

Economics of Deoiled *Sal* (*Shorea robusta*) Seed Meal (DSSM) Feeding to Lactating Kankrej Cows*

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ABSTRACT

An attempt was made to study the effect of feeding deoiled *Sal* (*Shorea robusta*) seed meal (DSSM) at 0, 10 and 20 per cent levels in the concentrate mixture on the economics of feeding to the Kankrej cows for a period of 300 days during the lactation.

The results indicated that incorporation of DSSM at 10 and 20 per cent levels replacing maize in conventional concentrate mixture has reduced the cost of concentrate mixture by 7.27 to 10.67 and 14.54 to 21.47 per cent respectively.

From the results it was also found that the cost of feeding the ration per kg of milk and FCM production was higher by 18 per cent at 20 per cent DSSM level (T_3) and lower by 8 per cent at 10 per cent DSSM level (T_2) as compared to control (T_1). However, the differences were statistically non significant. Replacement of maize by DSSM at 10 per cent level in concentrate mixture was found to be economical for production purpose.

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INTRODUCTION

The most urgent and crucial problem in our country for the feeding of cattle is of the shortage of cattle feeds. One of the current topics in the nutritional research is the introduction of economical feed ingredients in animal feed which would help in making not only livestock and poultry enterprise profitable, but also spare some valuable food for human consumption. The price of deoiled *Sal* seed meal (DSSM) is about one fifth of the price of maize. The proximate composition of DSSM is just like maize (Sethi and Maini, 1969). This being an economical as well as unconventional

ingredient attracted the attention of research workers in the field of animal nutrition, industrial research workers and compounded feed manufactures. Patnaik (1966); Prasad (1971); Pathak and Ranjhan (1972) and Panda and Rao (1973) have reported its economics for feeding purpose. An attempt has been made to study the effect of feeding DSSM at different levels to Kankrej cows on its economics for milk production for 300 days.

MATERIAL AND METHODS

A completely randomized design was followed for the study with 18 lactating Kankrej cows. An equal num-

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ber of similar cows were allotted to the three groups as and when they calved i.e. 6 cows in each group. Actual feeding of experimental ration was started on the day of calving. Details of the experimental animals are given in Table-1.

TABLE 1

Details of experimental animals.

Treat- ment	Sr. No.	Age in months	Lactation No. before start of experiment	Initial body weights in kg.
T ₁	1	89	3	446
	2	92	3	431
	3	81	3	392
	4	73	2	334
	5	78	4	344
	6	81	3	303
	Av.	82.3	3	374.8
T ₂	7	70	2	342
	8	106	3	373
	9	51	2	408
	10	111	3	420
	11	50	1	415
	12	53	2	272
	Av.	73.5	2	371.7
T ₃	13	70	2	363
	14	109	4	415
	15	74	3	365
	16	79	2	342
	17	106	4	342
	18	89	4	402
	Av.	87.8	3	371.5

Alongwith the control, 10 and 20 per cent DSSM was fed to replace maize in the conventional concentrate mixture. All the cows were fed as per NRC recommendations (1971) to meet the DCP requirements. Ration for individual animals were computed at weekly interval considering body weight milk yield and fat percentage of milk. The fodder requirement was met by

feeding daily 5 kg of hybrid napier and mature pasture hay *ad lib.* Economics of feeding under different treatments were worked out from the records of daily feed consumption and actual purchase price of feeds and fodders. During experimental period, formulae of concentrate mixture was changed three times due to non availability of certain feed ingredients.

Statistical analysis of the data was carried out as suggested by statistician, IARS, New Delhi, following Snedecor and Cochran (1968).

RESULT AND DISCUSSION

(a) Cost of concentrate mixture

Data showing the detailed information regarding cost of concentrate mixture during different periods are given in Table 2. From the perusal of data it is seen that with first formula cost of concentrate mixture per tonne was Rs. 802.06, 728.31 and 654.56 for T₁, T₂ and T₃ i.e. about 9.2 and 18.4 per cent less in T₂ and T₃ as compared to control. For the second formula the cost per tonne was Rs. 745.96, 666.36 and 585.76 for T₁, T₂ and T₃ i.e. about 10.7 and 21.5 per cent less for T₂ and T₃ as compared to control. For the third formula the cost of concentrate mixture per tonne was Rs. 931.56, 847.16 and 780.76 i.e. 7.3 and 14.5 per cent less in T₂ and T₃ as compared to control. In otherwords it can be said that incorporation of DSSM at 10 and 20 per cent level in the concentrate mixture will reduce the cost.

TABLE 2

Cost of ingredients and concentrate mixtures with DCP (%) and TDN (%) for different formulae.

Ingredient	Cost Rs./tonne	T_1		T_2		T_3	
		% in formula	cost in formula (Rs.)	% in formula	Cost in formula (Rs.)	% in formula	Cost in formula (Rs.)
Formula-1 (12-11-72 to 10-6-73)							
Maize	950	20	190=00	10	95=00	0	—
DSSM	100	0	—	10	10=00	20	20=00
Groundnut cake	1000	35	350=0	37.5	375=00	40	400=00
Wheat bran	550	42	231=00	39.5	217=25	37	203=50
Salt	106	1	1=06	1	1=06	1	1=06
Mineral mix.	1500	2	30=00	2	30=00	2	30=00
Total		100	802=06	100	728=31	100	654=56
DCP (Calculated)		18.6		18.6		18.6	
TDN ,,		74.5		72.6		70.9	
Formula-2 (11-6-73 to 23-9-73)							
Maize	950	20	190=00	10	95=00	0	—
DSSM	100	0	—	10	10=00	20	20=00
Cluster bean meal	1100	30	330=00	30	330=00	30	330=00
Maize gluten	480	20	96=00	24	115=20	28	134=40
Maize bran	370	27	99=90	23	85=10	19	70=30
Salt	106	1	1=06	1	1=06	1	1=06
Mineral mix.	1500	2	30=00	2	30=00	2	30=00
Total		100	746=96	100	666=36	100	585=76
DCP (Calculated)		17.0		17.0		17.0	
TDN (,,)		76.3		73.5		70.8	
Formula-3 (24-9-73 to 27-5-74)							
Maize	950	20	190=00	10	95=00	0	—
DSSM	100	0	—	10	10=00	20	20=00
Cluster bean meal	1100	32	352=00	32	352=00	32	352=00
Maize gluten (Anilo feed)	860	1	258=00	36	309=60	42	361=20
Maize bran	550	15	82=50	9	49=50	3	16=50
Salt	106	1	1=06	1	1=06	1	1=06
Mineral mix.	1500	2	30=00	2	30=00	2	30=00
Total		100	913=56	100	847=16	100	780=76
DCP (Calculated)		16.0		16.0		16.0	
TDN ,,		74.4		73.2		70.3	

Prasad (1971) has reported that inclusion of 15 per cent DSSM in the mixture reduced the cost of concentrate mixture by Rs. 60.00 per tonne.

(b) Cost of feeding per kg milk and FCM production

The costs per kg milk and FCM production have been worked out considering the cost and quantity of feed

consumed. The data on cost of feeding ration per kg milk and FCM production are presented in Table 3. Milk yield and FCM yield data were reported by Jagdale, Desai and Shukla (1976) are considered.

The average data presented in Table 3 indicate higher cost per kg milk production in T_3 by 15 paise and lower in T_2 by 7 paise as compared to control.

TABLE 3

Effect of feeding *sal* seed meal (DSSM) on cost of milk and FCM production during 300 days (average of 6 animals).

	Treatments		
	T_1 (6)	T_2 (6)	T_3 (6)
Total con. mix. consumed (kg)	927.68	1035.47	722.82
Total cost (Rs.)	1502.59	1551.91	1097.88
DCP from con. mix. (kg)	163.25	179.21	124.13
TDN from con. mix. (kg)	702.93	756.72	512.31
Total milk yield (kg)	1865.17	2214.67	1240.83
Total FCM yield (kg)	2092.67	2414.33	1393.33
* Cost of kg milk (Rs.)	0.82	0.75	0.97
** Cost of kg (FCM).	0.73	0.67	2.18

Treat. F * 1.76 NS. ** 2.18 NS. NS=Non-significant

Figures in the parenthesis indicate number of animals.

The cost per kg FCM production showed the same trend as for milk production i.e. higher cost in T_3 by 13 paise and lower in T_2 by 6 paise as compared to control. The statistical analysis indicates that the differences were non significant for both though T_3 showed higher cost.

From the present study it appears that DSSM incorporation at the level of 20 per cent is not economical for milk production. However, when the conventional feed ingredients are not available cheaply, DSSM can be used at 10 per cent level in concentrate mixtures.

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