

PROBIOTICS SUPPLEMENTATION ON PRODUCTION PERFORMANCE AND ECONOMICS OF LACTATING KANKREJ COWS

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ABSTRACT

To study the effects of probiotics supplementation in lactating kankrej cows, 90 days trial conducted in Kushal village, Palanpur taluka of Banaskantha district of North Gujarat. Fourteen lactating Kankrej cows were divided into two dietary treatments T1 (control) and T2 (probiotics). The results revealed that supplementing probiotics to lactating Kankrej cows significantly improved fat percent, 4% FCM while milk production and return as percent of feed cost were increased but remained statistically similar as compared to control.

Key words : Probiotic, Lactating, Milk yield, Milk fat, Cost.

The productivity potential of our livestock has not been fully exploited because of deficit feed resources and under utilization of available technologies to fill the deficiency of nutrients in their ration. For achieving the economic productivity in livestock, it is essential to enhance the feeding value of available feed resources. Successful strategies for increasing the efficiency of utilization of poor quality roughages include pretreatment of crop residues and dietary supplementation and manipulation of rumen ecosystem (Baghel *et al.*, 2005). The rumen harbors a dense and complex microbial population responsible for 60-70% of total digestion therefore, the (Fuller, 1992).

Probiotics has potential to improve the milk production in dairy cows, increase milk fat, milk protein and lactose content in milk (Williams, 1989, Adams *et al.* 1995) Further the large majority of descript cattle belongs to draught and dual-purpose breeds among which Kankrej is a well established dual-purpose breed of cattle, giving sustainability to the marginal farmers and contributing to agriculture based economy of the nation. (Singh, 2006). Hence present study was

carried out to study the effects of probiotics supplementation on production performance and economics of lactating Kankrej cows.

MATERIALS AND METHODS

An on-farm trial of 15 days preliminary feeding and 90 days experimental period was conducted in village Kushkal, Palanpur taluka of Banaskantha district during October to December 2011. Fourteen lactating Kankrej cows of uniform body weight, milk yield and with 2nd and/or 3rd lactation number in the initial stages of lactation were selected for the experiment to observe the effect of probiotics supplementation. Seven healthy animals, each allotted to two dietary treatments in completely randomized design. Two dietary treatments i) T1 (control concentrate mixture + Green fodder + Dry fodder) and ii) T2 (T1 + 15 g/d/animal probiotics containing *Saccharomyces cerevisiae*; 1.5×10^8 cfu/g and bacteria, *Lactobacillus sporogens*; 5×10^5 cfu/g) were given. All the animals were individually fed and their nutrient requirements were met as per ICAR feeding standards (1998). Milk yield of

morning and evening was recorded daily and was compiled for six periods of 15 days each. The milk fat percent and 4% the end of experiment, digestion trial of 7 days was undertaken. The samples of feeds and fodder were analyzed for proximate constituents by ACAC (1999) method.

RESULTS AND DISCUSSION

The results are represented in Table 1. Average daily milk production, average fortnightly yield of whole milk and whole milk production for 90 days of were statistically ($P>0.05$) similar. In corroboration to finding of present study Bhageri *et al.* (2009) and Schingoethe *et al.* (2004) found no effect of probiotics on milk production. However Dutta and Kundu (2008) observed that probiotics supplementation increased milk production significantly.

The average daily milk fat percent 4% FCM of T2 were significantly ($P<0.05$) higher than T1 group. Similarly, fortnightly 4% FCM and cumulative FCM of T2 were significantly ($P<0.01$) higher than T1 group. However, total FCM production of treatment groups was statistically ($P>0.05$) similar. The finding of present experiment corroborate with Bhageri *et al.* (2009) while Raeth-Knight *et al.* (2007) reported that probiotics supplementation did not have any adverse effect on milk fat present and 4% FCM. Average return as percent of feed cost remained statistically ($P>0.05$) similar. However, the Kankrej cattle fed with probiotics culture recorded 28.25% higher return over feed cost than the control group. Thus, supplementation of probiotics culture in concentrate mixture has economic advantage in lactating Kankrej cows.

Table 1: Effect of Probiotics on production performance and economics of feeding of lactating Kankrej cows.

Parameters		T1	T2	P Value
Milk yield	Kg/d	8.56 ± 0.57	9.11 ± 0.53	NS
	Kg/15d	127.63 ± 1.37	134.83 ± 50.96	NS
	Kg/90d	770.33 ± 51.60	819.71 ± 47.99	NS
	Kg/d	9.32 ± 0.59 ^a	10.82 ± 0.55 ^b	($P<0.05$)
4% FCM	Kg/15d	139.25 ± 3.07 ^a	160.71 ± 5.25 ^b	($P<0.01$)
	Kg/90d	838.94 ± 53.27	973.91 ± 49.06	NS
Fat%		4.61 ± 0.16 ^a	5.59 ± 0.21 ^b	($P<0.05$)
Total selling price (Rs.)		15216.50 ± 977.76 ^a	18519.26 ± 949.34 ^b	($P<0.05$)
Total feed cost (Rs.)		6431.40 ± 40.86 ^a	6966.00 ± 33.86 ^b	($P<0.05$)
Return as Percent of feed cost (%)		236.80 ± 15.62	265.62 ± 12.70	NS

CONCLUSION

It was concluded that supplementing probiotics to lactating Kankrej cows significantly improved fat percent, 4% FCM while daily milk production and return as percent of feed cost were increased but remained statistically similar as compared to control.

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