering cost, time and easier to employ and most suitable for the farms working in our country.

The data were collected through direct interviews and personal visits to the farm of selected farmers. Before beginning the interview, each respondent was given a brief description about the nature and purpose of the study. Then the questions were asked in a very simple manner with explanation of questions where necessary. The responses of farmers were recorded directly on the interview schedules.

### DATA COMPILATION AND STATISTICAL ANALYSIS

Compiled the collected data from the farmers, Tabulated and analyzed to target objectives of the study. Analysis was mainly done through tabular percentages. Besides, mean, standard deviation, Chi-square value and p-value are determined using SPSS software. Tables were used to show the relationship between socio-economic characteristics and livestock rearing.

### Problem faced in collecting data

Following problems were faced during data collection:

- Some farmers were un willing to answer the question since the surveyor was unknown to them.
- It was difficult to convince the farmers on the importance of study.
- Some farmers were thought that something to get from surveyor.
- Sometimes farmers were not available at home, which needed even more than two or three visits to conduct single interview.

### LIMITATION OF THE STUDY

Some limitation was arisen during the study:

- Lack of adequate time compelled the researcher not to include a large number of dairy raising farmers.
- The limited scope of the academic research was another constraint, which did not enable the researcher to penetrate deeper into the problem.
- Dairy farmers provided necessary information from their memories. As result in some cases value judgment was employed to have necessary data.

So, results from the present study cannot be taken as a conclusive price of research findings. However, the findings can be considered as the broad orders of magnitudes upon which the dairy development program or plan for the improvement of dairy farming in Bangladesh can depend. Broad based research on dairy enterprise is advocated in this respect.

### RESULTS AND DISCUSSION

Results come out on the basis of parameter of the present condition of household level of dairy farms which has been discussed in this chapter.

#### Household level Socio-economic condition of the farmers

Household level dairy farmer's occupations in four upazila of Thakurgaon district are shown in Figure 4.1.1. In this study four categories of occupation were observed among four upazila of Thakurgaon district.

**Table-4.1.1: Occupation of Household level dairy farmers among different Upazila of Thakurgaon District**

Farmer's occupation	Location									
	Thakurgaon Sadr		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Agriculture	11	44.0	16	64.0	18	72.0	14	56.0	59	59.0
Business	9	36.0	3	12.0	4	16.0	3	12.0	19	19.0
Service	4	16.0	2	8.0	0	.0	1	4.0	7	7.0
Others	1	4.0	4	16.0	3	12.0	7	28.0	15	15.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Among four upazilas the average distribution of occupation as agriculture 59%, business 19%, service 7% and other 15%. It appears that in Sadar, Haripur, Ranisankail and Baliadangi upazila in Thakurgaon district majority of private dairy farmers occupation

were agriculture that is 44%, 64%, 72% and 56% respectively. Khan (1996) found that average distribution of occupation as agriculture 36%, business 41%, service 15% and other 8% in the study area.

**Table-4.1.2: Descriptive statistics of economic status of farmers according to location**

Location	Statistics	HH monthly income (Tk)	HH monthly expenditure (Tk)	HH monthly expenditure of food (Tk)	Total milk production (Liter/day)	Value of produced milk (Tk)
Sadar	Mean	11800.00	6340.00	3172.00	3.52	107.56
	N	25	25	25	25	25
	Minimum	4000	2000	1000	1	27
	Maximum	30000	17000	8000	7	210
	Std. Error of Mean	1529.978	711.056	309.005	.379	12.125
Haripur	Mean	8380.00	5660.00	1892.00	2.94	81.74
	N	25	25	25	25	25
	Minimum	3500	2500	700	1	30
	Maximum	15000	12000	5000	8	248
	Std. Error of Mean	706.682	528.930	224.790	.307	9.797
Ranisankail	Mean	10060.00	6320.00	1758.00	3.60	72.40
	N	25	25	25	25	25
	Minimum	4000	2000	600	1	38
	Maximum	35000	25000	5000	30	180
	Std. Error of Mean	1370.012	892.506	222.330	1.133	7.847
Baliadangi	Mean	9720.00	6020.00	3188.00	3.44	97.56
	N	25	25	25	25	25
	Minimum	2700	2000	1700	1	25
	Maximum	27000	20000	10000	10	280
	Std. Error of Mean	1244.936	779.145	335.873	.536	15.894
Total	Mean	9990.00	6085.00	2502.50	3.37	89.82
	N	100	100	100	100	100
	Minimum	2700	2000	600	1	25
	Maximum	35000	25000	10000	30	280
	Std. Error of Mean	628.359	365.290	152.780	.332	5.970
F-value		1.265	.186	7.981	.196	1.779
P-Value		.291(NS)	.906(NS)	.001*	.899(NS)	.156(NS)

In the table 4.1.2. shows that average income of four upazila farmers was 9,990/=, average monthly expenditure of four upazilas farmers was 6,085/=, average expenditure on food of four upazila farmer was 2,502.50/=, average milk production per day of four upazila farmer was 3.37 liter and average value of produce milk of four upazila was 89.82/= where average monthly income of farmers in Sadar, Haripur, Ranisankail and Baliadangi were 11,800/=, 8,380/=, 10,060/= and 9,720/= respectively. Average monthly expenditure of farmers in Sadar, Haripur, Ranisankail and Baliadangi were 6,340/=, 5,660/=, 6,320/= and 6,020/= respectively. Average monthly expenditure on food of farmers in Sadar, Haripur, Ranisankail and Baliadangi were 3,172/=, 1,892/=, 1,758/= and 3,188/= respectively. Average total milk production per day of farmers in Sadar, Haripur, Ranisankail and Baliadangi were 3.52 liter, Ha 2.94 liter, 3.60 liter and 3.44 liter respectively. Average value of produce milk of farmers in Sadar, Haripur, Ranisankail and Baliadangi were

107.56/=, 81.74/=, 72.40/= and 97.56/= respectively. Above mentioned monthly household expenditure was significantly differs.

In the table 4.1.3. indicates on the basis of land size below 0.5 acre, 0.5-1 acre, 1-3 acre and 3+ acre average monthly income of farmers were 7,320/=, 9,275/=, 10,100/= and 19,733.33/= respectively. Average monthly expenditure of farmers were 4,810/=, 5,500/=, 6,100/=, and 11,100/= on the basis of land size below 0.5 acre, 0.5-1 acre, 1-3 acre and 3+ acre respectively. Average monthly expenditure on food was 2,278/= for below 0.5 acre land, 2,070/= for 0.5-1 acre land, 2,496.67/= for 1-3 acre land and 3,833.33/= for 3+ acre land size. Average total milk production per day was 3.03 liter for below 0.5 acre land, 3.18 liter for 0.5-1 acre land, 3.80 liter for 1-3 acre land size and 4.37 liter for 3+acre land size. Average value of produce milk was 72.34/- for below 0.5 acre land, 91.90/- for 0.5-1 acre land.

**Table-4.1.3. Descriptive statistics of economic status of farmers according to land size**

Land size	Statistics	HH monthly income (Tk)	HH monthly expenditure (Tk)	HH monthly expenditure of food (Tk)	Total milk production (Liter/day)	Value of produced milk (Tk)
Below 0.5 acre	Mean	7320.00	4810.00	2278.00	3.03	72.34
	N	50	50	50	50	50
	Minimum	2700	2000	700	1	25
	Maximum	20000	10000	5000	30	210
	Std. Error of Mean	456.812	274.007	145.274	.579	6.150
0.5 - 1 acre	Mean	9275.00	5500.00	2070.00	3.18	91.90
	N	20	20	20	20	20
	Minimum	4500	3000	600	1	25
	Maximum	20000	12000	5000	8	248
	Std. Error of Mean	887.393	546.520	270.584	.394	12.293
1 -3 acre	Mean	10100.00	6100.00	2496.67	3.80	114.27
	N	15	15	15	15	15
	Minimum	4500	3000	750	1	30
	Maximum	20000	11000	8000	8	280
	Std. Error of Mean	1269.796	669.399	487.424	.623	20.939
3 + acre	Mean	19733.33	11100.00	3833.33	4.37	120.83
	N	15	15	15	15	15
	Minimum	5000	2500	1500	1	30
	Maximum	35000	25000	10000	10	270
	Std. Error of Mean	2148.015	1486.607	572.519	.706	18.513
Total	Mean	9990.00	6085.00	2502.50	3.37	89.82
	N	100	100	100	100	100
	Minimum	2700	2000	600	1	25
	Maximum	35000	25000	10000	30	280
	Std. Error of Mean	628.359	365.290	152.780	.332	5.970
F-value		27.057	17.405	5.299	.726	3.948
P-value		.001*	.001*	.002*	.539(NS)	.011*

114.27/= for 1-3 acre land and 120.83/= for 3+ acre land size. Here according to land size average monthly income, monthly expenditure, monthly expenditure on food & value of produce milk were significantly differ.

In the table 4.1.4. shows that average illiterates farmer's monthly income was 7,387.50/=, primary level farmer's average income was 7840.91/=, secondary(6-10)level farmer's monthly average income was 11,000/= and above HSC level farmer's monthly average income was 19692.31/=, Average monthly expenditure was 7,762.50/= for illiterate farmer's, 5,113.63/= for primary farmer's, 6,500/= for secondary farmers and 11,000/= for HSC and above educated farmers. Average monthly expenditure on food for illiterate farmers was 2,097.50/=, for primary 2,227.27/=, for secondary (6-

10) farmers 2,702/= and for HSC and above 3,830.77/=, Average total milk production per day 3.43 liter, 2.66 liter, 2.94 liter and 5.27 liter for Illiterate, primary, secondary and HSC and above educated farmers respectively. Average value of produced milk 79.42/= for illiterate, 75.52/= for primary, 84.62 for secondary and 155.96 for HSC and above educated farmers. Here average monthly income, monthly expenditure, monthly expenditure on food and value of produced milk of farmer's were significantly differs.

**Table-4.1.4: Descriptive statistics of economic status of farmers according to education**

Education level	Statistics	HH monthly income (Tk)	HH monthly expenditure (Tk)	HH monthly expenditure of food (Tk)	Total milk production (Liter/day)	Value of produced milk (Tk)
Illiterate	Mean	7387.50	4762.50	2097.50	3.43	79.42
	N	40	40	40	40	40
	Minimum	2700	2000	600	1	25
	Maximum	20000	10000	4000	30	248
	Std. Error of Mean	551.875	293.622	153.276	.726	8.310
Primary	Mean	7840.91	5113.64	2227.27	2.66	75.52
	N	22	22	22	22	22
	Minimum	4000	2000	700	1	25
	Maximum	20000	12000	5000	7	210
	Std. Error of Mean	812.768	548.445	199.152	.342	10.150
Secondary (6-10)	Mean	11000.00	6500.00	2702.00	2.94	84.62
	N	25	25	25	25	25
	Minimum	4500	2500	700	1	30
	Maximum	27000	20000	10000	10	200
	Std. Error of Mean	1112.055	733.144	399.963	.396	9.893
HSC & above	Mean	19692.31	11000.00	3830.77	5.27	155.96
	N	13	13	13	13	13
	Minimum	9000	6000	1000	2	38
	Maximum	35000	25000	8000	9	280
	Std. Error of Mean	2214.129	1423.250	554.513	.611	21.557
Total	Mean	9990.00	6085.00	2502.50	3.37	89.82
	N	100	100	100	100	100
	Minimum	2700	2000	600	1	25
	Maximum	35000	25000	10000	30	280
	Std. Error of Mean	628.359	365.290	152.780	.332	5.970
F-value		22.691	14.354	5.173	1.952	7.412
P-value		.001*	.001*	.002*	.126(NS)	.001*

In Table 4.1.5. indicates the average percent of land size of private dairy farmers in four upazila of

Thakurgaon district was below 0.5 acre (50%), 0.5-1 acre (20%), 1-3 acre (15%) and 3+ acre (15%) .

**Table-4.1.5: Land size of house hold level dairy farmers among different upazila of Thakurgaon district**

Farmer's land size (Acre)	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Below 0.5 acre	12	48.0	11	44.0	14	56.0	13	52.0	50	50.0
0.5-1 acre	2	8.0	8	32.0	5	20.0	5	20.0	20	20.0
1 -3 acre	5	20.0	4	16.0	3	12.0	3	12.0	15	15.0
3 + acre	6	24.0	2	8.0	3	12.0	4	16.0	15	15.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Khan (1996) found that average land size of private dairy farmers was 0-0.5 acre 1%, 0.5-1 acre 14%, 1-2 acre 36%, 2-5 acre 28% and above 5 acre 21%. In Sadar, Haripur, Ranisankail and Baliadangi Upazila dairy farmers was more than 3+ acre lands that is 24%, 8%, 12% and 16% respectively. Rahman (1993) found that it was estimated the average land size was 0.72 and 0.76 hectares for Kalihati and Takerhat areas respectively. This result does not contradict with the present results. 18%.

Education level of household level private dairy farmers of four upazila in Thakurgaon district are shown in table 4.1.6. the average distribution of literacy was Illiterate 40%, Primary level was 22%, class six to ten was 25% and HSC and above was 13%. Khan (1996) found his study area that average distribution of literacy was Illiterate 4%, Primary level 8%, class six to ten 29%, S.S.C 15%, H.S.C 13% and graduate

**Table-4.1.6: Educational level of household level dairy farmers among different upazila in Thakurgaon district**

Education level of farmers	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Illiterate	6	24.0	10	40.0	13	52.0	11	44.0	40	40.0
Primary	6	24.0	5	20.0	4	16.0	7	28.0	22	22.0
Secondary (6-10)	8	32.0	6	24.0	7	28.0	4	16.0	25	25.0
HSC & above	5	20.0	4	16.0	1	4.0	3	12.0	13	13.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

In the table.4.1.7. shows that total number of average indigenous cattle were 3.34 for below 0.5 acre land, 3.25 indigenous cattle for 0.5-1 acre land size, 3.45 cattle for 1-3 acre land size, 3.00 cattle for 3+ acre land size. Average total number of cross bred cattle 0.26 for below 0.5 acre land size, 0.60 number of cross bred cattle for 0.5-1 acre land, 1.07 number of crossbred cattle for 1-3 acre land and 2.07 number cattle for 3+

acre land. Average number of total cattle 3.60, 3.85, 5.40 and 5.07 for below 0.5 acre land, 0.5-1 acre land, 1-3 acre land and 3+ acre land respectively. Average number of indigenous cattle 3.42, cross bred cattle 0.72 and total number of cattle 4.14. Here cross bred and total number of cattle are significantly differ, so it's significant.

**Table-4.1.7: Descriptive statistics of house level cattle population according to land:**

Land size	Statistics	Total number of indigenous cattle	Total number of cross-bred cattle	Total number of cattle
Below 0.5 acre	Mean	3.34	.26	3.60
	Sum	167	13	180
	Std. Error of Mean	.180	.102	.146
0.5 - 1 acre	Mean	3.25	.60	3.85
	Sum	65	12	77
	Std. Error of Mean	.331	.285	.196
1 -3 acre	Mean	4.35	1.07	5.40
	Sum	65	16	81
	Std. Error of Mean	.558	.521	.476
3 + acre	Mean	3.00	2.07	5.07
	Sum	45	31	76
	Std. Error of Mean	.632	.621	.384
Total	Mean	3.42	.72	4.14
	Sum	342	72	414
	Std. Error of Mean	.170	.154	.141
F-value		1.901	6.567	11.680
P-value		.135(NS)	.001*	.001*

In the table.4.1.8. shows that average number of indigenous cattle were 3.50 for illiterate, indigenous cattle were 3.73 for primary, indigenous cattle were 3.40 for secondary (6-10), indigenous cattle were 2.69 for HSC and above HSC. Average numbers of cross bred cattle were 0.22 for illiterate, 0.45 cross bred cattle for primary, 0.64 cross bred cattle for secondary (6-10) farmers and 2.85 cross bred cattle for HSC & above HSC. Total average number of cattle 3.72 for illiterate, 4.18 cattle for primary farmers, 4.04 average total numbers of cattle for secondary farmers and 5.54 average total numbers of cattle for HSC and above

HSC. Here total number of cross bred cattle and total number cattle are significantly differs according to education level of farmers. With the increasing level of education, herd size also increases. The highest herd size observed 5.54 in HSC and graduate level of education and lowest herd size observed 3.72 in illiterate group.

Khan [8] found his study area that highest herd size observed 14.11 in above graduate level of education and lowest herd size observed 5.55 in illiterate group.

**Table.4.1.8. Descriptive statistics of house hold level cattle population according to education:**

Education level	Statistics	Total number of indigenous cattle	Total number of cross-bred cattle	Total number of cattle
Illiterate	Mean	3.50	.22	3.72
	Sum	140	9	149
	Std. Error of Mean	.196	.116	.164
Primary	Mean	3.73	.45	4.18
	Sum	82	10	92
	Std. Error of Mean	.337	.252	.327
Secondary (6-10)	Mean	3.40	.64	4.04
	Sum	85	16	101
	Std. Error of Mean	.346	.276	.241
HSC & above	Mean	2.69	2.85	5.54
	Sum	35	37	72
	Std. Error of Mean	.771	.659	.501
Total	Mean	3.42	.72	4.14
	Sum	342	72	414
	Std. Error of Mean	.170	.154	.141
F-value		1.065	13.723	6.306
P-value		0.368(NS)	0.001*	0.001*

In the table 4.1.9. shows that four upazila of Thakurgaon district house hold level dairy farmers training status that 20% farmers had training and 80 % farmers had no training and data is significantly differ.

Khan [8] found his study area that 22% farm owners had training and 78% had no training. He also

found that the farm owners who get training were more benefited and who had no training they were less benefited. According to Kabir [23] training on dairy management animal health care, sanitation and marketing techniques would be profitable for private dairy farmers.

**Table-4.1.9: Training status of farmers among different Upazila of Thakurgaon district**

Farmer's training on dairy farms	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Yes	8	32.0	5	20.0	1	4.0	6	24.0	20	20.0
No	17	68.0	20	80.0	24	96.0	19	76.0	80	80.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Chi-square value = 6.5*** ( Significant at 10% level)										

In the table 4.1.10. shows that artificial insemination of four upazilas (Sadar, Haripur, Ranisankail and Baliadangi) of Thakurgaon districts that 35% household farmers had taken artificial

insemination opportunity and 65% farmer had not taken Artificial insemination facilities. It was significant due to data is significantly differ.

**Table-4.1.10: Artificial insemination status of households level farmers among different Upazila of Thakurgaon**

Did you artificial insemination among cattles?	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Yes	12	48.0	9	36.0	4	16.0	10	40.0	35	35.0
No	13	52.0	16	64.0	21	84.0	15	60.0	65	65.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Chi-square value = 7.11*** (Significant at 10% level)										

Artificial inseminations of cow by different breed of private dairy farms among different upazila in Thakurgaon district are shown in table 4.1.11. The semen of Friesian bull was used 38.2%, Shahiwal bull semen was used 29.4% and Local bull semen was 32.4%. It was concluded that Friesian bull was first priority to private dairy farmers for using artificial

insemination purpose and the second one is local bull. Reason for using Friesian bull perhaps availability of semen and the high milk production. Khan [8] found the semen of Friesian bull was used 66%, Sindhi bull semen was used 2% and Shahiwal bull semen was 14% and only 1% used Jersey bull semen in the study area.



**Table-4.1.11: Artificial insemination status of cow by different breeds among different Upazila of Thakurgaon district**

Breed choice for artificial insemination	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Friesian	7	58.3	2	20.0	2	50.0	2	25.0	13	38.2
Shahiwal	3	25.0	3	30.0	1	25.0	3	37.5	10	29.4
Local bull	2	16.7	5	50.0	1	25.0	3	37.5	11	32.4
All	12	100.0	10	100.0	4	100.0	8	100.0	34	100.0

**Table-4.1.12: Housing condition of house hold level dairy farmers in among different upazila of Thakurgaon district**

Housing system of farmer	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Semi building	8	32.0	3	12.0	1	4.0	4	16.0	16	16.0
Tin shed	16	64.0	21	84.0	21	84.0	17	68.0	75	75.0
Straw	1	4.0	1	4.0	3	12.0	4	16.0	9	9.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

In Table 4.1.12. Shows that there were three types of houses in the respective upazilas. Among four upazilas 16% farmers had semi building, 75% farmers had tin shed and 9% farmers had straw houses. Khan [8] found that 4% farmers had building, 37% farmers had half building, 53% farmers had tin shed houses and 6% farmers had straw shed houses in the study area.

#### Feed & fodder related attributes of dairy farm

In table 4.2.1. shows that feeding source of four upazila of Thakurgaon district were 39% own, 15% feed collect by buying and 46% feed managed by Both (own and Buying) in the current study area and data is significantly differ.

**Table-4.2.1: Feeding sources of farmers among different Upazila of Thakurgaon district**

Necessary feeds for cattle	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Own	10	40.0	8	32.0	12	48.0	9	36.0	39	39.0
Buying	5	20.0	2	8.0	2	8.0	6	24.0	15	15.0
Both	10	40.0	15	60.0	11	44.0	10	40.0	46	46.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Chi-square value = 9.10079\* (Significant at 1% level)

Types of different fodder production for house hold level dairy farms among different Upazila in Thakurgaon district are shown in table 4.2.2. Among Napier, maize and others fodder; Napier was cultivated 8%, Maize was cultivated 24% and others was

cultivated 68% by the farmers in different upazilas in Thakurgaon district. Khan [8] found that Napier was cultivated 81%, Para was cultivated 27% and Maize was cultivated 30% by the farmers in the study area.

**Table-4.2.2: Types of fodder cultivation of farmers among different Upazila of Thakurgaon district:**

Types of fodder cultivation	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Napier	1	4.0	2	8.0	2	8.0	3	12.0	8	8.0
Maize	4	16.0	4	16.0	9	36.0	7	28.0	24	24.0
Other's	20	80.0	19	76.0	14	56.0	15	60.0	68	68.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Feeding system of private dairy farms among different upazila in Thakurgaon district are shown in table 4.2.3. Stall-feeding was 22%, stall and grazing system was 72% and grazing system was 6% in the

study area. Stall and grazing feeding was highest in 72% because there are remain grazing land and cultivation land. Secondly in 22% farmers chose stall feeding due to city area and shortage of available land.

**Table-4.2.3. Feeding system of farmer's cattle among different Upazila of Thakurgaon district:**

Feeding system	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Stall feeding	10	40.0	6	24.0	3	12.0	3	12.0	22	22.0
Stall and Grazing	15	60.0	17	68.0	20	80.0	20	80.0	72	72.0
Grazing	0	.0	2	8.0	2	8.0	2	8.0	6	6.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Problem related to fodder production of private dairy farms among different upazila in Thakurgaon district are shown in table 4.2.4. Among different Problems, land scarcity was 36% farmers, seed/cutting

scarcity 6% farmers, lack of knowledge 11% farmers, lake of awareness 19% and others were 28%. Khan [8] found that land scarcity was 57%, seed/cutting scarcity 49%, lack of knowledge 53% and others were 30%.

**Table-4.2.4: Major constrains of fodder cultivation of farmers among different Upazila of Thakurgaon district**

Major constraints off odder cultivation	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Scarcity of land	11	44.0	8	32.0	10	40.0	7	28.0	36	36.0
Scarcity of seed/cutting	2	8.0	1	4.0	2	8.0	1	4.0	6	6.0
Lack of knowledge	3	12.0	3	12.0	3	12.0	2	8.0	11	11.0
Lack of awareness	3	12.0	5	20.0	6	24.0	5	20.0	19	19.0
Other	6	24.0	8	32.0	4	16.0	10	40.0	28	28.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

**Milk related attributes of dairy farms**

Utilization of milk of four upazila in Thakurgaon district shows in table 4.3.1.that 6% of farmers were use milk for family purpose, 3% of

farmers were use for milk sale only and 91% farmers were use for sale and family purpose in the conducted area. Highest 91% farmers were use for sale and family use and lowest 3% farmers were milk use as sale only.

**Table-4.3.1: Utilization of milk by farmers among different Upazila of Thakurgaon district**

Utilization of milk	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Family use only	2	8.0	2	8.0	2	8.0	0	.0	6	6.0
Sale only	1	4.0	1	4.0	1	4.0	0	.0	3	3.0
Sale and family use	22	88.0	22	88.0	22	88.0	25	100.0	91	91.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Selling place of milk in different upazila is shown in table 4.3.2. About 41% farmers were selling their milk in local market, 24% farmers were in home service, 21% farmers were to sweet makers and 14% farmers were to brokers. Khan [8] found 53% farmers

selling their milk in local market, 48% farmers in broker, 38% farmers to home service and 27% to sweet makers in the study area. Hence the data is significantly differs.

**Table-4.3.2: Marketing place of milk of farmers among different upazila of Thakurgaon district**

Marketing place of milk for sale	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Local market	10	40.0	14	56.0	9	36.0	8	32.0	41	41.0
Home service	7	28.0	5	20.0	6	24.0	6	24.0	24	24.0
Sweet makers	6	24.0	5	20.0	5	20.0	5	20.0	21	21.0
Brokers	2	8.0	1	4.0	5	20.0	6	24.0	14	14.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Chi-square value = 21.24961\*\* ( Significant at 5 % level)

**Problems related parameter of household level dairy farm**

Loan for dairy farmers of upazila in Thakurgaon district shows in table 4.4.1. about 5%

farmers were taken loan and 95% farmers were not taken loan in the study area.

**Table-4.4.1: Loan for dairy farm purpose of farmers among different upazila of Thakurgaon district**

Taken loan for dairy purpose	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Yes	1	4.0	1	4.0	0	.0	3	12.0	5	5.0
No	24	96.0	24	96.0	25	100.0	22	88.0	95	95.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

In the table 4.4.2. shows average handsome profit of farmers were 22%, some profit 68%, and loss

of farmers 10% in our four upazila in Thakurgaon district.

**Table-4.4.2: Profit or loss of household level dairy farmers in Thakurgaon district**

Profit/loss from dairy farm	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Handsome profit	7	28.0	6	24.0	4	16.0	5	20.0	22	22.0
Someprofit	14	56.0	15	60.0	19	76.0	20	80.0	68	68.0
Loss	4	16.0	4	16.0	2	8.0	0	.0	10	10.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

In table 4.4.3. shows the main reason of loss of dairy farm of four upazila in Thakurgaon district, average 63.6% farmers were loss due to feeding cost or

scarcity of feed and 36.4% farmers were loss due to low milk price in the study area.

**Table-4.4.3: Main reasons of loss of dairy farmers among different upazila of Thakurgaon**

Main reasons for loss	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Feeding cost/Scarcity of feed	3	75.0	3	75.0	1	33.3	0	.0	7	63.6
Low milk price	1	25.0	1	25.0	2	66.7	0	.0	4	36.4
All	4	100.0	4	100.0	3	100.0	0	.0	11	100.0

Prevention and control of disease shown in table 4.4.4.that Anthrax 52% FMD 23% BQ 20%and HS 11% vaccine were given the farmers cattle and Anthrax 48%, FMD 77%, BQ 80% and HS 89% vaccine were not given the cattle. Here highest number of farmers 52% gave Anthrax vaccine due to available and lowest number of farmers 11% HS vaccine given

due to insufficient supply of vaccine. On the other hand 77% farmers were de-wormed cattle for liver fluke and 81% farmers were de-wormed their cattle for round worm, and rest of 23% farmers and 19% farmers were not de-wormed liver fluke and round worm respectively.

**Table-4.4.4: Prevention and control of disease of farmers among different upazila of Thakurgaon**

Profit/loss from dairy farm		Location									
		Sadar		Haripur		Ranisankail		Baliadangi		Total	
		No	%	No	%	No	%	No	%	No	%
Cattle treated by Anthrax vaccine	Yes	15	60.0	11	44.0	9	36.0	17	68.0	52	52.0
	No	10	40.0	14	56.0	16	64.0	8	32.0	48	48.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Cattle treated by F.M.D vaccine	Yes	9	36.0	8	32.0	1	4.0	5	20.0	23	23.0
	No	16	64.0	17	68.0	24	96.0	20	80.0	77	77.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Cattle treated by B.Q. vaccine	Yes	7	28.0	3	12.0	2	8.0	8	32.0	20	20.0
	No	18	72.0	22	88.0	23	92.0	17	68.0	80	80.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Cattle treated by H.S. vaccine	Yes	3	12.0	3	12.0	0	.0	5	20.0	11	11.0
	No	22	88.0	22	88.0	25	100.0	20	80.0	89	89.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Cattle dwormed for liver fluck	Yes	21	84.0	16	64.0	21	84.0	19	76.0	77	77.0
	No	4	16.0	9	36.0	4	16.0	6	24.0	23	23.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0
Cattle a Cattle dwormed for round worm	Yes	22	88.0	19	76.0	21	84.0	19	76.0	81	81.0
	No	3	12.0	6	24.0	4	16.0	6	24.0	19	19.0
	All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Treatment facilities of private dairy farm in different upazila are shown in table 4.4.5. Only 26% farmers were getting treatment facilities from veterinary surgeon on the other hand 57% farmers were getting treatment facilities from quake and 17% farmers were getting treatment facilities from other sources. The respondent identified few causes of lack of treatment

facilities or veterinary services from veterinary surgeon such as high honorium, distance of farmers, not available doctor in the station.

Khan [22] found that 42% farmers get treatment facilities from veterinary surgeon, 57% from quake and 25% other sources

**Table-4.4.5. Sources of treatment facilities of farmers of the selected Upazilas of Thakurgaon**

Sources of treatment facilities	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Veterinary surgeon	11	44.0	5	20.0	6	24.0	4	16.0	26	26.0
Quake	8	32.0	15	60.0	14	56.0	20	80.0	57	57.0
Others	6	24.0	5	20.0	5	20.0	1	4.0	17	17.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Chi-square value = 13.03739\*\* (Significant at 5 % level)

Problems on priority basis in private dairy farmers had shown in table 4.4.6. Among the problems on priority basis the top most one problem was feed 47% farmers. and then treatment problem was 36%

farmers and last one was milk marketing 17% farmers. Here the data was significantly different from upazila to upazila farmers.

**Table-4.4.6: Main problem of owner for dairy farming among different upazilas of Thakurgaon district**

Main problem of owners for dairy farming	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Feed	14	56.0	13	52.0	12	48.0	8	32.0	47	47.0
Treatment	6	24.0	7	28.0	11	44.0	12	48.0	36	36.0
Milk marketing	5	20.0	5	20.0	2	8.0	5	20.0	17	17.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

Chi-square value = 18.66397\* (Significant at 1 % level)

In table 4.4.7. General problems regarding private dairy farms had shown. Disease problem in general was 60%, calves mortality was 4%, vaccine was

21%, artificial insemination problem was 3%, low milk production was 9%, medicine problem was 1% and conception was 2%.

**Table-4.4.7: General problem in household level dairy farm management among different Upazila of Thakurgaon district**

General problem HH level dairy farm management	Location									
	Sadar		Haripur		Ranisankail		Baliadangi		Total	
	No	%	No	%	No	%	No	%	No	%
Disease	9	36.0	20	80.0	12	48.0	19	76.0	60	60.0
Caves mortality	1	4.0	0	.0	1	4.0	2	8.0	4	4.0
Vaccine	7	28.0	3	12.0	8	32.0	3	12.0	21	21.0
Artificial insemination	1	4.0	1	4.0	1	4.0	0	.0	3	3.0
Low milk production	7	28.0	1	4.0	1	4.0	0	.0	9	9.0
Medicine	0	.0	0	.0	0	.0	1	4.0	1	1.0
Conception	0	.0	0	.0	2	8.0	0	.0	2	2.0
All	25	100.0	25	100.0	25	100.0	25	100.0	100	100.0

## SUMMARY AND CONCLUSION

The study was assigned to know the present condition of the household level dairy farms in four upazila of Thakurgaon district which was select Sadar, Haripur, Ranisankail and Baliadangi upazila. One hundred household level dairy farms were selected taking 25 in each selected upazilas. A dairy farmers having experience of less than one year was not considered for the study. The data including socio-economic characteristics, problem and prospect of

household level dairy farmers and milk production related parameters were taken for analysis. The data collected from the farmers were compiled, tabulated and analyzed in accordance with the objectives of the study. Tables were used to show the relationship among different parameters regarding socio-economic characteristics and problem and prospect of private dairy farms. Chi-square test was carried out for statistically significant of different data according to Gomez and Gomez [47].

After analyzing among four upazilas the average distribution of occupation as agriculture was 59%, as business was 19%, as service holders was 7%, others 15%. Average income of four upazilas farmer was 9,990/=, average monthly expenditure of four upazilas farmer was 6,085/=, average expenditure on food of four upazilas farmer was 2,502.50/=, average milk production per day of four upazila farmer was 3.37 liter and average value of produce milk of four upazilas was 89.82/=.

About 15% farmers had above 3 acre plus land size, 15% farmers had 1-3 acres land size, 20% farmers had 0.5-1 acres land size and 50% farmers had below 0.5 acres land size. The average indigenous cattle were 3.42, cross bred cattle was 0.72 and total number of cattle was 4.14 of Thakurgaon district. In this study about 20% farmers had taking training on dairy farms and 80% farmers were not taking training. Among average four upazilas 75% farmers had tin shed houses, 16% farmers had semi building and 9% farmers had straw making houses for their cattle housing. Among four upazilas average 40% farmers was illiterate, 25% farmers was class 6-10, 22% farmers was primary level and 13% farmers was higher secondary and above level educated. About 38.2% farmer's cattle were artificially inseminated by Frisian semen, 29.4% farmer's cattle were inseminated by Sahiwal and 32.4% farmer's cattle were inseminated by Local bull. Average feeding source of farmers of four upazila was own feed & buying feed feeding 46%, 39% farmers was feeding their cattle by own feed and 15% farmers was buying the feed. Average 24% farmers was cultivation maize, 8% farmer was cultivation Napeir grass and rest of 68% farmers was cultivation of other fodder. Feeding system of average in four upazilas as stall and grazing feeding of farmers was 72%, stall feeding farmers was 22% and grazing number of farmers was 6%. Average 91% farmers of four upazilas utilization of milk as a sale and family use, 6% farmers was family use only and 3% farmers was sale only. Among four upazila average 41% farmers was selling their milk to local market, 24% for home service, 21% sweet makers and 14% farmers to brokers.

About average 36% farmers had constraint to fodder cultivation due to scarcity of land, 28% farmers due to others, 19% farmers due to lake of knowledge and 6% farmers due to scarcity seed/cutting crisis. About 95% farmers of four upazilas not taking bank loan. About 10% farmers was loss and 68% farmers was getting some profit from their farms. Main problems on priority basis were feed which were 47% farmers then treatment problem was 36% farmers and last one milk marketing problem of farmers was 17%. Except this there were huge of problems regarding breed, feed, vaccine, medicine, conception, artificial insemination, milk processing and marketing, mortality etc. In above mentioned there are lot of opportunity developing dairy farm by accessing of breed, feed, treatment, vaccination, loan and training for setting of

private dairy farms from Government level or NGO level.

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