

# Effect of Sexed and Conventional Semen on Pregnancy Rate in Murrah Buffaloes under Field Condition

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## ABSTRACT

The study was conducted on twenty Murrah buffaloes selected at random from the field to evaluate the effect of sexed and conventional semen on pregnancy rate. The buffaloes selected were initially treated with pre-synchronization medicines. The buffaloes in spontaneous estrus with vaginal discharge and frequent micturition were divided into two groups containing ten animals. The buffaloes from group I and II were inseminated at mid-estrus with sexed and conventional semen, respectively. The average pregnancy rate and female calves born for AI with sex-sorted semen were 40% and 100% and for AI with conventional semen 50% and 40%, respectively. The pregnancy rate was lower, whereas the rate of female calves born was greater after AI with sex-sorted semen than conventional semen.

**Keywords:** Female calf birth, Murrah buffalo, Pregnancy rate, Sexed semen.

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## INTRODUCTION

India possesses 109.85 million buffaloes and contributes around 20.50% of the total livestock population and 51% of total milk production (20<sup>th</sup> Livestock census). Buffalo has a pivotal and pre-eminent importance in the livestock sector as well as milk production of the country. The projected demand of milk by 2030 is estimated to be 266.5 million MT. To meet the increasing demands, it is necessary to substantially increase the number of elite females, which can be achieved by skewing the sex ratio towards females both in cows and buffaloes by use of sex-sorted semen in AI, and also to produce elite males for production of frozen semen doses (Lu *et al.*, 2010; Sharma *et al.*, 2019). The objective of the present work study was to know the pregnancy rate and female calf birth rate with the use of sexed and conventional semen in buffaloes under field conditions.

## MATERIALS AND METHOD

For the present study, total twenty Murrah buffaloes, 60-days postpartum with normal genitalia, free from clinical or subclinical infection, were selected at randomly from the field. The buffaloes were fed daily with roughage (60% gram gotar, 40% sugarcane) and concentrates like cottonseeds 4 kg, 2 kg tur churi and 2 kg wheat bran. Chelated mineral mixture supplementation was also given @ 50 g/day/head. The selected multiparous buffaloes were initially given pre-synch treatment, i.e., were dewormed using injection Ivermectin @ 1 ml per 50 kg body weight subcutaneously and were treated with injection vitamin AD3E & H, 5 mL I/M. The animals were provided with fresh water *ad-libitum*.

The buffaloes exhibiting spontaneous estrus with normal estrual attributes such as bellowing, vaginal discharge, and frequent micturition without clinical or subclinical infection

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were randomly divided into two groups (I and II) containing ten buffaloes in each group. They were inseminated at mid estrus with sexed semen and conventional semen, respectively. Semen straws collected from Frozen Semen Lab, BAIF, Uralikanchan, Pune (Maharashtra) contained 2.0 and 20.0 million sperm per dose of sexed and conventional semen, respectively. The animals were then followed for pregnancy rate, calving rate and sex of calves born. The data obtained was analyzed by paired 't' test (Snedecor and Cochran, 1994).

## RESULTS AND DISCUSSION

The pregnancy and calving rates after AI with sex sorted and conventional semen, as well as the distribution of gender of

Table 1: Pregnancy and calving rates after AI with sex-sorted and conventional semen as well as gender of calves born

Particulars	Sex sorted semen	Conventional semen
No. of AI done	10	10
Pregnancy rate (%)	4 (40.00 %)	5 (50.00 %)
Calving rate (%)	4 (100.0 %)	5 (100.0 %)
No. of calves born	4	5
Female calves (%)	4 (100.0 %)	2 (40.0 %)

calves born, are presented in Table 1. The pregnancy rate was lower after AI with sex-sorted semen than with conventional semen (40 vs 50%). There was no difference between sex-sorted and conventional semen for calving rate (100%) and health of calves. The proportion of female calves born from sex-sorted semen was 100% and from conventional semen, it was just 40%. All the calves born from sex-sorted and conventional semen AI were live and healthy.

The pregnancy rate for sex sorted semen obtained in the present study was similar to that obtained (42.7%) by Sharma *et al.* (2018, 2019) in buffaloes. However, higher pregnancy rate was recorded in Nili-Ravi buffalo (46.2%), in Swamp buffalo (48.5%) and Murrha buffalo (52.5%) by Lu *et al.*, (2015). Higher pregnancy rates were recorded for sexed semen in Holstein, Jersey and Red breed as 49.3%, 46.6% and 60.2%, respectively by Borchersen and Peacock (2009). Patel and Jethwa (2019) observed 39.53% pregnancy rate for sexed semen in cattle in the Amul milk shed area of Gujarat, which is well in line with the present result in buffaloes. The pregnancy rate for conventional semen inseminations obtained in the present study was similar to 49.32% reported by Sharma *et al.* (2018). However, higher pregnancy rates were recorded for conventional semen by Borchersen and Peacock (2009) in Holstein, Jersey and Red breed (61.9%, 53.9% and 65.4%, respectively). The variation in the pregnancy rate obtained in different studies may be due to differences in parity, body condition score, managemental and nutritional conditions, season, exogenous supplementation of hormones, time of inseminations etc.

The proportion of female calves born after the application of sex-sorted semen in the current study is higher than the results of earlier reports of Andersson *et al.* (2006) 82%, Healy *et al.* (2013) 86%, Sharma *et al.* (2018) 82.14% and Patel and Jethawa (2019) 86.15%. on the other side, the female calves born with conventional semen in the current study were

lower than the earlier reports by Andersson *et al.* (2006) 49%, Healy *et al.* (2013) 48% and Sharma *et al.* (2018) 50.68%. In the present study all the calves born (100%) with both sexed and conventional semen were healthy alive as reported by Andersson *et al.* (2006) with sexed semen, however with conventional semen they noticed 97% healthy alive calves (3% stillbirth, neonatal mortality).

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