

IMPACT OF TIME OF ARTIFICIAL INSEMINATION ON CONCEPTION RATE IN INDIAN YAK

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ABSTRACT

The female yaks (n=52) were detected in estrus by parading vasectomized bull between 8-9 am (morning) and between 3-4 pm (evening). A group of females (n=18) detected in estrus in morning were inseminated twice on the same day between 9-10 am and between 4-5 pm. The remaining females (n=13) detected in estrus in morning were inseminated once on the same day between 4-5 pm. Further, the females detected in estrus in evening were either inseminated twice (n=13) i.e. on the same day between 4-5 pm and next day between 9-10 am (n=18), or were inseminated once (n=8) on following day between 9-10 am. In all the groups, an almost similar (p>0.05) conception rate was recorded between 53.8 to 62.5%. In brief, it may be concluded that if estrus is detected in Indian yak either in the morning or in the evening, a single insemination may be done in the afternoon of same day or in the morning of following day, respectively.

Keywords: Artificial Insemination, Breeding, Conception rate, Time, Yak

Artificial insemination (AI) is an important biotechnological tool for the rapid genetic improvement of livestock. In India, at present AI in yak is practiced only under farm conditions and efforts are underway to popularize the technology among yak rearers. The thumb rule (AM-PM) of AI in cattle was established after studying the time of ovulation from the onset of estrus, and for obtaining higher fertility in this species, AI is usually done during mid to late estrus. However, no such study has been reported in Indian yak. Therefore, the present study was conducted to evaluate the impact of time of AI on the subsequent conception rate in Indian yak.

In the present study, pluriparous yaks were detected for estrus by parading vasectomized bull between 8-9 am (morning) and between 3-4 pm (evening). A group of females (n=18) detected in estrus in morning were inseminated twice on the same day between 9-10 am

and between 4-5 pm. The remaining females (n=13) detected in estrus in morning were inseminated once on the same day between 4-5 pm. Further, the females detected in estrus in evening were either inseminated twice (n=13) i.e. on the same day between 4-5 pm and next day between 9-10 am (n=18), or were inseminated once (n=8) on following day between 9-10 am. All the animals were inseminated with good quality frozen-thawed semen from the same bull. The first service conception rate was determined by pregnancy confirmation through rectal palpation between days 45-60 post-AI. The data generated was expressed in percentage.

In the present study, the females that were detected in estrus in morning and received either double or single insemination exhibited 55.5% and 53.8% conception rate, respectively. Further, the females that were detected in estrus in evening and received either double or single insemination exhibited 61.5% and 62.5% conception rate, respectively. In fact, all the yaks receiving either double or single insemination exhibited almost similar (p>0.05)

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conception rate in the present study. In a previous study, almost similar results were reported for yaks receiving single or double insemination (81.8-82.3%; Xie, 1990). The duration of estrus in Indian yak was reported around 17 h (Bhuyan *et al.*, 2013). Further, the ovulation in yak was recorded 12 h after the end of estrus with the optimum insemination time 10 h before ovulation (Zhang, 2000). Thus, the first insemination was performed at 24 h after the beginning of estrus and repeated 12 h later (Zhang, 2000).

It may be concluded that in Indian yak, a single AI is sufficient in the evening of same day if estrus is detected in the morning or in morning of the following day if estrus is detected in the evening of the previous day.

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