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SHORT COMMUNICATION

Age and weight at first conception and calving in *inter-se* Jersey x Kankrej heifers

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ABSTRACT

The age and weight at first conception and calving were recorded in 24 *inter-se* Jersey x Kankrej heifers fed individually for energy and protein requirements as per Sen *et al.* (1978) feeding standard. The age and weight at first conception were 586.91±0.28 days and 264.00±6.44 kg, respectively. The corresponding values at first calving were 867.65±10.43 days and 341.06±9.02 kg. Significant positive correlations were found between weight at different ages and weight at conception as well as calving and between later two traits too. The results indicated that individual care and standard feeding in *inter-se* heifers could reduce age at first conception and calving.

Key words : Age and weight, first conception, first calving, Jersey x Kankrej *inter-se* heifers

Crossbred cattle have been credited for their early age at maturity and thereby early age at first calving, leading to more lifetime production. However, the advantages gained in first generation crossbred cows were found to have reduced considerably in *inter-se* mated animals largely due to loss of heterosis or hybrid vigour (Patel *et al.*, 1989a). The present study was planned to observe the effect of individual feeding of *inter-se* mated Jersey x Kankrej heifers according to feeding standard (Sen *et al.*, 1978) on possible reduction in age at first conception and at first calving and improvement in body weight.

Twenty-four *inter-se* mated Jersey x Kankrej heifers reared at Livestock Research Station, Gujarat Agricultural University, Anand were taken up for the experiment. Individual feeding of the heifers in order to meet their DCP and TDN requirements as per Sen *et al.* (1978) was commenced when they attained one year of age. Good quality succulent roughages (maize, jowar, NB_{21}, oats), dry pasture grass (*Dicanthium annulatum*) and compounded concentrate mixture (18% CP, 75% TDN) were used to feed the heifers. Fresh clean wholesome water was provided *ad libitum* to all the heifers. Body weight was recorded once at weekly interval on plateform weighing scale. Heat detection was carried out twice a day both by observing the behavioural signs and by parading the aproned bull. The heifers, which attained maximum 240 kg body weight were bred through AI using frozen semen. Pregnancy was confirmed two months post-insemination. The data were analysed using simple statistical techniques.

The average age at first conception in *inter-se* mated Jersey x Kankrej crossbreds was 586.91±10.28 days. This was quite low as compared to the reported values for Jersey x Hariana (Kaushik *et al.*, 1979) and Jersey x Local Assam cattle (Sarmah *et al.*, 2001). However, it was slightly higher than that for Jersey x Tharparkar (Nagarcenker and Rao, 1982) and Jersey x Kankrej F_1 heifers (524.94±8.19 days; Patel and Dave, 1987). The average age at first conception in inter-se Jersey x Kankrej heifers under routine farm management was 641.06±9.60 days (Patel *et al.*, 1989b).

The averate body weight at first conception in the present study was 264.00±6.44 kg, which is higher than that reported for *inter-se* Jersey x Kankrej heifers (254.18±3.08 kg) reared under routine management in the same farm (Patel *et al.*, 1989b). It was also higher than the Jersey x Kankrej F_1 heifers (249.64±3.40 kg) reported by Patel and Dave (1987). The findings further confirmed that individual care and management of heifers resulted in improvement in weight at first conception accompanied with reduction in age at first conception.

The age at first calving observed in the present study was 867.65±10.23 days. This was higher by 37 days than that of Jersey x Kankrej F_1 heifers (Patel and Dave, 1987). However, when it was compared with age at first calving of *inter-se* Jersey x Kankrej heifers (900.70±8.70 days) reared under routine farm management (Patel *et al.*, 1989a), it showed improvement by 33

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Table 1. Correlations between body weight at conception and calving with weight at different ages in *inter-se* J x K heifers

Sl.No.	Body weight at	Correlations with weight at	
		Conception (264.00 kg)	Calving (341.06 kg)
1.	12 months (149.48 kg)	0.657**	0.701**
2.	15 months (201.31 kg)	0.745**	0.773**
3.	18 months (247.94 kg)	0.791**	0.836**
4.	21 months (283.60 kg)	0.838**	0.867**
5.	Conception (264.00 kg)	–	0.927**

** $P < 0.01$; Figures in the parentheses indicate body weight

days. Considering the average daily rearing cost of a heifer as Rs.20/- (Gaur *et al.*, 2000), there was net saving of Rs.660/- (33 x 20) per heifer by individual feeding and care. The age at first calving observed in this study was lower than that reported in Jersey x Kankrej (Chaudhari and Fulsounder, 1999), Jersey x Hariana (Dutt *et al.*, 1999) and Jersey x Gaolao (Urde, 2001). These findings thereby indicated superiority of Jersey x Kankrej crossbred over other genetic groups. However, it was higher than the Jersey x Tharparkar (Nagarcenkar and Rao, 1982, Urde, 2001), Jersey x Sahiwal (Urde, 2001) and Jersey x Gir (Nagare and Patel, 1997).

The average body weight at first calving was found to be 341.06±9.02 kg, which was higher than the reported values in Jersey x Hariana (Rathi and Balaine, 1984), Jersey x Tharparkar (Vij and Basu, 1986) and *inter-se* Jersey x Kankrej heifers reared under routine farm managemental conditions (Patel *et al.*, 1989a).

The correlation coefficients studied (Table 1) showed that body weight at 12, 15, 18 and 21 months of age had highly significant ($P < 0.01$) positive associations with body weight at first conception ($r = 0.657$ to 0.838) and at first calving ($r = 0.701$ to 0.927). This indicate that for attaining optimum body weight at calving, animal must possess higher body weight at conception. Breeding the heifers at lower weight and at too early age is likely to affect body weight at calving and thereby future lactation performance of the animal.

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