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Incidence of major reproductive disorders of buffaloes in Agroclimatic zone of Eastern Uttar Pradesh

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Abstract

The present study, incidence of reproductive disorders in 7471 buffaloes were recorded from the data available in the form of case registered at Teaching Veterinary Clinical Complex, College of Veterinary science and Animal Husbandry, N.D.U.A.T, Kumarganj Faizabad from July 2004 to June 2014. The overall incidence of reproductive disorders was reported as 27.68 % in buffaloes. The highest incidence of Reproductive disorders was found with repeat breeding as 4.37 % and the lower incidence was recorded for abortion in buffaloes. It could be inferred that incidence of repeat breeder was highest among the reproductive disorders. These disorders can be managed by adopting good nutritional and manage mental facilities in the herd.

Keywords: incidence, reproductive disorders & buffalo

Introduction

Reproductive and production disorders of buffaloes significantly reduce their productivity which is of great concern of dairy producers worldwide because most reproductive disorders adversely affect the future fertility. The major problems that have direct impact on reproductive performance of buffalo are abortion, dystocia, retained placenta, metritis, prolapse, anoestrus and repeat breeder. Ten to 30% of lactations may be affected by infertility and reproductive disorder (Erb and Martin, 1980) [7] and 3-6% of the herd is culled annually in developed countries for these reasons. Poor reproductive performance can reduce the number of calves born and milk production and may increase the cost of therapy and semen. The following management activities are needed to pursue during the early postpartum period to reach or approach the optimal calving interval: careful surveillance and assistance at calving, prevention of post-parturient diseases, early diagnosis and treatment of postpartum uterine abnormalities, accurate detection of estrus and correct timing of insemination. Bovine reproductive diseases and conditions result in economic losses caused by decreased production and delayed reproduction as well as increased treatment and preventive measurement costs.

Gupta *et al.* (1978) [9] observed that the incidence rate of uterine infection in buffalo (24.7%) was much higher than in cows, in India. Rao (1982) [28] recorded 30% incidence of Endometritis among Indian buffaloes. Moghaddam and Mamoei (2004) [19] recorded an incidence of 29.4% of infertility problems including endometritis and metritis in Iranian local breed buffalo cows. Luktuke *et al.* (1979) [17] observed that incidence of anoestrus is higher (56.0%) in buffalo heifers than cow heifers (36.0%).

Kakar *et al.* (1997) [12] determined the prevalence of various reproductive disorders in 289 buffaloes in splendiferous areas of Nawanshahr and Hoshiarpur, Punjab, India. Repeat breeding was observed in 12.11% of the buffaloes, abortion 9.34%, vaginal prolapse 5.53%, while postpartum uterine prolapse was 31.25%. Saxena, (2004) [32] recorded the incidence of repeat breeding as 5.5 to 33.33 % in cattle and 6 to 30 % in buffaloes. Prasad and Prasad (1998) [27] recorded the data on reproductive performance of 2989 buffaloes and for the purpose interviewed 518 farmers from villages around Western Campus of the University of Modipuram. The incidence of abortion was found to be 4.04 %, stillbirth 0.09 %, dystocia 4.81 %, metritis 3.41 % and retention of fetal membranes 4.01 %.

Ahmad *et al.* (2008) conducted a study on 1850 female buffaloes reared at Lower Egypt.

These animals were gynecological examined by ultrasonography and blood samples were collected during a period of four years (2004- 2008). Out of these animals, 1262 (68.22%) were suffering from reproductive disorders. The recorded reproductive disorders were ovarian inactivity (56.97%), Endometritis (14.10%), delayed puberty (10.30%), mastitis (7.37%), repeat breeding (4.60%), retained placenta (3.25%); abortions (1.51%), vaginal/uterine prolepses (1.03%) and cystic ovaries (0.87%).

Durrani *et al.* (2009) observed the prevalence of reproductive disorders in cattle and buffaloes, which were estimated from the record of Civil Veterinary Hospital, Jia Bagga, district Lahore for the period from January 2004 to December 2007. A total of 1216 cases of obstetrical problems, female reproductive tract infections, reported Anoestrus, repeat breeding and vaginal bleeding were recorded. In buffalo prevalence of retention of foetal membranes (22.8%0), followed by vaginal/uterine prolapse (22.5%), anoestrus (19.9%), uterine infection (12.7%), dystocia (9.8%), torsion of the uterus (7.2%), abortion (3.3%), vaginal infection (1.1%) and repeat breeding (0.7%) was recorded. In cattle corresponding values were 30.6, 19.4, 12.9, 12.9, 11.3, 8.1, 3.2 and 1.6%, respectively.

$$\text{Incidence (\%)} = \frac{\text{Number of animals affected by a particular disorder during the period}}{\text{Total number of reproductive disorders affected cases at TVCC}} \times 100$$

2 Definition of recorded disease taken

A. Repeat breeders (RB)

Cows failing to conceive after a defined number of inseminations (generally three or more) with fertile semen have been classified as repeat breeders (Zemjanis, 1980^[38]; Gunther, 1981; Levine, 1999)^[8].

B. Retained placenta: (ROP)

A cow was considered to have RP when the foetal membranes were visible at the vulva or were identified in the uterus or vagina by vaginal examination more than 24 h after calving.

C. Anoestrus

Lack of expression of the oestrus at an expected time is called Anoestrus. Clinically if a heifer is 18 or more months old or a cow has passed 40 days post-partum but did not show oestrus the condition is referred as Anoestrus.

D. Metritis

Metritis is the inflammation of the uterus generally caused by infectious agents. Usually cows have red to brown discharge during the first two first two weeks after calving. If discharge persists beyond two weeks or if the discharge is foul smelling, this is an evidence of metritis.

E. Pyometra

Pyometra is the accumulation of pus in the uterus. It is a common cause of anoestrus and cows with pyometra should be treated promptly. Postpartum metritis, endometritis and pyometra may be common where cattle and buffalo and heifer are confind at delivery time in a building or area in which others have recently calved.

F. Abortion

Abortion is a condition in which the foetus is delivered live or dead before reaching the stage of viability and in which the delivered foetus is generally visible by naked eyes.

Modi *et al.* (2011)^[18] conducted a survey and found 20541 (54.57%) infertile animals in 242 villages having 163498 breedable age buffaloes. Among all the reproductive disorders, metritis showed that the highest prevalence (48.57%), followed by true anoestrus (20.48%), while the the minimum prevalence was recorded for cervicitis (0.36%), and Pyometra 0.22%). The improvement in feeding and management practiceis yet to be required to ecrease the incidence of reproductive disorders.

Materials and Methods

For Incidence of reproductive disorders in 7471 buffaloes were recorded from the data available in the form of case registered at Teaching Veterinary Clinical Complex, College of Veterinary science and Animal Husbandry, N.D.U.A.T, Kumarganj Faizabad from July 2004 to June 2014.

1 Calculation of incidence rate of reproductive disorders

Incidence was calculated by using the number of reproductive disorder due to a specific disease as numerator divided by the total diseases as denominator during the study period.

3. Statistical Analysis

The influence of various non-genetic factors, viz. period and season of calving on incidence of reproductive disorders associated problems were analyzed by using the Chi-square method (Snedecor and Cochran, 1989). All data were tabulated using Excel program (Microsoft Excel, 2007). Cattle and buffaloes population at different years was analyzed using simple linear regression.

Results and Discussion

The overall incidence of reproductive disorders was reported as 27.68 % in buffaloes (Table 1). The highest incidence of Reproductive disorders was found with repeat breeding as 4.37 % and the lower incidence was recorded for abortion as 0.78 %.

In present finding, the incidence of repeat breeder in buffaloes was observed as 4.37% (Table-1). The various workers have reported incidence of repeat breeder from 5.5 to 33.3% (Kaikini *et al.*, 1983 and Kumeresan *et al.*, 2009)^[11, 14]. Variation in incidence of repeat breeders in different countries was reported 0.61-55.55% in buffaloes (Singh *et al.*, 1984). Jainuddin and Hafez (1993)^[10] observed that incidence of repeat breeding is higher at artificially inseminated cows than naturally bred cows.

Highest incidence of repeat-breeders was recorded in summer season in buffaloes. A similar finding was also observed by Verma *et al.* (2003)^[37]. This higher incidence in buffaloes might be due to thermal estrus. Variation in incidence of these conditions might be partially explaining the wider distribution in different countries. Veterinary extension services intended to inform farmers about the risk factors and their mitigation will definitely reduce the extent of this problem in dairy cattle and buffaloes in India.

The overall incidence of retention of placenta in buffaloes was observed as 1.78% (Table-1). Khan, (1994)^[13] recorded the relative incidence of retention of placenta in cattle and buffaloes as 4.63 and 8.66%, respectively. Various workers reported the incidence of retention of placenta in buffaloes in

the range of 2.58 - 23.2% in buffaloes (Samad *et al.*, 1987; Prasad and Prasad, 1998; Rasheed, *et al.*, 2010 and Akhtar *et al.*, 2012) [30, 27, 29, 2]. These differences might be due to variation in management practices and hygienic condition which, differ from time to time and place to place. The indigenous cattle and buffalo are more resistance than exotic and cross bred cattle and buffaloes. Higher incidence of retention of placenta was reported in summer season (5.13%). This condition might be due to poor managerial condition adopted by the farmers to overcome summer stress.

Incidences of anoestrus in buffaloes were recorded 5.51% (Table-1). The incidences of anoestrus recorded in buffalo is comparable to finding of Selvaraju *et al.* (2005) [33], Prajapati *et al.* (2005) [26]. Whereas, higher incidence was observed by Singh *et al.* 2003 [34] and Kumar *et al.* (2013) [35]. The variation in incidence of anoestrus has been attributed to factor like under nutrition, Body score condition, severe negative energy balance and poor heat detection. Negative energy balance is strongly associated with the length of the post-partum anovulatory period through attenuation of LH pulse frequency and low level of blood glucose, Insulin and IGF-1, the collectively estrogen production by dominant follicles (Butler, 2003) [4].

The incidence of endometritis in buffaloes was reported as 2.93 % (Table-1). The incidence of endometritis during the study period was within the range as observed in the other study that based on palpation of per-rectal diagnosis of endometritis Tomar and Tripathi, (1994) [36] and Prasad and Prasad, (1998) [27]. Our findings were lower than the observation recorded by Prajapati *et al.* (2005) [26] and Ahamed *et al.* (2008). The diagnostic method used in this study may be the main reason for low incidence of disease. With the low volume uterine levage technique only the presence of mucopurulent secretion inside the uterus was assessed eliminating false positive diagnosis that are more common with other method of diagnosis such as rectal palpation and visual inspection of vaginal discharge (Le Blance 2008, Plantzke *et al.*, 2010 and Potter *et al.*, 2010) [25]. The prevalence of prolapse in the present study was observed as 1.55 % (Table-1). Our finding in the present study was higher than that observed by Ahmed *et al.* (2008) and

comparable with the observation of Murugeppa *et al.* (1998) [20], and lower than that observed by Nanda and Sharma (1982) [22], Samad *et al.* (1987) [30] and Rasheed *et al.* (2010) [29] in buffalo. This variation may be due to variation in the managerial and environmental condition of this study.

The prevalence of anoestrus in buffaloes was recorded as 2.13% (Table-1). Our findings was higher than the observation reported by Akhtar *et al.* (2012) [2] and Modi *et al.* (2011) [18]. The clinical pyometra associated with the factor that cause lesion in the uterus, such as dystocia to in parturition and retention of fetal membrane (Dubuc *et al.*, 2010; Potter *et al.*, 2010) [25]. The incidence of pyometra also depends on the sensitivity of the diagnostic method and the time of postpartum, when the examination was performed.

The prevalence of dystocia was reported as 1.82 %, (Table-1). This finding was in agreement with those observed by Murugeppa *et al.*, (1998) [20] and Rasheed *et al.* (2010) [29], but lower than that observed by Samad *et al.* (1987) [30] and Durrani *et al.* (2009) in buffaloes. The incidence of dystocia was impact by herd and manage mental practice difference among the area may influence dystocia. Herd managers should be discussed calving procedures with their veterinarian to assure that proper timing and calving assistance, technique are used when providing assistance during parturition. First parity cow were at the highest risk of having dystocia therefore a suitable managerial practice for reducing the incidence of dystocia may utilize. When selecting sires for breeding cows and specially the heifers, alternatively an improved heifer feeding programs should be supplemented to ensure optimal heifers size at breeding.

The prevalence of abortion in the present study was observed as 0.78 % (Table-1). Findings of present study were nearly similar to than that observed by Murugeppa *et al.* (1998) [20], Ahamed *et al.* (2008) and Durrani *et al.* (2009) but lower than that of recorded by Kakar *et al.* (1997) [12] and Sanjrani *et al.* (2013) in buffaloes. This variation may be due to variation in managerial and environmental factors in the study. The higher incidence of abortion was recorded in summer season in buffalo might be because of poor managerial condition to avoid summer stress in buffaloes.

Table 1: Incidence of different type reproductive disorders of buffalo from year 2004 to 2014

Month	Repeat Breeder (%)	ROP (%)	Anoestrus (%)	Endometritis (%)	Prolapse (%)	Pyometra (%)	Dystocia (%)	Cervicitis (%)	Abortion (%)	RD (%)	Total Population
July	4.02(20)	2.01(10)	2.61(55)	2.61(13)	3.21(16)	1.61(8)	2.61(13)	4.22(21)	1.20(6)	32.53(162)	498
August	5.24(28)	2.25(12)	4.31(48)	4.31(23)	3.00(16)	3.18(17)	3.37(18)	2.81(15)	0.75(6)	35.95(192)	534
September	4.02(26)	2.01(13)	2.47(80)	2.47(16)	1.55(10)	2.32(15)	1.70(11)	3.20(24)	0.62(5)	30.91(200)	647
October	0.54(4)	1.35(10)	2.83(44)	2.83(21)	1.35(10)	1.89(14)	1.35(10)	3.37(25)	0.67(4)	19.16(142)	741
November	5.07(35)	1.74(12)	2.03(44)	2.03(14)	1.45(10)	1.88(13)	3.04(21)	4.78(33)	0.58(4)	26.92(186)	691
December	4.95(37)	1.47(11)	1.74(27)	1.74(13)	1.34(10)	1.47(11)	1.34(10)	3.21(24)	0.54(4)	19.67(143)	747
January	3.76(31)	0.61(5)	2.31(20)	2.31(19)	1.09(9)	1.33(11)	1.09(9)	3.28(27)	0.73(6)	16.63(137)	824
February	4.00(31)	1.03(8)	2.97(25)	2.97(23)	0.77(6)	1.81(14)	1.42(11)	3.23(25)	0.39(3)	18.84(146)	775
March	5.43(29)	1.50(8)	5.43(19)	5.43(29)	1.50(8)	3.75(20)	1.50(8)	6.93(35)	0.94(5)	30.15(161)	534
April	4.83(23)	4.83(23)	3.57(17)	3.57(17)	1.47(7)	3.99(19)	2.10(10)	7.77(37)	1.47(7)	33.61(160)	476
May	5.82(28)	2.29(11)	2.70(20)	2.70(13)	1.66(8)	1.87(9)	1.46(7)	4.57(22)	1.04(5)	25.57(118)	481
Pool	4.37(327)	1.78(133)	5.31(397)	2.93(219)	1.55(116)	2.13(159)	1.82(136)	4.20(314)	0.78(58)	27.68(2068)	7471

Conclusion

It could be inferred that incidence of repeat breeder was highest among the reproductive disorders in buffaloes in the vicinity of NDUAT. Kumarganj, Faizabad. It could indicated

farmers are not aware with modern husbandry practices in eastern Uttar Pradesh. Government must be taken strategic action plan to upgrade the knowledge of livestock owners.

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