

STUDY OF THE INCIDENCE AND FACTORS AFFECTING POSTPARTUM ANESTRUS IN MURRAH BUFFALOES AROUND JAMMU REGION

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ABSTRACT

The individual history of 250 postpartum Murrah buffaloes were recorded and analyzed to determine the incidence of postpartum anestrus and effect of season of calving, parity and age on occurrence of postpartum anestrus. The incidence of postpartum anestrus was 34.4% and non-significantly ($P>0.05$) higher in summer calved buffaloes, 9 year and above age and in 1st, 6th and above parity buffaloes.

Keywords: anestrus buffalo, incidence, factors

INTRODUCTION

Buffalo has traditionally been regarded as a poor breeder with delayed onset of puberty, long postpartum ovarian quiescence, poor signs of estrus and long inter-calving intervals (Brar and Nanda, 2004). Under Indian conditions, postpartum acyclicity is the most common single cause of infertility in rural buffaloes (Iyer, 1978). Post-partum anestrus in some buffaloes that calved during cool season i.e. normal breeding season have short post-partum estrus interval than those calved

during last breeding season (Feb-July) (Ingawale *et al.*, 2003). Incidence of anestrus varies from herd to herd and under different managerial conditions. Very high incidence (upto 70%) of anestrus has been reported in buffaloes (Singh *et al.*, 1989). Silent ovulation (lack of overt signs of estrus) and unobserved estrus (poor estrus detection efficiency) can greatly increase the incidence of anestrus. Postpartum anestrus is affected by several factors such as nutrition plane, milk yield, Body Condition Score (BCS) at calving, suckling, parity, calving season and other factors (Shah *et al.*, 1986; Barile 2005; El-Wishy, 2007). This study was planned to investigate the incidence and factors affecting postpartum anestrus in Murrah buffaloes.

MATERIALS AND METHODS

The present investigation was carried out on 250 anestrus postpartum Murrah buffaloes from different villages of R.S. Pura region of Jammu district. History and two rectal examinations of each animal at an interval of 10 days were done. Animals were considered anestrus, if two consecutive rectal examinations at an interval of 10

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days yielded smooth ovaries, flaccid uterine horns, closed cervix and pale vestibule. The average body condition score (Edmonson *et al.*, 1989) of animals were 3.5 (1= thin and 5 = fat) with parity 1 to 6. The buffaloes under investigation had calved at least 90 days earlier and had not exhibited any signs of estrus. All animals were dewormed with 1.5 gm Fenbendazole bolus (Panacur).

RESULTS AND DISCUSSION

Incidence of anestrus

The incidence of postpartum anestrus in buffaloes was found to be 34.4%. Out of the 250 postpartum buffaloes 86 were anestrus. The incidence of postpartum anestrus in the present study is comparable with earlier reports of Singh (1991) and Kunj *et al.* (2002). These results differ from the observation of Tomar *et al.* (2002) and Sharma (2004) who reported higher incidence than present study. On the other hand, Singla and Verma (1994) and Kumar and Kumar (1995) reported lower incidence of postpartum anestrus in buffaloes. This difference could be due to factors like parity, milk yield, breed, nutrition, climatic stress, management, etc. (Rajkumar *et al.*, 2008).

Season

The incidence of postpartum anestrus was observed to be non-significantly ($P>0.05$) higher in summer (41.66%) calved animals than autumn (32.98%), winter (28.20%) and spring (26.66%) calved animals (Table 1) which is in concurrence with the earlier reports of Pandit *et al.* (1982) and Kunj *et al.* (2002). Chauhan *et al.* (1977) also reported that autumn and winter calving were favourable for early resumption of ovarian activity. However, Tomar *et al.* (2002) reported higher

incidence of anestrus in autumn and lowest in summer calved animals.

In the present study, the incidence of postpartum anestrus was observed to be highest in summer calved animals. Thus, postpartum period will fall in summer or rainy season and will be subjected to heat stress due to high environmental temperature and high humidity in these seasons leading to adverse effect on hormonal and physiological status and causing fertility problems (Srivastava, 2005). Buffaloes that calved during cool season have shorter postpartum estrus interval than those calved during hot season (Ingawale *et al.*, 2003). Furthermore, 70% to 80% conception in buffaloes is in between July to February. Buffaloes are sexually activated by decreased day length and temperature. A low number of services per conception are needed during the breeding season (July to February) than other breeding season (March to June) (Agarwal, 2003). Sane *et al.* (1994) also observed that season significantly affects the postpartum interval to first estrus as a result; cows calving in the month of April to July have longer intervals than those calving in other months of the year.

Age

In the present study, the incidence of postpartum anestrus was observed to be non-significantly ($P>0.05$) higher in 9 years and above (46.42%) than 5 years (32.55%), 6 years (32.43%), 7 years (20.00%) and 8 years (29.26%) of age (Table 2). The incidence of postpartum anestrus was more in older animals (9 years and above) and very young animals (5 years). In majority of dairy buffalo first calving occurs at 4 to 6 years of age. This is due to inadequate supply of feed and nutrients during growing phase (Ingawale *et al.*, 2003).

Table 1. Incidence of postpartum anestrus in relation to season of calving.

S. No.	Season of calving	No. of calving	No. of anestrus	Percentage of anestrus
1	Spring (Feb-Apr)	30	8	26.66 ^a
2	Summer (May-Jul)	84	35	41.66 ^a
3	Autumn (Aug-Oct)	97	32	32.98 ^a
4	Winter (Nov-Jan)	39	11	28.20 ^a

Percentage of values within a column having same superscript do not differ significantly ($P>0.05$).

Table 2. Incidence of postpartum anestrus in relation to age.

S. No.	Age	No. of calving studied	No. of anestrus	Percentage of anestrus
1	5 yrs	43	14	32.55 ^a
2	6 yrs	37	12	32.43 ^a
3	7 yrs	45	9	20.00 ^a
4	8 yrs	41	12	29.26 ^a
5	9 yrs and above	84	39	46.42 ^a

Percentage of values within a column having same superscript do not differ significantly ($P>0.05$).

Table 3. Incidence of postpartum anestrus in different parities.

S. No.	Parity	No. of calving studied	No. of anestrus	Percentage of anestrus
1	One	60	24	40.00 ^a
2	Two	39	11	28.20 ^a
3	Three	37	9	24.32 ^a
4	Four	40	14	35.00 ^a
5	Five	28	10	35.71 ^a
6	Six and above	46	18	39.13 ^a

Percentage of values within a column having same superscript do not differ significantly ($P>0.05$).

Buffaloes are at older age at first calving and have long calving intervals. Long calving intervals are partly due to greater lactation stress in high producing buffaloes and partly due to seasonality of breeding. Suckling of calf in buffaloes also results in failure of resumption of ovarian cyclicity which increases the postpartum estrus interval (Banerjee, 2005). Sane *et al.* (1994) observed that age has a significant influence on the postpartum interval as older animals have longer postpartum interval, which is in agreement with the present findings.

Parity

In the present study, the incidence of postpartum anestrus was observed to be non-significantly ($P>0.05$) higher in 1st (40.00%) and 6th and above (39.13%) parity than 2nd to 5th parity (Table 3). The incidence was found to be decreasing from 1st to 3rd parity and then increasing up to 6th parity. Parity influences the postpartum estrus interval, which is longer in primiparous than in pluriparous buffaloes (Hafez and Hafez, 2000). Similarly, our data revealed that the incidence of postpartum anestrus was more in 1st parity buffaloes. Also the present findings of parity are also supported by the present findings of age, as older buffaloes also exhibit longer postpartum period (Sane *et al.*, 1994).

CONCLUSION

In the present investigation of 250 anestrus postpartum Murrah buffaloes, the incidence was found to be 34.4% (n=86). The incidence of postpartum anestrus was observed to be non-significantly ($P>0.05$) higher in summer (41.66%) calved buffaloes as compared to autumn (32.98%),

winter (28.20%) and spring (26.66%) calved buffaloes. The incidence of postpartum anestrus was observed to be non-significantly ($P>0.05$) higher in 9 years and above (46.42%) than 5 years (32.55%), 6 years (32.43%), 7 years (20.00%) and 8 years (29.26%) of age. Also the incidence was observed to be non-significantly ($P>0.05$) higher in 1st (40.00%) and 6th and above (39.13%) parity than 2nd to 5th parity.

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