

Seasonal Variation of Calving in Murrah Buffalo in Bihar

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Abstract: The present study was carried out to estimate the seasonal variation of calving in Murrah buffaloes. The study was conducted in North West alluvial plain of Bihar (Chhapra, Siwan and Samastipur), of India on 773 Murrah buffaloes, and these buffaloes were inseminated during June 2010 to December 2014 at BAIF's field Artificial Insemination centres which provide door-step artificial insemination service at village's level. The result indicated that the calving of Murrah buffaloes occurred throughout the year. In Chhapra maximum calving observed in August, i.e. 17% while 14% in October. September and November 13% each. Based on season majority of calving observed between July to January. In Samastipur maximum calving observed in August 16% while in September 14% followed by November 13% and October month 11%. Based on season majority of calving observed between July to January months. In Samastipur maximum calving observed in August 16% while in September 14% followed by November 13% and October 11%. Based on season majority of calving found between July to January months. It could be concluded that Murrah buffaloes tend to calve more in the days with shorter photoperiod as compared to days with more extended photoperiod.

Keywords: Buffalo, Calving, agro-climatic zones.

INTRODUCTION

The Murrah breed is the essential genetic material of milk producing buffalo in India breed has been used extensively used throughout India to upgrade the non-descript buffalo stock to improve the milk production. Buffalo is tending seasonal pattern of breeding in India, while cattle show perennial breeding and calving pattern. The breeding pattern of buffaloes characterized by significant seasonal variation. This variation in breeding efficiency of buffaloes termed as seasonality of buffalo breeding. This seasonal variation in reproduction ultimately affects the reproductive traits like age at first calving, dry period and calving interval and hence the economics of milk production. Generally, the peak of calving observed during the winter season. Most of the animals are bred during colder parts of the year, thereby giving births to newborn mostly during winter only. Various workers have observed that very few buffaloes come in heat during a hotter period of a year. This condition is due to high environmental temperature, humidity or both during summer or rainy months. Minimal information is available on the seasonal trend in the calving of the buffaloes from Bihar state, so the objective of the study was to document the calving pattern of Murrah buffaloes in the Bihar.

METHODOLOGY

The study was planned to see calving pattern in Murrah buffaloes in Chhapra, Siwan and Samastipur

districts of Bihar. Total of 773. Murrah buffaloes considered for this study, and BAIF artificial insemination centres inseminated these buffaloes from June 2010 to December 2014. Data collected in a handheld device.

RESULT

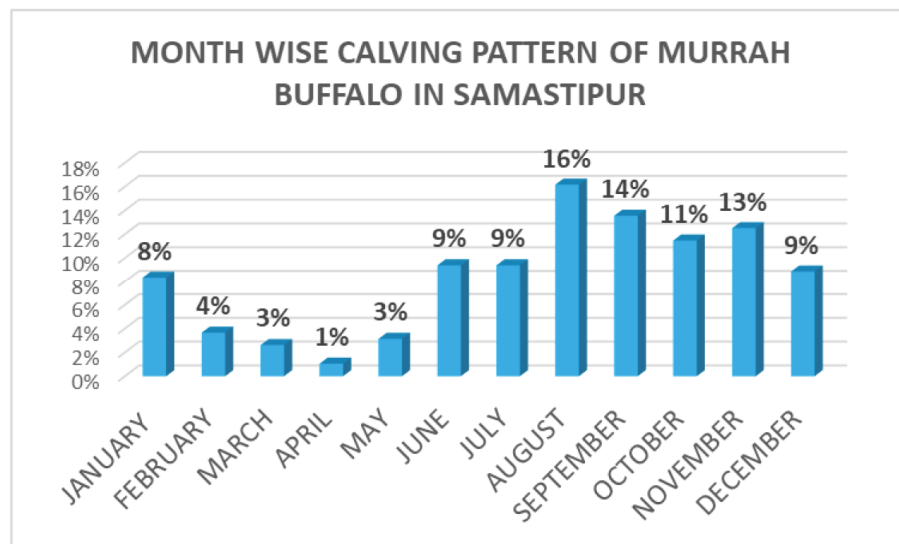
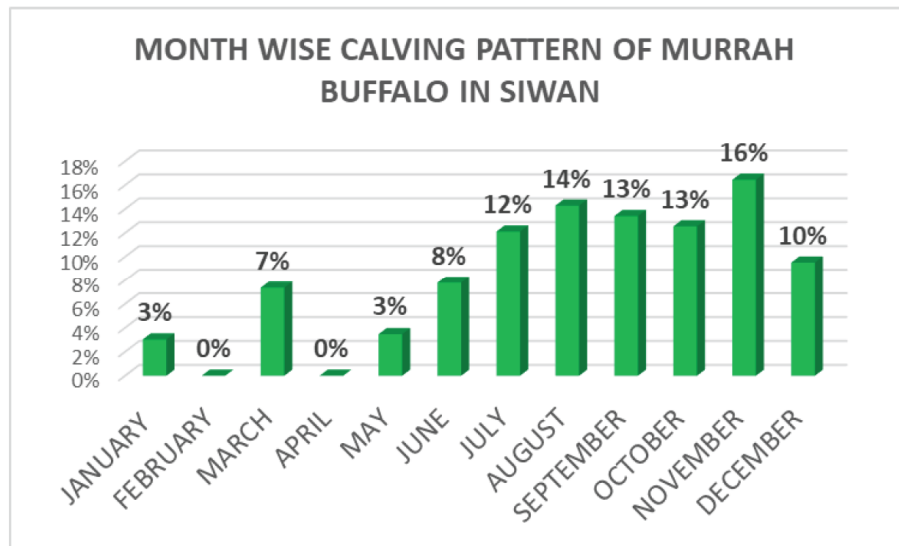
The results of the present study indicated that the rainy and the autumn seasons were the main calving seasons for buffaloes when more than 70% of the calving took place. The result showed that the calving of Murrah buffaloes occurred throughout the year. In North West alluvial plain of Bihar maximum calving observed in August month 15.71% & November 14.01%. The findings of the present study were following the results of Hassan *et al.* (2007) and Hussain (2007) [1, 2] in Nili Ravi buffaloes in Pakistan. Anonymous (2008) [3] also reported the main calving period between July to December in Murrah, Pandharpuri, Jaffrabadi and Surti buffaloes Haryana, Maharashtra, Gujrat and Rajasthan states, respectively. District and month wise number of calving has shown in Table 1 below.

In Chhapra maximum calving observed in August, i.e. 17% while in October it was 14%. September and November showed similar results, i.e., 13%. But on the bases of season majority of calving found between July to January. In Siwan, maximum calving observed during November, i.e., 16% while 14% in August, which is followed by 13% both in September and October. Based on season majority of calving found between July to December months. In Samastipur maximum calving observed in August (16%), September (14%)

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Table 1: District Wise and Month Wise Number of Calving Observed

Area	Chhapra	Siwan	Samastipur	Grand Total
January	19	7	16	42
February	9		7	16
March	7	17	5	29
April	10	0	2	12
May	10	8	6	24
June	22	18	18	58
July	32	28	18	78
August	61	33	31	125
September	47	31	26	104
October	50	29	22	101
November	44	38	24	106
December	39	22	17	78
Grand Total	350	231	192	773



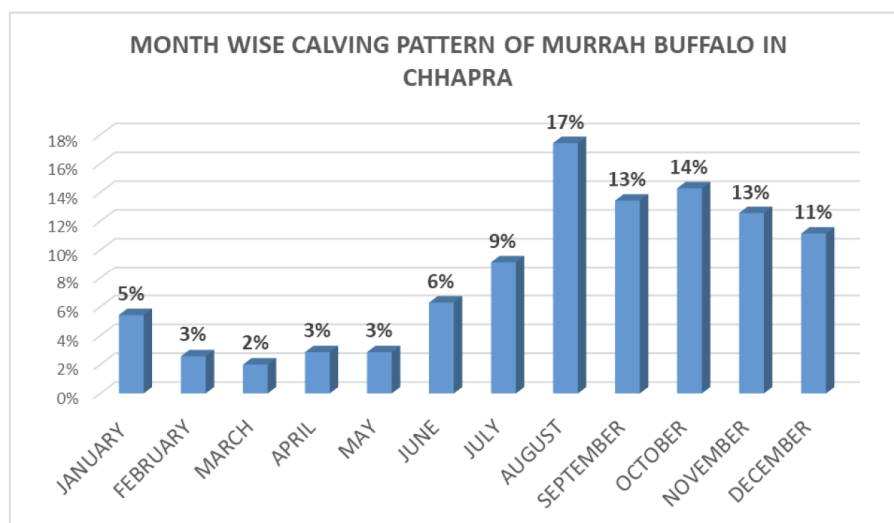


Table 2: District Wise and Season Wise Number of Calving Observed

Area	AUTOMAN	RAINY	SPRING	SUMMAR	WINTER	Grand Total
Chhapra	94	140	26	32	58	350
Siwan	67	92	17	26	29	231
Samastipur - Vaishali	46	75	14	24	33	192
Grand Total	207	307	57	82	120	773

followed by November (13%) while in October 11%. Based on season majority of calving observed between July to January months. These findings are similar with results of Potdar *et al.* (2019) [4] who reported the highest percentage of calving (36%) took place during the rainy season (July to September), which followed by the autumn (29%) and the winter seasons (17%). The lowest percentage (8%) of calving was recorded in the spring season while (9%) calving observed in the summer season. Reddy *et al.* (1999) [5] also reported August to November the most favourable period for reproduction in Murrah buffaloes.

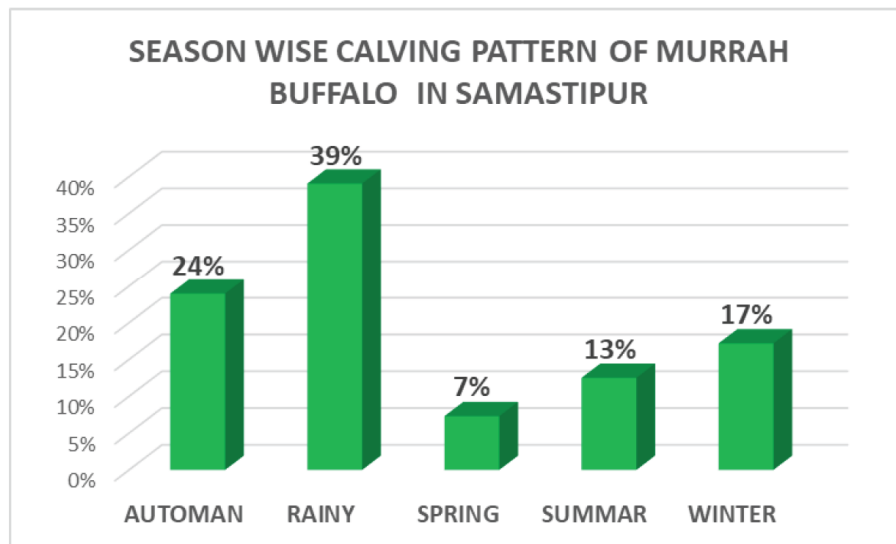
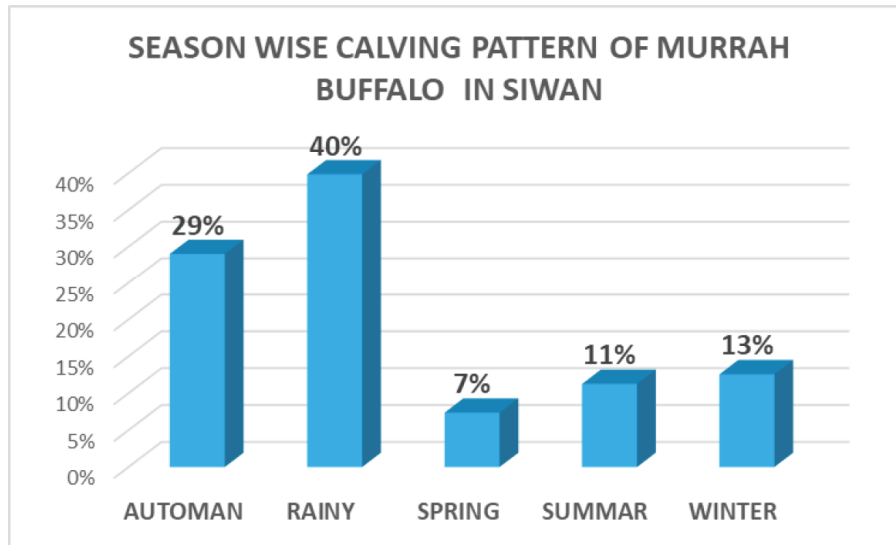
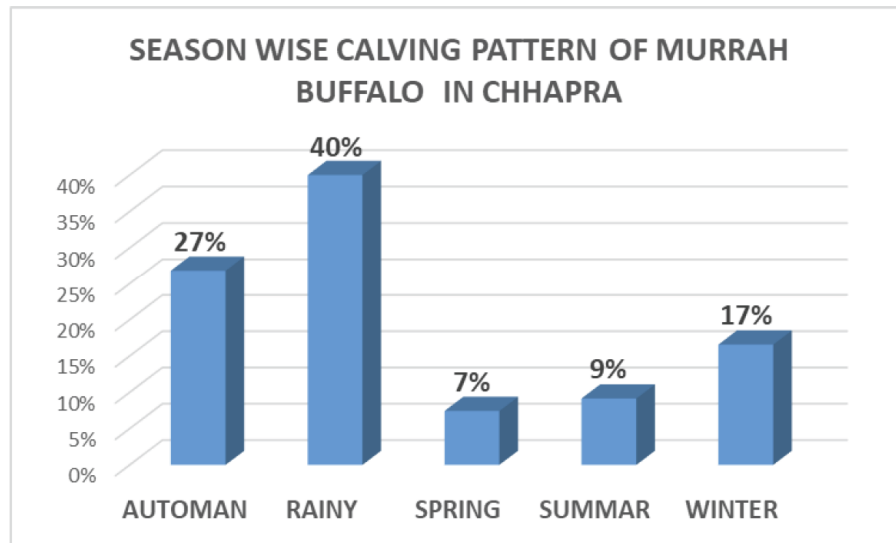
In Chhapra district when the data grouped according to the various seasons, the highest percentage of calving (40%) took place in the rainy (July to September) season, which followed by the autumn (27%) and the winter seasons (17%). The lowest percentage (7%) of calving recorded during the spring and (9%) in the summer season. In Siwan when the data grouped according to the various seasons, the highest percentage of calving (40%) took place in the rainy (July to September) season, which followed by the autumn (29%) and the winter seasons (13%). The lowest percentage (7%) of calving recorded in the spring and (11%) in the summer season. In Samastipur

when the data grouped according to the various seasons, the highest percentage of calving (39%) took place in the rainy (July to September) season, which followed by the autumn (24%) and the winter seasons (17%). The lowest percentage (7%) of calving recorded in the spring and (13%) in the summer season. The finding of the present study is in agreement with Anonymous 2 and Reddy *et al.* 15 in Murrah buffaloes in India. District and season wise number of calving has shown in Table 2 above.

Misra and Sengupta (1965) [6] reported that in India, the buffalo's sexual vigour declines during the summer and improves with the onset of the colder season. El-Sheikh (1987) [7] reported more than 63% calvings occurred during the colder season in Egyptian buffaloes.

CONCLUSION

The results of the present study showed that season had been a prominent factor governing the calving pattern in Murrah buffaloes. Based on season majority of calving observed between July to January months. It can be concluded that Murrah buffaloes tend to calve more during the days with shorter photoperiod as compared to days with more extended photoperiod.



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