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Influence of Calves Sex on the Residual Reproductive Performance of Surti Buffaloes

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Abstract: This study was conducted to evaluate the effect of calves sex on reproductive performance. A total 20 pregnant animals were selected. The expulsion time of foetal membranes, placental weight, calf weight, involution of uterus, first postpartum estrous, number of services per conception and service period of Surti buffaloes bearing male & female calves did not differ significantly.
Keywords: Buffaloes, Calf sex, Male, Female, reproductive performance

INTRODUCTION

Prenatal growth of the foetus is primarily dependent upon its genotype and the maternal environment inside the body. The foetus has physiological effects upon its dam during gestation. Significant effects of the sire of the foetus on the duration for which the calf is carried *in utero* by the dam have been well recognised. Some evidences are also available in the literature that foetal growth and its sex also affect the reproductive efficiency of the dam in the ensuing lactation.

MATERIALS AND METHODS

The study conducted on twenty (20) pregnant Surti buffaloes maintained at Livestock Research Station, NAU, Navsari, Gujarat. Around parturition, the buffaloes were kept under special care and watch. After parturition, they were watched for recording the time taken for the expulsion of foetal membrane in hours. Each of entire expelled placenta as carefully collected and was weighted in kilogram (kg) with the help of electronic weighing balance. After the parturition, the weight of new born calf was carried out in kilogram (kg) with the help of weighing machine and recorded the respective sex of the calves. Involution of uterus was monitored per rectally at 72 hours (3 days) intervals in all the cases. Involution of uterus was considered complete, on the basis of criteria adopted by Butch *et al*. [2]. After postpartum, ovarian activity and occurrence of the first postpartum oestrus was observed on the basis of estrous signs, symptoms as well as per rectal examination and recorded in days. Number of service was recorded in the treatment and control group of Surti buffaloes till successful conception during specified period and designated as number of service required per conception. Service period was recorded as a time between calving to first successive conception in days.

STATISTICAL ANALYSIS

The tests of significance for treatment vs. control groups were made by Standard Student's paired 't' test.

RESULTS AND DISCUSSION

Out of 20 calving, buffaloes delivered ten calves were male and ten calves were female. The effect of sex of calf on expulsion time of foetal membranes, placental weight, calf weight, involution of uterus, first postpartum estrus, number of services per conception and service period of Surti buffaloes bearing male & female calves did not differ significantly (Table 1; Fig. 1 & 2).

In the present study, no significant ($p>0.05$) different was observed in mean expulsion time of placenta (3.56 ± 0.25 and 4.03 ± 0.22 hrs) in male and female calves, respectively. This finding was closely agreement with Kadu and Kaikini [3] in Sahiwal cows and Patel [5] in HF crossbred cows, they reported sex of calf, had no influence on the placental expulsion time.

Moreover, mean placental weight was found non-significantly ($p>0.05$) higher (3.47 ± 0.10 vs. 3.34 ± 0.04 kg) in male calves as compared to female calves, which corroborated with the findings of Pugashetti *et al.* [6] in HF x Deoni cows and Pargaonkar [4] in Nagpuri

buffaloes, they observed non-significantly (p>0.05) higher placental weight (2.82 vs. 2.69 kg and 3.14 ± 0.12 vs. 3.00 ± 0.6 kg with male calves as compared to female calves, respectively.

The mean body weight was found non-significantly (p>0.05) higher (21.90 ± 1.10 vs. 19.25 ± 0.83 kg) in male calves as compared to female calves. It is obvious that male calf bearing dam takes 1 to 2 days more gestation days as compared to female calf bearing dam and that might be the reason in more weight gain of male calves as compared to female calves.

In the present study, period for involution of uterus (31.70 ± 2.45 vs. 32.90 ± 1.64 days) did not differ significantly between Surti buffaloes bearing male and female calves. Again, there is no more recent reference under this heading of its kind to compare the present finding. Though, the uterine distension will be expected to be comparatively greater in cattle delivering large male calves but in the present study first postpartum estrus interval was also observed non-significantly (p>0.05) earlier in male calves delivering dams, that reflected less time taken for the involution of uterus, which otherwise is dependent on so many factors.

Table 1: Reproductive trait values of Surti buffaloes bearing male & female calves (n=10 each); (Mean ± SEM)

Reproductive trait	Attributes/ Gender of calf	Mean Value
Expulsion of fetal membranes (hrs.)	Male	3.56±0.25
	Female	4.03±0.22
	't'-value	1.41
Placental weight (kg)	Male	3.47±0.10
	Female	3.34±0.04
	't'-value	1.21
Calf weight (kg)	Male	21.90±1.10
	Female	19.25±0.83
	't'-value	1.93
Involution of uterus (days)	Male	31.70±2.45
	Female	32.90±1.64
	't'-value	0.41
First postpartum estrus (days)	Male	72.80±7.54
	Female	88.70±9.13
	't'-value	1.34
Number of services per Conception	Male	1.80±0.20
	Female	1.50±0.31
	't'-value	0.82
Service period (days)	Male	101.00±9.64
	Female	109.30±5.47
	't'-value	0.75

Means between male and female calves do not differ significantly (p > 0.05)

The first postpartum estrus interval and service period were found non-significantly longer (88.70 ± 9.13 vs. 72.80 ± 7.54 days and 109.30 ± 5.47 vs. 101.00 ± 9.64 days) in female calves and number of services per conception was found non-significantly (p>0.05) higher (1.80 ± 0.20 vs.1.50 ± 0.31) in male calves as compared to their respective counter sex in the present study. A tendency of having non-significant (p>0.05) and significant (p<0.05) longer postpartum breeding interval, longer service period and a requirement of more number of services per conception has been observed by Tomar and Arneja, [8] in cows dropping/delivering male calves than that of female calves.

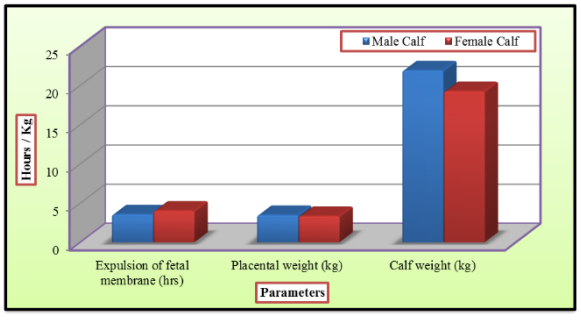

Fig-1: Placental studies and calf weight of Surti buffaloes bearing male (n=10) &female calves (n=10)

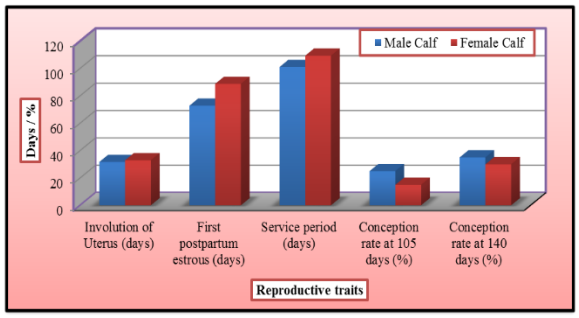

Fig-2: Reproductive parameters/traits of Surti buffaloes bearing male (n=10) & female calves (n=10)

Moreover, Yadav *et al.* [9] also found cows producing male calves had significantly ($p<0.05$) longer postpartum breeding interval (56 ± 13 vs. 40 ± 12 days) than those giving birth to females calves. However, Basu and Tomar [1] in Murrah buffaloes could not demonstrate the effect of sex of the new born calf on the length of service period of their dam in the ensuing lactation.

CONCLUSIONS

In the present study, non-significant difference was observed on various residual reproductive performance of Surti buffaloes delivering male and female calves**.**

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