



Reproductive behaviour of mithun (*Bos frontalis*) under farm condition

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Received: 28 November 2011; Accepted: 16 April 2012

Key words: Behaviour, Calving, Mithun, Neonatal reproduction

The mithun (*Bos frontalis*) is useful as a meat animal, but the mid-altitude ecology has placed it to play a role of producers of milk of considerably high quality (Mondal *et al.* 2001). Thus the present study was carried out to document and outline the reproductive and neonatal behaviour patterns of mithuns under farm condition.

Apparently healthy mithun cows (18) and 4 entire healthy mithun bulls with high vigour, were subjected to recording of sexual and parturition behaviour. On 6 mithun calves, recording of suckling behaviour was also carried out. The study was conducted in Medziphema Mithun Farm, National Research Centre on Mithun, Nagaland (25°45'43"N and 93°53'04"E), where mithuns were kept under semi-intensive system and forest grazing for about 7 h a day (08:00 – 15:00 h) along with 2–3 kg concentrate mixture was provided. In the first phase, recordings on sexual behaviour in bulls and cows were made, while the next phase covered the parturition and neonatal behaviour recording.

Detection of heat in mithun cows and recording of both male and female sexual behaviour were coincidental. The experimental bulls used to parade in the experimental shed daily and the detected mithun cows and the bulls used for detection of heat were subjected to data recording. Frequency of various activities associated with sexual behaviour in mithun cows and bulls and duration of various calving stages and suckling activities in newborn calves were recorded.

Specialized coding sheet, tally marker, stopwatch and ordinary photographic camera were used for collecting the data associated with sexual, parturition and neonatal behavioural activities. Data on sexual behavioural activities were recorded for a period of 20 min after each heat detection or upto successful mating, whichever was earlier. All the behavioural parameters in this study were recorded as

described by Hafez (1969). All the animals were recorded for one occasion only and the data were subjected to suitable statistical analysis (Snedecor and Cochran 1994).

Sexual behaviour: The most prominent behavioural sign in oestrous mithun cows was recorded to be allowing the parading bull to mount (92.65%) followed by tail raising during courtship (Table 1). Various behavioural activities associated with or expressed during courtship and copulation in mithuns indicated that the species was gradually adapting to the farm environment establishing a specific oestrus behaviour pattern (Bhattacharya *et al.* 2004, Dhali *et al.* 2006). The expression of such behaviour in captive mithun is indicative of its tendency towards its successful domestication.

Calving behavior: Our study involving the parturition (calving) in mithun and neonatal survivability further confirmed its tendency to express the behavioural activities favourable for domestication. Various stages of parturition in mithun took 176.96±29.64 min. This duration was lower than that reported by Ahmed *et al.* (2008) and this might be attributed to the inclusion of more number of multiparous cows in the present study. The species difference in calving behaviour might be involved in the lower duration of parturition in mithun than other bovines like buffaloes (Modi *et al.* 2002). All the cows exhibited their maternal instinct by licking and drying their respective calves within a very short period of calving. No cow showed rejection of the newborn calf.

Neonatal behavior: Mithun calves were found to stand on their feet after 24.07±5.85 min of their birth, while the interval between first standing to first successful suckling of teats was 34.20±6.14 min. Average suckling duration on the first day of calf's life was 235.76±39.25 min. Thus the favourable behavioural expression indicating the ability of mithun to successfully reproduce under captivity with a very strong maternal instinct opens a new avenue to accelerate the process of domestication once the benefit of this large bovine is fully realized in the given socio-economic and socio-cultural environment of NEH region in particular and the whole mithun country in general in the years to come.

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Table 1. Behavioural activities associated with mithun reproduction

Sexual		Calving		Suckling	
Behavioural activities	Occurrence (%)	Parameters	Time taken (minute)	Parameters	Time taken (minute)
<i>Male</i>					
Courtship		i) Onset of labour to appearance of water bag	121.66±43.37	i) Birth to standing on calf's feet	24.07±5.85
		ii) Appearance of water bag to appearance of foetus	25.82±6.24	ii) Birth to first successful suckling	58.29±6.36
		iii) Appearance of foetus to expulsion of foetus	29.54±7.49	iii) Birth to first urination	342.12±147.66
		iv) Total calving time	176.96±29.64	iv) First standing to first suckling	34.20±6.14
i) Licking of females' body	92.83			iii) Suckling duration on day 1	235.76±39.25
ii) Sniffing of vulva	93.03			iv) Suckling frequency on day 1	31.61±9.85
iii) Flehmen	86.50			v) Average duration of each suckling	7.62±1.05
iv) Guarding	91.61				
<i>Copulation</i>					
i) Attempt to mount	96.4				
ii) Mounting	97.2				
iii) Ejaculation	95.3				
<i>Female</i>					
<i>Courtship</i>					
i) Raising tail	90.23				
ii) Standing for mounting by bulls	92.65				
iii) Frequent urination	80.74				
<i>Copulation</i>					
i) Standing still	91.35				
ii) Arching of back	87.83				

SUMMARY

The present study was conducted on 28 mithuns of Institute Farm to document the sexual, parturition and neonatal behavioural pattern under farm condition. The present findings showed that the most prominent behavioural sign of heat in mithun cows was standing to be mounted by the parading bull (92.65%) followed by tail raising and frequent urination. In bulls, the most prominent courtship behaviour was recorded to be sniffing of vulva (93.03%), followed by licking of cows' body. The most prominent copulation behavioural activity was observed to be mounting in bulls and standing still in cows. The calving time was 176.9 min, the interval between the birth and the first suckling by the calf was recorded as 58.3 min. Thus the present study indicated the ability of the mithun to reproduce under captivity as well as the survival of the new-born after initiation of suckling, and also helped in outlining the pattern of reproductive behaviour.

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