

## **Chapter-I**

### **Introduction**

Bangladesh is an agricultural country. In this country the total cattle population is about 24.4 million of which 11.49 million are female. Among the cattle population 3.53 million are milking cows and 2.61 million are dry cows (cows without milking) (Islam, 1992). Livestock, being one of the major components of agricultural output (crops, livestock, fisheries and forestry) plays a vital role in national economy, contributing about 6.5% of Gross Domestic Product (GDP) and 13% of total foreign exchange earnings (DLS, 1994). Reproductive disorder among farm animals is the great economic problems. It is particularly widespread among dairy cattle, but lesser significance in beef breeds (Arthur, 1989). In European and American dairy herds about one third of total cows are culled because of reproductive disturbance (Leblanc, et al., 2002). The culling rate during lactations with mastitis was 26.6% but was 20.5% in lactations without mastitis; cows with mastitis were 1.3 times more likely to be culled than were cows without mastitis (Bartlett *et al.*, 1986). Uterine disorders, primarily nonspecific uterine infections reduce the reproductive efficiency of dairy cows. In some herds, 40% of the postpartum cows may be diagnosed with and treated for uterine infections (Lewis, 1997). A Retained Fetal Membrane (RFM) in dairy cows is defined as the failure to expel the fetal membranes by 12-24 h after calving. Average incidence of RFM ranges from 3-12% of normal calving. Frequent occurrence of metritis after RFM was identified as the main reason for reduced fertility of cows having RFM (Grohnet *et al.*, 2000). Postpartum metritis can be characterized by pyrexia >10 days postpartum with a fetid, purulent vulvar discharge, often associated with delayed involution the uterus (Sheldon *et al.*, 1998). Typically, all palpable uterine fluids (lochia) are voided during the first 2 weeks postpartum (Arthur, 1989). High reproductive efficiency of cows is very important for achieving the maximum return from dairy farming. Researches to understand reproductive physiology and the disorders that limit the reproductive efficiencies are important for improving the production system and profitability of dairy farms. Any abnormality in reproductive system can interrupt animal production performance (Shamsuddin et al., 1988). Reproductive disorders are the major causes of reducing productivity in cattle that result in failure to produce or delay in producing the annual life calf and reduced lifetime production of cows. Inefficiencies in reproduction cause losses in dairy farms because pregnancy and parturition are prerequisite for the initiation and maintenance

of lactation. Arthur et al. (1998) identified sub-fertility as the most important limiting factor in maintaining a good productivity in a dairy farm. Reproductive diseases leading to prolonged intervals between calving and low conception rate reported earlier in Bangladesh (Shamsuddin et al., 1988; Alam and Ghosh, 1994; Shamsuddin, 2001). However, the dairy herd of developed countries often loss as high as one third of their cows because of reproductive disorders. Therefore, there is a rationale to study the magnitude of major reproductive disorders which limit the reproductive performances in dairy cows.

Objective of the study: 1.To know incidence of postpartum reproductive disorder in selected are during study period.2.To know the risk factor of reproductive disorder.3.To know how to minimize this disorders.

## Chapter-II

### Materials and Methods

#### 2.1 Study Area:

The study was conducted at Keraniganj, Sadarupazilla, Dhaka District. The town of Keraniganj stands on the southwest side of Dhaka City on the bank of the Buriganga river .

#### 2.2 Study Period:

From February, 2017 to June, 2017

#### 2.3 Study population:

The farms considered for this study were categorised into defined strata based on dairy cattle herd size. These were medium Size Farm (MSF) and large Size farm (LSF) having 10 to 15 and >15 dairy cattle, respectively. The numbers of study farms, total herd size and herd structure in each production systems are summarized in below table.

**Table: 2.1 Farm size and cattle population**

Category	Total no. of Farms	Cows	Cross Breed	Non-descriptive breed
Medium size farm	13	153	88	65
Large size farm	6	170	170	0
Total	19	323	258	65

In all production systems, farms having crossbreed cows and Non-descriptive breed cow were considered. A cross-sectional survey was carried out across the farms in study region and then pre-designed structured questionnaires were used for recording information. The questionnaire addresses farm type, farm size (according to the number of animal), environment and management (Housing, floor type, service, lactation period, hygienic condition) of the farm, incidence of reproductive disorder in postpartum period and feeding also recorded. During record of postpartum disorder we also record time of occurrence, season, what was the treatment and who done it.

## Chapter-III

### Results and Discussion

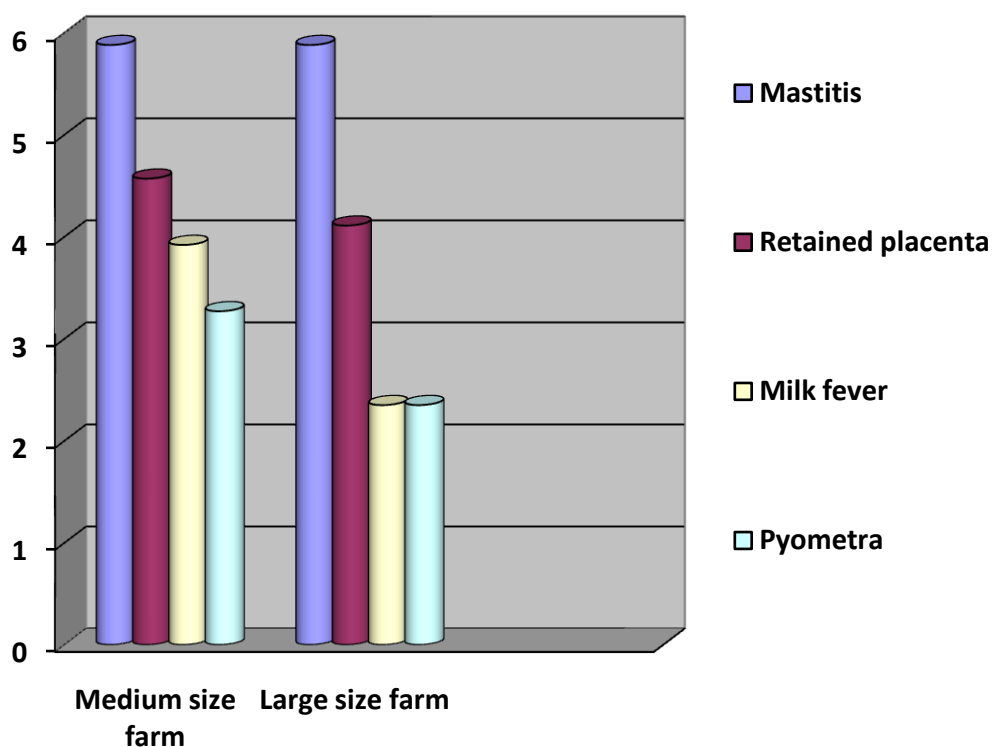
There are 19 farms which are divided into two groups such as medium size farm (13) and large size farm(6).Among the farm 52(16%) cow were affected by post-partum period.

**Table: 3.1Incidence of reproductive disorders in cow**

Reproductive Disorder	Number of cases	Percentage
Mastitis	19/323	5.88%
Retained Placenta	14/323	4.33%
Milk fever	10/323	3.09%
Pyometra	9/323	2.79%
Total	52/323	16.10%

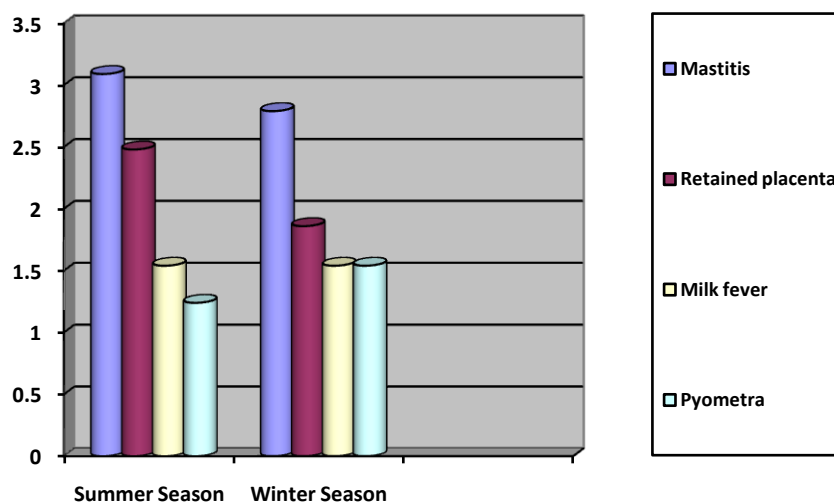
Among the different reproductive diseases mastitis was the highest in number 19(5.88 %).Mastitis was also near to retained placenta 14(4.33%). The incidence of milk fever 10(3.09%) and pyometra9(2.79%).Bendixen *et al.* (1984) found more retained placenta with more mastitis during the first part of the lactation that was partially supported this finding. Grunert (1984)reported the incidence of retained placenta is often high in *Brucella sp.* Infected herds, following dystocia and in cows suffering from certain nutritional and mineral (especially selenium) deficiency. Here incidence of retained placenta was highest; it may be due to nutritional problem. Bendixen *et al* (1987) and Dohoo *et al.* (1984) mentioned Stillbirth, twinning, and dystocia were related to increase retained placenta. Bendixen *et al.*; (1986) reported Stillbirth and increased parity were associated with increased odds of developing milk fever. Among all reproductive diseases incidence of milk fever was not so significant. Hutchinson reported the Incidence of retained placenta in dairy herds should not normally exceed 8%. This finding supports the result of this study. Stevenson and Call (1988) concluded that most of the reproductive disorders occur as a part of complex, rather than appearing as single abnormality.

**Bar diagram 3.1:** Reproductive disorders according to farm size



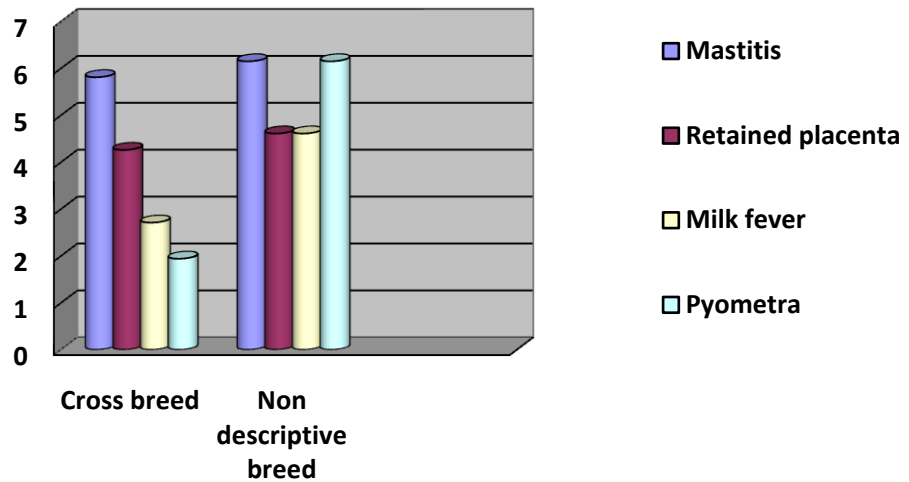
Above bar diagram showed the incidence of reproductive disorder according to farm size. Incidence of mastitis was same both farm in number 5.88%. Incidence of retained placenta was slightly high in number 7(4.57) in medium size farm followed by 7(4.11%) in large size farm. Incidence of milk fever was slightly high in number 6(3.92%) in medium size farm followed by 4(2.35%) in large size farm. Incidence of pyometra was slightly high in number 5(3.27%) in medium size farm followed by 4(2.35%). Yoseph *et al.* (2005) reported retained placenta and uterine infections was the most important postpartum reproductive health problems especially in family livestock system. This report also supports the result of this study. Shamsuddin (1995) mentioned many farms in Bangladesh are so small that only one cow can be kept. Cows are tethered in a stable or on available grazing land. They are used for draught work as well as milk production. These management practices promote the occurrence of post-partum anoestrus and limit behavioral manifestations of estrus. But this study revealed that incidence of reproductive disorder is higher in medium size farm. It may be due to the miss management problems such as unbalanced feed supply to the all animals of herd, poor hygienic condition etc.

**Bar diagram 3.2:**Effect of season on the reproductive disorders



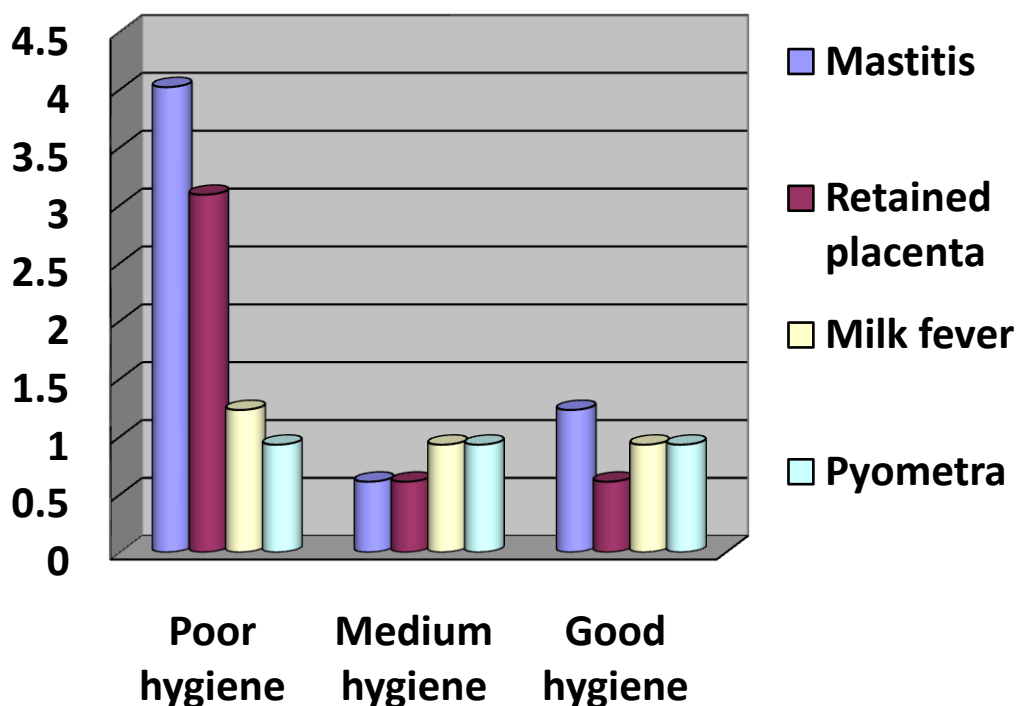
Above bar diagram showed the effect of season in reproductive disorders in dairy cows. This result indicates incidence of reproductive disorder is slightly higher in summer season. Erb *et al.* (1989) found higher incidence of Retained placenta in summer season. Among the different reproductive diseases retained placenta is higher 8(2.48%) in summer season than in winter where it was 6(1.86%). Incidence of milk fever is was same in both season in number 5(1.54%). Incidence of pyometra was higher 5(1.54%) in summer season which was lower in winter season. The farmers of the study area were mostly facing shortage of fodder and feeding of wheat straw was normally practiced during crunch period. The grazing of animals during rainy season was also common practice. Roche (2006) concluded that good feeding in the dairy cattle will result in decreasing the reproductive problem incidence.

**Bar diagram 3.3:** Effect of breed on the reproductive disorders



Above bar diagram showed effect of breed on the reproductive disorders in dairy cows. The result indicates incidence of reproductive disorder is slightly higher in Non-descriptive breed cows than in cross cows. Incidence of mastitis was higher in number 4 (6.15%) in Non-descriptive bred than cross cows that was 15 (5.81%). Incidence of retained placenta was slightly higher in number 3 (4.61%) in cross bred cows than Non-descriptive cows that was 11 (4.26%). Incidence of milk fever was higher in number 3 (4.11%) in Non-descriptive cows than cross bred cows that was 7 (2.71%). Incidence of pyometra was higher in number 4 (6.15%) in Non-descriptive breed cows than cross bred cows that was 5 (1.94%). Weller and Cooper (1996) reported the incidence of milk fever in Indigenous cattle is lower than cross bred cows. Pryce *et al* (1999) reported its may be due to the milk yield on indigenous cows. But result show incidence was more in Non-descriptive cows though their milk production was low. Study also revealed that incidence of pyometra was higher in cross bred cows than Non-descriptive cows.

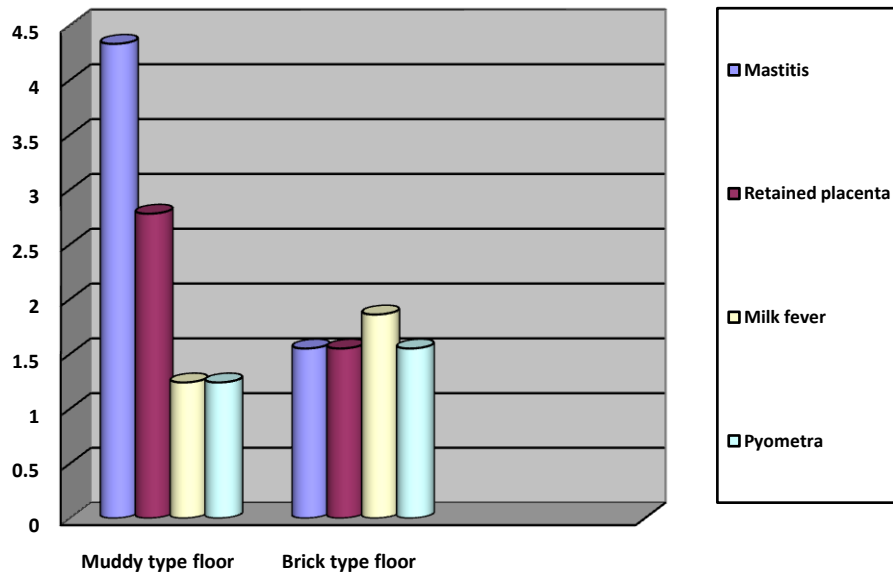
**Bar diagram 3.4:** Effect of hygienic condition on the reproductive disorders



Above bar diagram showed the effect of hygienic condition on the reproductive disorders. The Result indicates Incidence of reproductive disorder more in Poor hygienic condition followed by good and medium hygienic condition. Among the different reproductive diseases incidence of retained placenta was highest in number 10(3.09%) in poor hygienic condition farms whereas its incidence was same 2(0.61%) in medium and good hygienic condition farms. Incidence of mastitis is highest in number 13(4.02%) in poor hygienic condition farms which is 2(0.61%) in medium and 4(1.23%) in good hygienic condition farms that was lower than the poor hygienic condition farms. Incidence of milk fever is highest in number 4(1.23%) in poor hygienic condition farms where it was same in 3(0.93%) both medium and good hygienic condition farms. Incidence of pyometra was same in all types of farms that were 3(0.93%). Incidence of Mastitis was higher in poor hygienic condition; it may due to the entrance of microorganism through teat canal just after milking. In the study it was found that incidence of retained placenta was higher in poor hygienic condition. Grunert (1984) mentioned the incidence of retained placenta is often high in *Brucella sp.* Infected herds, following dystocia and in cows suffering from certain nutritional and mineral (especially selenium deficiency).



**Bar diagram 3.5:** Effect of floor type on the reproductive disorders



Above bar diagram represent the effect of floor type on the reproductive disorders in dairy cows. Result indicates incidence reproductive disorder is higher in muddy type floor than brick type floor. Incidence of mastitis was higher in number 14(4.33%) in muddy floor than brick type floor where it was 5(1.55%). Incidence of retained placenta was higher in number 9(2.78%) in muddy floor than brick type floor where it was 5(1.55%). Incidence of milk fever was higher in number 4(1.86%) in brick type floor than the muddy floor where incidence was 4(1.24%). Incidence of pyometra was higher in number 5(1.55%) in brick type floor than muddy floor where it was 4(1.24%). Bilal et al. (2005) reported the good management practices can reduce the incidence of mastitis. Poor management with poor housing was commonly observed in the study area. In the study it was found that incidence of retained placenta was higher in poor hygienic condition. Grunert (1984) mentioned the incidence of retained placenta is often high in *Brucella* sp. infected herds, following dystocia and in cows suffering from certain nutritional and mineral (especially selenium deficiency).

## **Chapter-IV**

### **Limitations**

The number of clinical cases of cows was small (52 cases) and duration of study period was short (4 months).Lack of diagnostic tools, so that proper diagnosis was hampered. The diagnosis only based on clinical history and clinical symptoms.

## **Chapter-V**

### **Conclusions**

It is revealed that reproductive disorder particularly of mastitis, retained fetal membrane, milk fever and pyometra were major causes of low reproductive performance in dairy farms. Shortage of feed coupled with poor husbandry and herd health management were important factors that contributed to reproductive inefficiency. Farm size has effect on reproductive disorder. Reproductive disease incidence is higher in poor hygienic condition. An appropriate feed resource and reproductive herd health management and an appropriate level of husbandry could be the management options to reduce or alleviate some of the prevailing problems. Season variation has also impact on reproductive disease incidence. Cross bred cow shows higher incidence due to low disease resistance than indigenous cows. Retained placenta, mastitis, milk fever, pyometra were the reproductive problems identified in postpartum period in cow. Incidences of these diseases were more in medium size farm compare to large size farm and small size farm. The average incidence of reproductive problems was higher in summer season than winter season. The average incidence of reproductive problems was higher in cross bred cows than non-descriptive cows. The average incidence of reproductive problems was more in poor hygienic condition followed by medium and good hygienic condition farm. The average incidence of reproductive problems was higher in muddy type of floor than brick type floor farm. According to our study mastitis, Retain placenta, milk fever and pyometra are four important reproductive and production diseases. Knowledge in terms of risk factors and their mitigation already available about these diseases should be extended to farmers to control them. Improvements of feeding to enhance the BCS as well as heat detection, health care and artificial insemination techniques could help in minimizing reproductive health problems and hence, improve the reproductive efficiency of dairy cows.

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**The Author**

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## **Biography**

I am Md. Azmol Hossain, son of Md. Jamal Uddin and Manoara Begum. I passed Secondary School Certificate examination in 2008 (G.P.A-4.94) followed by Higher Secondary Certificate examination in 2010 (G.P.A-5.00). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chittagong Veterinary and Animal Sciences University. In the future I would like to work in the field of veterinary Epidemiology and Research.