REPRODUCTIVE CHARACTERISTICS IN TRIPLE CROSS CATTLE

Ramesh, J. Padodara* and Arya, J.S**
Assistant Professor*, Professor & Head**
Department of Physiology & Biochemistry
Veterinary College, Junagadh Agricultural University, Gujarat
Veterinary College, Anand Agricultural University, Anand

Received: 16-10-2012 and Accepted:26-02-2015

ABSTRACT

The study was conducted on 21 pregnant triple cross-bred (1/2 Kankrej×1/4 Jersey×1/4 Holstein Friesian) heifers and cows maintained at Livestock Research Station, Anand Agricultural University, Anand. The gestation length, placental weight, placental expulsion time and birth weight of calf differed non-significantly between primiparous and multiparous triple crossbred cows which delivered male or female calves. All the above traits were non-significantly correlated with each other.

Key words: Triple cross-bred, gestation length, placental weight, Placental expulsion time, birth weight

INTRODUCTION

Successful parturition is important in the economics of the livestock production and helps to judge the worth of an animal. The gestation length and placental characteristics of the dam throw light on the quality of the calf born. Hence, the present study was conducted to note the gestation length and placental characteristics **and birth weight of** calves in Triple Cross Cattle (1/2 Kankrej×1/4 Jersey×1/4 Holstein Friesian).

MATERIALS AND METHODS

The study was conducted on 21 pregnant triple cross-bred (1/2 Kankrej×1/4 Jersey×1/4 Holstein Friesian) heifers and cows maintained at Livestock Research Station, Anand Agricultural University, Anand. Gestation length, placental weight and expulsion time were recorded. The birth weight of the calf was recorded within one hour of birth using standard weighing machine. Statistical analyses were done using Unequal Completely Randomization Design (CRD) and the correlation co-efficient between the characteristics were determined as per Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The Mean ± SE values of the traits studied and their coefficient correlation are presented in Table-1 and 2, respectively.

1. Gestation length (GL) (days)

No significant difference was observed in gestation period for male and female calves and also between primiparous and multiparous animals, but male calves were carried for a longer duration than female calves (Table-1). The calving sex ratio of male : female calves was 8:13 in the 21 calvings studied. Similar finding of male : female ratio was observed by Sattar *et al.* (2005). Rokonuzzaman *et al*. (2009) observed 275 ±3.95, 276±4.26, 275±4.41 and 277±3.31 days in Frisian cross, Sahiwal cross, Sindhi cross and indigenous cattle respectively which was non-significantly differed.

Table-1 Reproductive characteristics in triple cross cattle (Mean ± SE)

Animal (n)	GL (days)	PW (kg)	PET (hr)	BW (kg)
Male calves (8)	.....	2.82 ± 0.07	5.80 ± 0.84	23.88 ± 1.87
Female calves (13)	279.38 ± 1.64	2.86 ± 0.09	6.62 ± 1.44	22.46 ± 0.84
Primiparous cows (8)	279.85 ± 1.16	2.83 ± 0.09	4.59 ± 0.48	21.38 ± 0.98
Multiparous cows (13)	272.90 ± 6.12	2.92 ± 0.07	7.28 ± 1.56	24.00 ± 1.21
Pooled (21)	276.83 ± 2.76	2.75 ± 0.10	6.13 ± 0.94	23.00 ± 0.87

GL- Gestation length, PW- Placental weight, PET- Placental expulsion time and BW- Birth weight

2. Placental weight (PW) (kg)

The average weight of placenta in Triple cross cows which gave birth to male calves and to female calves and between primiparous and multiparous cows showed non significant difference. However, primiparous animals had heavier placenta than multiparous animals. The current findings agreed with those of Bhageerathi *et al*. (2002) in HF X Deoni cows and to Sultan *et al*. (1987) in HF cows. Placental weight recorded in the present study are lower than those reported by Rao *et al*. (1966) on Ongole cows (3.34 kg) but higher than those recorded by Patel *et al*. (1983) in Kankarej cows (2.63 kg). Bhambure *et al.* (1984) found non significantly higher weight of placenta (3.14 ± 0.28 kg) in HF X Kankarej than in Kankarej (2.86 ± 0.18 kg) and Jersey X Kankarej cows (2.86 ± 0.22 kg).

3. Placental expulsion time (PET) (hrs)

No significant difference was observed in placental expulsion time between cows which delivered male or female calves. Time taken for expulsion of placenta by multiparous animals was non significantly higher than primiparous animals which may be attributed to the relatively young age of primiparous cows with resultant increased muscle tone strength to expel the placenta. Placental expulsion time in the present study was higher than those reported by Rao *et al*. (1966), Patel *et al.* (1983) and Bhambure *et al.* (1984) in various breeds of cattle.

4. Birth Weight of calves (BW) (kg)

The difference in birth weight among male and female calves and between calves born to primiparous and multiparous cows was non-significant. However, male calves had more birth weight than female calves and similarly multiparous animal gave birth to heavier calves than primiparous animals. The findings in the present study were similar to that of Bhambure *et al.* (1984) who reported the average birth weight of calves in Kankarej,

Table-2 Correlation Coefficients (r) amongst different reproductive characteristics in triple cross cattle

Parameters	BW	GL	PET	PW
BW	-	-	-	-
GL	0.35	-	-	-
PET	-0.22	0.22	-	-
PW	-0.03	0.20	-0.03	-

GL- Gestation length, PW- Placental weight, PET- Placental expulsion time and BW- Birth weight

Jersey × Kankarej and Holstein × Kankarej groups to be 25.08 ± 1.59, 21.06 ± 1.42 and 28.60 ± 0.97 kg, respectively. Rao *et al.* (1966) who observed the male calf birth weight was 28.30 ± 0.5 kg and female calf birth weight as 24.77 ± 1.13 kg. However, Patel *et al.* (1983) noted that the female calves (24.31 ± 0.43 kg) were heavier than male calves (23.54 ± 0.44 kg) in Kankarej cross bred. Also Rokonuzzaman *et al*. (2009) observed 22.52 ±0.33, 22.19±0.35, 20.16 ±0.86 and 17.0±0.36 kg in Frisian cross, Sahiwal cross, Sindhi cross and indigenous cow calf respectively.

Coefficient correlation among the traits studied revealed non significant differences among them (Table-2). Placental expulsion time showed non significant negative correlation with placental weight and birth weight of calves. However, it was positively but non significantly correlated with gestation length. Birth weight of calves was negatively correlated to placental weight but was positively correlated to gestation length. The findings agreed with that of Mukasa and Mattoni (1990).

REFERENCES

Bhageerathi, P.; Shivakumar, M. C.; Hosamani, S. V. and Kulkarni, V. S. 2002. Studies on the placental characteristics in HF × Deoni cows. *Karnataka J. Agril. Sci.* **15(3):** 559-561.

Bhambure, C. V.; Vyas, K. N. and Dave, A. D. (1984). A study on placenta of Kankrej and crossbred cows. *Indian J. Anim. Reprod.* **5(2):** 23-27.

Mukasa Mugerwa, E. and Mattoni, M. (1990). Parturient behaviour and placental characteristics of *Bos indicus* cows. *Revue dElevage et de Medicine Veterinaire des Pays tropicaux* **43(1):** 105-109.

Patel, K. S.; Patel, J. P.; Bhagwat, S. R.; Dave, A. D. and Bhagoji, G. P. (1983). Expulsion of placenta in kankrej cow. *Indian J. Anim. Reprod*. **4(2):** 75-77.

Rao, A. R.; Rao, P. N. and Rao, A. S. P. (1966). Studies on parturition of Ongole cattle. *Indian Vet. J.* **43(1):** 44-49.

Rokonuzzaman, M., Hassan, M. R. Islam, S. and Sultana, S. (2009). Productive and reproductive performance of crossbred and indigenous dairy cows under smallholder farming system. *J. Bangladesh Agril. Univ*. **7(1):** 69–72.

Sattar, A., R. H. Mirza, A. A. K. Niazi and M. Latif (2005). Productive and Reproductive Performance of Holstein-friesian Cows in Pakistan. *Pakistan Vet. J.*, **25(2)***:*75-81.

Snedecor. G. W. and Cochran. W. G. (1994). *Statistical Methods*, 9th Edn. Affiliated East-West Press, IOWA State University Press.

Sultan, Z. A.; Khalil, M. H.; El Sobhy, H. E. and Abdel Rehman, M. (1987). Factors influencing the weight of calf and placenta at calving in Friesian cows. Proceedings of the first Conference of the Agricultural Development Research, Faculty of Agriculture, Ain Shams Univers., vol. 1. Animal Production. Pp: 30-38.