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Production Performance, Nutrient Utilization and Economics of Lactating Kankrej Cows Fed Probiotics

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Abstract

An on-farm trial of 90 days was conducted in Kushkal village, Palanpur taluka of Banaskantha district of Gujarat to study effects of Probiotics supplementation on production performance, nutrient utilization and economics of lactating kankrej cows. Fourteen lactating Kankrej cows were divided in to two dietary treatments T1 (control) and T2 (probiotics). The results revealed that supplementing Probiotics to lactating Kankrej cows significantly improved fat percent, 4% FCM, DM intake, CP and TDN intake while milk production, DCP intake and return as percent of feed cost were increased but remained statistically similar as compared to control.

Keywords: DCP; FCM; TDN; Probiotics; Lactose; Kankrej.

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Introduction

The use of Probiotics culture in large and small ruminants has been appreciated for the improvement in feed intake and nutrient utilization (Nocek and Kautz, 2006). 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). Hence present study was carried out to study the effects of probiotics supplementation on production performance, nutrient utilization and economics of lactating kankrej cows.

Material 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 x 10^8 cfu/g and bacteria, *Lactobacillus sporogens*; 5 x10^7cfu/g) were given. Milk yield of morning and evening was recorded daily and was compiled for six periods of 15 days each. At the end of experiment, digestion trial of 7 days was undertaken. The samples of feeds and fodder were analysed for proximate constituents by AOAC (1999) method. The milk fat percent and 4% FCM were recorded by procedure described by ISI (1961).

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 were statistically (P>0.05) similar. The average daily milk fat

Table 1: Effects of Probiotics on production performance, nutrient utilization and economics of lactating Kankrej cows

Parameters	T1	T2	P value
Milk yield kg/d	8.56±0.57	9.11±0.53	NS
Fat%	4.61±0.16[a]	5.59±0.21[b]	(P<0.05)
4%FCM	9.32±0.59 [a]	10.82±0.55 [b]	(P<0.05)
DM Intake (kg/d)	10.03±0.04[a]	10.27±0.04[b]	(P<0.01)
CP intake(g/d)	1012.03±1.53[a]	1057.91±9.40[b]	(P<0.01)
DCP intake(g/d)	576.43±35.88	665.75±39.63	NS
TDN Intake(g/d)	6135.39±254.17[a]	6919.64±262.35[b]	(P<0.05)
Digestibility (%)			
DM	65.27±1.88[a]	70.89±1.76[b]	(P<0.05)
CP	56.91±3.41	62.85±3.42	NS
CF	36.52±3.73	43.53±4.80	NS
EE	46.92±2.78[a]	59.78±3.47[b]	(P<0.05)
NFE	69.75±1.82	74.50±1.52	NS
Return as Percent of feed cost (%)	236.80±15.62	265.62±12.70	NS

percent and 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. Average daily DM, CP and TDN intake of T2 group was significantly higher than T1 while DCP intake and return as percent of feed cost remained statistically similar in both groups. The average digestibility coefficient of CP, CF and NFE were statistically (P>0.05) similar except DM and EE (P<0.05). Findings of present study corroborate with Gomez-Alarcon et al. (1991) and Putnam et al. (1997) while contrasting results found by Doreau and Jouany (1998) and Dutta and Kundu (2008).

Conclusion

Supplementing Probiotics to lactating Kankrej cows significantly improved fat percent and 4% FCM, CP and TDN intake while daily milk production, DCP intake and return as percent of feed cost were increased but remained statistically similar as compared to control.

References

1. AOAC. Official method of analysis. 18th ed. Association of Official Analytical Chemist. Wahington DC, 1999; 160-165.
2. Adams AL, Harris Jr B, Van Horn HH, and Wilcox CJ. Effects of varying forage types on milk production responses to whole cottonseed, tallow and yeast. *Journal of Dairy Science.* 1995; 78: 573-581.
3. Williams PEV. Understanding the biochemical mode of action of yeast culture. *Biotechnology in the Feed Industry.* (Ed.) Lyons T P. Nicholasville: Alltech Technical Publications; 1999.
4. Indian Standards Institution. Methods of Tests for dairy Industry. *Chemical Analysis of Milk.* (IS: 1479, Part II), 1961.
5. Nocek JE, and Kautz WP. Direct-fed microbial supplementation on ruminal digestion, health and performance of pre and postpartum dairy cattle. *Journal of Dairy Science.* 2006; 89: 260-266.