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Seasonal Trend of Calving and Subsequent Service Period in Buffaloes

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Abstract: The data on various reproductive behaviours of 1000 buffaloes in 15 randomly selected farms of Hyderabad region during July 1997-June 1999 were collected and analysed. The highest percentage (48.73) of calving frequency in summer and the lowest in spring (8.19) was observed. During summer expulsion of fetal membrane took more hours but few hours in autumn, same was true in first postpartum estrus, which took prolonged non significant days in spring and Summer (100 19-102.73 days). Uterus involution period followed the same pattern as in calving frequency i.e., peak in summer and low in spring. The service period of buffalo ranged between 90.39-149.09 days, where it took maximum days in summer and minimum in autumn.

Key words: buffalo-seasonal trend-calving-service period

Introduction

The buffalo is regarded as an animal not of the past but of the future (Khan, 1985). Environmental variances affect productive and reproductive performance of various buffalo breeds (Khattab et al., 1990). High temperature during summer depresses appetite and reduces milk yield in buffaloes, further it was observed that high humidity act as additional thermal stress in buffaloes (Misra et al., 1963). The environmental complex with high ambient temperature some times accompanied with high humidity disturb the animal's functional ability to perform normal. Hypothyroidism is also cited as a cause of it (Roy et al., 1968). One of the limiting factors influencing the productivity of the buffalo is the seasonality of breeding which may be due to either anestrus or silent estrus during the hot, and dry months of summer (Khan, 1994). The information for environmental variances affecting the reproductive traits of Kundi buffaloes in Pakistan was scanty, therefore, the present investigations on the seasonal variances of the reproductive traits of Kundi buffaloes will be effective for buffalo farm holders.

Materials and Methods

The study was conducted on 1000 buffaloes in 15 randomly selected dairy farms of Hyderabad region during July, 1997 to June, 1999. The milking buffaloes, calves, heifers, and bulls were kept in separate barns. Roofed shelters were provided to protect them from severe summer, winter and rainy conditions. Heifers and dry cows were mainly kept on green fodder and dry roughages throughout the year. Breeding bulls were provided concentrates at the rate of 2-6 kg, average being 4 kg per head per day along with ample amount of green fodder and dry roughages. The buffaloes were fed ad-libitum green fodder, dry roughages, concentrate ration was given at the rate of 4-8 kg average being 6 kg per head per day. Buffaloes were served naturally whenever they were detected in heat and conception was confirmed 45-60 day after service by rectal palpation.

The information on calving (number), expulsion of fetal membrane (hours), uterine involution (days), postpartum estrus period (days), and service period (days) were arranged into different seasons of the year and analysed statistically.

Results and Discussion

The data on frequency of calving in Kundi buffaloes showed maximum calvings (48.73%) in summer, and minimum

frequency of calvings (8.19%) in spring. This may be due to the factor that majority of the buffaloes conceived during autumn had to calve during summer after completing the average gestation period of 305 days (Kaka et al., 1986). Khosla et al. (1984) also reported the maximum calving during July to October or in rainy season. The insignificant differences were observed between winter and summer, autumn and spring, however, in summer, maximum hours (4.93) and minimum in autumn (3.27) were recorded for expulsion of fetal membrane. Gudi (1971) also reported variation in the time of placenta expulsion, which was 4.31, 4.30, 4.25, 5.09, 4.22, 4.59, 4.40, 4.55, 4.68, 4.80, 4.32, and 4.20 hours during January to December. Khan (1994) reported that placenta is expelled within half an hour to eight hours after parturition. The maximum uterus involution period (45.43 days) exhibited in summer followed by 43.75 days during winter, and in spring it took minimum period of 38.65 days. Roy and Lucktuke (1962) also reported that completion of uterine involution requires 39.6 ± 1.5 and 39.1 ± 1.2 days in Murrah and Murrah graded buffaloes respectively (Table 1).

The prolonged nonsignificant days (102.73 and 100.19) appeared for first postpartum estrus period in summer and spring respectively, however the period shortened during autumn (84.20 days). Ahmed *et al.* (1982) also reported that the postpartum estrus period in buffalo during spring, summer, autumn, and winter was 174.60, 124.65, 104.74 and 151.57 days respectively. The findings of Bala *et al.* (1967), however, are quite contradictory to the present study, who reported no significant effects of season of calving on postpartum estrus period in Murrah buffalo, while EL-Eouly *et al.* (1977) reported significant influence of seasons on calving interval from parturition to the first mating in Egyptian buffaloes.

Service period of buffalo followed the same pattern of being prolonged days (149.09) in summer followed by winter (136.40 days) and significantly took minimum days (90.39) in autumn. Bhat and Patro (1978) and Crete and Domanical (1979), supported the findings by reporting the shortest service period in autumn calvers.

Conclusion: There is a marked effect of climatological factors on the reproductive behaviour of buffaloes. The calving frequency is higher during summer and lower in spring. Time required for the completion of uterine involution, postpartum

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Seasons	calving frequency (%)	Time required for expulsion of fetal Membrane (hours)	Uterine involution (days)	Postpartum estrus (days)	Service period (days)
Winter	22.52b	4.65a	43.75b	95.14a	136.40a
Spring	8.19c	3.32b	38.65c	100.19a	117.55b
Summer	48.73a	4.93a	45.43a	102.73a	149.09a
Autumn	20.54b	3.27b	38.95c	84.20bc	90.39c
SED	1.32	0.44	0.67	4.88	13.88
LSD (5 %) =	10.41	0.96	1.45	10.15	13.86
LSD (1%) =	13.86	1.34	2.04	13.82	16.34

Table 1: Effect of various seasons of calving and reproductive behaviour of buffaloes

*Means followed by common letter are not significantly different at 5% level of significance

estrus and service period increased in warmer months. However, expulsion of fetal membrane increased in summer and decreased in autumn. It was observed that as postpartum estrus increased during warmer months due to that poor heat detection are likely to be the main seasons for prolonged service period.

Recommendations: Buffalo is a seasonal breeder, thus efforts should be made to regulate artificial breeding to make them economical milk producer. Daily heat observation should be made to reduce postpartum estrus and use of lentolytic agents like estrumate, oestral bestral etc. are more efficient for the inducing of estrus.

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