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Birth Weight in Kankrej Cattle

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The birth weight of female calves is one of the important economic characters of dairy cattle, as it is positively correlated with the weight at maturity and productivity (Singh and Desai, 1971).

Birth weight recorded for 1064 Kankrej calves born during 1952 to 1972 at North Cote Cattle Farm, Chharodi, Gujarat were analysed. The method of husbandry followed during the period of study was that of semi-ranching. Over and above the grazing, additional concentrate ration was given @ 1.5 kg/day to advance pregnant cows and heifers. The milch cows were fed concentrate @ 40 per cent of their milk production. The data were analysed as suggested by Snedecor and Cochran (1967). Heritability estimate was calculated by paternal half-sib correlation method.

The average birth weight of Kankrej calves was 21.506 ± 0.083 kg. The birth weight observed in this study was higher than those reported for other Indian breeds of cattle (Yadav, 1964 and Bhat *et al.*, 1981).

The higher birth weight of calves, possibly due to both, late age at first calving (54.5 month) as well as the heifers were heavy at the first freshening.

(A) Sex of calves and parity of cows

Table 1 shows that male calves (21.966 ± 0.14 kg) were heavier than the females by 0.950 kg, the difference being highly significant which agrees well with other studies (Dhillon *et al.*, 1971; Taneja and Bhat, 1972).

Weight at birth was maximum and significant higher in calves (22.28 kg) born to 2nd lactational cows, while the birth weights of the calves born to cows of 1st, 3rd and 4th lactation were similar. The birth weight of male and female calves increased by 0.6 kg (2.74%) and 1.21 kg (5.85%) respectively, from first lactation to second lactation.

Further, definite decreasing trend in birth weight was observed from 2nd to 5th lactation in both the sexes. Thus, this indicates that the cow matures in 2nd lactation (69 months) and delivers a calf having good skeleton. The finding is in line of Yadav (1964), Venkateswarulu *et al.* (1972).

(B) Season of calving

The calves, born during summer season i.e. Feb., March, April and May (21.15 ± 0.10 kg) had significantly lower birth weight than those born in monsoon and winter seasons.

TABLE 1

Effect of sex of calf, parity and season of calving on birth weight.

Factors	*Observations*	% *Observations*	*Av. ± S. E. (kg)*	*C. V. %*
μ	1064		21506 ± 0.83	12.56
SEX				
Male	550	51.69	21.965 ± 0.14^{A}	15.21
Female	514	48.31	21.016 ± 0.24^{B}	25.63
PARITY				
1	363	34.11	21.237 ± 0.13^{b}	11.80
2	255	23.97	22.208 ± 0.17^{a}	12.49
3	167	15.70	21.629 ± 0.23^{b}	13.47
4	106	9.96	21.538 ± 0.26^{b}	14.87
5 & above	173	16.26	20.902 ± 0.17^{c}	10.08
SEASON OF CALVING				
Summer (Feb., Mar., April, May)	447	42.01	21.156 ± 0.10^{X}	10.17
Monsoon (June, July, Aug., Sept.)	194	18.23	21.845 ± 0.17^{Y}	10.79
Winter (Oct., Nov., Dec., Jan.)	423	39.75	21.721 ± 0.14^{Y}	15.27

— Figures bearing different superscript,

— A and B for Sex,

— a, b and c for parity and

— X and Y for seasons of calving differ significantly ($P<0.001$).

This probably reflects the poor availability of grazing and also other roughages to advance pregnant animals during summer season. Batra and Desai (1962) and Venkateswarulu *et al.* (1972) have reported significant effect of season of birth on birth weight of calves.

Looking to the seasonal effect on calving pattern, maximum calving was observed during summer season (42.01%), followed by winter and monsoon seasons. Thus, supplementary feeding of good quality roughages and concentrate during summer season results into heavy calf crop.

(C)) Sire

Paternal effect on birth weight was highly significant. The heritability estimate of birth weight of male and female calves was 0.956 ± 0.009 and 0.716 ± 0.024 respectively. The low S. E. value of heritability indicate quite a reliable estimate of the merit.

The significant values of h^2 indicate that the birth weight merits a fair measure of consideration in selection (Yadav, 1964 and Venkateswarulu *et al.*, 1972).

The average weight at birth of 550 male and 514 female Kankrej calves was 21.97 ± 0.14 kg and 21.02 ± 0.24 kg respectively. Birth weight was significantly effected by sex of calf, (parity), season of calving and sires. Hetirability estimate of birth weight by paternal halfsib correlation was 0.92 ± 0.009.

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