

Chapter 1

Introduction

Bangladesh is an agricultural country. A large population of livestock present here. There is present 25.7 million cattle, 0.83 million buffaloes, 14.8 million goats, 1.9 million sheep, 118.7 million chicken and 34.1 million ducks (Livestock - Banglapedia, 2021). So, a large number of cattle specially dairy cow present here and produce huge amount of milk. Bangladesh produces 9.4 million tons of milk (against the requirement of 15.04 million tons in a year (DLS 2008) and according to International Farm Comparison Network (IFCN), total milk production in Bangladesh stands at 8.08 million tons (The Daily Star, 2019). A big industry involved in it and they fulfill the demand of the protein of the general people. But In Covid-19 situation there is presence an imbalance between the seller and consumer.

Coronavirus disease 2019 (Covid-19) is a contagious disease which was first identified in Wuhan, China in December 2019 (COVID-19 - Wikipedia, 2021). It is an infectious disease caused by the SARS-CoV-2 virus within the genus Beta-coronavirus which causes pneumonia like illness (World Health Organization, 2021) Around 2.4 crore people affected and around 5 lacks of people died in corona virus in whole world. In Bangladesh around 16 lacks people affected and around 28 thousand of people died also (Worldometers 2021). In Bangladesh 1st case was observed in 8th march, 2020. In this situation the government of Bangladesh has imposed lockdown nationwide from 26th March . Due to countrywide lockdown, everyday 12 to 15 million liters of milk remain unsold in across the country which caused Tk 570 million losses to the marginal dairy farmers. According to Bangladesh Dairy Farmers' Association restriction of movement and social distancing had led to shortage of labor. Therefore, price of animal feed along with other things had been increased unexpectedly. The lack of transportation facilities and absence of middle men or supply chain have hampered the distribution that led to deterioration of farm products and unexpected price down of milk (Rahman and Chandra Das, 2021).

In this situation farmers don't sell their milk. In some farm they don't milking from cow because they don't sell the milk. These conditions led to different kinds of problems regarding udder health such as mastitis, udder edema etc. and consistently reduce milk from the udder due to off milking. So, most of the farmers faced huge loses and for this loses some farms stopped continuing their farming.

The objective of my study is to understand the economic loss at the farmers of Hathazari Upazila, Chattogram due to Covid-19 situation and to identify the obstacles at the village area in case of selling the milk and find a solution how to recover from this loses.

Chapter 2

Materials and Methods

Study area:

The study was conducted in Hathazari Upazila, Chattogram. 15 dairy farms had been selected randomly from Hathazari Sadar, Chipatali, Chikandandi and Fatehpur ward under Hathazari Upazila, Chattogram.

Study duration and data collection:

Data were collected from April 2021 to May 2021. Farm visit had been done to collect the necessary information from dairy farm owners. Data were collected through direct interview of the farmers on number of dairy cows, average cost of feed, cost of medicine, fees of employees, average milk production per day per liter, selling price of milk etc. during and after the end of Covid-19.

Data analysis:

After collection, the data were put on MS EXCEL spreadsheet 2007 and arranged in a tubular form. Formulas that had been applied as follows:

- Increase/decrease of Feed cost% (During covid-19) = $\left[\frac{\{(\text{Average cost of feed before}) - (\text{average cost of feed during covid 19})\} \times 100}{\text{Average cost of feed before Covid-19}} \right]$
- Change in milk production%(During Covid-19)= $\left[\frac{\{(\text{Milk production before Covid-19}) - (\text{Milk production during Covid-19})\} \times 100}{\text{Milk production before Covid-19}} \right]$
- Decrease of the selling price of milk% = $\left[\frac{\{(\text{Before Covid-19 selling price of milk}) - (\text{Selling price of milk during Covid-19})\} \times 100}{\text{Selling price of milk before Covid-19}} \right]$

Chapter 3

Results

Present survey was on the impact of COVID 19 on dairy farms in Hathazari which is a small upazila. The number of the farms had been taken were 15 (N=15). These were medium to small scale farms. Each of these farms was remain run even at the Covid-19 period, some of them were temporarily closed. The farm owners faced difficulties at the fluctuation of the cost of feed before and during Covid-19 period. In this 15 farms, the no of the dairy cows were before Covid-19 is 299 and during lockdown 289 and after lockdown the cow number is 259.

Table 1: Overall scenario of the selected dairy farms during pandemic

Parameters	Before COVID-19(December 19-February 20)	During COVID – 19(March 20 - October 20)	After COVID – 19(November 20 – March 21)
No of total dairy Farm(N=15)	299	289	259
Average cost of feed(Tk/ kg)	45	56.6	60
Average selling price of milk (Tk/kg)	55	43.67	54.13
Average amount of milk production(L)	80	40	61.45
Unsold milk	No	Yes	No
Average fees of the employees (monthly)	9333.33	9619.4	8904.76
Availability of veterinarian	Available	Available	Available
Condition of vaccination	Available	Difficult to manage	Available

From Table no 1 in this farm the average cost of feed (Tk/kg) was 45tk which has highly increased during the pandemic period at 56.6tk and after the end of the Covid-

19 the price was found unchanged at 60tk. The selling price of the milk (Tk/kg) was 55 before lockdown, 43.67 during lockdown and 54.13 after lockdown. The average amount of milk production decreased during Covid-19 and after the end of the lockdown also. During pandemic, milk was unsold at some villages. The average cost of medicine (monthly) was increase during the Covid-19 because of lockdown and less supply of medicine. The vaccination was found difficult during lockdown period due to countrywide strict lockdown (Table-1).

Table 2: Average milk production and selling price of milk

From Table 2 the average cost of feed (Tk/kg) during Covid 19 was 59tk (BDT) which

Parameters	Before COVID-19(December 19-February 20)	During COVID -19 lockdown (March 20 - October 20)	After COVID – 19 lockdown (November-20 to March-21)
Average cost of feed(Tk/kg)	45	56.6	60
Increased/decreased during lockdown(%)	-	31.1%	-
Increased/decreased after lockdown(%)	-	-	1.69%

was highly increased in comparison to before Covid-19 price 45tk (BDT). The farmers explained that due to lockdown the transport facility was not available therefore the feed price had increased suddenly. The cost of feed had increased 31.1% during the lockdown period. After the end of the lockdown the cost of feed became 60tk (BDT) and the percent increase of the price after lockdown was 1.69% (Table 2).

From these 15 farms, the average amount of milk production (Liter) was 80L, 40L, 61.45L at before, during and after the end of the pandemic respectively. During the lockdown period, milk production had been decreased at 50% and after the end of Covid-19 the production of milk increased at 53.62%. The average selling price of milk (Tk/L) were 55, 43.67,54.13 Tk (BDT) that indicate 20.80% decrease of the price

during Covid-19 and 19.32% increase after the end of Covid-19. In case of some farmers, some milk remained unsold at some villages (Table 3).

Table 3: Average milk production and selling price of milk

Parameters	Before COVID-19(December 19-February 20)	During COVID -19 lockdown (March 20 - October 20)	After COVID – 19 lockdown (November 20 - March 21)
Average amount of milk production (Liter)	80	40	61.45
Change in milk production during & After lockdown(%)	-	50% decreased	53.62% increased
Average Selling price of milk(Tk Per kg)	55	43.67	54.13
Change in selling price of milk(%)	-	20.80% decreased	19.32% increased

Most of the farmers mentioned that they are harmed by Covid-19. Due to Covid-19 the farm had gone through high damage in case of 11 farmers and 4 farmers mentioned about moderate damage out of 15 farmers (Table 4).

Table 4: Rate of damage due to Covid-19 to the dairy farm

Damaging effects of Covid-19 pandemic to the farms			
Highly damaging	Moderate damaging	Less damaging	Not damaging
11	4	None	None

Chapter 4

Discussion

Covid-19 circumstance has an antagonist impact at all segments of life and business. The Dairy farmers found it troublesome to manage up with to the high increase of feed cost in comparison to decrease selling price. Here, I performed a survey in Hathazari area of 15 medium scale dairy farms in which the maximum number of cattle is 43. The animal number were increase before Covid-19 but started decreasing during Covid-19 and after Covid-19 also because of increasing feeding cost and decreasing the selling price of milk. So they don't manage their farm cost and sell the cattle. The causes were mentioned that the farmers were facing maintenance problem of previously existing herd and to minimize the further loss they sold their few animals (Lockdown; Tribune, 2021).

Bangladesh Dairy Farmers Association (BDFA) estimates around 90% of milk is unsold, because milk vendors, sweetmeat sellers, dairy processors, and others have reduced their demand, probably due to transport difficulties and the economic shutdown. A survey was done in Pabna and Sirajgonj, milk price reduced by 17% and consumer price by 21% - with the largest falls in the highest milk producing regions. Yet the prices of mixed concentrate feed and feed ingredient increased by 8%. (Rapid assessment of food and nutrition security in the context of COVID-19 in Bangladesh, 2020). In my survey there was 15 dairy farm, most of farmer said the same thing. There was reducing of milk price and increasing the cost of the feed and the faced a huge lose.

In the Covid-19 did not affect the availability of the labour so much in Punjab where as in the study it had been found that the reduced the availability of labour as during pandemic situation the labour asked for high salary than previous time.(Wasim, 2021, Abdul Malek, Truong and Sonobe, 2021). In Hathazari, situation was different .There was shortage of labour during covid-19 and so costly then before covid-19.

Dairy farmers and processors suffered nearly Tk 4,000 crore in losses, as they could not market milk in the last three months due to countrywide lockdown for coronavirus. Daily sales of milk processors improved at the beginning of June after the end of the general shutdown, a devastating period when sales halved. Sales figure is still much lower than the pre-Covid period when processors could sell over 13 lakh litres of milk daily, according to data of Bangladesh Dairy Development Forum (The Daily Star, 2020). In Hathazari region there is same condition, In pre-covid there was presence of huge milk production and demand of milk production is huge and selling price is optimum but during covid-19 there is huge loss of normal people, some people lose their job and some people loss in business and all people losses economically. So there was presence less demand of milk and farmers milk was wasted and some farmer don't milking. So there was occur huge loses in the farmer of Hathazari.

Due to strict lockdown the transport office was not accessible. It was troublesome to preserve the ceaseless supply of the medicine and antibodies within the Hathazari Upazila. It was difficult to reach at farm to farm at due time for vaccination. Because of medicine problem some cattle were died.

In Hathazari, I surveyed 15 dairy farm of 299 cattle. In this farm some farms were highly damaged and some are moderately damaged by covid-19. They want the help of government. If the government give subsidy on agriculture more than before they will overcome the situation.

Chapter 5

Conclusions

The study was carried out to find out how the economic loss of dairy farms in the rural area of Hathazari Upazila changed during the Covid-19 crisis. Farmers found it impossible to run their farms in the midst of the pandemic, which had resulted in massive losses for both farmers and the national economy. The study has contributed to a better understanding of why it is critical to assist farmers in continuing the production cycle, growing market demand, and utilizing alternate supply networks in order to compensate for and address the dangers that farmers faced during the lockdown period. The present study will assist the future researchers in better grasping the challenges that may arise during a pandemic and how new policies may be implemented to overcome that pandemic.

Chapter 6

Limitations

- Small sample size.
- Short study duration
- Most of the data collected were only based on the verbal description of the farmer since they don't keep the written records.

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Biography

I am Prattay Dey Paban. I have passed my Secondary School Certificate (SSC) examination in 2012 and Higher Secondary Certificate (HSC) examination in 2014. Then I have enrolled myself at for Chattogram Veterinary and Animal Sciences University (CVASU) in the Faculty of Veterinary Medicine (FVM) in 2015. I have immense interest to work in the field of Large and Small Ruminant Medicine.