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Research Article

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Retrospective (2004-2018) study on the occurrence of reproductive diseases in ruminants attended at VTH, Bangladesh Agricultural University

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Abstract

This study reviewed the occurrence of reproductive diseases in ruminants attended at Veterinary Teaching Hospital, Bangladesh Agricultural University, Mymensingh from 2004 to 2018. Overall occurrence of reproductive diseases was 13.48% in 32981 diseased ruminants. A total of eight diseases was recorded in cattle among which, occurrence of repeat breeding syndrome (46.55%) was the highest, followed by anestrus (14.74%), mastitis (13.97%), dystocia (12.79%), retained placenta (5.89%), uterine and vaginal prolapse (3.49%), clinical endometritis (1.42%), udder edema and abscess (1.14%) in cattle. In small ruminants, occurrence of mastitis (29.18%) was highest followed by dystocia (28.83%), udder edema and abscess (23.19%), clinical endometritis (18.80%). Occurrence of RBS (67.07%) and uterine and vaginal prolapse (6.08%) were significantly ($P<0.01$) highest in Holstein Friesian crossbred cows and occurrence of mastitis (22.62%), udder edema and abscess (9.52%) were significantly ($P<0.01$) highest in Sahiwal crossbred. RBS (63.29%) and Dystocia (55.95%), mastitis (25.86%), udder edema & abscess (17.52%) were non-significantly ($P>0.05$) highest in Black Bengal Goat and clinical endometritis (13.70%) in Sheep. Considering the age, mastitis (17.06%) and anestrous (27.17%) were significantly ($P<0.01$) highest in >6yrs and <3yrs old cows respectively. Whereas, dystocia (51.03%) was significantly ($P<0.01$) highest in 2-<4yrs aged small ruminants. Retained placenta (5.68%) was significantly highest ($P<0.01$) in cattle in winter season. Dystocia (72.38%), mastitis (34.16%) and udder edema and abscess (19.65%) were significantly ($P<0.01$) highest in summer, rainy and winter season, respectively, in small ruminants. This study revealed marked effects of species, breed, age and seasons on the occurrence of various reproductive diseases in ruminants. It may help veterinarian to develop strategies for the controlling of mostly occurred reproductive diseases in ruminants at farm level.

Keywords: Bovine, Small ruminants, Retrospective study, Reproductive diseases

INTRODUCTION

Reproductive disorders are responsible for remarkable economic losses to the dairy farmers in Bangladesh (Talukder *et al.*, 2005) because of reduced fertility, prolonged inter calving interval and increased price of medication used in affected cows (Lobago *et al.*, 2006). Common reproductive diseases of female animals are anestrous, repeat breeding syndrome, uterine infection, pyometra, ovarian cyst, early embryonic death, dystocia and retained placenta. Shamsuddin *et al.* (2011) reported improper knowledge of the farmer, high prevalence of infectious organisms and poor management practices as major causes for the occurrences of reproductive diseases in Bangladesh. Usually reproductive diseases are diagnosed and treated by the veterinarians on the basis of history from owner and clinical examinations. There are sustained reports on clinical case record from veterinary Teaching Hospital (VTH), Bangladesh Agricultural University (BAU) (Ali *et al.*, 2011), Sirajganj upazilla veterinary Hospital, Mymensingh (Sarker *et al.*, 2013), Chandanaish upazilla of Chittagong dis-

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trict (Pallab *et al.*, 2012) and Patuakhali science and Technology university veterinary Clinic (Rahman *et al.*, 2012). A long-term study on the occurrence of reproductive diseases is limited in Bangladesh. However, it is essential to evaluate the occurrence of different reproductive diseases to understand the pattern of disease occurrence in relation to time and animal characters. Veterinary Teaching Hospital (VTH), BAU is an ideal and reliable source of information as people from the local areas bring their sick animals to the VTH every day. Analysis of the case records of VTH will give a comprehensive idea about the diseases and services, which can be used in formulating policies for future management to prevent diseases. So, this retrospective study was aimed to determine the occurrence of reproductive diseases or disorders in ruminants attended at Veterinary Teaching Hospital, BAU, Mymensingh and to evaluate the effects of species, breed, age and season on the occurrence of diseases.

MATERIALS AND METHODS

Study area

The retrospective study on reproductive conditions of ruminants was done at Veterinary Teaching Hospital (VTH) of Bangladesh Agricultural University, Mymensingh.

Data collection

Following official permission from the director of VTH, the retrospective data of 15 years (January 2004-December 2018) including species, breed, age, season and tentative diagnosis of the diseases were collected from patients' case record and register book. Collected data were organized for four parameters to determine the occurrence of various diseases within each species. The parameters were: i) overall prevalence of the diseases and the effects of ii) age, iii) breed and iv) season on the prevalence of reproductive diseases.

To determine the breed related variation, cattle were divided into three group viz. Holstein Friesian crossbred cows, Sahiwal crossbred cows and Local cows. Whereas, small ruminants were grouped into Black Bengal goat, Jamunapari goat and sheep.

On the basis of age, the animals were divided into following groups, <3yr, 3-6yr and >6yr for bovine and <1yr, 1-<2yr, 2-<4yr and >4yr for small ruminants.

To determine the season related variation, three seasons namely rainy, summer and winter were considered according to Ali *et al.* (2011) as summer from March to June, rainy from July to October and winter from November to February.

Statistical analysis

The data were manually patterned and potential errors were corrected. Data with apprehensive values were excluded. All data were analyzed by Statistical Package for Social Science (SPSS) software version 20. Chi-square test was performed to know the association between species, breed, age and season in respective cases.

RESULTS

During the period of last 15 years, about 32981 diseased animals including bovine, caprine and ovine were recorded in the VTH, BAU, Mymensingh. Table 1 represents that among the 32981 diseased animals, 4446 were affected with reproductive diseases (13.48%), 4837 were affected with surgical diseases (14.67%) and 23698 were affected with medicinal diseases (71.85%). Occurrence of reproductive diseases in bovine and small ruminants within 15 years (2004-2018) is presented in Figure 1 and Figure 2, respectively. Table 2 shows that eight reproductive diseases were recorded in bovine, among which, the occurrence of repeat breeding syndrome, (46.55%) was highest followed by anestrus (14.74%), mastitis (13.97%), dystocia (12.79%), retained placenta (5.89%), uterine and vaginal prolapse (3.49%), clinical endometritis (1.42%), udder edema and abscess (1.14%). Whereas, four reproductive diseases were recorded in small ruminants, among which, mastitis (29.18%) was highest, where dystocia (28.83%), udder edema and abscess (23.19%) and clinical endometritis (18.80%) were in ascending order (Table 2).

Effects of breed and species of ruminants on the occurrence of reproductive diseases

The occurrence of bovine's reproductive diseases in relation to breed was shown in Table 3. RBS (67.07%) was significantly ($P<0.01$) highest and anestrus (17.86%) was non-significantly ($P>0.05$) highest in Holstein Friesian crossbred cows followed by Sahiwal crossbred and local cows. Whereas, uterine and vaginal prolapse (6.08%) and retained placenta (4.29%) were insignificantly ($P>0.05$) highest in Holstein-Frisian crossbred cows compared other breeds. Mastitis (22.62%), udder edema and abscess (9.52%)

were significantly (P<0.01) highest and clinical endometritis (1.19%) was non-significantly highest in Sahiwal crossbred cows. However, dystocia (4.93%) was non-significantly (P>0.05) highest in local cows followed by Holstein-Frisian crossbred cows and Sahiwal crossbred cows.

Table 4 presents the occurrence of reproductive diseases in small ruminants. The occurrence of dystocia, mastitis, udder edema and abscess were the highest in Black Bengal goats followed by Sheep and Jamunapari goats. While, clinical endometritis was non-significantly (P>0.05) highest in Sheep compared to that of Black Bengal and Jamunapari goats. However, all the variations among groups were not significant (P>0.05) statistically.

Effects of age on the occurrence of reproductive diseases in ruminants

Table 5 demonstrates the occurrence of reproductive diseases according to age in bovine. The highest occurrence of anestrus (27.17%) and clinical endometritis (1.45%) was found in <3yrs aged cows; dystocia (4.86%) in cows of 3-6yrs old; repeat breeding syndrome (63.29%), mastitis (17.06%), udder edema and abscess (2.58%) uterine and vaginal prolapse (4.37%), and retained placenta (3.77%) in >6yrs aged cows. Moreover, significant (P<0.01) variations were found in the occurrence of anestrus, repeat breeding syndrome, mastitis, and udder edema and abscess among different age groups.

Occurrence of reproductive diseases in small ruminants in relation to age is presented in Table 6. We found that the highest occurrence of clinical endometritis (22.73%) significantly (P<0.01) in <1yrs aged small ruminants; dystocia (51.03%) significantly (P<0.01) and mastitis (32.47%) non-significantly (P>0.05) in 2-<4yrs aged animals, and udder edema and abscess (17.14%) significantly in >4yrs aged small ruminants.

Table 1: Prevalence of diseases (2004-2018) recorded in VTH, BAU

Disease	**Bovine (Cow/buffalo)**	**Caprine (Goat)**	**Ovine (Sheep)**	**Total No.**	**Occurrence**
Reproductive	2462	1238	746	4446	13.48%
Surgical	1852	1579	1406	4837	14.67%
Medicinal	11427	8933	3338	23698	71.85%

Table 2: Occurrence of reproductive diseases in ruminants recorded (2004-18) in VTH, BAU

Diseases	**Occurrence (%)**	
	Cattle	**Small ruminants**
Anestrus	14.74	-
Repeat breeding syndrome	46.55	-
Dystocia	12.79	28.83
Mastitis	13.97	29.18
Udder edema and abscess	1.14	23.19
Uterine and vaginal prolapse	3.49	-
Retained placenta	5.89	-
Clinical endometritis	1.42	18.80

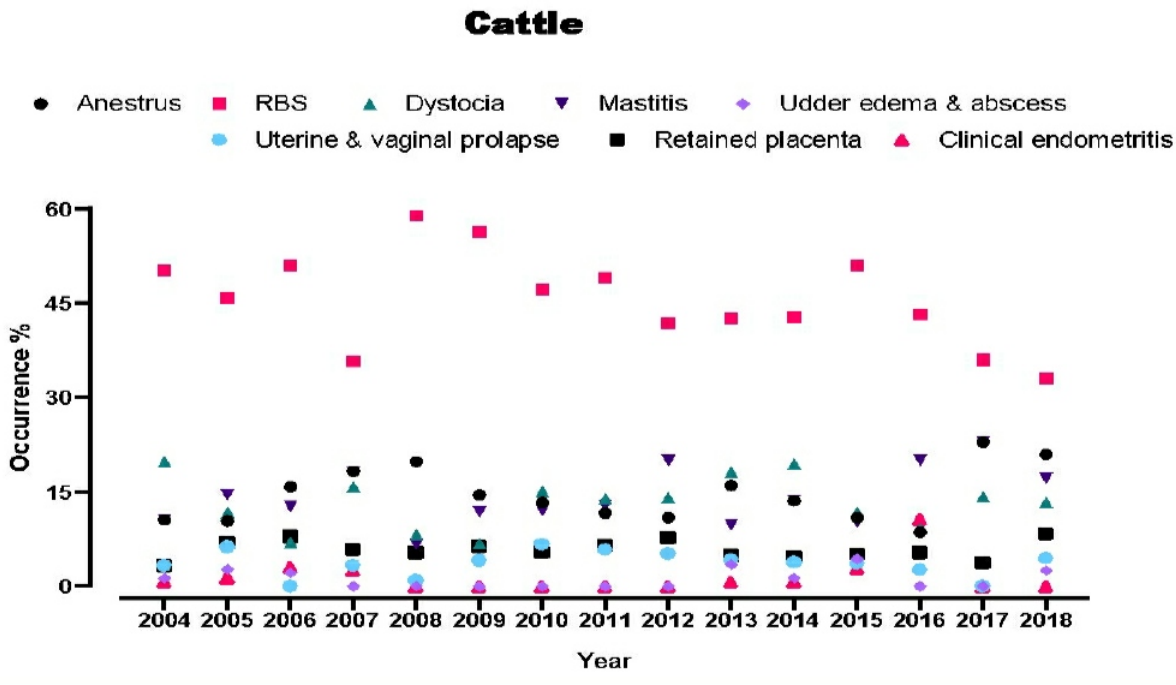

Figure 1: Occurrence of reproductive diseases of cattle recorded (2004-18) in VTH, BAU

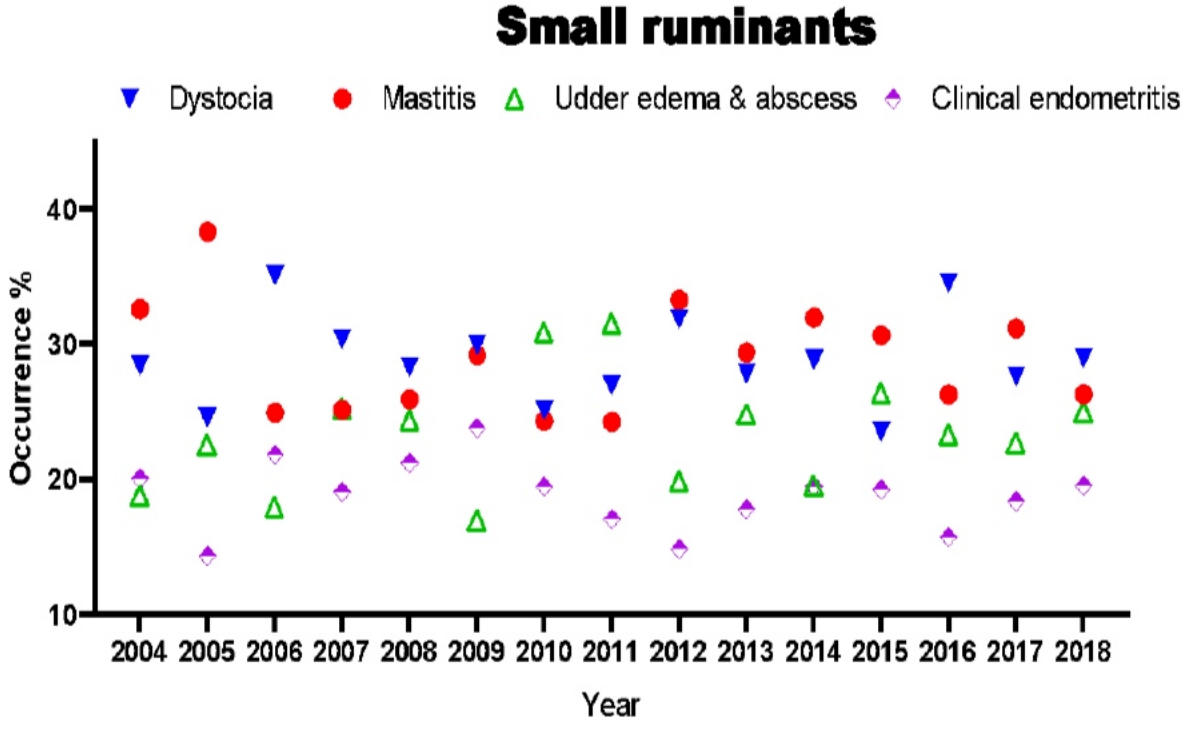

Figure 2: Occurrence of reproductive diseases of small ruminants recorded (2004-18) in VTH, BAU

Effects of season on the occurrence of reproductive diseases in ruminants

Occurrences of reproductive diseases of bovine and small ruminants in different seasons during the study period are presented in Table 7 and Table 8, respectively. Results revealed the highest occurrence of anestrus (18.39%), udder edema and abscess (3.39%) in rainy season; repeat breeding syndrome (59.97%),

Table 3: Overall occurrence of bovines' reproductive diseases on the basis of breed

Diseases	**Occurrence (%)**			**P-value**
	Holstein-Frisian crossbred cows	**Sahiwal crossbred cows**	**Local cows**	
Anestrus	17.86[a]	16.45[a]	16.35[a]	0.938
Repeat breeding syndrome	67.07[b]	50.06[a]	46.43[a]	0.000
Dystocia	3.46[a]	2.38[a]	4.93[a]	0.227
Mastitis	17.88[a]	22.62[a]	5.53[b]	0.000
Udder edema and abscess	0.72[a]	9.52[b]	0.84[b]	0.000
Uterine and vaginal prolapse	6.08[a]	0.00[b]	1.32[b]	0.000
Retained placenta	4.29[a]	0.00[a]	3.00[a]	0.073
Clinical endometritis	1.07[a]	1.19[a]	0.96[a]	0.963

Table 4: Occurrence of reproductive diseases in small ruminants

Diseases	**Occurrence (%)**			**P-value**
	Black Bengal goats	**Jamunapuri goats**	**Sheep**	
Dystocia	55.95	45.29	46.51	0.174
Mastitis	25.86	20.24	25.00	0.519
Udder edema and abscess	17.52	10.71	14.78	0.128
Clinical endometritis	11.32	13.10	13.70	0.336

Table 5: Occurrence of reproductive diseases on the basis of age in bovine

Diseases	**Occurrence (%)**			**P-value**
	<3yrs	**3-6yrs**	**>6yrs**	
Anestrus	27.17[a]	18.90[b]	4.76[c]	0.000
RBS	58.96[a,b]	54.59[b]	63.29[a]	0.006
Dystocia	3.47	4.86	3.17	0.249
Mastitis	4.34[a]	12.60[b]	17.06[c]	0.000
Udder edema and abscess	0.29[a]	0.77[a]	2.58[b]	0.003
Uterine and vaginal prolapse	2.02	3.65	4.37	0.185
Retained placenta	2.31	3.76	3.77	0.419
Clinical endometritis	1.45	0.88	0.99	0.676

a, b, c values with superscripts within row varied significantly from each other.

and uterine and vaginal prolapse (5.13%) in summer; mastitis (12.78%), dystocia (5.48%), retained placenta (5.68%) and clinical endometritis (1.22%) in winter. We found that variation in the occurrences of anestrus, repeat breeding syndrome, dystocia, mastitis and clinical endometritis were not significant (P>0.05). Whereas,

Table 6: Occurrence of reproductive diseases on the basis of age in small ruminants

Diseases	**Occurrence (%)**				**P-value**
	<1yrs	**1-<2yrs**	**2-<4yrs**	**>4yrs**	
Dystocia	$40.00^{a,b}$	43.17^{b}	51.03^{c}	34.64^{a}	0.000
Mastitis	20.91^{a}	29.93^{b}	32.47^{b}	31.79^{b}	0.010
Udder edema and abscess	16.36^{a}	14.76^{a}	9.79^{b}	17.14^{a}	0.008
Clinical endometritis	22.73^{a}	12.14^{b}	6.70^{c}	$16.43^{a,b}$	0.000

a, b, c values with superscripts within row varied significantly from each other.

Table 7: Occurrence of reproductive diseases on the basis of season in bovines

Diseases	**Occurrence (%)**			**P-value**
	Rainy	**Winter**	**Summer**	
Anestrus	18.39	15.01	15.95	0.300
RBS	56.43	56.80	59.97	0.372
Dystocia	3.93	5.48	3.28	0.329
Mastitis	11.79	12.78	12.25	0.887
Udder edema and abscess	3.39^{a}	0.41^{b}	0.00	0.001
Uterine and vaginal prolapse	2.32^{a}	2.64^{a}	5.13^{b}	0.010
Retained placentra	0.71	1.22	1.14	0.669

a, b values with superscripts within row varied significantly from each other.

Table 8: Occurrence of reproductive diseases on the basis of season in small ruminants

Diseases	**Occurrence (%)**			**P-value**
	Rainy	**Winter**	**Summer**	
Dystocia	39.78^{a}	42.20^{a}	72.38^{b}	0.000
Mastitis	34.16^{a}	30.25^{a}	15.76^{b}	0.000
Udder edema abscess	16.40^{a}	19.65^{a}	6.00^{b}	0.000
Clinical endometritis	9.66^{a}	$7.90^{a,b}$	5.86^{b}	0.052

a, b values with superscripts within row varied significantly from each other.

significant (P<0.01) variations were existed in the occurrences of udder edema and abscess, uterine and vaginal prolapse, and retained placenta.

Table 8 shows highest occurrence of dystocia (72.38%) significantly (P<0.01) in summer; mastitis (34.16%) significantly (P<0.01) and clinical endometritis (9.66%) insignificantly (P>0.05) in rainy season; udder edema and abscess (19.65%) significantly (P<0.01) in winter season in caprine and ovine.

DISCUSSION

The prevalence of reproductive diseases or disorders in ruminants attended in the veterinary teaching hospital, BAU during 15 years (2004-2018) was studied and results showed the actual scenario of field. Effects of breed, age and season on reproductive diseases and disorders in ruminants were also noted. Overall occurrence of reproductive diseases was 13.48%, which is lower than the finding of Maruf (2012) who recorded

23% reproductive disorders in Chittagong district of Bangladesh. Hence, the difference between the finding of current study and previous report might be due to geographical variation. This study revealed that the main reproductive problems were repeat breeding syndrome (46.55%), anestrous (14.74%), mastitis (13.97%), dystocia (12.79%), retained placenta (5.89%), uterine & vaginal prolapse (3.49%), clinical endometritis (1.42%), udder edema and abscess (1.14%) for bovine, whereas, mastitis (29.18%), dystocia (28.83%), udder edema and abscess (23.18%), clinical endometritis (18.80%) for small ruminants (caprine and ovine). This finding is in agreement with Khan *et al.* (2016) who documented RBS (24.61%), anestrus (31.79%), mastitis (19.3%), dystocia (7.75%), retained placenta (7.32%) as major productive problems. Some variation in prevalence between two studies might be due to the differences in management and breed of the animals as well as environmental factors.

The occurrence of Anestrus (14.74%) observed in this study is similar to research finding reported by Shiferaw *et al.* (2005). They noted that the risk variables for anestrus in dairy cows are poor body conditions compounded by malnutrition, lactation, management and environmental stress.

The occurrence of repeat breeding syndrome in bovine (RBS) (46.55%) found in this study is consistent with the result of Shamsuddin *et al.* (2011). RBS may be caused by a variety of variables including sub fertile bulls, endocrine imbalance, malnutrition, reproductive tract infections, inappropriate semen handling and incorrect insemination or heat detection (Arthur *et al.*, 1989). The occurrence of RBS (67.07%) was found significantly ($P<0.01$) highest in Holstein Friesian crossbred cows. This finding is in agreement with the study of Hussain (2002) who reported that RBS was more prevalent in crossbred than local cows. This may be due to inadequate adaptation of the Holstein-Friesian to the climate of the area consisting poor housing and management. RBS was found significantly ($P<0.01$) highest in >6yrs aged cows which is in consistent with the study of Hodel *et al.* (1995) who reported aged cows having higher incidences of RBS than young.

The occurrence of mastitis 13.97% and 29.18% in bovine and caprine, respectively is more or less similar to the findings of Almaw *et al.* (2008) who recorded 34.4% mastitis prevalence in milk farms of Ethiopia. The predominant risk variables liable for the elevated incidence of bovine and caprine mastitis include bad hygiene in animal households and milking, absence of post-milking teat dipping and animal variables (phase of lactation, parity and breeding) (Mdegela *et al.*, 2005; Kivaria *et al.*, 2007). In addition, udder edema and abscess are also recorded as a common reproductive disorder of ruminants in this study, which predispose animal to mastitis. Udder edema and abscess are accompanied with dystocia, uterine prolapse, retained placenta, clinical endometritis and consequently may lead to infertility and sometimes death (Mulligan *et al.*, 2006).

This study reported 12.79% and 28.83% cases dystocia for bovine and small ruminants, respectively in the VTH, BAU. Dystocia was reported to influence up to 50% of births in dairy cattle in coastal Tanzania (Swai *et al.*, 2005). Dystocia increases the likelihood of retained placenta in dairy and postpartum uterine diseases in cows (Dohmen *et al.*, 2000; Swai *et al.*, 2005).

The prevalence of retained placenta (5.89%) of this study is similar to the findings of Swai *et al.* (2005). Possible causes of retained placenta are nutritional deficiencies, infectious diseases and genetic makeup of an animal. This study reported that retained placenta was significantly highest ($P<0.01$) in winter season, which is agreement with the result of Verma und Mishra (1986).

The occurrence of uterine and vaginal prolapse (3.49%) was more or less similar to the findings of Mandali *et al.* (2004) who recorded 5.2% prevalence rate. Henricks *et al.* (2011) suggested that enhanced estrogen concentrations with reduced progesterone and relaxin may trigger relaxation of the pelvic ligaments and surrounding soft tissue structures, particularly during last two weeks of pregnancy. The prevalence of clinical endometritis in bovine and small ruminants was 1.42% and 18.80%. It is lower than the prevalence rate (38.9%) reported by Balasundaram (2008). Clinical endometritis can be caused by a number of factors, including infectious agent, parturition in unhygienic condition, retained placenta, dystocia and vaginal prolapse. Hence, the difference between the finding of current study and previous report might be resulted from variation in predisposing factors.

The observations of this retrospective study conform to the study of previous published reports of Khan *et al.* (2016), Salasel *et al.* (2010) and Bangar *et al.* (2015). Khan *et al.* (2016) have found a significant difference in the incidence of reproductive disorders with respect to breed, age, and parity. They have documented that genotype had a significant effect ($P<0.05$) on RBS, dystocia, retention of placenta, clinical endometritis, anestrus and abortion. Salasel *et al.* (2010) stated that the occurrence of abortion, clinical endometritis, cystic ovaries, vaginal prolapse, uterine prolapse, retained placenta, dystocia,

anestrus, and repeat breeding syndrome vary with age of animals. On the other hand, Bangar *et al.* (2015) observed a positive association of season with incidences of various diseases in cattle.

However, this study documented that possible risk variables responsible for the occurrence of recognized reproductive health problems include species, breeds, seasons and age of ruminants. The results obtained from this retrospective study might be helpful for the Veterinarians to make strategies to control the reproductive diseases in ruminants of Bangladesh.

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References

Ali MH, Bhuiyan MKJ, Alam MM, 2011. Retrospective epidemiologic study of diseases in ruminants in khagrachari hill tract district of bangladesh. *Bangladesh Journal of Veterinary Medicine* 9: 145–153.

Almaw G, Zerihun A, Asfaw Y, 2008. Bovine mastitis and its association with selected risk factors in smallholder dairy farms in and around bahir dar, ethiopia. *Tropical Animal Health and Production* 40: 427–432.

Arthur GH, Noaks DE, Pearson H, 1989. Veterinary Reproduction and Obstetrics. 7. Auflage. W.B. Saunders Company Limited London Philadephia Toronto Sydney Tokoyo.

Balasundaram B, 2008. Influence of genetic and non-genetic factors on incidence of reproductive disorders in karan fries cows. *Indian Journal of Animal Reproduction* 32(2): 19–21.

Bangar YC, Dohare AK, Kolekar DV, Avhad SR, Khan TA, 2015. Seasonal variation in morbidity pattern in cattle by log-linear model approach. *Journal of Applied Animal Research* 43(3): 283–286.

Dohmen MJW, Joop K, Sturk A, Bols PEJ, Lohuis JACM, 2000. Relationship between intrauterine bacterial contamination, endotoxin levels and the development of endoclinical endometritis in postpartum cows with dystocia or retained placenta. *Theriogenology* 54: 1019–1032.

Henricks DM, Dickey JF, Hill JR, Johnston WE, 2011. Plasma estrogen and progesterone levels after mating, and during late pregnancy and postpartum in cows. *Endocrinology* 90(5): 1336–1342.

Hodel F, Moll J, Kunzi N, 1995. Factor affecting fertility in cattle. *Schrtteize Fleckrtieh* 4: 14–24.

Hussain MM, 2002. Improvement of conception in repeat breeding cows using synthetic gonadotropin releasing hormone (gnrh).

Khan MH, Manoj K, Pramod S, 2016. Reproductive disorders in dairy cattle under semi-intensive system of rearing in north-eastern india. *Veterinary World* 9(5): 512–518.

Kivaria FM, Noordhuizen JPTM, Msami HM, 2007. Risk factors associated with the incidence rate of clinical mastitis in smallholder dairy cows in the dar es salaam region of tanzania. *Journal of Veterinary Science* 173: 623–629.

Lobago F, Bekana M, Gustafasson H, Kindhal H, 2006. Reproductive performance of dairy in small holder production system in selalle, central ethiopia. *Tropical Animal Health and Production* 38: 333–342.

Mandali GC, Patel PR, Dhami AJ, Raval SK, 2004. Epidemiological surveillance on effect of housing, hygiene and nutritional status on periparturient disorders in buffaloes. *Indian Journal of Dairy Science* 57(2): 132–136.

Maruf AA, 2012. Prevalence of reproductive disorders of crossbred cows in selected areas of the chittagong district of bangladesh.

Mdegela RH, Karimuribo E, Kusiluka LJM, Kabula B, Manjurano A, Kapaga AM, Kambarage DM, 2005. Mastitis in smallholder dairy and pastoral cattle herds in the urban and peri-urban areas of the dodoma municipality in central tanzania. *Livestock Research for Rural Development* 17: 11.

Mulligan F, O'Grady L, Rice D, Doherty M, 2006. Production diseases of the transition cow: Milk fever and subclinical hypocalcaemia. *Irish Veterinary Journal* 59(12): 697–702.

Pallab MS, Ullah SM, Uddin MM, Miazi OF, 2012. A cross sectional study of several diseases in cattle at chandanaish upazilla of chittagong district. *Scientific Journal of Veterinary Advances* 1: 28–32.

Rahman MA, Islam MA, Talukder AK, Parvin MS, Islam MT, 2012. Clinical diseases of ruminants recorded at the patuakhali science and technology university veterinary clinic. *Bangladesh Journal of Veterinary Medicine* 10: 63–73.

Salasel B, Mokhtari A, Taktaz T, 2010. Prevalence, risk factors for and impact of subclinical and clinical endometritis in repeat breeder dairy cows. *Theriogenology* 74(7): 1271–1278.

Sarker MAS, Aktaruzzaman M, Rahman AKMA, Rahman MS, 2013. Retrospective study of clinical diseases and disorders of cattle in sirajganj district in bangladesh. *Bangladesh Journal of Veterinary Medicine* 11: 137–144.

Shamsuddin M, Alam MG, Ahmed JU, 2011. Reproductive disorders of crossbreed cow. *Bangladesh Veterinary Journal* 22(24): 21–28.

Shiferaw Y, Tenhagen BA, Bekana M, Kassa T, 2005. Reproductive disorders of crossbred dairy cows in the central highlands of ethiopia and their effect on reproductive performance. *Tropical Animal Health and Production* 37: 427–441.

Swai ES, Bryant MJ, Karimuribo ED, French NP, Ogden NH, Fitzpatrick JL, Kambarage DM, 2005. A cross sectional study of reproductive performance of smallholder dairy cows in coastal tanzania. *Tropical Animal Health and Production* 37: 513–525.

Talukder MAS, Khandoker MAMY, Rahman MGM, Islam MR, Khan MAA, 2005. Reproductive problems of cow at bangladesh agricultural university dairy farm and possible remedies. *Pakistan Journal of Biological Sciences* 8: 1561–1567.

Verma RP, Mishra RR, 1986. Incidence of certain reproductive disorder in different breeds of cattle. *Indian Veterinary Journal* 61: 169–170.

Abstract in Bengali

বাংলাদেশ কৃষি বিশ্ববিদ্যালয় এর ভি টি এইচ-এ আগত রোমন্থনকারী প্রাণির প্রজননজনিত রোগসমূহের পূর্ববর্তী (২০০৪-২০০৮) প্রাদূর্ভাবের হার বিষয়ক গবেষনাঃ বাংলাদেশ কৃষি বিশ্ববিদ্যালয় এর ভেটেরিনারি টিচিং হাসপাতালে (ভি টি এইচ) ২০০৪ সাল থেকে ২০১৮ সাল পর্যন্ত আগত রোমন্থনকারী প্রাণির প্রজননজনিত রোগসমূহের প্রাদূর্ভাবের হার এই গবেষণাটিতে পর্যালোচনা করা হয়। সর্বমোট ৩২৯৮১ রোগাক্রান্ত প্রাণির মধ্যে প্রজননজনিত রোগের প্রাদূর্ভাবের হার ১৩.৪৮%। গাভীতে রেকর্ড হওয়া আটটি রোগের মধ্যে, রিপিট ব্রিডিং সিন্ড্রোম (৪৬.৫৫%) এর প্রদূর্ভাবের হার ছিল সবচেয়ে বেশি; পর্যায়ক্রমে, গরম না হওয়া (১৪.৭৪%), ওলান প্রদাহ (১৩.৯৭%), ডিস্টোকিয়া (১২.৯%), গর্ভফুল আটকে যাওয়া (৫.৯৯%), জরায়ু ও যোনি বাইরে বের হয়ে আসা (৩.৪৯%), জরায়ুর প্রদাহ (১.৪২%), ওলানে ইডিমা ও ফোড়া (১.১৪%) এর প্রাদূর্ভাবের হার দেখা যায়। ছোট রোমন্থনকারী প্রাণি ছাগল এবং ভেড়ার জাঁতের মধ্যে, ওলান প্রদাহ (২৯.১৮%) সবচেয়ে বেশি; পর্যায়ক্রমে, ডিস্টোকিয়া (২৮.৮৩%), ওলানে ইডিমা ও ফোড়া (২৩.১৯%), জরায়ুর প্রদাহ (১৮.৮০%) এর প্রদূর্ভাবের হার দেখা যায়। হোলস্টিন-ফ্রিজিয়ান সংকরজাতের গাভীতে রিপিট ব্রিডিং সিন্ড্রোম (৬৭.০৭%) এবং জরায়ু ও যোনি বাইরে বের হয়ে আসা রোগের প্রাদূর্ভাবের হার (৬.০৮%) এবং শাহিওয়াল সংকরজাতে ওলান প্রদাহ (২২.৬২%) ও ওলানে ইডিমা ও ফোড়া (৯.৫২%) এর হার তাৎপর্যপূর্ণভাবে (P<0.01) সবচেয়ে বেশি দেখা যায়। ব্লাক বেঙ্গল ছাগলে ডিস্টোকিয়া (৫৫.৯৫%),%), ওলান প্রদাহ (২৫.৮৬%), ওলানে ইডিমা ও ফোড়া (১৭.৫২%) এবং ভেড়াতে জরায়ুর প্রদাহের (১৩.৭০%) প্রাদূর্ভাবের হার বেশি দেখা যায়। ছয় বছরের বেশি বয়সের গাভীতে রিপিট ব্রিডিং সিন্ড্রোম (৬৩.২৯%) ও ওলান প্রদাহ (১৭.০৬%) এবং তিন বছরের কম বয়সের গাভীতে গরম না হওয়া (২৭.১৭%) এর প্রাদূর্ভাবের হার ছিল সবচেয়ে বেশি। দুই থেকে চার বছর বয়সের ছোট রোমন্থনকারী প্রাণিতে ডিস্টোকিয়া (৫১.০৩%) ও ওলান প্রদাহ (৩৪.১৬%) প্রাদূর্ভাবের হার তাৎপর্যপূর্ণভাবে (P<0.01) সবচেয়ে বেশি দেখা যায়। গাভীতে শীতকালে গর্ভফুল আটকে যাওয়া (৫.৬৮%) রোগের প্রাদূর্ভাবের হার তাৎপর্যপূর্ণভাবে (P<0.01) সবচেয়ে বেশি দেখা যায়। ছোট রোমন্থনকারী প্রাণিতে গরমকালে ডিস্টোকিয়া (৭২.৩৮%), বর্ষাকালে ওলান প্রদাহ (৩৪.১৬%) ও শীককালে ওলানে ইডিমা ও ফোড়া (১৯.৬৫%) রোগের প্রাদূর্ভাবের হার তাৎপর্যপূর্ণভাবে (P<0.01) সবচেয়ে বেশি দেখা যায়। গবেষণার ফলাফলে রোমন্থনকারী প্রাণীর প্রজননজনিত রোগের প্রাদূর্ভাবের উপর প্রজাতি, জাত, বয়স এবং মৌসমের উল্লেখ্যযোগ্য প্রভাব দেখা যায়। এই গবেষণাটি খামারে রোমন্থনকারী প্রাণির প্রজননজনিত রোগসমূহের প্রতিরোধের জন্য কৌশল গ্রহনে পশুচিকিৎসকদের সহায়তা করতে পারে।