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Economics of milk production feeding different level of green fodder of cross-bred and Gir cows

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Abstract
A study was conducted on 20 lactating cows (in which 10 Crossbred and 10 Gir Cows) were divided into four groups on basis of nearest their body weight and milk yield/day at dairy farm (LPM) S.K.N. College of agriculture, Jobner (Rajasthan) and subjected to four dietary treatments were formulated. i.e. Green Lucerne (10 kg) + Wheat straw *ad-lib*.+ Concentrate (T_1-CB), Green Lucerne (20 kg) + Wheat straw *ad-lib*.+ Concentrate (T_2-CB), Green Lucerne (10 kg) + Wheat straw *ad-lib*.+ Concentrate (T_3-GC) and Green Lucerne (20 kg) + Wheat straw *ad-lib*.+ Concentrate (T_4-GC) and the studied for their economics of milk production Average daily milk production (litre/cow) was significantly ($P<0.05$) higher in T_2 (11.24) than T_1 (11.13), T_4 (8.52) and T_3 (8.38). Average feed cost/litre milk production was higher in T_4 (27.13) than T_3 (23.26), T_2 (21.52) and T_1 (16.36).

Keywords: Economics of milk production, different level, green fodder. cross-bred, gir cows

Introduction
Livestock in India has a very important role in the agricultural sector and consequently in its rural economy. India has 190.90 million cattle population, which includes 39.73 million cross-bred and 151.17 million Indigenious cattle (Anonymous 2012) [1]. Cattle are an important farm animal which play a significant role in the economy of the country by providing milk, manure, and draught power with very little input. Gir is a famous milch cattle breed of India. Cattle of this breed are famous for their tolerance to stress conditions and resistant to various tropical diseases. Cross-breeding programme of dairy cattle has played significant role in attaining India's top position as highest milk producer country of the world. Nutrition plays vital role in exploiting the genetic potential of dairy animals but the biomass resources are very limited and there is shortage of feed and fodder. The green fodders is good sources of energy, protein, fat, minerals and vitamins. There for, the present study will be taken to assess to optimum level of green Lucerne (*Medicago sativa*) fodder in ration and economics of milk production of cross-bred and Gir cows and to make recommendations for better performance of dairy cows.

Materials and Methods
The experiment was conducted 2018-2019 at the Dairy farm, S.K.N. college of Agriculture, Jobner District Jaipur, (Rajasthan, India). Twenty lactating 10 Cross-bred (Tharparkar/Sahiwal x Holstein Friesian) and 10 Gir lactating cows were selected for the experiment. They were randomly divided into four groups of five in each group on the basis of nearest in their body weight and milk yield and four dietary treatments were formulated. i.e. Green Lucerne (10 kg) + Wheat straw *ad-lib*.+ Concentrate (T_1-CB), Green Lucerne (20 kg) + Wheat straw *ad-lib*.+ Concentrate (T_2-CB), Green Lucerne (10 kg) + Wheat straw *ad-lib*.+ Concentrate (T_3-GC) and Green Lucerne (20 kg) + Wheat straw *ad-lib*.+ Concentrate (T_4-GC) and the studied for their nutrient utilization. The feed intake data comprising the intake of roughage and concentrate of each animal in all treatments was recorded on two consecutive days at fortnightly interval.

Fig 1: Green Lucerne used for different treatments.

The feed cost of milk production was calculated based on actual cost of feed and fodders pay by Department of Livestock Production Management. The cost of lucerne, wheat straw and concentrate palleted was (Rs.) 600/Qtl, 640/Qtl and 1650/Qtl., respectively. The milk was sold to milk window @ Rs. 34/lit. During experiment period.

Results and Discussion

The data collected during the experiment were subjected to standard methods of statistical analysis and presented in this chapter in the form of tables, figures along with the implications of the results to the Economics of Milk Production Feeding Different Level of Green Fodder of Crossbred and Gir Cows under following heads.

Table 1: Feed cost of milk production under different treatments.

Particulars	Cross-Bred		Gir Cow	
	T_1	T_2	T_3	T_4
Total quantity of green lucerne (qtl)	45.0	90.00	45.0	90.00
Total quantity of wheat straw (qtl)	31.05	30.15	26.55	25.65
Total quantity of concentrate (qtl)	21.28	21.55	20.16	20.38
Feed cost (Rs.)				
Lucerne	27,000	54,000	27,000	54,000
Wheat straw	19,872	19,296	16,992	16,416
Concentrate	35,112	35,557	33,264	33,627
Total feed cost	81,984	108,853	77,256	104,043
Total milk production in 90 days	5004.8	5056.3	3769.8	3833.9
Total income sale of milk (90 days)	170,163.2	171,914.2	128,173	130,352.6
Estimated milk production in (300 days) lactation (litre)	3339	3372	2214	2556
Milk yield /cow per day (litre)	11.13	11.24	7.38	8.52
Average daily feed cost per animal	182.18	241.89	171.68	231.20
Feed cost /litre of milk	16.36	21.52	23.26	27.13

The feed cost per litre milk production was 16.36, 21.52, 23.26 and 27.13 in T_1, T_2, T_3 and T_4, respectively. The feed cost of per litre milk production was higher in T_4 than T_3, T_2 and T_1. The feed cost per litre milk production was higher in group T_2 compared to T_1 in (Cross-bred) and also higher in group T_4 compared to T_3 in (Gir cows). The overall feed cost of per litre milk production was higher in group T_4 and T_3 (Gir cows) compared to group T_2 and T_1 (Cross-bred). Similar results were obtained by Kaware and Yadav (2014) [5]. While controversy results were observed by Chaudhary *et al.* (2000) in buffaloes.

Conclusion

Therefore, It is concluded the feeding level of 20 kg green lucerne group milk production cost per litre was higher as compared to 10 kg green lucerne fed group. And in relation to breeds Gir cows Group (T_4 and T_3) milk production cost was higher compared to Crossbred group (T_2 and T_1). The feed cost of per litre milk production was higher in group T_4 and T_3 (Gir cows) compared to group T_2 and T_1 (Cross-bred).

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Place: Jobner (Omprakash Choudhary)

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