

CHAPTER-I

INTRODUCTION

Bangladesh is densely populated agricultural country of South East Asia region where most of the rural people are dependent for their livelihood mainly on cropping and non-cropping agricultural sector like livestock. Livestock sub-sector plays a crucial role in the traditional farming and contribute in national economy. According to Bangladesh Economic Review (2006), the per annum growth rate of 7.23% in GDP (Gross Domestic product) in 2004-2005 for livestock was the highest in all sub-sectors (Uddin, 2010). The cross-bred cattle is increasing day by day with of AI practices throughout the country. The milk production of Bangladesh indigenous cattle is low compared to improved breeds of cattle (Kober *et al.* 2003). Dairy profitability is directly related to the level of milk production which is very frequently affected by sub-optimal reproductive performance of the dairy cow (Kober *et al.* 2003). Ruminants especially large (cattle and buffalo) and small (sheep and goat) ruminants constitute the major portion of the livestock. (There are about 23.78 million cattle, 1.47 million buffaloes, 25.76 million reared goat and 3.33 million sheep in Bangladesh, BBS 2015-2016). Most of these animals reared in rural areas under smallholder traditional management system. The economic condition of a dairy farm is totally depending on production and reproduction performance of an animal. For better farm economic status production and reproduction should be effective. For estimating production and reproduction performance to know some result of production and reproduction parameter. The reproductive parameter considered as age of puberty, duration of pregnancy, calving interval where as production parameter considered as milk production per day per cow. In our country very limited works carried out regarding productive and reproductive performance of dairy cows. To interpret productive and reproductive performance it needs more work in farm condition.

Objectives:

- ❖ To know the present production and reproduction performance of cow in Santhia Upazilla.
- ❖ To estimate differential production and reproduction performance of different cross breed.
- ❖ To estimate the profitability of dairy farmers.
- ❖ To identify and reveal the problems of dairy farming and give recommendation of improving dairy farming in Santhia Upazilla.

4. Age of puberty:**5. Other information:**

No. of Calving with Calving Date	Gestation period	Calving Interval	Milk yield per lactation
01			
02			
03			
04			
05			

2.5 Collection data: Total 100 cow's data were collected using above questioners.

2.6 Data analysis: There are four genotype such as Local Non Descriptive, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal. For the study the animal used which reared intensive or semi intensive housing system and supplied balance ration with the exception for local non descriptive breed, those are reared under plane nutrition and loose housing system. The recorded data were subjected to statistical.

CHAPTER-III

RESULTS AND DISCUSSION

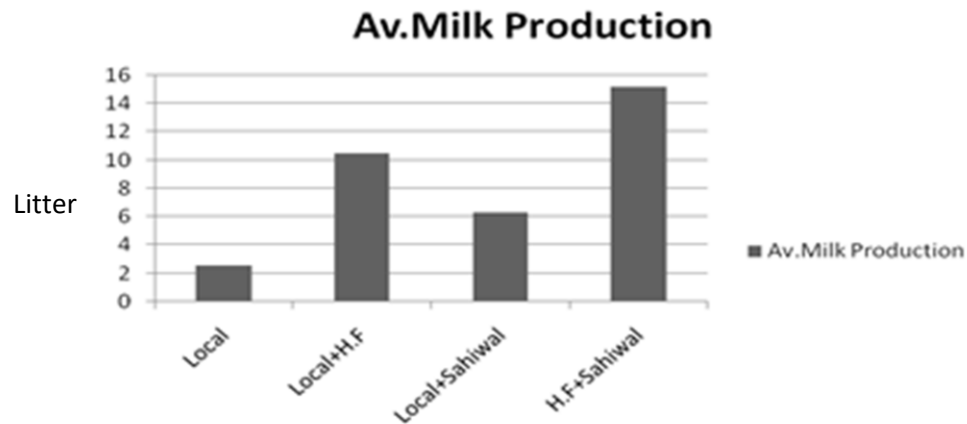
3.1 PRODUCTION PERFORMANCE:

3.1.1 MILK YIELD:

In Local cattle, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal maximum milk yield are 3.5,14.5,8.0,18 litter, respectively and minimum milk yield are 1.5,7.5,4.5,12 litter, respectively. The mean milk yield per day of Local Non Descriptive, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal are 2.54, 10.53, 6.32, 15.18 litter, respectively. Holstein Friesian x Sahiwal were shown the superiority in milk production than the other breeds studied. The result of milk production of this experiment agree with the result of (Kober *et al.* 2003) who found that milk yield of crossbred cows was significantly higher than indigenous cows . Lower milk production indigenous cow indicates that genetically merits of our indigenous non descriptive milking cows are poorer than crossbred cows.

Table: 3.1 Average Milk Productions of Different Dairy breed under Farm Condition:

Breeds	No. of Animal	Mean(Liter/day/cow)	Maximum(Liter/day/cow)	Minimum(Liter/day/cow)
Local	25	2.54	3.5	1.5
Local x Holstein Friesian(LxH.F)	25	10.53	14.5	7.5
Local x Sahiwal(L x S)	25	6.32	8.0	4.5
Holstein Friesian x Sahiwal(H.FxS)	25	15.18	18	12

Figure: 3.1 Milk Productions of Different Breed

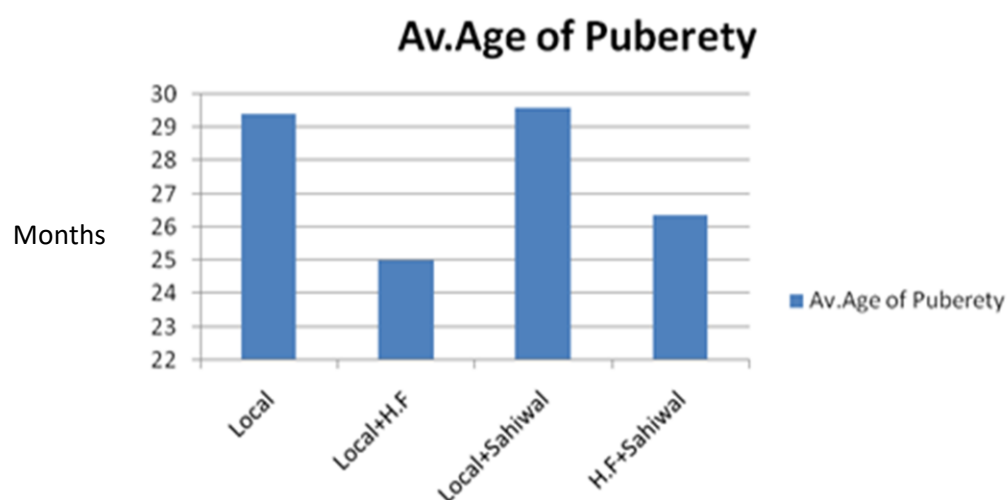
3.2 REPRODUCTION PERFORMANCE:

3.2.1 AGE OF PUBERTY:

In local cattle, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal maximum puberty age are 23,18,20,16 month, respectively and minimum puberty age are 40,35,38,35 month, respectively. The age of puberty of the breed Local x Holstein Friesian was significantly lower than other breeds. The following study observations Local Non Descriptive, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal average puberty age are 29.4, 25.0, 29.6, 26.36 month, respectively. The age at puberty of Fx heifer was 33 months (Rahman, 1993) which is more or less similar to Local Non Descriptive cows. Other researchers reported that age at puberty on Local x Fx heifer was 42 months (Asraf, 1998) and 40.18 ± 4.46 months (Azizunnesa, 2002). Average age of puberty in cow heifers is between 37 and 34 months but Sahiwal attain puberty at 46 months (Bashir, 2006). In the tropical condition the age of puberty in *Bos indicus* range between 16 and 40 months (Mc Dowell *et al.*, 1976). So we could see that there were a little difference among the age of puberty of different cross breed cows.

Table: 3.2 Average age of puberty of Different Dairy breed under Farm Condition:

Breeds	No. of Animal	Mean puberty age(month)	Maximum puberty age(month)	Minimum puberty age(month)
Local	25	29.4	40	23
LocalxHolstein Friesian(LxH.F)	25	25	35	18
LocalxSahiwal(LxS)	25	29.6	38	20
Holstein Friesian x Sahiwal(H.FxS)	25	26.36	35	16

Figure: 3.2 Puberty age of Different Breed

Local x Holstein Friesian cows showed the lowest puberty age 25 months, which were followed Holstein Friesian x Sahiwal, Local, Local x Sahiwal cows respectively.

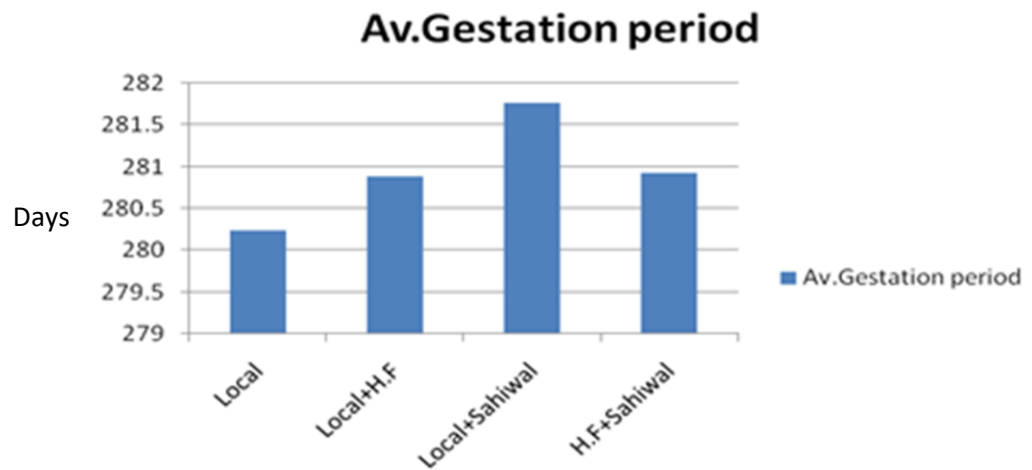
3.2.2 GESTATION PERIOD:

The normal gestation period of cows is 280 ± 10 days. The gestation period was reported 285 days for Sahiwal, 282 days for Sahiwal x local and 287 days for Red Sindhi x local cows (Ghose *et al.*) The local cow, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal maximum gestation period are 287, 289, 289, 288 days, respectively and minimum gestation period 271, 270, 272, 273 days, respectively. The mean gestation period of Local Non Descriptive, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal are 280.24, 280.88, 281.76, 280.92 days, respectively. No mentionable variation were found in these study for gestation period of different cross breeds. The results are in agreement with Majid *et al.* (1995), who reported a non-significant variation in gestation period among different genotypes.

Similar results were also obtained by Sultan (1995) and Rahman *et al.* (1993). They found a range of gestation period of 270-285 days and no significant variations were observed in gestation length among different breeds and crossbreds. Nahar *et al.* (1992) also reported that the gestation period of different crosses varied little from 280 days.

Table: 3.3 Average Gestation periods of different Breeds

Breeds	No. of Animal	Mean Gestation periods(day)	Maximum Gestation period (day)	Minimum Gestation period (day)
Local	25	280.24	287	271
LocalxHolstin Friesian(LxH.F)	25	280.88	289	270
LocalxSahiwal(LxS)	25	281.76	289	272
Holstin Friesian x Sahiwal(H.FxS)	25	280.92	287	273

Figure: 3.3 Gestation periods of different Breeds:

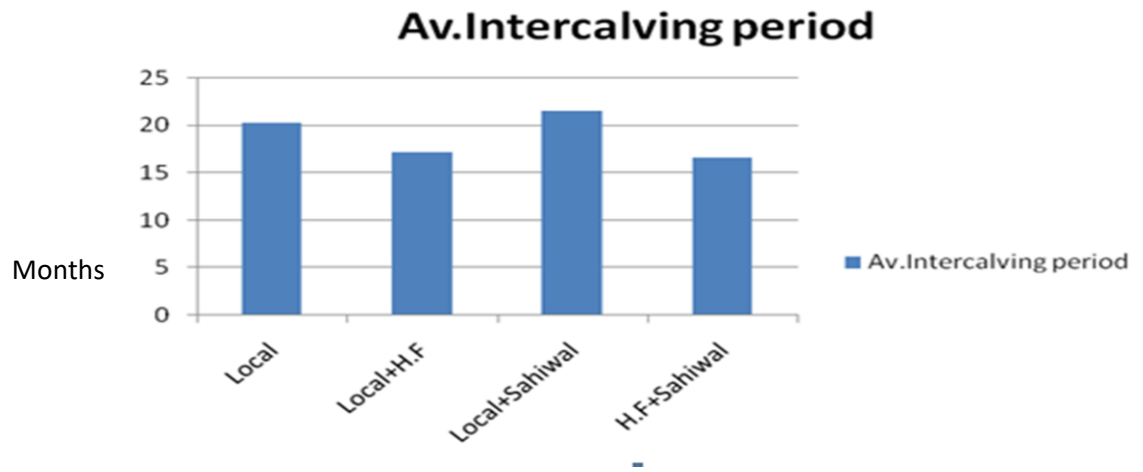
3.2.3 INTERCALVING PERIOD:

The local cow, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal maximum calving interval are 25,22,25,22 month, respectively and minimum calving interval period are 15,13,17,13 month, respectively. The mean calving interval period of Local non Descriptive, Local x Holstein Friesian, Local x Sahiwal, Holstein Friesian x Sahiwal are 20.32, 17.16, 21.6, 16.64 month, respectively. The result of this study contradicts with (Kober *et al.* 2003) who observed that the mean calving interval period of Sindhi, Shahiwai, Jersey and Holstein cross Bred cows under farm condition were 15.72, 16.18, 16.71, 24.98 months, respectively.

Table: 3.4 Average Calving Interval periods of different Breeds:

Breeds	No. of Anima l	Mean Calving interval period (month)	Maximum Calving intervalperiod (month)	Minimum Calving interval period (month)
Local	25	20.32	25	15
Local x Holstein Friesian(LxH.F)	25	17.16	22	13
LocalxSahiwal(LxS)	25	21.6	25	17
Holstein Friesian x Sahiwal(H.F+S)	25	16.64	22	13

Figure: 3.4 Calving Interval periods of different Breeds:



CHAPTER- IV

CONCLUSION

The study was conducted for comparative analysis of productive and reproductive performance of Local Non Descriptive, Local x Shahiwal, Local x Holstein Friesian, Holstein Friesian x Shahiwal. From the observation of this study the milk production and the reproductive efficiency of Holstein Friesian x Sahiwal cows was found best to all other breeds. So, on the basis of production performance and the climatic condition of Bangladesh, Holstein Friesian x Sahiwal is superior than other cross bred and it can be recommended for milk production in our developing countries. .

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BIOGRAPHY

I am Robiul Hasan, son of Abdul kader pramanik and Mrs. Bely Khatun. I passed my Secondary School Certificate (SSC) examination from Galaxy kinder garden and high school, Bera, pabna in 2010 and Higher Secondary Certificate (HSC) examination from Alhera Academy School and College, Bera, Pabna in 2012. I enrolled for Doctor of Veterinary Medicine (DVM) degree in Chittagong veterinary and Animal Sciences



University (CVASU), Chittagong, Bangladesh in 2012-13 sessions. At present I am doing my Internship programme which is compulsory for awarding my degree of Doctor of Veterinary Medicine (DVM) from Chittagong Veterinary and Animal Sciences University. In the near future I would like to work and have massive interest in wildlife medicine, wildlife and conservation of nature.

