

A Note on Birth Weight of Kankrej X Jersey and Kankrej X Holstein Friesian Halfbreds

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Crossbreeding of indigenous cattle with exotic germplasm has been adopted as a national policy to improve milk production and reproductive efficiency of *Zebu* cattle. From the studies at various research centres, Jersey and Holstein Friesian have been visualized to be the donor breeds of choice for crossbreeding for most of the regions of the country. Birth weight is the first and foremost economical character of any domestic animal which has direct bear-

ing on future growth and early maturity and can be used as a basic information for selection (Shrivastav *et al.*, 1978). Work on crossbreeding of *Kankrej* with Jersey and Holstein Friesian has been initiated recently by Gujarat Agricultural University under the scheme of Establishment of Livestock Research Station to evolve a dairy breed suitable for Gujarat State. Birth weight being the first and most important expression, some preliminary observations were made on this aspect to have a basic idea about the status of a healthy crossbred calf at birth and to decide the feeding level of colostrum and milk for the first week after birth.

Data pertaining to birth weight and gestation period for 75 crossbred calves were analysed for the present study. Findings have been summarised in Table 1.

TABLE 1

Birth weight and gestation period for Kankrej X Jersey and Kankrej X Holstein Friesian half-bred calves.

Parameter	Kankrej x Jersey			Kankrej x Holstein Friesian		
	Male	Female	Overall	Male	Female	Overall
No. of observations	24	30	54	10	11	21
Av. Birth wt. (kg)	21.21	22.12	21.71	26.15	28.59	27.42
S.E.	0.51	0.46	0.14	0.92	0.89	0.41
C.V. %	11.81	11.49	—	11.17	10.32	—
Av. Gestation period (days)	282.29	279.20	280.57	281.90	278.27	280.00
S.E.	1.21	1.05	0.31	1.13	1.29	0.56
C.V. %	2.10	2.05	—	1.26	1.54	—

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Findings revealed that the average birth weight for *Kankrej* X Jersey (K X J) and *Kankrej* X Holstein Friesian (K X HF) halfbred calves was 21.71 ± 0.14 and 27.42 ± 0.41 kg, respectively. Average birth weights observed in the present study were higher than those reported by Shrivastav *et al.* (1978) for *Haryana* X Jersey and *Haryana* X Holstein crosses. However, the average birth weight of both K X J and K X HF crosses was observed to be intermediate of both parental breeds used. The birth weight for parental breeds namely *Kankrej*, Jersey and Holstein Friesian as reported by Tripathi *et al.* (1973), Rajgopalan and Dave (1976), and Batra and Toughburry (1974) is 23.29 ± 0.28 kg, 19.64 ± 0.24 kg and 38.70 ± 0.62 kg respectively.

Sex and birth weight :

Sexwise distribution of data on birth weight showed that the birth weight for K X J male crossbred calves ranged from 16.5 kg to 26.5 kg with an average birth weight of 21.21 ± 0.51 kg. In K X J female crossbred calves it ranged from 16.5 kg to 27.5 kg with a mean birth weight of 22.12 ± 0.46 kg.

Similarly, the birth weight for K X HF male crossbred calves ranged from 24.0 kg to 30.0 kg with a mean birth weight of 26.15 ± 0.92 kg. The same for female crossbred calves ranged from 24.0 kg to 33.0 kg with a mean weight of 28.59 ± 0.89 kg.

From the results, it is well evident that the female calves were heavier by 0.91 kg (4.29%) in K X J crosses and by 2.44 kg (9.33%) in case of K X HF crosses. 't' test revealed that these differences in the birth weights were highly significant ($P < 0.01$) for both the breed groups. Such significant differences in birth weights due to sex have also been

observed by Tripathi *et al.* (1973) for *Kankrej* cattle and Rajagopalan and Dave (1976) for Jersey cattle, but results are contradictory to a point that they observed male calves to be heavier than female calves while in this study it was vice-versa. Such reverse trend was also observed by Shrivastav *et al.* (1978) for *Haryana* X Jersey and *Haryana* X Holstein crossbred calves. However, the differences in birth weights due to sex were statistically nonsignificant.

Gestation period, sex and weight of calf :

Sexwise analysis of data on gestation period indicated that K X J male and female calves were carried in utero for 282.29 ± 1.21 and 279.20 ± 1.05 days, respectively. Similarly, K X HF male and female calves were carried in utero for 281.90 ± 1.12 and 278.27 ± 1.29 days, respectively. 't' test showed that these differences of 3.09 and 2.63 days in gestation period were statistically significant. Tripathi *et al.* (1973) also observed the similar trend. However, it could not be understood that though the male calves were carried in utero for longer period, the birth weights were low for male calves than female calves in both the breed groups. Average gestation period was quite low as compared to 293.05 ± 0.60 days and 290.43 ± 0.58 days for pure bred *Kankrej* male and female calves (Tripathi *et al.* 1973). The reduction in the gestation period might be the results of introduction of exotic inheritance.

From the studies it was visualized that healthy K X J and K X HF crossbred calves on an average weigh 21.71 ± 0.14 kg and 27.42 ± 0.41 kg, respectively and thus about 2.0 to 2.5 kg and 2.5 to 3.0 kg of colostrum or milk in the first

week can fulfill the nutrient requirement of K X J and K X HF crossbred calves, respectively.

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