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Original Research Article

Incidence of Repeat Breeding in Cows In and Around Kumarganj, Faizabad (Uttar Pradesh), India

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Keywords

Incidence, repeat breeder, pyometra, reproductive disorder

A B S T R A C T

A retrospective study was carried out to evaluate incidence of various reproductive disorders in cows during period of 2010 - 2014 at Teaching Veterinary Clinical Complex (T.V.C.C.) of C.V.Sc. & A.H., N.D.U.A.&T., Kumarganj, Faizabad, Govt. Veterinary Hospitals Baldirai, Amethi and Govt. Veterinary Hospitals Haringtonganj, Faizabad, U.P. Incidences of reproductive disorders were reported from data available in record of case register at T.V.C.C, Baldirai and Haringtonganj from July 2010 to June 2014 in cattle. The overall incidence of reproductive disorders at T.V.C.C, Baldirai and Haringtonganj were reported as 20.18 %, 21.08 % and 31.74 %, respectively. Overall incidence of repeat breeder, retention of placenta, anestrous, endometritis, prolopse and pyometra were observed as 3.74 %, 1.92 %, 3.62 %, 2.81 %, and 1.08 %, respectively at T.V.C.C, 6.28%, 2.04 %,6.97 %,1.79 %, 2.27 %, 1.99 %, respectively at Baldirai, and 6.05 %, 2.00 %, 11.30 %, 2.13 %, 1.36 %and 1.53 %, respectively at Harigtonganj. Incidence of repeat breeding was highest in summer season and minimum in autumn season at all the recorded centre.

Introduction

Incidence of infertility in India has been reported to vary between 15 to 20 percent, majority of which is due to repeat breeding (Sreemannarayana and Rao, 1997). The Incidence of repeat breeding varies between 5-32% in cows and 6-30% in buffaloes (Gupta *et al.*, 2005). Taraphder *et al.*, (2002) reported 12.14 % incidence of repeat breeding in Murrah buffaloes. Incidence of repeat breeding was far higher in crossbred cows (17.57%) as compared to buffaloes (12.74%) and indigenous cows (8.64%) and may be attributed to frequent occurrence of dystocia in crossbred cows followed by retention of placenta and metritis/pyometra/endometritis complex which leads to high incidence of repeat breeding. Mandefro *et al.*, (2014) had conducted a study in Mekelle the capital city of Tigray regional state from November

2013 to April 2014 with the objective to establish the prevalence of repeat breeder syndrome (RBS) in local and crossed breed cows and to assess different husbandry factors that predispose the animal into this condition. A total of 384 dairy cows 53 heifers and 331 multiparous cows were included in the present study. The total prevalence of repeat breeding in Mekelle was 7.29% (n=28). Higher prevalence of RBS (7.53%) was recorded in crossbreed cows/heifers and the prevalence of RBS was significantly higher in heifers 22.64% (n=12) in comparison to multiparous cows. In conclusion, repeat breeder cow syndrome is high in Mekelle dairy cows and the prevalence is much higher in heifers compared to multiparous cows particularly in the cross breed than the local breed.

Uterine infections are the major cause of repeat breeding condition leading to reduced reproductive efficiency, increase in inter calving period and reduce in calf crop. Grohn (1995) reported 7.6 percent incidence of metritis in dairy cows. Sagartz and Hardenbrook (1971) reported endometritis in 77% infertile cows. In another study Hartigan *et al.,* (1972) observed that 50% of genital tract obtained from an abattoir showed histological evidence of endometritis.

Studies focussing on clinical endometritis (CE) report on prevalences of the disease ranging from 18 to 37 % (Etherington *et al.,* 1984, Bartlett *et al.,* 1986, Markusfeld, 1987, Drillich *et al.,* 2002). Studies on subclinical endometritis (SCE) found prevalences in the range between 12 and 94 % (Kasimanickam *et al.,* 2004, Raab, 2004, Gilbert *et al.,* 2005, Hammon *et al.,* 2006, Barlund *et al.,* 2008). Different study designs and inconsistent definitions of CE and SCE hinder a valid comparison of the results of these studies. The prevalence of clinical und subclinical endometritis depends on the occurrence of early post-partum uterine diseases (Benzaquen *et al.,* 2007, Drillich *et al.,* 2001) the time of examination, and the diagnostic technique (Drillich *et al.,* 2002, LeBlanc *et al.,* 2002a, Falkenberg and Heuwieser 2005).

Materials and Methods

A retrospective study was carried out to evaluate incidence of various reproductive disorders in cows during period of 2010 - 2014 at Teaching Veterinary Clinical Complex (T.V.C.C.) of C.V.Sc. & A.H., N.D.U.A. & T., Kumarganj, Faizabad, Govt. Veterinary Hospitals Baldirai, Amethi and Govt. Veterinary Hospitals Haringtonganj, Faizabad, U.P.

Incidence of reproductive disorder were recorded from the data available in the form of cases registered as Instructional Livestock Farm Complex and cases coming at Teaching Veterinary Clinical Complex, Veterinary hospitals of Baldirai & Haringtonganj lying from July 2010 to June 2014. The cervical mucus from these cows were collected at pre and post-treatment estrus, visually examined and tested for change in colour, intensity to white side test and pH. The effect of different treatment on haematological & serum biochemical profile was observed.

Calculation of incidence rate of reproductive disorders

A retrospective study was carried out to find out the incidence of reproductive disorders in cows of Kumarganj and its adjacent area. For this, data of five years were be collected from the records of Teaching Veterinary Clinical Complex, Instructional Livestock Farm Complex and Veterinary hospitals lying adjacent to 20 Km from NDUAT

Kumarganj, Faizabad. By using these data, Incidence was calculated by using the number of reproductive disorder due to a specific disease as numerator divided by the total disease as denominator during the study period.

Incidence (%) =

Number of animal affected by particular disorder during the period Total no. of cases presented during the period x100

Preparation of experimental animals

Gynecological cases were screened to identify repeat breeder cows. The cases of Instructional Livestock Farm Complex and cases coming at Teaching Veterinary Clinical Complex and Veterinary hospitals lying adjacent to Kumarganj area were used for the study.

Selection of repeat breeder cows affected with endometritis

Twenty four (n=24) repeat breeder cow were selected for the study. The repeat breeder animals will be confirmed by history, thorough per rectal examination and physico-chemical characteristics of cervical mucus. The animals with purulent or mucopurulent estrual discharge or containing white flakes and positive reaction to white side test (Popov, 1969) was considered as positive for endometritis. Moreover, animals with history of repeat breeding and clear discharge but positive to white side test were also be included in the present study.

Collection of cervical mucus

Estrual cervical mucus from all the animals was collected at 8 to 12 hr after the onset of behavioural estrus described by Dhillon *et al.,* (2006). The vular and perineum region were washed with antiseptic solution and wiped properly with absorable sterile cotton. The internal genitalia was massaged (per rectum) and mucus flown out was collected in sterilized disposable petridish.

White side test

For conducting white side test 1 mL of oestrual cervical mucus was heated with equal volume of 5 to 10% sodium hydroxide (Merck, Mumbai, India) up to boiling point and after cooling the intensity of colour changes were studied and graded as normal (turbid or no colour), mild infection (light yellow colour), moderate infection (yellow colour) and severe infection (dark yellow colour).

pH

The pH of the cervical mucus was assessed using pH indicator strips. Each pH strip was inserted approximately 5 cm into each cow's vagina and pressed against the left lateral vaginal wall. Strips were maintained in the vagina for approximately ten seconds before removal.

Results and Discussion

The overall incidence of various reproductive disorders at T.V.C.C., Govt. Veterinary Hospitals Baldirai and Haringtonganj was reported as 20.18, 21.08 and 31.74 %, respectively in cattle.

However, the highest incidence of reproductive disorders was found with repeat breeding as 4.39 % at T.V.C.C. and anestrus 6.97, 11.30 % at Veterinary Hospitals Baldirai and Haringtonganj, respectively. In present finding, the overall incidence of repeat breeder in cows were reported as 3.74 %, 6.28 and 6.05 % at

T.V.C.C, Baldirai and Haringtonganj, respectively. (Table 4, 5, 6)

The various worker had reported incidence of repeat breeder from 5.5 - 33.3% (Kaikini *et al.,* 1983 and Kumareson *et al.,* 2009). Variation of repeat breeder in different countries was recorded as 0.61 -55.55% in buffaloes (Singh *et al.,* 1984) and 1.29-13.33% in cattle (Kakar *et al.,* 1997; Getachew and Moges, 2014). Jainuddin and Hafez, (1993) observed that incidence of repeat breeding is higher in artificially inseminated cows than naturally bred cows. Metritis (clinical and sub clinical), milk fever, dystocia and retained placenta had significant association with repeat- breeders (Erb and Martin, 1980; Alam *et al.,* 2007; Salasel *et al.,* 2010). Error in estrus detection and improper timing of artificial-insemination further aggravates the situation.

Highest incidence of repeat-breeders was recorded in summer season in cattle and this might be due to thermal stress. Variation in incidence of these conditions might be partially explaining the wider distribution of weather in different country.

The overall incidence of retention of placenta in cows was observed that 1.92%, 2.04 % and 2.00 % at T.V.C.C, Baldirai and Haringtonganj, respectivel. Khan (1994), recorded the relative incidence of retention of placenta in cattle as 4.63 %. Various workers reported the incidence of retention of placenta in cattle in the range of 0.8-26 % (Getachew and Moges, 2014; Kakar *et al.,* 1997) and 2.58- 23.2% in buffaloes (Samad *et al.,* 1987; Prasad and Prasad, 1998; Rasheed, *et al.,* 2010 and Akhtar *et al.,* 2012). These differences might be due to variation in management practices and hygienic condition, which differ from time to time and place to place. Higher incidence of retention of placenta in cattle might be due to more number of cross bred animals were reported during the study period.

Higher incidence of retention of placenta reported in summer season 2.04 % at TVCC. This condition might be due to poor managemental condition adopted by the farmers to overcome summer stress, while in Baldirai and Haringtonganj higher incidence of retention of placenta was reported in rainy season due to improper managemental and unhygienic conditions which differ from time to time and space to space.

The overall incidence of anoestrus was observed as 3.62, 6.97 and 11.30 % at T.V.C.C., Baldirai and Haringtonganj, respectively (Table 4, 5, 6)**.** Our results were comparable with the observation of Paragonkar & Bakshi, 1987 whereas, lower values were observed by Narladkar *et al.,* (1994) and higher values were observed by Agarwal and Buck, (1968), Verma *et al.,* (2003) and Getachew and Moges, (2014).The variation in incidence of anoestrus has been attributed to factors like under nutrition, severe negative energy balance, poor heat detection and body condition score (BCS). Negative energy balance is strongly associated with the length of post-partum anovulatory period through attenuation of L.H. pulse frequency and low level of blood glucose, insulin and IGF-1, the collectively estrogen production by dominant follicles.

The incidence of endometritis was observed as 2.81, 2.79 and 2.13 per cent at T.V.C.C., Baldirai and Haringtonganj, respectively (Table 4, 5, 6.). The prevalence of endometritis during the study period was within the range as observed in the other study that based diagnosis of endometritis by rectal palpation (Grohn *et al.,* 1990; Tomar and Tripathi, 1994).

Table.1 Incidence of reproductive disorder in cattle at T.V.C.C N.D.U.A. & T., Kumarganj, Faizabad during period from 2010 – 2014

Month	Repeat breeder (%)	ROP (%)	Anestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD	Total population
July	2.57 (8)	2.57 (8)	2.57 (8)	2.89 (9)	2.25 (7)	2.57 (8)	0.32 (1)	0.00 (0)	0.64 (2)	15.11 (47)	311
August	3.13 (10)	0.31 (1)	2.89 (9)	2.57(8)	0.94 (3)	0.94 (3)	0.31 (1)	1.88 (6)	2.19 (7)	15.04 (48)	319
September	2.5 (8)	0.93 (3)	3.34 (11)	2.5 (8)	0.31 (1)	2.5 (8)	1.87 (6)	3.75 (12)	0.625 (2)	18.43 (59)	320
October	2.63 (7)	2.25 (6)	2.25 (6)	3.00 (8)	1.12 (3)	2.63 (7)	1.87 (5)	1.87 (5)	0.37 (1)	18.04 (48)	266
November	4.39 (12)	1.46 (4)	4.39 (12)	2.19 (6)	1.09 (3)	2.19 (6)	1.09 (3)	2.93 (8)	1.83 (5)	21.611 (59)	273
December	3.09 (17)	4.23 (13)	5.21 (16)	2.6 (8)	0.325 (1)	1.62 (5)	0.977 (3)	4.56 (14)	0.651 (2)	25.73 (79)	307
January	4.85 (15)	1.94 (6)	3.55 (11)	1.61 (5)	0.97 (3)	1.61(5)	1.29 (4)	3.23 (10)	0.64 (2)	19.74 (61)	309
February	3.1 (10)	2.17 (7)	3.41 (11)	4.34 (14)	1.24 (4)	1.24 (4)	1.24 (4)	3.1 (10)	0.93 (3)	20.80 (67)	322
March	2.78 (9)	1.23 (4)	3.09 (10)	4.02 (13)	0.92 (3)	1.85 (6)	1.54 (5)	3.4 (11)	1.54 (5)	20.43 (66)	323
April	4.19 (11)	2.67 (7)	3.05 (8)	1.14 (3)	1.14 (3)	1.9 (5)	1.9 (5)	5.72 (15)	1.52 (4)	23.28 (61)	262
May	4.01 (11)	2.55 (7)	3.28 (9)	4.01 (11)	1.09 (3)	1.82 (5)	1.09 (3)	2.55 (7)	0.72 (2)	21.16 (58)	274
June	5.4 (16)	1.0 (3)	3.04 (9)	2.70 (8)	1.68 (5)	2.70 (8)	1.68 (5)	4.72 (14)	0.67 (2)	23.64 (70)	296

Table.2 Incidence of reproductive disorder in cattle at Veterinary Hospitals Baldirai, Amethi, U.P. during period 2010-2014

Month	Repeat breeding (%)	Rop (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	Rd	Total population
July	6.29 (9)	2.10 (3)	8.39 (12)	2.10 (3)	2.10 (3)	2.10 (3)	2.09 (3)	2.80 (4)	2.79 (4)	30.77 (44)	143
August	3.55 (5)	2.84 (4)	6.38 (9)	3.55 (5)	3.55 (5)	2.13 (3)	2.83 (4)	2.13 (3)	0.71(1)	27.66 (39)	141
September	5.03 (8)	3.77 (6)	6.28 (10)	2.51 (4)	3.14 (5)	3.14 (5)	2.51 (4)	2.51 (4)	3.14 (5)	32.08 (51)	159
October	7.07 (14)	2.02 (4)	5.55 (11)	1.01 (2)	2.52 (5)	1.01 (2)	6.06 (12)	1.51 (3)	3.53 (7)	30.30 (60)	198
November	6.80 (13)	3.14 (6)	6.80 (13)	2.09 (4)	2.61 (5)	1.57 (3)	1.57 (3)	1.57 (3)	0.52 (1)	26.70 (51)	191
December	1.47 (2)	0.73 (1)	8.82 (12)	1.47 (2)	2.94 (4)	0.00 (0)	2.20 (3)	2.94 (4)	0.73 (1)	21.32 (29)	136
January	3.52 (6)	1.17(2)	6.47 (11)	0.58 (1)	1.17 (2)	1.17 (2)	0.58 (1)	1.76 (3)	1.17 (2)	17.65 (30)	170
February	2.11 (4)	1.58 (3)	3.70 (7)	1.58 (3)	2.11 (4)	2.11 (4)	3.17 (6)	4.23 (8)	1.05 (2)	21.69 (41)	189
March	5.35 (9)	1.19 (2)	6.54 (11)	1.78 (3)	1.19 (2)	1.78 (3)	2.38 (4)	3.57 (6)	2.97 (5)	26.79 (45)	168
April	9.09 (13)	3.49 (5)	6.99 (10)	1.39 (2)	0.00 (0)	2.09 (3)	5.59 (8)	3.49 (5)	3.49 (5)	35.66 (51)	143
May	11.59(16)	1.44 (2)	10.86 (15)	0.72 (1)	5.07 (7)	0.00 (0)	2.17 (3)	2.89 (4)	3.62 (5)	38.41 (53)	138
June	12.93(15)	0.00 (0)	9.48 (11)	3.44 (4)	0.86 (1)	5.17 (6)	4.31 (5)	3.44 (4)	2.58 (3)	42.24 (49)	116

Table.3 Incidence of reproductive disorder in cattle at veterinary Hospitals Haringtonganj, Faizabad U.P. during period 2010-2014

Month	Repeat breeding (%)	ROP (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD	Total population
July	12.99 (23)	3.39 (6)	19.77 (35)	1.69 (3)	1.13 (2)	0.56 (1)	1.69 (3)	2.82 (5)	2.26 (4)	46.33 (82)	177
August	3.87 (6)	2.58 (4)	16.13 (25)	2.58 (4)	0.65 (1)	3.23 (5)	1.29 (2)	1.94 (3)	1.29 (2)	33.55 (52)	155
September	5.03 (9)	1.12 (2)	16.76 (30)	1.68 (30	2.79 (5)	0.56 (1)	2.23 (4)	3.35 (6)	0.00 (0)	33.52 (60)	179
October	4.50 (9)	3.50 (7)	12.00 (24)	1.50 (3)	1.50 (3)	1.50 (3)	2.00 (4)	2.50 (5)	1.00 (2)	30.00 (60)	200
November	2.93 (7)	1.26 (3)	18.41 (44)	0.42 (1)	2.09 (5)	1.67 (4)	0.83 (2)	2.09 (5)	1.67 (4)	31.38 (75)	239
December	6.50 (13)	1.00 (2)	19.00 (38)	1.50 (3)	0.50 (1)	0.00 (0)	0.50 (1)	0.50 (1)	0.50 (1)	30.00 (60)	200
January	2.73 (5)	0.55 (1)	10.38 (19)	0.55 (1)	0.55 (1)	3.28 (6)	0.54 (1)	1.64 (3)	0.00 (0)	20.22 (37)	183
February	4.22 (10)	2.95 (7)	7.17 (17)	3.38 (8)	1.27 (3)	0.84 (2)	0.84 (2)	1.69 (4)	1.27 (3)	23.62 (56)	237
March	5.24 (12)	3.06 (7)	10.04 (23)	1.31 (3)	1.75 (4)	2.62 (6)	3.05 (7)	3.06 (7)	0.87 (2)	31.00 (71)	229
April	5.14 (19)	2.29 (4)	8.57 (15)	5.14 (9)	1.71 (3)	1.71 (3)	1.71 (3)	2.29 (4)	1.14 (2)	29.71 (52)	175
May	4.66 (9)	1.55 (3)	12.44 (24)	6.741 (3)	1.04 (2)	2.59 (5)	1.03 (2)	1.55 (3)	2.07 (4)	33.68 (65)	193
June	9.55 (17)	0.56 (1)	16.85 (30)	5.06 (9)	1.12 (2)	0.00 (0)	2.80 (5)	1.12 (2)	0.56 (1)	37.64 (67)	178

Table.4 Incidence of reproductive disorder in cattle at T.V.C.C, N.D.U.A&T., Kumarganj, Faizabad during period 2010- 2014 (season-wise)

Month	Repeat breeding (%)	ROP (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD	Total popula-tion
Rainy	2.73 (26)	1.26 (12)	2.94 (28)	2.63 (25)	1.15 (11)	2.00 (19)	0.84 (8)	1.89 (18)	1.15 (11)	16.21 (154)	950
Winter	4.25 (36)	2.71 (23)	4.01 (34)	2.60 (22)	0.82 (7)	2.12(18)	1.30 (11)	3.19 (27)	0.94 (8)	21.98 (186)	846
Autumn	3.56 (34)	1.78 (17)	3.35 (32)	3.35 (32)	1.04 (10)	1.57 (15)	1.36 (13)	3.24 (31)	1.04 (10)	20.33 (194)	954
Summer	4.56 (38)	2.04 (17)	3.21 (26)	2.64 (22)	1.32 (11)	2.16 (18)	1.56 (13)	4.32 (36)	0.92 (8)	22.71 (189)	832
Pool	3.74 (134)	1.92 (69)	3.62 (130)	2.81 (101)	1.08 (39)	1.95 (70)	1.25 (45)	3.12 (112)	1.03 (37)	20.18 (723)	3582

Table.5 Incidence of reproductive disorder in cattle at Veterinary Hospitals Baldirai, Amethi, U.P. during period 2010-2014 (Season-wise)

Month	Repeat breeding (%)	ROP (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD	Total population
Rainy	9.48 (22)	2.93 (13)	6.99 (31)	(12)	2.75 (13)	2.48 (11)	2.48 (11)	2.48 (11)	2.25 (10)	30.24 (134)	443
Winter	5.52 (29)	2.09 (11)	6.85 (36)	1.52 (8)	2.66 (14)	0.95 (5)	3.42 (18)	1.90 (10)	1.71 (9)	26.66 (140)	525
Autumn	3.60 (19)	1.32 (7)	5.50 (29)	1.32 (7)	1.51 (8)	1.70 (9)	2.08 (11)	3.22 (17)	1.70 (9)	22.01 (116)	527
Summer	11.08 (44)	1.76 (7)	9.06 (36)	1.76 (7)	2.01 (8)	2.26 (9)	4.03 (16)	3.27 (13)	3.27 (13)	36.02 (143)	397
Pool	6.28 (114)	2.04 (38)	6.97 (132)	1.79 (34)	2.27 (43)	1.79 (34)	2.85 (56)	2.69 (51)	2.16 (41)	21.08 (399)	1892

Table.6 Incidence of reproductive disorder in cattle at veterinary Hospitals Haringtonganj, Faizabad U.P. during period 2010-2014 (Season-wise)

Month	Repeat breeding (%)	ROP (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD	Total population
Rainy	7.43 (38)	2.34 (12)	17.61 (90)	1.95(10)	1.56 (8)	1.36 (7)	1.76 (9)	2.73 (14)	1.17 (6)	37.96 (194)	511
Winter	4.53 (29)	1.87 (12)	16.58 (106)	1.09 (7)	1.40 (9)	1.09 (7)	1.09 (7)	1.72 (11)	1.09 (7)	30.51 (195)	639
Autumn	4.16 (27)	2.31 (15)	9.09 (59)	1.84 (12)	1.23 (8)	2.15 (14)	1.54 (10)	2.15 (14)	0.77 (5)	25.26 (164)	649
Summer	8.24 (45)	1.46 (8)	12.63 (69)	3.84 (21)	1.28 (7)	1.46 (8)	1.83 (10)	1.64 (9)	1.28 (7)	33.69 (184)	546
Pool	6.05 (142)	2.00 (47)	11.30 (265)	2.13 (50)	1.36 (32)	1.53 (36)	1.53 (36)	2.04 (48)	1.15 (27)	31.47 (37)	2345

Our finding was lower than the observation recorded by Le Blanc (2008), Plöntzke J. *et al.,* (2010) & Machado *et al.,* (2011) and higher than that of Tomar and Tirpathi, (1994) and Prasad and Prasad, (1998) in buffalo & Grohn *et al.,* (1990), Getachew and Moges, (2014) in cattle. The diagnostic method used in this study may be the main reason for low incidence of disease. The prevalence of prolapse was observed as 1.08 %, 2.27 and 1.53 % at T.V.C.C, Baldirai and Haringtonganj, respectively in cattle (Table 4, 5, 6). Our finding in the present study was higher than that observed by Markusfeld, (1987) and comparable to the observation of Murugeppa *et al.,* (1998) and Ahme *et al.,* (2008), but lower than that observed by Nanda and Sharma (1982), Samad *et al.,* (1987) and Rasheed *et al.,* (2010) in buffalo and Kakar *et. al.,* (1997) and Verma *et al.,* (2003) in cows. This variation may be due to variation in the managemental and environmental condition of these studies.

In present study, the incidence pyometra was reported in cows as 1.95 %, 1.79 and 1.53 % at T.V.C.C., Baldirai and Haringtonganj, respectively (Table 4, 5, 6). Our finding in the present study was higher than that observed by Bhattacharya *et al.,* (1970) and Ali *et al.,* (2006) in cattle and Akhtar *et al.,* (2012) & Modi *et al.,* (2011) in buffaloes. The clinical pyometra associated with the factor that cause lesion in the uterus, such as dystocia, improper parturition and retention of fetal membrane (Dubuc *et al.,* 2010; Potter *et al.,* 2010).

Incidences of reproductive disorders were reported from data available in record of case register at T.V.C.C, Baldirai and Haringtonganj from July 2010 to June 2014 in cattle. The overall incidence of reproductive disorders at T.V.C.C, Baldirai and Haringtonganj were reported as 20.18 %, 21.08 % and 31.74 %, respectively. Overall incidence of repeat breeder, retention of placenta, anestrous, endometritis, prolopse and pyometra were observed as 3.74 %, 1.92 %, 3.62 %, 2.81 %, and 1.08 %, respectively at T.V.C.C, 6.28%, 2.04 %,6.97 %,1.79 %, 2.27 %, 1.99 %, respectively at Baldirai, and 6.05 %, 2.00 %, 11.30 %, 2.13 %, 1.36 %and 1.53 %, respectively at Harigtonganj. Incidence of repeat breeding was highest in summer season and minimum in autumn season at all the recorded centre.

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References

Agarwal, S. P., Buck, N. C. (1968). Incidence of abnormal ovarian conditions and their impact on reproduction in breeding herd of cows. *Indian J. Vet. Sci.,* 38: 533–540.

Ahmed and Kawther S. Zaher (2008). A Field Contribution on the Relation Between Reproductive Disorders and Bovine Viral Diarrhea Virus Infection in Buffalo-Cows *American-Eurasia J. Agric. & Environ. Sci.,* 3 (5): 736-742

Akhtar, M. S. Lodhi, L. A., Ayaz, M. M., Faroq, A.A., Husain, M. and Chaudhary, Z. I. (2012). Prevalence of puerperal period reproductive disorder in Nili Ravi buffaloes of different pairty in district Bhawanpur, *Pakistan Vet. J., Anim, Sci.,* 2: 79-82.

Alam, M. G. S., Kamal, M. M. and Ahin, M. M. (2007). Bacteria and fungi in uterine infection in cows. *Bangladesh Veterinarian*, 24: 1-12.

Ali, R., Muhammad, Abdul, J. and

Muhammad, H. R. (2006). Pathological Studies on reproductive Organs of Zebu Cow. *Journal of Agriculture & Social*, 1813-2235.

Barlund, C. S., Carruthers, T. D., Waldner, C. L. and Palmer., C. W. (2008). A comparison of diagnostic techniques for postpartum endometritis in dairy cattle. *Theriogenology*, 69 (6): 714-723.

Bartlett, P. C., Kirk, J. H., Wilke, M. A., Kanenee, J. B. and Mather. E. C. (1986). Metritis complex in Michigan Holstein-Friesian cattle: incidence, descriptive epidemiology and estimated economic impact. *Prev Vet Med.*, 4:235-248.

Benzaquen, M. E., Risco, C. A., Archbald, L. F., Melendez, P., Thatcher, M. J. and Thatcher, W. W. (2007). Rectal temperature, calving-related factors, and the incidence of puerperal metritis in postpartum dairy cows. *J. Dairy Sci.*, 90 (6):2804-2814.

Bhattacharya, P., Luktuke, S. N. and Ray, D. J. (1970). Incidence of normal and pathological condition of female buffalo genitalia in different months. *Indain J.Anim. Sci.*, 40(4): 425- 429.

Dhillon, N. S, Dhaliwal, G. S., Dadarwal, D. (2006). Prevalence of obligate anaerobes and aerobes in uterine lumen of subfertile crossbred cows in relation to physical appearance of cervicovaginal mucus. *Indian J Anim Reprod*., 27(2): 3439.

Drillich, M., Beetz, O., Pfutzner, A., Sabin, M., Sabin, H. J., Kutzer, P., Nattermann, H., and Heuwieser, W. (2001). Evaluation of a systemic antibiotic treatment of toxic puerperal metritis in dairy cows. *J. Dairy Sci.*, 84:2010-2017.

Drillich, M., Bergmann, J., Falkenberg, U., Kurth, A. and Heuwieser, W. (2002). Einfluss der Intensität der Puerperalkontrolle auf die Fruchtbarkeitsleistung von Hochleistungskühen. *Dtsch Tierärztl Wochenschr*, 109:386-390.

Dubuc, J., T. F. Duffield, K. E. Leslie, J. S. Walton, AND S. J. LeBlanc. (2010a). Definitions and diagnosis of postpartum endometritis in dairy cows. *J. Dairy Sci.*, 93:5225-5233.

Erb, H. N. and Martin, S. W. (1980). Inter-relationships between production and reproduction diseases in Holstein cows. *Journal of Dairy Science*, 63: 1911- 1917.

Etherington, W. G., Bosu, W. T. K., Martin, S. W., Cote, J. F., Doig, P. A., and Leslie, K. L. (1984). Reproductive-Performance in Dairy-Cows Following Postpartum Treatment with Gonadotropin-Releasing Hormone and or Prostaglandin - a Field Trial. *Can. J. Comp. Med.*, 48(3): 245-250.

Falkenberg, U., and Heuwieser, W. (2005). Untersuchungen zum Zeitpunkt der Prostaglandin F2alpha-Applikation bei der Behandlung der chronischen Endometritis des Rindes. *Dtsch Tierärztl Wochenschr*, 112:252-256.

Getachew, E. and Moges, N. (2014). Major Reproductive Health Disorders in Cross Breed Dairy Cows in Ada'a District, East Shoa, *Ethiopia Global Veterinaria*, 13 (4): 444-449.

Gilbert, R. O., Shin, S. T., Guard, C. L., Erb, H. N., and Frajblat, M. (2005). Prevalence of endometritis and its effects on reproductive performance of dairy cows. *Theriogenology*, 64: 1879-1888.

Gröhn, Y. T., Erb, H. N., McCulloch, C. E., Saloniemi, H.S. (1990). Epidemiology of reproductive disorders in dairy cattle: associations among host characteristics, disease and production. *Preventive Veterinary Medicine*, 8: 25-39.

Gupta, A. G. and Deopurkar, R. L. (2005). Microbial Study of Gynaecologyical Infection in Cattle. *Indian Journal of Animal Reproduction*, 14: 118-119.

Hammon, D. S., Evjen, I. M., Dhiman, T. R., Goff, J. P. and Walters, J. L. (2006). Neutrophil function and energy status in Holstein cows with uterine health disorders. *Vet, Immunol Immunopathol*, 113 (1-2): 21-29.

Hartigan, P. J., Murphy, J. A., Nunn, W. R. and Griffin, J. F. T. (1972). An Investigation in to the Causes of Reproductive Failure in Dairy Cows. Intrauterine Infection and Endometrial Histopathology in Clinically Normal Repeat Breeder Cow. *Irish Vet. J.*, 26: 245-247.

Jainuddin and Hafez E. S. E. (1993). Reproductive failure in female. In: Reproduction in farm animals, 4th edition, Lea and Febiger. *Philadelphia*. pp.13-25.

Kaikini, A. S, Chikalikar, G. K. and Dindorkar, C. V. (1983). Reproductive disorders in Holstein-Friesian x Gir F1 crossbred cows. *Indian Journal of Animal Sciences*, 53: 556-558.

Kakar, M. A., Rasool, G. and Ahmad, F. (1997). Clinical incidence of reproductive disorders in crossbred cows in the province of Balochistan. *Pakistan Veterinary Journal*, 17(1): 9-12.

Kasimanickam, R., Duffield, T. F., Foster, R. A., Gartley, C. J., Leslie, K. E., Walton, J. S. and Johnson, W. H. (2004). Endometrial cytology and ultrasonography for the detection of subclinical endometritis in postpartum dairy cows. *Theriogenology*, 62: 9-23.

Khan, J. R. and Iyer, V. J. (1993). Comparative study of inorganic phosphorus and magnesium level in the serum of regular and repeat breeding cows. *Indian Vet. J.*, 70: 675-676.

Kumeresan A., Pravakaran P. P., Bujarbaruah K. M., Pathak K. A., Chettri, B. and Ahmed S. K. (2009). Reproductive performance of crossbred dairy cows reared under traditional low input production system in the east Himalayas. *Tropical Animal Health and Production*, 41(1): 225-230.

Leblanc, S. J. (2008). Postpartum uterine disease and dairy herd reproductive performance: A review. *Vet. J.*, 176: 102-114.

Leblanc, S. J., Duffield, T. F., Leslie, K. E., Bateman,K. G., Keefe, G. P., Walton, J. S. and Johnson. W. H. (2002a). Defining and diagnosing postpartum clinical endometritis and its impact on reproductive performance in dairy cows. *J. Dairy Sci*., 85: 2223-2236.

Machado, V. S., Kanaer, W. A., Bicalho, M. L. S., Oikonomou, G., Gilber, R. O. and Bicalho, R. C. C. (2011). A novel diagnostic technique to determine uterine health of Holstein cow at 35 days potpartum. *J. Dairy Sci*., 95: 1345-1357.

Mandefro, M. and Negas, G. (2014). Repeat Breeder Syndrome in Dairy Cows. Influence of Breed and Age on Its Prevalence. *World Journal of Agricultural Sciences.*, 10 (4): 200-203.

Markusfeld, O. (1987). Periparturient Traits in Seven High Dairy Herds. Incidence Rates, association with parity, and interrelationships among traits. *Journal of Dairy Science*, 70:158-166.

Modi, L.C., Patel, P. A., Patel, G.G., Joshi, A.H. and Suthar, D.N. (2011). Prevalence of reproductive problems in Buffalo in Mehsana milk–Shed Area of Gujarat. *IJAVMS*, Vol.5, ISSUE, 4: 424-428.

Murugeppa, A., Appannavar, M. M., Patil,

M. M. and Honnappagol, S. S. (1998). Study on placental membrane and its effect on subsequent fertility in Surti buffaloes. *Buffalo Bulletin.*, 17 (2): 35-36.

Nanda, A. S. and R. D. Sharma, (1982). Incidence and aetiology of prepartum prolapse of vagina in buffaloes. *Indian Journal of Dairy Science*, 35 (2): 168-171.

Narladkar, B. W., Bakshi, S.A., Pargaonkar, D., R., Dgraskar, S., U. (1994). Incidence of various reproductive disorders in Deoni cows and their crossbreds. *Liv. Adv.*, 19 (5): 28 – 30.

Pargaonkar, D. R., Bakshi, S.A. (1987). Reproductive disorders of red khandari cows and their crossbreds. *Indian J. Anim. Reprod.*, 8 (1): 18–19.

Plöntzke, J., Madoz, L.V., De La Sota, R. L., Drillich, M., Heuwieser, W. (2010). Subclinical endometritis and its impact on reproductive performance in grazing dairy cattle in Argentina. *Anim Reprod Sci*, 122: 52-57.

Potter, T. J., Fishwick, J., Gordon, P. J. and Sheldon, I. M. (2010). Risk factors for clinical endometritis in postpartum dairy cattle. *Theriogenology*, 74:127-134.

Prasad, S. and Prasad, R.B, (1998). Measures of reproductive estimates in rural buffalo herds of Meerut district of Uttar Pradesh (India). *Buffalo Bulletin*, 17 (2):27-29

Raab, D. (2004). Evaluierung der Cytobrush-Methode zur Diagnostik von subklinischen Endometritiden und Auswirkungen der Entzündung auf die folgende Fruchtbarkeitsleistung von Milchkühen. Dissertation. *Free Universitiy of Berlin.*

Rasheed, A., Rabbani, I., Ahmad, L., Lodhi, A., Ahmad, N. and G. Muhammad. (2010). Prevalence of various reproductive disorders and economic losses caused by genital prolapse in buffaloes. *Pakistan Vet. J.*, 30(1): 44-48.

Sagartz, J. W. and Hardenook, H. J. (1971). A Clinical Bacteriologic and Histologic Survey of Infertile Cow. *J. Am. Vet. Med. Assoc.*, 158: 619-622.

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

Samsad, H. A., Ali, C. S., Najib-ur-Rehman, Ahmad, A. (1987). Clinical incidence of reproductive disorder in buffalo. *Pakistan Vet. J.*, 7(1): 16-19.

Singh, C. S. P., Sharma, D. B., Verma, S. K. and Chauhan, H.V.S. (1984). Comparative studies on Friesian x Sahiwal crossbred cows and buffaloes; Reproductive disorders, birth weight and early growth. *Indian J. Dairy Sci.*, 37 (2):145-149.

Sreemannarayana, O. and Rao, A. V. N. (1997). A comparative study of infertility in crossbred cows and buffaloes under village management. *Indian J.Anim. Reprod.*, 18: 46-47.

Taraphder, S. (2002). Genetic and economic evaluation of Murrah buffaloes for lactation disorder and disposal pattern. PhD thesis submitted to the NDRI, Karnal.

Tomar, S. S and Tripathy, V. N. (1994). Incidence and association among certain reproductive problems in Murrah buffaloes. *Indian Journal of Dairy Science*, 47(12): 1050-1052.

Verma, H. K., Singh G. and Sidhu, S. S. (2003). Incidence of reproductive disorders of buffaloes in different zones of Punjab State (India). *Journal of Research*, Punjab Agricultural University. 40 (1): 79-81.