A Seminar Paper on

Current Status of Repeat Breeding Syndrome in Dairy Cows and their Reproductive Management in Bangladesh

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Current Status of Repeat Breeding Syndrome in Dairy Cows and their Reproductive Management in Bangladesh[1]

By

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ABSTRACT

Repeat breeding syndrome (RBS) is a common reproductive disorder in dairy cows that results in reduced fertility and economic losses for dairy farmers. The impact of RBS on dairy cow productivity and profitability is significant, resulting in reduced milk production and increased calving interval and insemination costs. This seminar paper is a review paper and all the information was collected from secondary sources. This paper describes the current status of RBS and its reproductive management in dairy cows in Bangladesh. A comprehensive literature review was conducted to identify the prevalence of RBS, associated risk factors, and the impact of RBS on dairy cow productivity and profitability in Bangladesh. This paper assessed the incidence of RBS in different region in Bangladesh. The highest incidence of repeat breeding observed in crossbred cows belonged to 6 to 8 years of age, 3rd parity and 250 to 350 kg body weight. Additionally, this paper describes the effects of hormonal and nutritional treatments on induction of estrus and increase conception rate in repeat breeder cows. Highest conception rate was observed in GnRH treated cows having body condition scores of 2 to 2.5. The findings of this article recommend that reproductive management practices including proper nutrition, timely detection of estrus, and accurate breeding techniques for better prevention and management of RBS in dairy cows in Bangladesh.

Keywords: Dairy Cows, Repeat Breeding Syndrome, Current Status, Reproductive Management, Conception Rate

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[1]A seminar paper for the course GOR 698, Winter, 2022.

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CHAPTER I

INTRODUCTION

Dairy farming is an important and dynamic agricultural sector in Bangladesh. In our country there are about 23.78 million cattle that are the important source of income in rural areas (BBS, 2017). Cows are the main source of milk. About 90% of the produced milk in the country comes from cows. Among the total of 6 million milking cows, 85–90% of them are indigenous and 10–15% are crossbreed (DLS, 2013) and farmer's rear dairy cattle for milk production contributing two-third milk production of the country. The cattle population in Bangladesh is rising day by day and obtaining the self-capability to meet up the total need of milk and meat protein for the nation. For more profitable dairying, having one calf per year is crucial (Paul *et al.,* 2013). In Bangladesh, poor conception rates and delayed conception have been recognized as key constraints to profitable dairy production (Shamsuddin *et al*., 2001). Reproduction issues and reproductive disorders have also caused economic loss to the farmers and dairy industry in Bangladesh. Repeat Breeding Syndrome (RBS) is one of them among these reproductive disorders.

A repeat breeder is generally defined as any cow that has not conceived after three or more consecutive services, has normal estrous cycles, at least one calved before, and no clinical abnormalities (Zemjanis, 1980). A repeat breeder cow appears to be in good health and has a typical estrus cycle. The main potential causes of repeat breeding syndrome are subclinical endometritis, nutritional deficiency, particularly a lack of vitamin A and trace minerals, the dam's age, ineffective heat detection and endocrine dysfunction (Ahmed and Elsheikh, 2013). As repeat breeding is a multifactorial disease, a number of risk factors, including the breed of the cows, the size of the herd, the Body Condition Score (BCS), age, and parity, may have an impact on its occurrence. Other factors such as milk production, lactation length, inter-calving interval, suckling, and management factors. Failure of fertilization and early embryonic death are the major causes of repeat breeding those are influenced by infection of uterus, genetics, ovulatory failure, failure in estrus detection, improper timing of service. In Bangladesh, one of the primary reasons of repeat breeding syndrome is incorrect timing of insemination (Shamsuddin *et al*., 2001).

Prevalence and risk factors of repeat breeding cows in dairy farms in urban areas have been investigated in Bangladesh (Asaduzzaman *et al.,* 2016). Limited studies have been conducted on determining management-based risk factors of repeat breeding among crossbred dairy cows.

Therefore, it is important to know the management and cow-related factors that may raise the repeat breeding syndrome. Veterinarians often diagnose and treat repeat breeder cows based on a history of previous services and clinical examination of the cows. Several hormonal therapies could be used in dairy herds to improve reproductive efficiency and reduce reproductive problems associated with anestrous and failure of conception (Savalia *et al*., 2014). It is critical to solve the repeat breeding problems in order to produce more milk to achieve the vision 2030 and to make profitable and sustainable dairy farming in Bangladesh.

Objectives

Considering the aforementioned background, this seminar paper has been designed to fulfill the following objective-

1. To assess the risk factors associated with occurrence of Repeat Breeding Syndrome (RBS) in dairy cows.
2. To evaluate the therapeutic approaches and reproductive management practices to prevent RBS in dairy cows in Bangladesh.

CHAPTER II

MATERIALS AND METHODS

This seminar paper is completely a review paper. So, there is no specific method for collecting information. As a result, all of the information in this work was collected from secondary sources. A scientific literature review was done from different articles published in different journals, published authenticate reports. Furthermore, various reliable information, good suggestions and kind of consideration from my honorable major professor, course instructors of my department on the present status (risk factors, etiological factors, diagnostic and treatment approaches) of repeat breeding syndrome (RBS) of dairy herds in Bangladesh. I have collected data from some sources and these are shows in **Figure 1** and then summarized the relevant information in systemic way and also some are summarized in tabulated and graphical form.

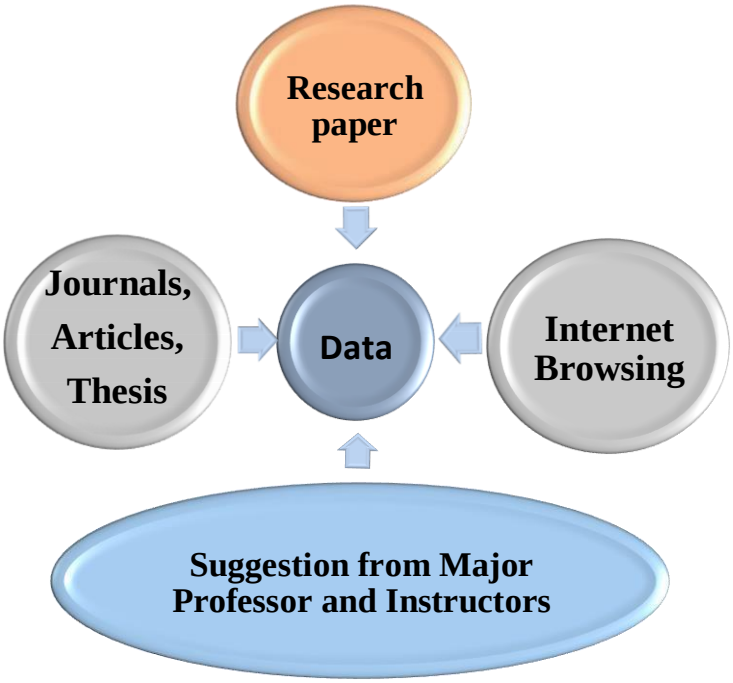


Figure 1. Sources of data and information used in the present paper.

CHAPTER III

REVIEW OF FINDINGS

3.1 Repeat Breeding Syndrome (RBS)

Repeat breeding syndrome (RBS) is a term used to describe a condition in which a female animal, typically a cow, fails to conceive after several repeated attempts at breeding, despite being healthy and fertile. In dairy cattle, this is defined as the failure to conceive after three or more consecutive inseminations or natural services (Zemjanis, 1980). Repeat breeding can have significant economic consequences for farmers due to the additional costs associated with multiple breeding attempts and lost milk production. A repeat breeder cow appears to be in good health and has a typical estrus cycle. Repeat breeding syndrome (RBS) is an important issue in the dairy industry because it can lead to significant economic losses for farmers. Here are some of the reasons (Hasib *et al*., 2020) why it is important:

Decreased Conception Rates: RBS leads to decreased conception rates, which means that farmers may need to perform multiple inseminations before a cow becomes pregnant.

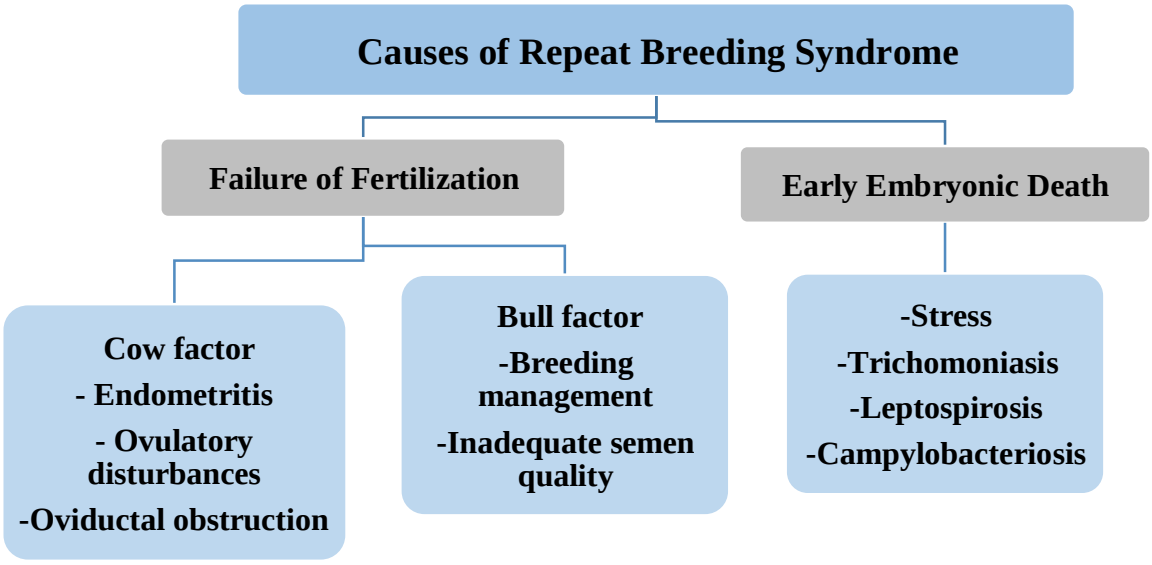
Increased Calving Intervals: RBS can increase the calving interval, which means that cows will produce fewer calves over their lifetime.

Loss of milk Production: RBS can result in lost milk production, as cows that are not pregnant are not producing milk.

Higher Veterinary Costs: RBS can result in higher veterinary costs due to the need for repeated inseminations and treatments for reproductive tract infections.

3.2 Causes of Repeat Breeding Syndrome

The causes of RBS has been a multifactorial problem in dairy cattle. The causes have been classified in cows in various ways, yet failure of fertilization and early embryonic deaths had been one of the oldest classifications of the etiologies (Purohit, 2008). It also may be related with many infections and external factors such as environmental stress and poor breeding management (Perez-Marin *et al*., 2012). The overall causes of RBS is presented in **Figure 2.**

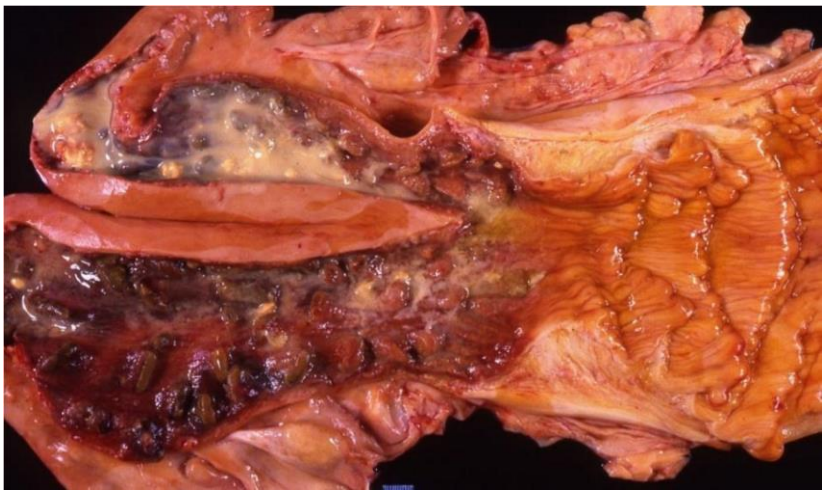


(Source: Perez-Marin *et al*., 2012)

Figure 2. Causes of Repeat Breeding Syndrome in cows.

3.2.1 Endometritis

Endometritis is an inflammation of the inner lining of the uterus that can be caused by a variety of factors. In severe case formation of pus in the uterus **(Figure 3).** Endometritis is a common condition in dairy cows, with prevalence rates ranging from 10% to 50% depending on the herd and management practices (Babu *et al*., 2013). Cows with endometritis may have a prolonged calving interval, decreased conception rates, and a higher risk of repeat breeding. They may also have abnormal vaginal discharge, fever, and reduced appetite.

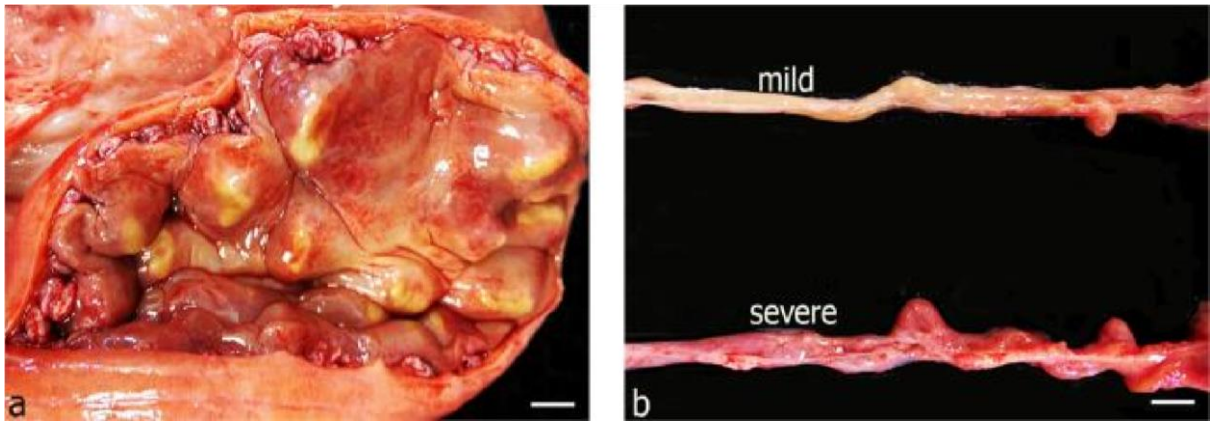


(Source: Sheldon *et al*., 2009)

Figure 4: Pus formation in the uterus of cows with endometritis.

3.2.2 Oviductal obstruction

Obstructions in the oviduct such as hydrosulpinx, pyosalpinx, salpingitis and stenosis in the oviduct may prevent fertilization **(Figure 4)**. Ovarobursal adhesions had been shown as a lower incidence varying from 0.04 to 6.4% (Vala *et al*., 2011) yet abattoir studies reflect a higher incidence which affects fertility as they interfere with tubal mortality.



(Source: Owhor *et al*., 2019)

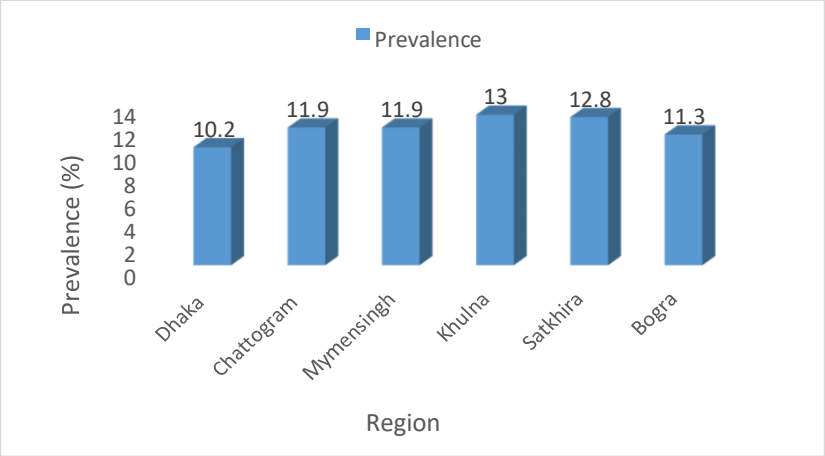
Figure 4. Macroscopic View of bovine uterus and oviduct with inflammation. (**a**) Uterus with severe inflammation (**b**) Bovine left and right oviducts showing mild and severe grades of inflammation.

3.3 Risk factors affecting the occurrence of repeat breeding syndrome in dairy cows

A large number of risk factors that increases the incidence of repeat breeding have been described for cows including regional areas, age, parity, herd size, milk yield, management etc.

3.3.1 Effect of region on occurrence of repeat breeding syndrome

The prevalence of repeat breeding syndrome in cows with respect to different areas is presented in **Figure 5**. The overall prevalence of repeat breeding in cows was 11.5% and numerically the lowest occurrence was observed in Dhaka District (10.2%) and the highest occurrence was observed in Khulna District that was 13.0% (Asaduzzaman *et al*., 2016). Similar to present study, the reported prevalence of repeat breeding in cows in Bangladesh was 11% (Boettcher and Perera, 2007).

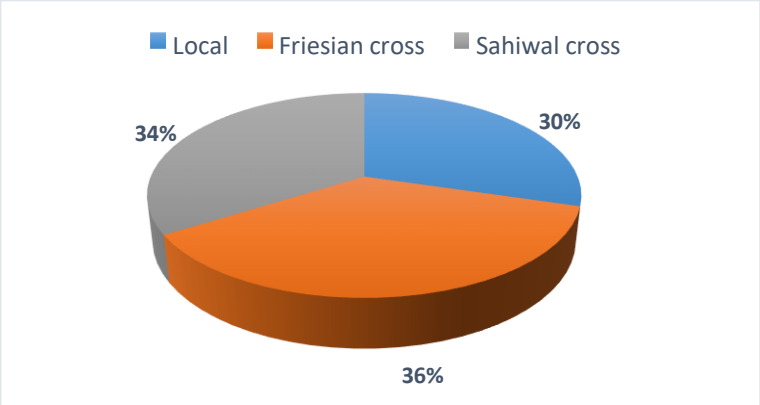


(Source: Asaduzzaman *et al.*, 2016)

Figure 5. Graphical presentation of prevalence of Repeat breeding syndrome in different regions of Bangladesh.

3.3.2 Effect of breed on occurrence of repeat breeding syndrome

The prevalence of RBS in different breeds is presented in **Figure 6**. The lowest occurrence of repeat breeding was observed in local cows (30%) and the highest occurrence was observed in Friesian cross cows (36%) and in Sahiwal cross (34%). In local breed the occurrence of repeat breeding is lower due to their environmental adaptability than the Friesian and Sahiwal cross (Asaduzzaman *et al*., 2016). Higher prevalence of repeat breeding has also been reported in cross breed cows than those of local breed counterpart (Mesafint and Guesh, 2014).

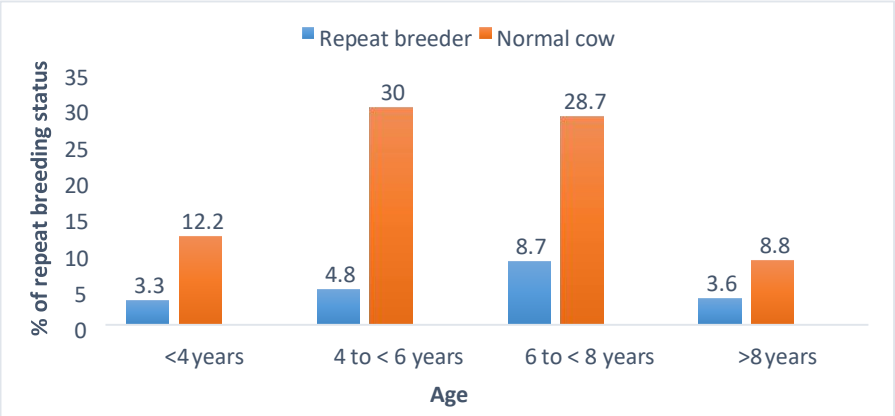


(Source: Asaduzzaman *et al.*, 2016)

Figure 6. Graphical presentation of prevalence of repeat breeding syndrome in different breeds.

3.3.3 Effect of age on occurrence of repeat breeding syndrome

The age influences on repeat breeding are exposed in **Figure 7**. It was found that the highest number repeat breeding was recorded in 6 to < 8 years group cows. And others < 4 years, 4 to < 6 years and > 8 years were 3.3, 4.8, and 3.6% respectively, that means there was significant effect of age groups on repeat breeding of dairy cows (Rahman, 2013).



(Source: Rahman, 2013)

Figure 7. Graphical presentation of occurrence of repeat breeding with different age group of cows.

3.3.4 Effect of milk yield on occurrence of repeat breeding syndrome

Effects of milk yield of cows on occurrence of repeat breeding are presented in **Table 1**. It was shown that among the affected cows, significantly lower proportion of cows (21.1%) were affected when they produced 1-2 litres of milk than that of > 2-13 litres of milk (26.3 - 52.6%) (Padder *et al.*, 2018). In the present study, most low yielding cows were of local breed which resulted in lower occurrence of repeat breeding. Moreover, most high yielding cows in the present study were of Friesian cross which resulted in more occurrence of repeat breeding.

Table 1. Effects of milk yield on occurrence of repeat breeding syndrome in cows

Milk yield (Liters)	No. of repeat breeder cows	Percentage of affected cows (%)
1-2	37	21.1
> 2-5	46	26.3
>5-13	92	52.6

(Source: Padder *et al.*, 2018)

3.3.5 Effect of cow's disorder on occurrence of repeat breeding syndrome

In case of dystocia, the occurrence of RB was 1% in local breed and 4% in crossbred cow. It revealed that dystocia is also a responsible factor for repeat breeding in crossbred cows than that of local breed cows. Regarding fetal death, there is no data in case of local breed however 58.2% in crossbred cow (**Table 2**). In case of retention of placenta, it was found the rate of RB in crossbred cows were 58.2% whereas not occurred in local breed. Retention of placenta has great significance in case of crossbred than local breed and incase of post-partum endometritis, the rate of RB was 4.1% in crossbred cow. The occurrence of repeat breeding for post-partum endometritis has higher significance in cross breed than that of local breed. In this study, it was also found the rate of RB in case of abortion were 1.0% in local breed and 57.1% in crossbred cows (Matubber *et al*., 2018).

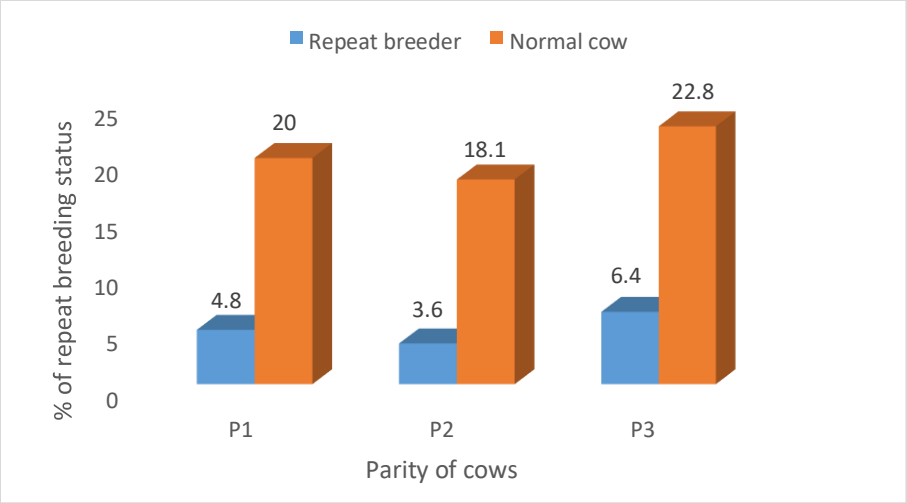
Table 2. Effect of cow's disorder on occurrence of repeat breeding syndrome

Parameter		Local Breed %	Cross Breed %
Dystocia	Happened	1	4
	Not happened	56	39
Fetal Death	Happened	0	58.2
	Not happened	2	41
Retention of placenta	Happened	0	58.2
	Not happened	0	43
Post-partum endometritis	Happened	0	4.1
	Not happened	57	39
Abortion	Happened	1	57.1
	Not happened	1	42

(Source: Matubber *et al*., 2018)

3.3.6 Effect of parity on the occurrence of repeat breeding syndrome

The parity of cow's influences on repeat breeding is presented in **Figure 8**. From this figure, the highest percentage of repeat breeding was 6.4% in parity 3 and lowest was 4.8% in parity 1 and 3.6% in parity 2 (Padder *et al*., 2018). Similarly, Bonneville-Hébert *et al*., (2011) observed a significantly higher number of repeat breeder cows at parity 3 and beyond. This fact may be explained as a cow gets older and parity increases, the uterine tissue becomes senile and the organ becomes more susceptible to infection.



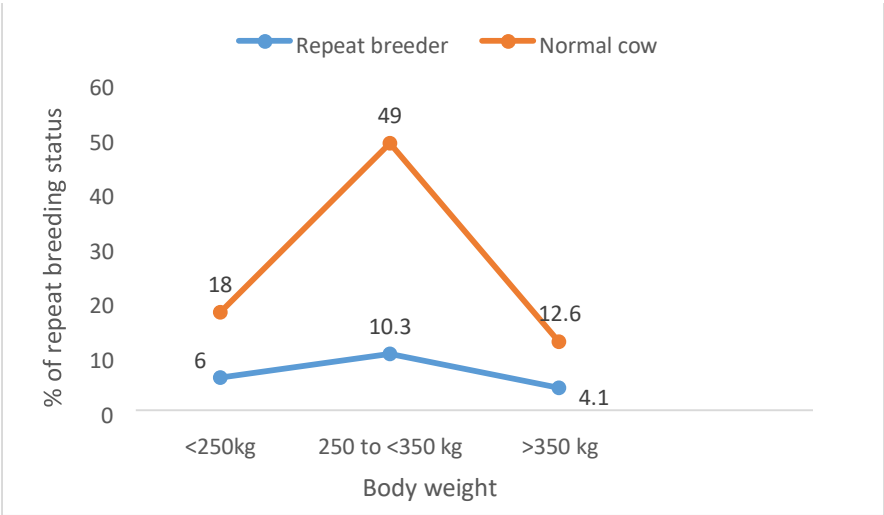
(Source: Padder *et al.*, 2018)

Figure 8. Graphical presentation of repeat breeding status with parity of cows.

(**Note.** P1= 1st calving, P2 = 2nd calving, P3= 3rd calving).

3.3.7 Effect of body weight on occurrence of repeat breeding syndrome

The body weight influences repeat breeding is summarized in **Figure 9**. It was observed from the curve that the highest incidence of repeat breeding was recorded in (pick in 10.3%) 250 to < 350 kg body weight and lowest (6.0%) in < 250 kg and others were in (4.1%) > 350 kg body weight group of cows respectively (Rahman, 2013). That means there was significant effect of body weight on repeat breeding of dairy cows.



(Source: Rahman, 2013)

Figure 9. Graphical presentation of repeat breeding status with body weight of cows.

3.3.8 Effect of management practices of cows on repeat breeding syndrome

According to the feeding system the rate of repeat breeding with related to stall feeding, semiintensive and extensive system was 46.9, 53.1 and 0%, respectively **(Table 3).** Cow rearing in semi-intensive system has higher significance than other rearing system. In case of deworming of cows, the rate of RB in regularly, irregularly and not administered was 8.2, 18.4 and 73.5%, respectively **(Table 3).** The data shows cows that are not dewormed regularly are very much susceptible for the occurrence of repeat breeding. In case of vaccination, the rate of RB in regularly, irregularly and non-vaccinated were 2.0, 5.1 and 92.8%, respectively. It is found that non-vaccinated animals had shown high of repeat breeding than vaccinated animals. In case of showering of cows, the rate of showering in cows at regularly, irregularly are 30.6 and 69.4% respectively (Matubber *et al*., 2018). This study was partially agreed with Khan *et al*., (2016) who recorded 24.61% repeat breeding occurs under semi-intensive rearing system.

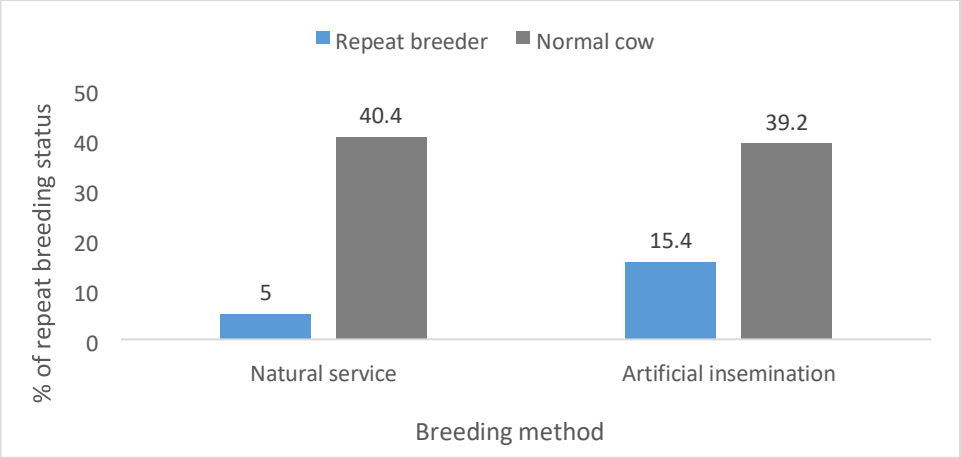
Table 3. Effect of management practices of cows on repeat breeding syndrome

Parameter	Variable	Rate of RBS (%)
Feeding System	Stall feeding	46.9
	Semi-intensive	53.1
	Extensive	0.0
De-worming	Regularly	18.4
	Irregularly	8.2
	None	73.5
Vaccination	Regularly	2.0
	Irregularly	5.1
	None	92.8
Showering	Regularly	30.6
	Irregularly	69.4

(Source: Matubber *et al*., 2018)

3.3.9 Effect of breeding method on repeat breeding syndrome

The breeding method influences on RBS are available in **Figure 10**. It was observed that the incidence of repeat breeding highest in Artificially Inseminated (AI) cows (15.4%) and lowest in naturally serviced cows (5.0%). That means there was significant effect of breeding method of repeat breeding dairy cows (Rahman, 2013).



(Source: Rahman, 2013)

Figure 10. Graphical presentation of repeat breeding status with breeding method.

3.4 Diagnosis of repeat breeding syndrome

The diagnostic procedures for repeat breeding in the present review had been classified into the following groups:

3.4.1 Vaginal examination

In vaginal palpation, vulvar and vestibular functionality was evaluated though the pressure of these structures around the clinician's hand **(Figure 11)**. The vaginal content was inspected to detect urine (if urovagina), pus (if endometritis, vaginitis), blood (post-ovulation or some diseases) or clear and clean mucus that associated with heat (Perez-Marin *et al*., 2012).

(a) (b)

(Source: Perez-Marin *et al*., 2012)

Figure 11. Vaginal examination of cow **(a)** Vaginal evaluation by palpation **(b)** Transparent and abundant vaginal mucus indicates optimal heat and good uterine environment.

3.4.2 Tests to evaluate uterine health

Different procedures were observed for obtaining the uterine health of repeat breeding cows.

3.4.2.1 Uterine pH

The pH of vaginal mucous in repeat breeder cows was reported to be 8.5+1.16, compared to 7.2+1.10 **(Figure 12)** in regular breeding cows (Otto *et al*., 2015). But high protein diets change the uterine environment by lowering magnesium, potassium, and phosphorus contents in uterine secretions and decreasing uterine pH. Reduction of pH from 7.2 to 6.9 at estrus compromise embryonic development (Gilbert, 2011).

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

Figure 12. Uterine pH in repeat breeder and normal cows.

3.4.2.2 Uterine microbiology

Many studies explained that mostly mixed infections are present in the uterus of RB cows (Otto *et al.,* 2015). Different tests are used such as "white side test", uses cervical mucus of suspected cows (with metritis/endometritis) heated with sodium hydroxide solution up to boiling point. After cooling the intensity of color changes was study. Yellow color indicated the positive test.

Table 4. Microbiological examination of uterus

Uterine condition	Color changes
Normal	Turbid or no color
Mild infection	Light yellow color
Moderate infection	Yellow color
Severe infection	Dark yellow color

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

3.4.3 Visual observation

Visual observation is a usual method of detecting heat. It requires a trained observer detecting and recording symptoms of heat. Mounting or attempting to mount other cows, standing to be mounted by other cows, sniffing other females, decreased appetite, excited behavior, vulva swelling and reddening, clear vaginal mucous secretion, and other symptoms of heat were observed (Rahman, 2013).

Table 5. Signs of heat in different time during estrous period of a cow.

Coming into Heat (8 hours)	Standing Heat (18 hours)	Going out of Heat (8 hours)
Bellows and stands Smells other cows Attempts to ride other cows but fails to be mounted Vulva is red, moist, and slightly swollen, having clear mucous discharge.	Stands to be mounted Ride other cows Frequently bellows Nervous and restless	Tries to ride other cows but refuses to be mounted Smells other cows Vaginal mucous discharge is clear.

(Source: Rahman, 2013)

3.5 Therapeutic approaches of RBS

The treatment of repeat breeder cows should be administered only when estrus detection and breeding (natural or AI) techniques are optimal. Treatments in a herd or individual with inadequate fertility are preventive or curative therapies for disease and/or deficiency, as well as reducing stress.

3.5.1 The efficacy of several regimens used to treat repeat breeding syndrome in cows

The efficacy of several regimens used to treat repeat breeding in cows shows in **Table 6**. When AI was performed with double doses of semen, a significantly higher proportion of cows recovered (52.8%), single AI with GnRH injection (51.9%), two times AI at 8 hours interval (48.0%) or intrauterine administration of antibiotics followed by AI in next heat (45.8%) than that of no treatment control group (30.4%).

Table 6. The efficacy of several regimens used to treat repeat breeding syndrome in cows

Treatment regime	No. of cows treated	No. of cows conceived	Recovery (%)
Single AI with injection of 500 µg of gonadorelin	27	14	51.9
I/U infusion of 4.0 million i.u. penicillin daily for 3 days followed by single AI at next estrus	24	11	45.8
Same time AI with double doses of semen	23	12	52.8
Two times AI at 8 hours interval	25	12	48.0
Single AI without any intervention (Control)	23	7	30.4

(Source: Asaduzzamzn *et al*., 2016)

3.5.2 Effects of BCS (body condition score) on hormonal and nutritional treatment in repeat breeder cows

Effect of BCS of cow on the different treatments are shown in **Table 7.** BCS is widely used for the evaluation of nutritional status of animals, which influences the fertility indexes (Islam *et al*., 2013). It was found that higher (77.8%) proportion of cows showed estrus after receiving treatment with PGF2α when their BCS ranged 2.0-2.5. After AI, conception rate was higher (69.2%) in cows with BCS 2.0-2.5 treated with GnRH. In contrast, 47.6% cows with BCS 1.52.0 showed estrus behavior after nutritional treatment as well as conception rate was lower (33.3%) in this group.

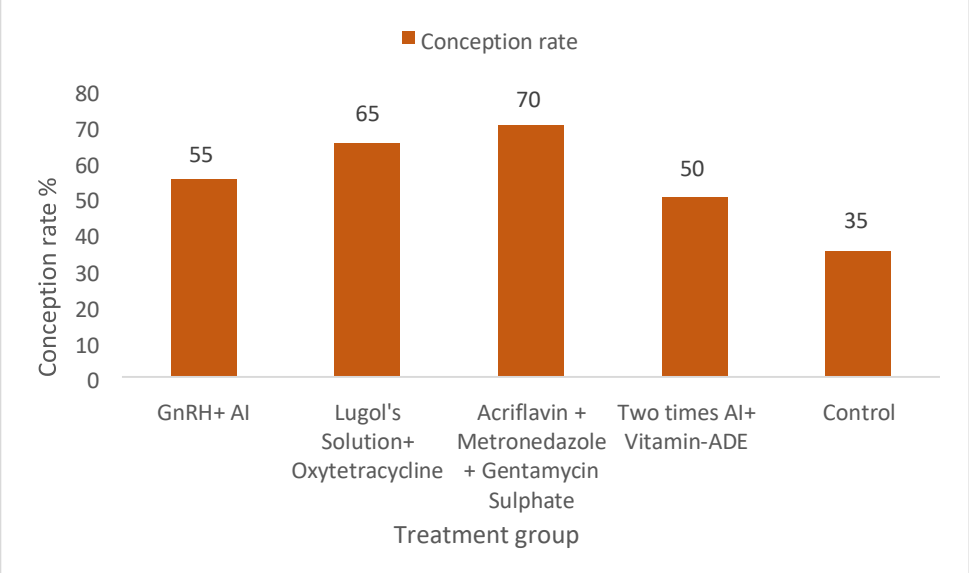
Table 7. Effects of BCS on two hormonal and nutritional treatment in repeat breeder cows

Treatment	Body condition score (range)	Number of cows treated	Number of cows showed estrus	% cows showed estrus	Number of cows conceived	% cows conceived
GnRH.	2.0-2.5	13	10	76.9	9	69.2
	3.0- 3.5	4	2	50.0	2	50.0
PGF2α	2.0- 2.5	18	14	77.8	9	50.0
	2.5-3.5	5	3	60.0	3	60.0
Nutritional	1.5 -2.0	21	10	47.6	7	33.3
	2.5-3.0	11	8	72.7	6	54.5

(Source: Islam *et al*., 2013)

3.5.3 Effect of different treatment protocol of different group on the conception rate of repeat breeder cows

Five therapeutic trials of dairy cows has been taken as treatment groups at Rajshahi region in Bangladesh (Rahman, 2013). The five therapeutic trials were GnRH + AI, Lugol's Solution + Oxyteracycline, Acriflavin + Metronedazole + Gentamycin Sulphate, Two times AI + Vitamin ADE and Control group respectively. From **Figure 13** shown average conception rate of repeat breeder after administration of 4 types therapeutic drug and a control group to prevent the repeat breeding of experimental dairy cows. The conception rate was higher in a group of cows (70%) that were treated by Acruflavin, Metronedazole and Gentamycin sulphate drugs.



(Source: Rahman, 2013)

Figure 13. Graphical representation of conception rate of repeat breeder relation with treatment protocol.

3.6 Management Strategies to prevent repeat breeding syndrome

The overall management of dairy cows is important as it affects the fertility. The management of RBS in dairy cows involves a combination of nutritional, breeding, and medical interventions. Among these, nutrition, timing of insemination, periparturient diseases etc should be considered. The management strategies to prevent RBS is presented **Figure 14**.

(Source: Purohit, 2008; Hasan *et al*., 2021)

Figure 14. Management strategies of repeat breeding syndrome in cows.

3.6.1 Improving Nutritional Imbalance

Poor nutrition during the dry and early postpartum period results in reduce glucose, insulinlike growth factor (IGF-1) and low LH pulse frequency with relatively increases in bhydroxybutyrate, non-esterified fatty acids and negative energy balance all having negative effects on the probability of conception. A balanced feed during the dry period must be given milking cows and also vitamins and minerals (Hasan *et al.,* 2021).

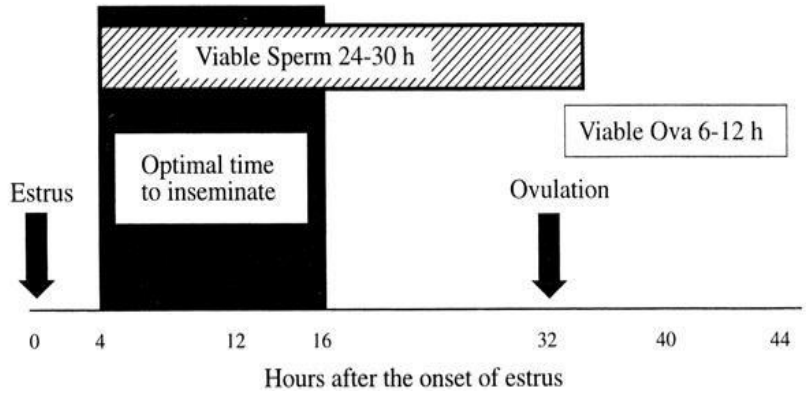
Table 8. Standard feeding strategy for cows

Feeds	Quantity
Roughage and concentrate mixture as total matter @ 2.5 kg per 100 kg body weight	Roughage- 66% dry Concentrate- 34%
In milking cow supplementation of 1 kg concentrate mixture for every 3 L of milk production	
All the feed ingredients should be separated into two portions and supplied twice daily in the morning and evening after milking	
Ad libitum clean drinking water	

(Source: Hasan *et al*., 2021)

3.6.2 Improving the timing and technique of insemination

Improving the timing of insemination by appropriate estrus detection can enhance the conception rate in cows. The use of pedometers and radio-telemetric devices has been suggested to improve estrus detection and, hence timing of insemination. It is suggested to repeat AI in twice at 12 h interval for optimum conception rates. Also suggested that, deposition of semen in the body of the uterus provides an important benefit in improving conception rates compared with when it is deposited in the mid cervix (Purohit, 2008). The optimum timing of insemination is presented in **Figure 15**.



(Source: Uddin *et al*., 2014)

Figure 15. Optimal time to inseminate dairy cows.

3.6.3 Reducing stress

Stress appears to play an important role in various biological events including reproduction. Various types of stress may occur because of disease, inadequate nutrition, high production, social factors and environmental factors etc. (Purohit, 2008). To minimize these stress, cooling of cows during hot summer months by showering of water, give proper diet, not to expose repeated services for per conception etc. those are known to improve fertility.

3.6.4 Prevent peri-parturient diseases

Metabolic diseases such as ketosis and acidosis etc. during postpartum period or parturient problems, such as hypocalcaemia, mastitis, retained placenta, dystocia, endometritis etc. can be observed in cows (Islam *et al*., 2013). The approaches suggested to reduce the incidence of these disorders include the feeding of anionic salts in combination with adequate calcium and magnesium during dry period and feeding of high-fibre low-energy chopped straw. Hygienic condition should be maintain on cow shed to prevent diseases.

CHAPTER IV
CONCLUSION

The present paper gives an idea about the RBS due to poor conception rate and early embryonic death. The findings of this seminar paper conclude that the higher prevalence of RBS in Khulna region was 13% and lowest in Dhaka was 10.2%. The highest incidence (36%) of RBS was recorded in cross-bred Friesian cows. Others factor influencing RBS in dairy cows includes- 6 to < 8 years of age (8.7%), 250 to < 350 kg body weight (10.3%), 3rd parity (6.4%), semiintensive feeding (53.1%), and AI method (15.4%). The data shows, cows that were not dewormed had high incidence (73.5%) of repeat breeding. Dystocia, Retention of placenta and post-partum endometritis are the risk factors on occurrence of RBS in crossbred cows which were 4, 58.2 and 4.1% respectively.

In case of treatment and management of cows, higher proportion of cows recovered (52.8%) when AI was done using double doses of semen. Highest conception rate was observed (69.2%) in GnRH treated cows having BCS 2.0-2.5. Therapeutic trial had significant effect on recovery of repeat breeding of cows. Among therapeutic drugs Acriflavin+ Metronidazole+ Gentamycin was the best group of all (conception rate 70%). Some management practices (Nutrition, timing of AI, reduce stress) also observed to prevent RBS in dairy cows.

Yet, it is difficult to find the actual reasons of RBS. If it is possible to identify the actual causes, it will be easy to treat and can improve our dairy industry.

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