

ABSTRACT

The study was carried out to monitor the comparative milk production performance of cross-bred cows under rural environment in different parities. The data of 40 cross-bred lactating cows of five different parities were collected. The collected data shows that average daily milk yield and lactation yield of cross-bred lactating cows are 7.7 liter per cow per day and 1769.5 liter per cow per lactation .The result shows that average daily milk yields are higher in forth parity (10 liter) where average lengths of lactation are also high (250 days). It appears that third and fourth parities cross-bred were more suitable for milk production among the other parities studied. Some diseases hamper the milk production of dairy cows such as mastitis, skin diseases, and parasitic diseases. This study shows that mastitis occurrence rate (15%) is higher than other diseases like skin diseases (7.5%), parasitic diseases (5%). To control this diseases proper vaccination, deworming should be compulsory. Balance rations is the important factor for milk production. This study shows the rural farmers provide Straw 3Kg/day, roughage 4.5 kg/day and concentrate 1kg/day .There is no supplement of separate protein. To get proper production balanced ration is very essential.

Key words: Milk production performance, feeding, diseases, cross-bred cows, & length of lactation.

CHAPTRE-I

INTRODUCTION

Bangladesh is an agricultural based developing country. About 25 percent people are directly engaged in livestock sector and 50 percent people are partly associated in livestock production (DLS, 2008). Dairying is one of the most effective instruments for supplementing farmer's income and generating employment in rural sector (Bedi, 1989). Dairy cows are the major livestock in Bangladesh and play very crucial role to our national economy. Apart from their role in milk production, they also contribute a huge quantity of organic manure on our agricultural field, which is one of the major inputs in our agriculture. The farming system of Bangladesh is mainly agro based and depends largely on livestock which plays a vital role in national economy of our country. The contribution of livestock sub-sector to the GDP of this country is around 3.6 percent (GOB, 2008) and to agricultural GDP around 17.07 percent. This sub sector generates 13 percent of the of the total foreign exchange earnings (BBS, 1998) and provide full time employment 25 percent and part time employment 50 percent of the population (GOB, 2004). Dairy cows are the major livestock in Bangladesh and play very crucial role to our national economy. Apart from their role in milk production, they also contribute a huge quantity of organic manure on our agricultural field, which is one of the major inputs in our agriculture. Dairying is one of the most effective instrument for supplementing farmer's income and generating employment in rural sector (Bedi, 1989).

The livestock production in Bangladesh is not adequate which is manifested in the low supply and high price of livestock and its products in the market. Before taking any comprehensive program for socio-economic upliftment of rural farmers through the livestock production and utilization, consumption pattern, marketing and utilization pattern of sale proceeds of livestock and its products should be analyzed and studied very carefully. It was estimated that there were about 22.9 million cattle, 1.21 million buffaloes, 20.8 million goats, 2.68 million sheep, 207 million chickens and 39 million ducks in Bangladesh in the year 2006-2007 (DLS, 2008).The number of the milking cows in Bangladesh are 3.79 million which is 35 percent of the total population and 1.9 percent were reported to breed (BBS, 1986).

The domestic production of milk in Bangladesh is only 13.81 percent of the minimum requirement (GOB, 1997) and the country had to impost 57273 metric ton of milk worth taka 2546 million in foreign exchange annually during 1985-86 to 1993-94 (Kabir, 1995). So main emphasis should be given to improve the production performance of our local cows as they are well adapted in our rural environment with minimum care and feedings. In a village condition where only rice straw and limited concentrate feeds were available; the cattle with one quarter exotic blood had poorer performance than the

indigenous cows (Wellington and Rahman, 1985).). Skunmur et al. (1999) indicated that better animal feeding and care as well as culling of genetically low producing cows are necessary in order to improve production efficiency of the dairy cows. The country has a density of livestock well above the averages of many other developing countries. In spite of high density of dairy cows Bangladesh have an acute shortage of milk. Availability of milk only 35 ml per head per day as maximum requirement recommended per head per day 250 ml (GOB, 1999). For this reason the present study was undertaken to evaluate the production performance of indigenous lactating cows compared with the production performance of cross-bred cows under rural condition at different parities. Day by day people in our country are being conscious about dairy farming. Farmers are participating in training based on dairy farming arranged by district livestock services in our country. In our upazila farmers are updating their knowledge about dairy farming gradually. Some conscious farmer regularly contact with upazila veterinary hospital for the suggestion of improvement of dairy farming. Upazila livestock officer, veterinary surgeon arrange meeting with the dairy farming once in a month. In the meeting the dairy farmers tell about theirs problems related the development of the farm and the ULO give them solutions and also inform the farmers to the district livestock office. Then the DLS find out the solutions and support the farmers through different types of dairy related instruments and important suggestions.

Considering the above conditions the present study is carried out in order to fulfil the following objectives-

1. To know the production performance of cross breed lactating cows under rural condition at different parities.
2. To observe the influence of parity on milk production, disease occurrence.
3. To observe the feeding system in dairy farm.

CHAPTRE-II

MATERIALS AND METHODS

This study was carried out in three different villages such as Arpara, Uzgram and Tilkhari of Shalikhha Upazilla in Magura district during the period from 1st February, 2018 to 3rd April, 2018. Data of individual lactating cows such as milk production, lactation length, disease occurrence, daily feed requirement were collected by using an open questionnaire from the study area.

Selection of study area:

The study areas were selected from 3 villages under Shalikhha upazilla in Magura district where the cattle population is high in number. The data of 30 cross-bred lactating cows of five different parities were collected. Some of the farmers are not conscious about the breeds which can produce high amount of milk. It was noticed that in that area mostly the cross-bred cows are mostly were Shahiwal (S) Local (L) × Frisian (F) and Local (L) × Frisian (F) type. In survey areas Farmers do not maintain proper vaccination and deworming schedule for their cows. Some farmers don't properly follow the management procedures of dairy farming.

Feeding practices:

Farmers of the study area most time provide the grass but do not give balance diet to lactating cows. When the grass production is fair the farm's milk production and animals health is good. Their farms are grass dependent. But some of the farmers provide small amount of concentrate with the feed. They give 0.5 to 1 kg concentrate wheat bran and rice polish and also offer small amount of straw to their cross-bred lactating cows.

Sampling techniques:

Farmers having 5-15 cross-bred lactating cows were selected for data collection from three villages.

Questionnaire preparation:

I have collected data by questionnaire methods in accordance with the objectives of the study. The questions which are related to parity number, daily milk yield, length of lactation, milk yield per lactation and feed requirement are given importance in the questionnaire, diseases occurrence in dairy farms etc. Same questionnaire was used for data collection from owner farmers of cross-bred lactating cows. Some data's were collected from the farmer's dairy farming record book.

Data Analysis:

Collected data were recorded accordingly and arranged neatly in a tabular form for further explanation. Simple statistical techniques such mean, ratio, percentage are used to analyze the data.

CHAPTRE- III

RESULTS AND DISCUSSIONS

Following tables show the average amount of feeds supplied by the farmers to the cross-bred cows in rural areas.

Table.1 Average daily feeds supply

Types of Cows	Roughage		Concentrate (Kg/day)	Protein Supplement (Kg/day)
	Straw (Kg/day)	Green Grass (Kg/day)		
Cross-bred	3 (1 - 4)	4.5 (2 - 7)	1 (0.5 - 1)	Nil

The table shows that farmer provide average amount of straw, green grass, concentrate are 3 kg/day, 4.5 kg/day, 1 kg/day. The farmers don't provide any protein supplement. If the farmer provide protein supplement with the feed and provide the balanced rations then the production of the farm will get high production performance from the cows.

Following tables show the average milk yield, length of lactation total lactation yield in different parities of cross-bred lactating cows

Table.2 Average daily milk yield, length of lactation and total lactation yield in different parities of cross-bred lactating cows:

Production parameters	Parities					Grand total	Mean
	First	Second	Third	Forth	Fifth		
Daily milk yield(liter)	5.0 n=10	7.5 n=12	9 n=6	10 n=7	7 n=5	38.5 n=40	7.7
Lactation length(day)	215 n=10	225 n=12	235 n=6	250 n=7	210 n=5	1135 n=40	227
Lactation yield(liter)	1075	1687.5	2115	2500	1470	8847.5	1769.5

Daily milk yield:

Cross breed cows produce only 7.7 liter of milk per cow per day in rural environment (Table. 2). Kober *et al.* Found that Holstein-Friesian cross cow produce 6.29 ± 3.16 liter milk per day. Here Most of the cows are the cross of Holstein-Friesian cows .In the study area farmers do not offer any balance diet to cross-bred lactating cows which is very essential for their milk production potentiality. Most cases they give a little amount of concentrate without any protein supplement which ranges from 0.5 to 1 kg. So as a result of under feeding, lack of protein supplement in the feed and also rough rural condition, cross-bred lactating cows can not show satisfactory performance as they should be. Table.1 shows that in rural condition cross-bred cows are reared with minimum amount of concentrate and protein supplements are not offered to the lactating cows. Report by Shamsuddin *et al* (1995) indicated that the concentrate feed had a direct influence on the milk yield of dairy cattle. Miller (1979) mentioned in lactating cows too little protein reduce milk production. The effect of harsh rural environment, poor feeding and poor management make the cross-bred cows less productive. In a village condition where only rice straw and limited concentrate feeds were available, the cattle with one quarter exotic blood had poorer performance than the indigenous cows (Wellington and Rahman, 1985).

The highest daily milk production of cross-bred cows was obtain in fourth parity, 10 liters (Table: 2). The lowest daily milk production found in first parity, 5 liters (Table: 2). In the present study shows that daily milk yield gradually increased with the advancement of parity up to four. Similar results were obtained by Bhuiyan *et al.* (1992) and Izaik *et al.* (1984).

Lactation length:

According to Table: 2 average lactation length of cross-bred cows is 227 days in rural environment. Islam *et al.* (2017) who found the average Lactation Period in days (219.88 ± 0.47). Similar thing happened to cross-bred lactating cows where average lactation length (225 days) Lower lactation showed in the first parity where production was less.

Lactation yield:

Average lactation yield of cross breed cows was 1769.5 liter milk per parity. Ahmad S *et al.* found average lactation yield of milk per parity is 1770 ± 25 liter that is similar in our study. The Total lactation yield of the cross-bred cows are 8847.5 liter that is slight lower than the properly management farm. The milk production would be higher if the farmer give the cows properly balanced diet. But the farmers in didn't give the cows balanced rations.

Milking methods:

There are two methods of milking procedures; hand milking and machine milking. Machine milking is much better than hand milking. Hand milking is time consuming. Among my studied 3 farms only one farm had one milking machine.



Fig. 1: Machine milking



Fig. 2: Hand milking

Disease incidence:

It is reported from my study that in cross-bred lactating cows frequency of mastitis, parasitic infestation, skin diseases, viral diseases were more common. Among the diseases mastitis is high in percentage. The lactating cows are also suffered from mal nutrition and some other digestive complications.

Table.3**Frequency of disease in Cross-bred cows:**

Types of cow	Total study No.	Diseases			Total
		Name	No	Percentage (%)	
Cross-bred lactating	40	Mastitis	6	15	11
		Parasitic diseases	3	7.5	
		Skin disease	2	5	

From the Table.3 it is evident that percentage of mastitis is high for cross-bred lactating cows (15%). Parasitic diseases, skin diseases were 7.5% and 5% respectively. A Khair *et al.* (2013) found that proportionate incidence was highest for mastitis (17.86%) that is similar to this study.



Fig. 5: Skin diseases in cow



Fig; 6: Mastitis in cow

CHAPTRE-IV

LIMITATIONS:

1. Some farmers are not co-operative to collect data
2. Some farmers don't give the exact data

CHAPTRE- V

CONCLUSIONS:

Though the produced cross-bred cows are genetically superior for milk production but in rural condition due to poor management, inadequate feeding and adverse environment they can not show the satisfactory performance. It is found in the present study that in rural condition the daily milk yield, length of lactation and total lactation yield in cross breed cows are increasing day by day. The study reveals that disease incidence slightly higher in cross-bred cows due to lack of proper management. Among the all diseases; mastitis prevalence is higher. The cross-bred cows need much care and management to get satisfactory performance from them. It is also found that there is an influence of parity on the milk production. In fourth parity it was found that per day milk production was higher and lactation length was longer for cross-bred. Through improvement of housing, feeding, management, it is possible to get much production from the cross-bred.

CHAPTRE-VI

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CHAPTRE-VII

ACKNOWLEDGEMENT

Author is ever grateful and indebted to the Almighty God without whose grace, he would not have ever been able to complete this clinical report successfully.

The author wishes to owe his deep sense of gratitude and thanks to honorable Dr. A. K. M. Humayun Kober, Professor, Department of Dairy and Poultry Science, for the skilful supervision to make this report with his knowledge, perceptiveness, cracking-of-the-whip and encouragement.

The author wishes to give special thanks to Mr. Md. A. Halim, Dean, Faculty Of Veterinary Medicine and Dr. A. K. M. Saifuddin, Directors Of External Affairs

Finally, the author expresses thanks to all of his family members, friends, seniors, juniors and owners for their cordial helping hands.

The author,
September, 2018

BIOGRAPHY



Ripon Biswas, Son of Nirmal Biswas and Lakshmi Rani Biswas. I passed Secondary School Certificate (SSC) examination from Dhaneswar Gati High School, Magura, Khulna in 2009 and then Higher Secondary Certificate (HSC) examination from Biharilal Shikder Degree College, Magura, Khulna in 2011. I enrolled my internship program for Doctors of Veterinary Medicine (DVM) Degree in Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh. I have immense interest to work on zoonotic diseases in Bangladesh.