

A Seminar Paper on  
**Reproductive Performances and Problems of Crossbred Dairy Cows in  
Bangladesh**

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# **Reproductive Performances and Problems of Crossbred Dairy Cows in Bangladesh<sup>1</sup>**

By

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## **ABSTRACT**

The contribution of livestock in the economy of our country is unconditional. Livestock product has effective role in promoting health and meeting up the protein demand. Hence, to meet the growing demand and ensure food security, the efficiency of reproductive performance should be increased. This seminar paper is exclusively a review paper and all the information was collected from secondary sources like various relevant internet browsing, journals and publications. Reproductive parameters allow in obtain an overall health status of the herd improving the animal welfare and economy of the farms. This seminar paper describes common reproductive parameters such as age at puberty, first calving, post-partum heat period, calving interval which are comparatively aid to assess the overall farm condition. All of these parameters are better in crossbred dairy cattle compare to local. Genotype and Farm size had significant effect on all reproductive traits except on service per conception and days open. Among the majority of the reproductive problems that describe here are anestrus, abortion, repeat breeding, retained placenta are most prevalent followed by dystocia, mastitis, vaginal prolapse, pyometra, metritis, uterine prolapse, milk fever, and still birth. The highest prevalence of reproductive disorders was found in intensive rearing system. The prevalence of all disorders was higher in artificially inseminated cows than those bred by natural service. Good quality of feed should be offered to dairy cow for better reproductive performance. Furthermore, natural service should also be taken into consideration than artificial insemination for better reproductive performance.

**Keywords:** Dairy cows, Crossbred, Reproductive Performance, Reproductive Problem

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<sup>1</sup>A seminar paper for the course GOR 698, Winter, 2022

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## TABLE OF CONTENTS

Chapter No.	Title	Page No.
	ABSTRACT	i
	TABLE OF CONTENTS	ii
	LIST OF TABLES	iii
	LIST OF FIGURES	iv
I	INTRODUCTION	1-2
II	MATERIALS AND METHODS	3
III	REVIEW OF FINDINGS	4-19
IV	CONCLUSIONS	20
	REFERENCES	21-23

## LIST OF TABLES

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
<b>1</b>	Overall breed-wise reproductive performance of the crossbred dairy cows	5
<b>2</b>	Reproductive parameters of crossbred dairy cows in different genotypes	8
<b>3</b>	Reproductive parameters of crossbred dairy cows in the different age groups	9
<b>4</b>	Reproductive parameters of crossbred dairy cows by the different body weight	12
<b>5</b>	Prevalence of various reproductive disorders of crossbred dairy cows	14
<b>6</b>	Overall prevalence of various reproductive disorders of crossbred dairy cows in different region of Bangladesh	16

## LIST OF FIGURES

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
<b>1</b>	Ten-year trend for age at first calving	6
<b>2</b>	Calving interval in dairy herd program	7
<b>3</b>	Graphical representation of age at puberty and calving interval of dairy cows in different genotypes	8
<b>4</b>	Reproductive performance of age at puberty of dairy cows among age groups	10
<b>5</b>	Reproductive performance of post-partum heat period and calving interval of dairy cows among age groups	11
<b>6</b>	Reproductive performance of post-partum heat period, days open and service per conception in different parities of dairy cows	11
<b>7</b>	Reproductive performance of age at puberty of dairy cows among body weight groups	13
<b>8</b>	Graphical representation of post-partum heat period and days open of dairy cows in different body weight groups	13
<b>9</b>	Prevalence of various reproductive and productive disorders of crossbred dairy cows	15
<b>10</b>	Prevalence of reproductive disorders of crossbred dairy cows in different farm management systems	17
<b>11</b>	Prevalence of reproductive disorders of crossbred dairy cows among the feed quality	18
<b>12</b>	Prevalence of reproductive disorders of crossbred dairy cows according to the breeding methods	19

# CHAPTER I

## INTRODUCTION

Livestock, an integral part of agriculture, plays a significant role to keep the rural economy of Bangladesh viable (Sarma and Ahmed, 2011). About 80% of Bangladesh is directly or indirectly involved in our agriculture and livestock farming. The contribution of livestock in gross domestic product (GDP) is about 1.90% % in Bangladesh (DLS, 2022). Among the livestock, cattle are most available and versatile component providing a significant benefaction to gross domestic, export products and raw materials for industries in relation to existing integrated agricultural farming system in Bangladesh. So, Livestock of Bangladesh is the back bone of rural economy. The main target of dairy farmers is one calf/cow per year. It plays an effective role to promote human health and wealth by supplying animal protein in the form of milk and meat. The cattle population in Bangladesh is presently estimated 25.7 million cattle. Among the total population 3.79 million is dairy cows yielding 1.64 million metric ton milk per year which is only 14% of the total requisite indicates the importance of the requirement for rising up the milk production in Bangladesh. About 92 percent of the dairy cattle is non descriptive indigenous and only 8 percent is estimated to be crossbred. The average milk yield per cow per day is usually 1.5 liters for indigenous and 2.5 liters for crossbreds. Dairying is practically always part of a mixed type of farming system in Bangladesh (Saadullah, 2001). In case of Bangladesh the majority of the rural households have 2-3 dairy cows. Sometimes these cattle are used as multiple purpose for milk and draft power. It is frightening that the present daily per capita availability of milk is only 33.95 ml and total annual production is estimated to be 1.34 million metric ton. Hence, annual deficit of milk in the country is about 8.52 million metric ton.

In Bangladesh about 87 per cent of its population is undernourished and the country has been suffering from an acute shortage of milk and milk products. To meet the deficit, the country has to import milk and milk products from abroad every year spending huge amount of foreign currency which is about Tk. 2901 million (BBS, 2020). The cattle of Bangladesh are mostly of indigenous types (*Bos indicus*) with few crossbreds along with some purebreds such as Sahiwal, Holstein etc. The number of crossbred cattle is expanding day by day with the spread of artificial insemination (AI) practices throughout the country. Under the condition of Bangladesh crossbred

animals contributes about 24% of the 6.9 million breedable cows and heifers (Huque *et al.*, 2011) and Friesian x Local crossbred cow's milk production performance considerably improved over the decades. The lifetime productivity of cows largely depends on their individual reproductive performance such as age at puberty, age at first calving and calving interval. The most salient measures of reproductive performance of cows are age at first calving, length of calving interval, and length of cow productive life. The current level of reproductive performance in dairy herds is well below the favorable condition in most countries (Morton, 2003). Reproductive inefficiency in turn, although, affects dairy herd profitability by decreasing milk yield, the number of replacement heifers produced and by increasing culling rate. Healthy pregnant cows are seldom discarded from a dairy management control of reproduction and profitability in dairy herd (Grohn and Rajwala, 2000). Reproductive and production disorders of dairy cattle significantly decline their productivity which is of great concern of dairy producers worldwide because most reproductive disorders adversely affect the future fertility. Moreover, it has been notifiable that reproductive diseases are accountable for the exceptional economic losses to the dairy farmers in Bangladesh (Talukder *et al.*, 2005).

Considering the above mentioned facts and circumstances, the present study was undertaken with the following objectives:

- I. To describe the overall reproductive performances of different crossbred dairy cows in Bangladesh
- II. To evaluate the factors that affect the management of the reproductive performances
- III. To measure the prevalence rate of various reproductive disorders of crossbred dairy cows in Bangladesh

## **CHAPTER II**

### **MATERIALS AND METHODS**

The seminar paper is exclusively a review paper. So, there is no definite method involved to collect data. The data and relevant information were collected from the secondary sources.

It has been arranged by comprehensive studies of various articles published in various journals, reports, thesis, publications and websites etc. Many pictures have also added to understand reproductive performance easily. The paper also tried to identify problems in reproductive field and provided suggestions and recommendations for the overall improvement of the present situation. Better suggestions, valuable information and kind consideration from my respected major professor, course instructors and other resources personnel involved were taken to enrich this paper.

After assembling necessary data it has compiled and arranged chronologically for better understanding and clarification.



## CHAPTER III

### REVIEW OF FINDINGS

**3.1 Reproductive Performances:** The reproductive performance of a dairy herd has a significant impact on the profitability of the herd. It aids in assessing the general health condition of a dairy herd. The ratio of cows who became pregnant from those who were able to become pregnant can be used to determine reproductive performance. It is a scope of how quickly cows become pregnant following the voluntary waiting time. If conception rate and estrus discovery rate are known, pregnancy rate can be easily calculated.

**3.2 Reproductive Parameters of cows:** For assessing the reproductive performances of crossbred dairy cows the following reproductive traits of dairy cows were evaluated-

**Age at puberty:** The age at which a heifer first shows the estrous signs and behaviors is referred as age at puberty. It was measured in month (m).

**Age at first calving:** It is mainly defined as the age when a heifer first calving a newborn calf. It was calculated in month (m). The ideal goal of age at first calving is about 24 months.

**Post-partum heat period:** It is considered as the time interval between date of calving and the date of first insemination or first show the sign of heat after parturition. It was calculated in days.

**Service per conception:** It is the average number of services or inseminations required for each successful conception in case of heifer and cows. Ideal rate of service per conception is <1.7%.

**Days open:** Days open was assessed in days. Day's open is mainly referred as interval from the date of parturition to date of conception of cows. The days open for ideal dairy farm should be <110 days.

**Calving interval:** It is the number of days between two successful calving of the same cows or the period from one calving to the next was termed as calving interval. It was also measured in days. 12-13 month is the ideal reproductive goal for calving interval.

**Table 1:** Overall breed-wise reproductive performance of the crossbred dairy cows

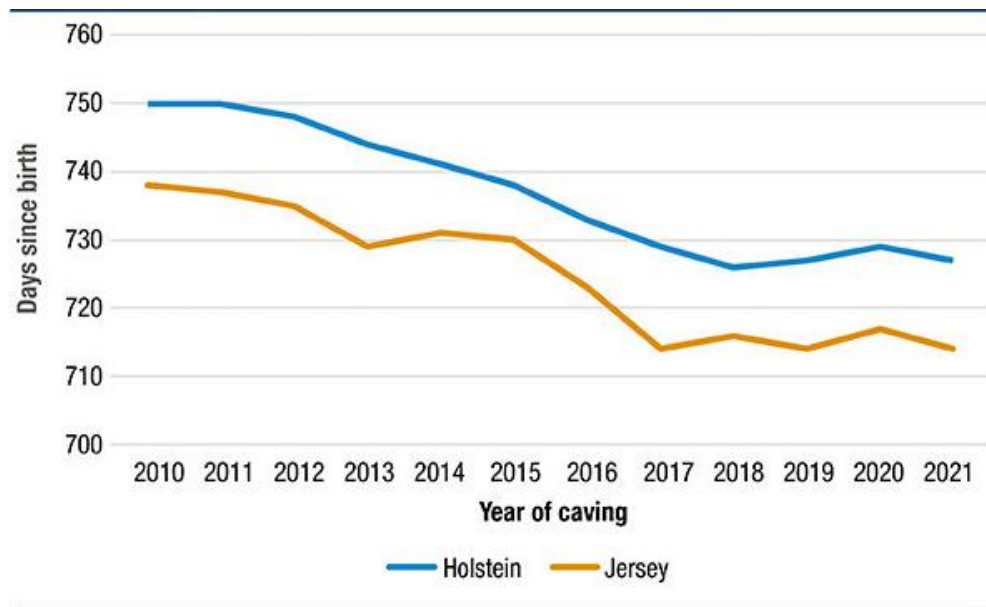
<b>Parameter</b>	<b>Local (n=25)</b>	<b>Sahiwal x Local(n=10)</b>	<b>Friesian x Local(n=10)</b>	<b>Jersey x Local(n=5)</b>
Age at puberty (months)	25.92±1.08	18.0±0.00	21.6±2.40	20.33±1.60
Age at first calving (months)	37.6±1.13	28.0±0.0	32.6±2.32	31.08±1.75
Post-partum heat period (days)	102.0±8.77	95.0±25.0	90.0±13.42	92.92±7.16
Service per conception (no)	1.32±0.13	1.5±0.50	1.60±0.24	1.25±0.13
Calving Interval (months)	15.4±0.75	15.3±3.0	14.2±0.49	14.08±0.62

(Source: Miazzi *et al.*, 2007)

**3.2.1 Age at puberty:** The Age at puberty of the indigenous cows was comparatively higher than that of crossbred cows. The age at puberty of Local, Sahiwal x Local and Holstein x Local and Jersey x Local was 25.92 ±1.08, 18.0 ±00, 21.6 ±2.40 and 20.44 ±1.60 month respectively. In case of indigenous cows the age at puberty was not same with other experiments because Rahman *et al.*, (2001) conducted an experiment and found age at puberty to be 35 ±5.2 months. Sahiwal x Local had the lowest age at puberty (18.0±0.00). This variation may occur due to numerous genetic (sex and breed) and environmental (nutritional status, social interactions, temperature and photoperiod) factors.

**3.2.2 Age at first calving:** In present study, the average age of first calving between Friesian x Local and Sahiwal x Local was 32.6±2.32 and 28.0±00 months respectively. And this was not same with Asaduzzaman & Miah, (2004) who found that the age at first calving of Friesian x Local and Sahiwal x Local was 36.3±3.08 and 37.3±3.01 months respectively. In this study, the average age at first calving was usually higher for indigenous dairy cows (37.60±1.3months) and lower for the Sahiwal x Local (28.0±0 month) and the average age at first calving between

crossbred and indigenous dairy cows differed significantly . It was also found that the intensive management practices reduced the age at first calving (Sarder *et al.*, 2001).



**Figure 1:** Ten-year trend for age at first calving (Source: Robert, 2022)

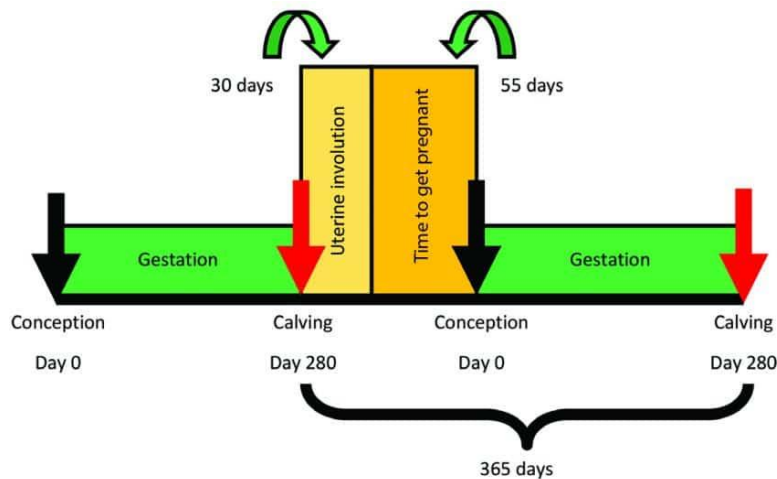
The average number of days until first birth was significantly reduced by about 25 days between 2010 and 2017 for both Jerseys and Holsteins. Since 2017, however these numbers have leveled out at approximately 727 days for Holsteins and approximately 715 days for Jerseys.

**3.2.3 Post-partum heat period:** The average post-partum heat period of Local, Sahiwal x Local, Friesian x Local and Jersey x Local was  $102 \pm 8.7$ ,  $95.0 \pm 25.0$ ,  $90.0 \pm 13.42$  and  $92.92 \pm 7.16$  days respectively (Table 1). These results aid to support the findings of another author who found that the average post-partum heat period of Local, Sahiwal x Local and Friesian x Local was  $108.46 \pm 36.32$ ,  $97.63 \pm 36.03$  and  $98.75 \pm 40.58$  days respectively. In this experiment the post-partum heat period of Local cows was  $(102 \pm 8.7)$  days which was higher than the crossbred cows ( $92.37 \pm 5.84$  days) and the difference between them was notable.

**3.2.4 Service per conception:** Service per conception for local and crossbred was  $1.32 \pm 0.13$  and  $1.37 \pm 0.11$  respectively. Statistical analysis showed that there were no significant differences ( $P > 0.05$ ) in the service per conception of various genetic groups of cows. These results are nearly in agreement with Rahman *et al.*, (2001) who reported that service per conception was

1.30 and 1.70 for crossbred respectively. In Table 1, service per conception for Local, Sahiwal x Local, Friesian x Local and Jersey x Local is  $1.32 \pm 0.13$ ,  $1.50 \pm 0.50$ ,  $1.60 \pm 0.24$  and  $1.25 \pm 0.13$  respectively. But in case of Friesian x Local this is contradict with Asaduzzaman & Miah, (2004) who reported that service per conception for Local, Sahiwal x Local was  $1.5 \pm 0.6$  and  $1.7 \pm 0.7$  respectively.

**3.2.5 Calving interval:** The calving interval of Local, Sahiwal x Local, Friesian x Local and Jersey x Local was  $15.4 \pm 0.75$ ,  $15.0 \pm 3.0$ ,  $14.2 \pm 0.49$  and  $14.08 \pm 0.62$  month respectively (Table 1). However, these results contradict the findings of Rahman *et al.*, (2001) who found that the mean calving interval of Jersey cross, Sahiwal cross and Holstein Friesian cross cows was  $501.4 \pm 86.41$ ,  $444.9 \pm 94.93$  and  $414.21 \pm 45.14$  days respectively at Bangladesh Agricultural University (BAU) Dairy Farm. Calving interval was highest for Local cows ( $15.4 \pm 0.75$  months) and lowest for Jersey x Local ( $14.08 \pm 0.62$  months). It was also observed that there was no significant difference between the calving interval of different crossbred and indigenous dairy cows.



**Figure 2:** Calving interval in dairy herd program

(Source: Robert, 2022)

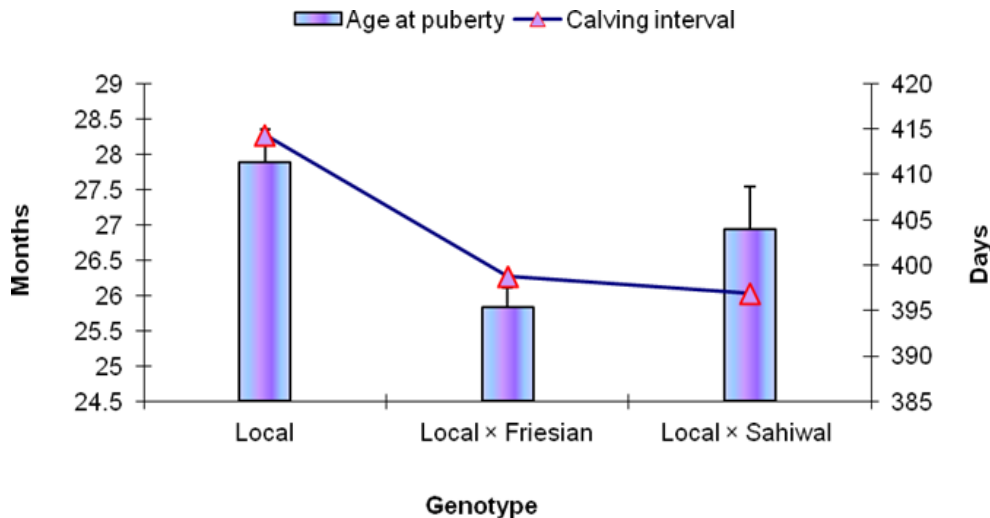
**3.3. Factors that influence the reproductive performance:** Reproductive performances influence by several types of factor that reduces the fertility of a dairy herd. Most concerning factors that affect the profitability of farm are genotype, age group, parity and body weight.

**3.3.1 Effect of genotype on reproductive performances of crossbred dairy cows:**

**Table 2:** Reproductive parameters of crossbred dairy cows in different genotypes

Reproductive performances	Genotype		
	Local	Local × Friesian	Local × Sahiwal
Age at puberty (m)	27.88 ± 0.47 (n=100)	25.84±0.27 (n=324)	26.93 ± 0.61 (n=76)
Age at 1 <sup>st</sup> calving (m)	36.76±0.47 (n=97)	34.94 ± 0.27 (n=314)	36.09 ± 0.62 (n=71)
Post-partum heat period (d)	147.84 ± 7.83 (n=83)	116.37 ± 4.27 (n=287)	112.43 ± 8.55 (n=62)
Service per conception	1.84 ± 0.08 (n=100)	1.96 ± 0.05 (n=324)	1.90 ± 0.10 (n=76)
Days open (d)	155.96 ± 7.17 (n=81)	133.08 ± 4.48 (n=280)	128.28 ± 9.37 (n=60)
Calving interval (d)	414.31 ± 8.76 (n=57)	398.73 ± 4.79 (n=239)	396.89 ± 10.96 (n=49)

(Source : Khaton R , 2020)



(Source: Khaton R, 2020)

**Figure 3:** Graphical representation of age at puberty and calving interval of dairy cows in different genotypes

When genetic composition compared with the lower value of age at puberty and age at first calving ( $25.84 \pm 0.27$  m and  $34.94 \pm 0.27$  m) were observed in Local  $\times$  Friesian cows and ( $27.88 \pm 0.47$ m and  $36.09 \pm 0.62$  m) and ( $26.93 \pm 0.61$  m and  $36.76 \pm 0.47$  m) were in Local  $\times$  Sahiwal and Local type, respectively. The higher value of post-partum heat period, days open and calving interval ( $147.84 \pm 7.83$  d), ( $155.96 \pm 7.17$  d and  $414.31 \pm 8.76$  d) were seen in local type of cows and the lower value ( $112.43 \pm 8.55$  d), ( $128.28 \pm 9.37$  d) and ( $396.89 \pm 10.96$  d) were in Local  $\times$  Sahiwal. Genotype had significant impact on 1<sup>st</sup> puberty age, age at first calving, post-partum heat period, days open and calving interval and had no significant effect on service per conception.

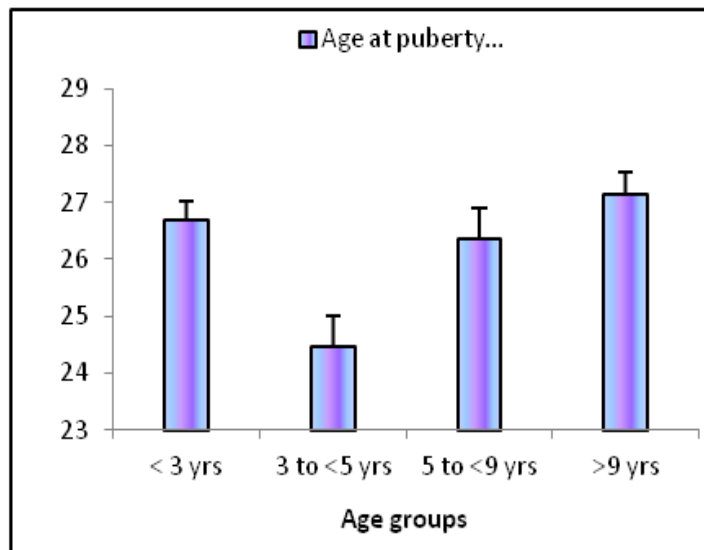
### 3.3.2 The effects of age group on reproductive performance of dairy cows:

**Table 3:** Reproductive parameters of Crossbred dairy cows in the different age groups

Reproductive performances	Age Group			
	< 3 years	3 to <5 years	5 to <9 years	>9 years
Age at puberty(m)	$26.68 \pm 0.35$	$24.46 \pm 0.53$	$26.35 \pm 0.54$	$27.13 \pm 0.41$
Age at 1 <sup>st</sup> Calving(d)	$35.62 \pm 0.35$	$33.62 \pm 0.56$	$35.35 \pm 0.54$	$36.24 \pm 0.39$
Post-partum heat period (d)	$141.60 \pm 9.35$	$119.97 \pm 4.82$	$114.79 \pm 7.78$	$124.67 \pm 7.42$
Service per conception(no)	$1.90 \pm .11$	$1.96 \pm .12$	$1.81 \pm .07$	$2.00 \pm .07$
Days open (d)	$148.40 \pm 9.47$	$134.83 \pm 4.98$	$124.44 \pm 8.18$	$144.69 \pm 7.39$
Calving interval (d)	$396.48 \pm 5.31$	$372.00 \pm 19.84$	$396.91 \pm 7.90$	$409.59 \pm 7.64$

(Source: Sarder, 2001)

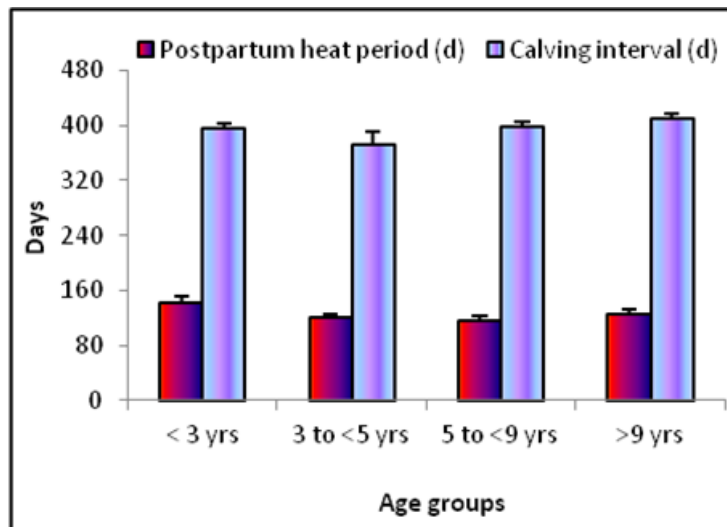
The effects of age group on reproductive performance of dairy cows are represented in Table 3 and Figure 4 and 5. The lower value of age at puberty and age at first calving ( $24.46 \pm 0.53$  m and  $33.62 \pm 0.56$  m) were seen in 3 to <5 years of age and the higher ( $27.13 \pm 0.41$  m and  $36.24 \pm 0.39$  m) were in >9 years.



(Source: Sarder, 2001)

**Figure 4:** Reproductive performance of age at puberty of dairy cows among age groups

The shorter post-partum heat period ( $114.79 \pm 7.78$  d), minimum number of service per conception ( $1.81 \pm 0.7$ ) and days open ( $124.44 \pm 8.18$  d) were found in 5 to <9 years of age and the longest post-partum heat period ( $141.60 \pm 9.35$  d) was in <3 years, maximum number of service per conception ( $1.96 \pm 0.12$ ) was in 3 to <5 years and days open ( $148.40 \pm 9.47$  d) was in <3 years. The higher calving interval ( $409.59 \pm 7.64$  d) was observed in >9 years of age and the lower ( $372.00 \pm 19.84$  d) was in 3 to <5 years.

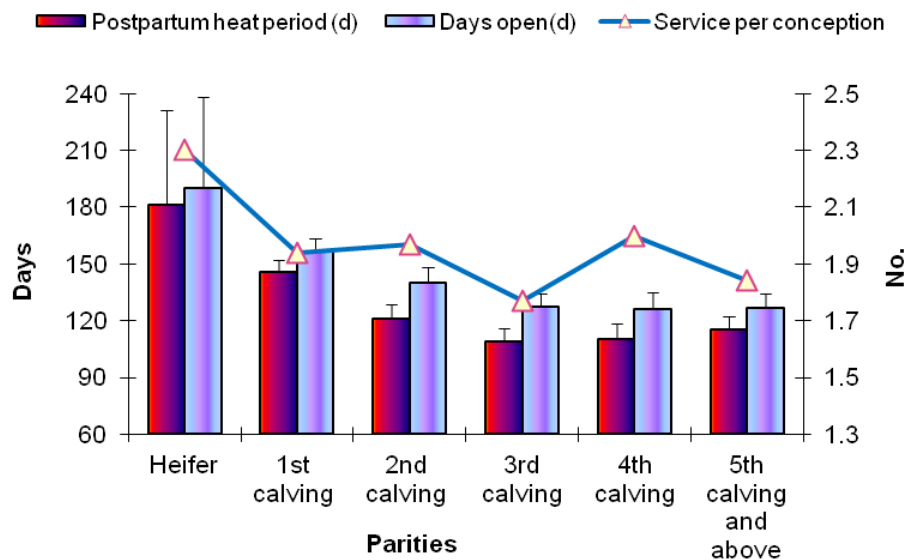


(Source: Sarder, 2001)

**Figure 5:** Reproductive performance of post-partum heat period and calving interval of dairy cows among age groups

### 3.3.3 The effects of parity on reproductive performance of dairy cows:

To determine the variation of reproductive parameters of dairy cows due to parity effect are presented in Figure 6.



(Source: Zewdu *et al.*, 2015)

**Figure 6:** Reproductive performance of post-partum heat period, days open and service per conception in different parities of dairy cows



The lower value of almost reproductive traits of age at puberty age at first calving, post-partum heat period, service per conception and calving interval were found in 3rd calving except days open which was in 4th calving.

The higher value of age at puberty and age at first calving were found in 4th calving, post-partum heat period service per conception and days open were found in heifer and calving interval was found in 2nd calving. Parity had significant effect on post-partum heat period, service per conception, days open and had no significant effect on age at poverty, age at first calving and calving interval.

### 3.3.4 The effects of body weight on reproductive performance of dairy cows

The effects of body weight on reproductive performance of dairy cows are presented in Table 4 and Figure 7 & 8.

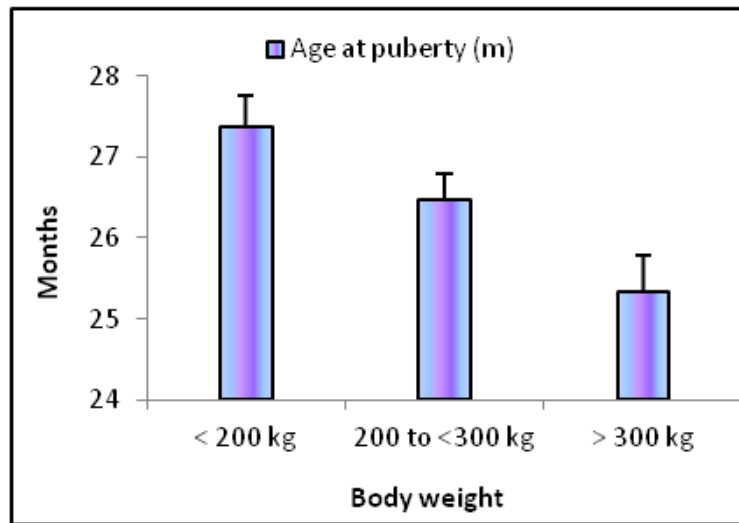
**Table 4:** Reproductive parameters of Crossbred dairy cows by the different body weight

Reproductive Parameter	Body weight		
	<200 kg	200 to <300 kg	>300 kg
Age at puberty (m)	27.37 ± 0.39	26.47 ± 0.32	25.43
Age at 1st calving (m)	36.45	35.53	34.53
Post-partum heat period (d)	136.14	127.29	101.44
Service per conception(no)	1.99	1.93	1.88
Days open (d)	150.15	142.56	115.80
Calving interval (d)	409.20	409.57	382.78

(Source: Sarma, 2011)

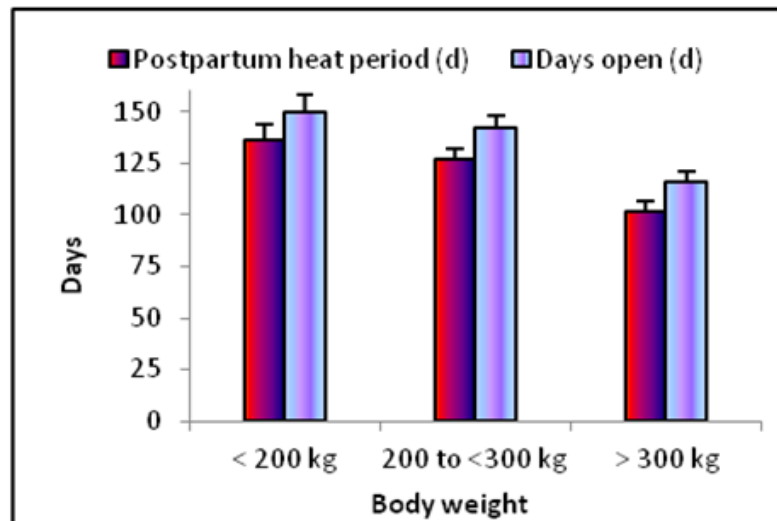
The value which is lower in all reproductive traits of age at puberty (25.43 ± 0.44 m), age at first calving (34.53 ± 0.42 m), post-partum heat period (101.44 ± 5.44 d), service per conception

( $1.88 \pm 0.09$ ), days open ( $115.80 \pm 5.38$  d) and calving interval ( $382.78 \pm 5.79$  d) were found in  $>300$  kg body weight of cows



(Source: Sarma, 2011)

**Figure 7:** Reproductive performance of age at puberty of dairy cows among body weight groups



Source: (Sarma, 2011)

**Figure 8:** Graphical representation of post-partum heat period and days open of dairy cows in different body weight groups

and the higher rate of almost reproductive traits of age at puberty ( $27.37 \pm 0.39$  m), age at first calving ( $36.45 \pm 0.40$  m), post-partum heat period ( $136.14 \pm 8.05$  d), service per conception

( $1.99 \pm 0.07$ ), days open ( $150.15 \pm 8.04$  d) were found in <200 kg body weight of cows except calving interval ( $409.57 \pm 5.83$  d) which was found in 200 to <300 kg.

**3.4 Reproductive Problems in Crossbred Dairy Cows:** The reproductive disorders are vital causes of reduced fertility in cows that arise in failure to produce or delay in producing the total annual calf. It is very essential to maintain proper reproductive health by mitigating the reproductive disorders. Definition of the recorded disorders taken mostly from (Sarder, 2008).

**Abortion:** Abortion is a state in which the foetus is delivered live or dead before reaching the stage of viability and in which the delivered foetus is generally visible by naked eyes.

**Anoestrus:** Lack of expression of the estrus at an expected possible time is called anoestrus. Clinically if a heifer is 18 or more months old or a cow has passed (40-60) day's post-partum but did not show estrus the condition is stated as anoestrus. The prevalence of anestrus is shown in table 5 which is 24.6%.

**Metritis:** Metritis is the inflammation of the uterus generally originated by infectious agents. Usually cows have red to brown discharge during the first two weeks after calving.

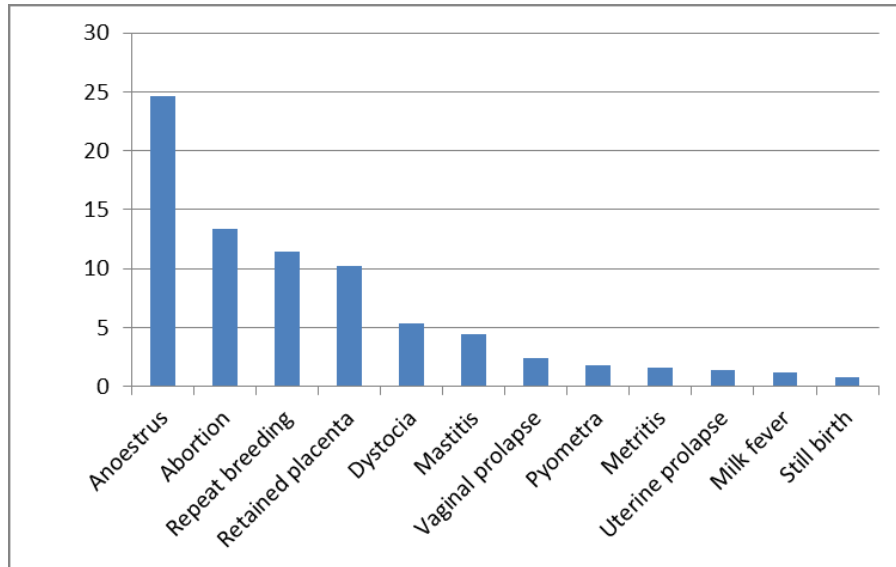
**Table 5:** Prevalence of various reproductive disorders of crossbred dairy cows in Rajshahi

Disorders	No of cases	Prevalence (%)
Abortion	67	13.4
Retained placenta	51	10.2
Dystocia	27	5.4
Vaginal prolapsed	12	2.4
Uterine prolapsed	7	1.4
Metritis	8	1.6
Pyometra	9	1.8
Still birth	4	0.8
Anestrus	123	24.6
Repeat breeding	57	11.4
Mastitis	22	4.4
Milk fever	6	1.2
<b>Grand total</b>	<b>393</b>	<b>78.6</b>

(Source: Khaton, 2021)

**Mastitis:** The term mastitis refers to inflammation of the mammary gland regardless of the cause. It is characterized by physical, chemical and generally bacteriological changes in the milk

and by pathological variations in the gland (Radostits *et al.*, 2006). Diagnosis of mastitis was based on history, physical abnormalities of udder and gross abnormalities in the milk like discoloration and presence of clots/flakes. Palpation of udder revealed enlarged and painful with the presence of clots/ flakes in the milk that confirmed the diagnosis of mastitis.



(Source: Khaton, 2021)

**Figure 9:** Prevalence of various reproductive and productive disorders of crossbred dairy cows

In this figure, the highest prevalence is shown in anoestrus which is 24.6% and the lowest prevalence is shown in still birth which is 0.8%.

**Retained placenta:** A cow was considered to have retained placenta when the foetal membranes were visible at the vulva or were identified in the uterus or vagina by vaginal examination more than that of 24 hours after calving.

**Repeat breeders:** Cows failing to conceive after a defined number of inseminations (generally three or more) with fertile semen have been identified as repeat breeders.

**Table 6:** Overall Prevalence of various reproductive disorders of crossbred dairy cows in different region of Bangladesh

Disorders	Prevalence (%)			
	Sirajgonj (n=192)	Manikganj (n=205)	Gazipur (n=180)	Mymensingh (n=165)
Abortion	2.1	6.4	0.57	0.20
Retained placenta	4.7	12.8	1.31	0.27
Dystocia	3.3	29.5	0.65	0.83
Vaginal prolapse	2.7	9	0.28	0.33
Uterine prolapse	1.6	10.3	0.20	0.25
Metritis	3.9	—	2.34	1
Still birth	—	7.7	0.16	—
Anestrus	8.6	2.6	6.79	0.81
Repeat breeding	5.7	5.1	3.20	1.29

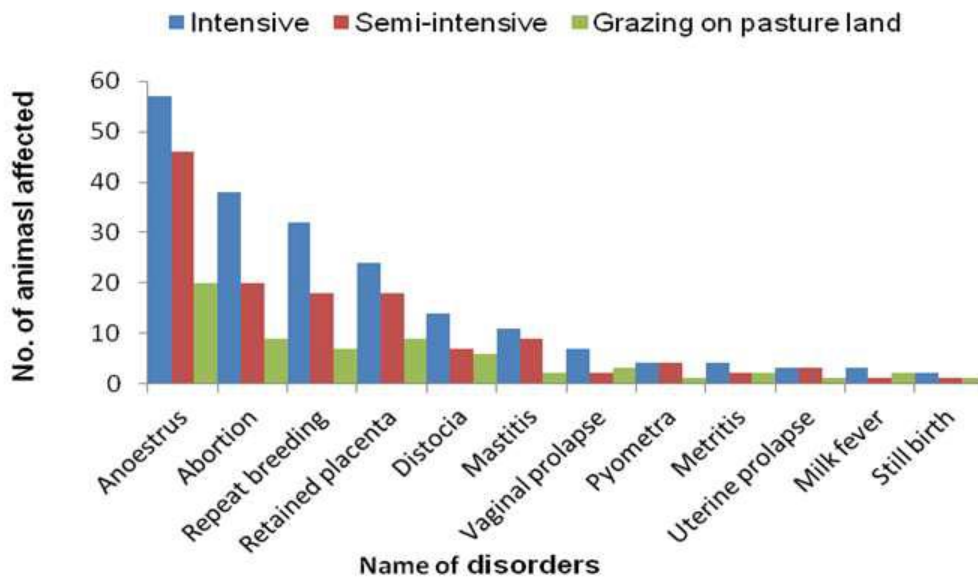
(Source: Islam *et al.*, 2022; Khair *et al.*, 2013)

This table shows that the prevalence of anestrus is higher in case of Sirajgonj and Gazipur district. Dystocia, repeat breeding are most prevalent in Manikganj and Mymensingh respectively.

### 3.4.1 Prevalence of reproductive disorders of crossbred dairy cows based on management system

The distribution of reproductive disorders of dairy cows on the basis of farm size is represented in Figure 10. The prevalence of all reproductive diseases was higher in case of large farms. Large farm revealed more frequency of reproductive disorders of cows in this study. Similarly, the highest frequency of reproductive diseases was reported in large farm compared to the medium and small farm (Kader, 2010). The variation of results might be due to inadequate veterinary supervision, management error etc. The highest prevalence of reproductive disorders was in

intensive rearing system. Similarly, the highest prevalence of reproductive diseases was observed in the intensive management system (Kader, 2010). This may be due to the fact that diseases transmit quickly in intensive management system and slowly in the free range system.

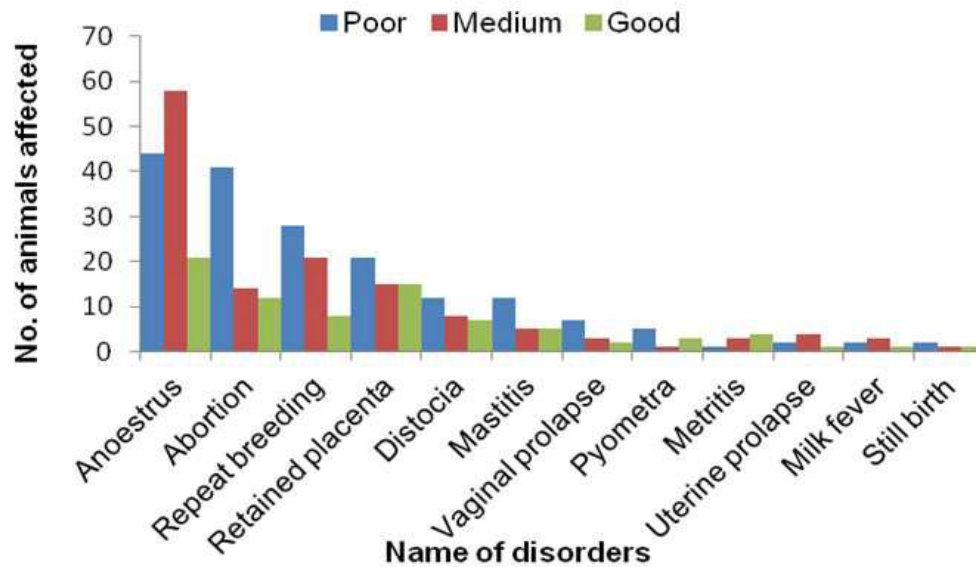


(Source: Kader, 2010)

**Figure 10:** Prevalence of reproductive disorders of crossbred dairy cows in different farm management systems

### 3.4.2 Prevalence of reproductive disorders of crossbred dairy cows based on feed quality:

The prevalence of reproductive disorders of dairy cows according to the quality of the feed is presented in Figure 11. The prevalence of all reproductive disorders was higher in cows that received poor quality of feed. In the current study, the prevalence of all reproductive disorders was higher in cows provided with poor quality feed. Similarly, the lowest reproductive disorders were observed in cows provided with excellent quality feed (Sardar, 2008). The results of the present study contradict (Kader, 2010). High milk production and imbalanced feeding are the factors for reproductive disorders in cross-bred cows.

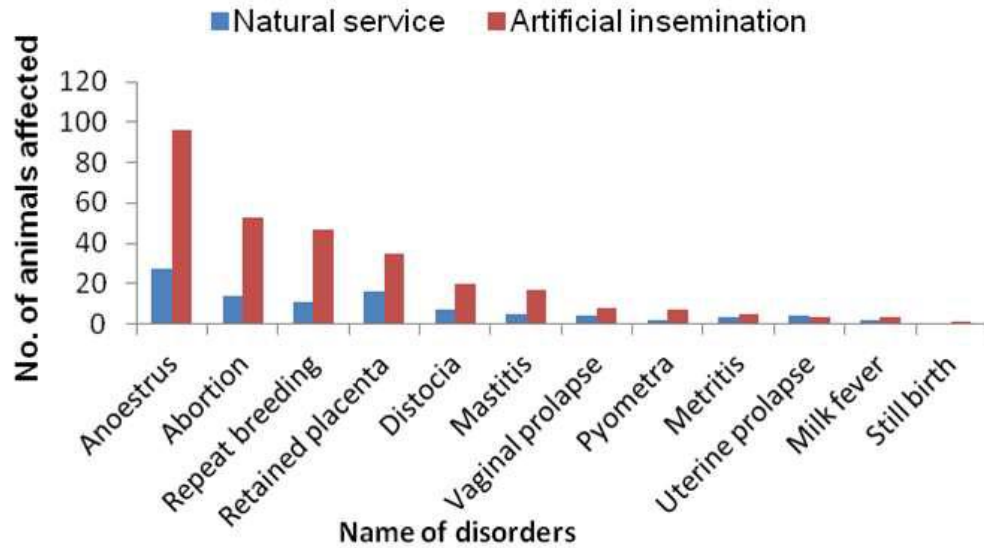


(Source: Sardar, 2008)

**Figure 11:** Prevalence of reproductive disorders of crossbred dairy cows among the feed quality

### 3.4.3 Prevalence of reproductive disorders of crossbred dairy cows according to breeding method:

The prevalence of reproductive disorders of dairy cows based on breeding methods is presented in Figure 12. The prevalence of all reproductive disorders was higher in artificially inseminated cows than those bred by natural service.



(Source: Sarder, 2008)

**Figure 12:** Prevalence of reproductive disorders of crossbred dairy cows according to the breeding methods

This may be due to the fact that high yielding cross-bred cows are more vulnerable to diseases. The risk of disease transmission via AI cannot be ruled out also. The lack of proper hygienic management of post-partum cow and supervision of veterinary personnel performing AI predispose to reproductive disorders in dairy cows.



## **CHAPTER IV**

### **CONCLUSIONS**

Reproductive Parameter helps to evaluate the overall performances of the dairy farm condition in our country. In the above study it can be evaluated that, reproductive parameters such as age at puberty (25.92 months), first calving (37.6 months), post-partum heat period (102 days), calving interval (15.4 months) are all comparatively higher in local breeds than the crossbred dairy cows in Bangladesh. However, only the no of service per conception is higher in crossbred dairy cows (Friesian × Local) than the local breeds.

Reproductive performances can be influenced by several types of factors such as genotype, age group, parity and body weight. Genotype and parity had significant impact on 1st puberty age, age at first calving, post-partum heat period, day's open and calving interval but no significant effect on service per conception. In case of >9 years puberty age, first age of calving, service per conception and calving interval is higher but the days open and post-partum period is higher in 3 years age of cows. All of the reproductive traits are higher in case of 200 kg body weight crossbred cows.

There are several reproductive problems that may affect the crossbred dairy cows in our country. From all the disorders it can be concluded that, the highest prevalence rate of the disease may vary from region to region. From all the disorders anestrus, repeat breeding and dystocia are the most concerning disorders that affect the crossbred cattle.

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