

Effect of Different Rations on Growth Rate of Patanwadi Sheep

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ABSTRACT

Possibility of replacing the groundnut cake in the ration of growing Patanwadi Sheep, with guar meal, was studied using 18 Patanwadi hoggets in a randomized Block Design. Baled pasture grass hay mainly *Dichanthium annulatum* stapf was the basal fodder fed *ad-libitum*. The proportion of the different ingredients of the three concentrates mixtures was such that 200 g of each of the mixtures would supply 50 g of calculated DCP. Mean daily dry matter intake of the hoggets was observed to be 3.578 ± 0.040 kg per 100 kg body weight. Mean overall weight gain of the hoggets during the experimental period of 20 weeks was observed to be 60.657 ± 3.157 g/head/day.

The mean weight gains of three ration groups were 57.857 ± 7.558 , 57.500 ± 4.222 and 66.607 ± 4.146 g/day respectively. The differences, however, were not significant ($P > 0.05$). Guar meal could thus completely replace the groundnut cake in the growth ration of sheep, without any adverse effect.

(Received on 10th Dec. 1979)

INTRODUCTION

An experiment to study the feasibility of replacing fully or partially the groundnut cake by guar meal in the concentrate mixtures of growing Patanwadi hoggets was conducted at the Veterinary College, Anand from 14th January, '77 to 9th June, '77.

MATERIAL AND METHODS

Eighteen Patanwadi hoggets of about ten months of age were used as the experimental animals. Fifteen

wethers and three ewe hoggets were allotted at random, to three different treatments according to their body weight. Each group consisted of five wethers and one ewe hogget, having similar average initial body weights.

Baled pasture grass hay, mainly *Dichanthium annulatum* stapf was the basal fodder fed *ad-libitum* to the hoggets of all the three groups. The chemical analysis was carried out as per A.O.A.C. (1970) and the composition of feeds for three treatments is presented in Table 1.

TABLE I

Details of experimental concentrate mixture.

Concentrate mixture	Name of the ingredients	Composition		Proportion per 200 g	Calculated DCP g	Calculated TDN g
		DCP	TDN			
		%	%			
1	2	3	4	5	6	7
Treatment I	Wheat	11.00	65.12	67.39 g	7.42	43.88
	bran					
	Groundnut cake	32.11	71.26	132.61 g	42.58	94.41
	Total			200.00 g	50.00	138.29
Treatment II	Wheat	11.00	65.12	87.13 g	9.59	54.09
	bran					
	Groundnut cake	32.11	71.26	62.92 g	20.20	44.84
	Guar meal	40.45	70.01	49.95 g	20.21	34.97
	Total			200.00 g	50.00	133.90
Treatment III	Wheat	11.00	65.12	104.96 g	11.56	68.35
	bran					
	Guar meal	40.45	70.01	95.04 g	38.44	66.54
	Total			200.00 g	50.00	134.89

Daily, 200 g of the concentrates mixture was offered once a day to each hogget as a supplement according to treatment.

The hoggets were housed in a well ventilated shed with cement plastered floor and manger. Total floor space available to each hoggets was nearly 1.80 sq. metres.

The quantity of hay offered was increased gradually with increase in the intake along with increase in age from 1,000 g in the beginning per head/day to 1,200 g by the time the experiment was over. The left over of the roughage was weighed only once

daily in the morning before cleaning the shed. Clean, fresh water was offered to all the hoggets individually, twice daily.

The body weights of the hoggets were recorded weekly during the experimental period on two consecutive days. (i.e. Thursday and Friday) and the average was taken as the weekly body weight. The weight was taken before feeding and watering.

The data was analysed statistically as per Snedecor and Cochran(1967).

RESULTS AND DISCUSSION

Growth Rate:

It was observed that, on an average, during the experimental period

the Patanwadi hoggets gained 8.492 kg weight. This worked out at 60.657 g/head daily. The rate of daily gain ranged from 34.286 g for a ewe hogget in treatment group 1, to 82.143 g for a ram hogget in the same group.

This is similar to the findings of Patnayak *et al.* (1972), Singh (1975), and Ram Ratan and Patnayak (1974) for Nali and Malpura sheep and Chauhan *et al.* (1974), Patnayak and Ma-

dan Mohan (1974) and Donker *et al.* (1976) for cross-bred sheep kept on similar plane of feeding.

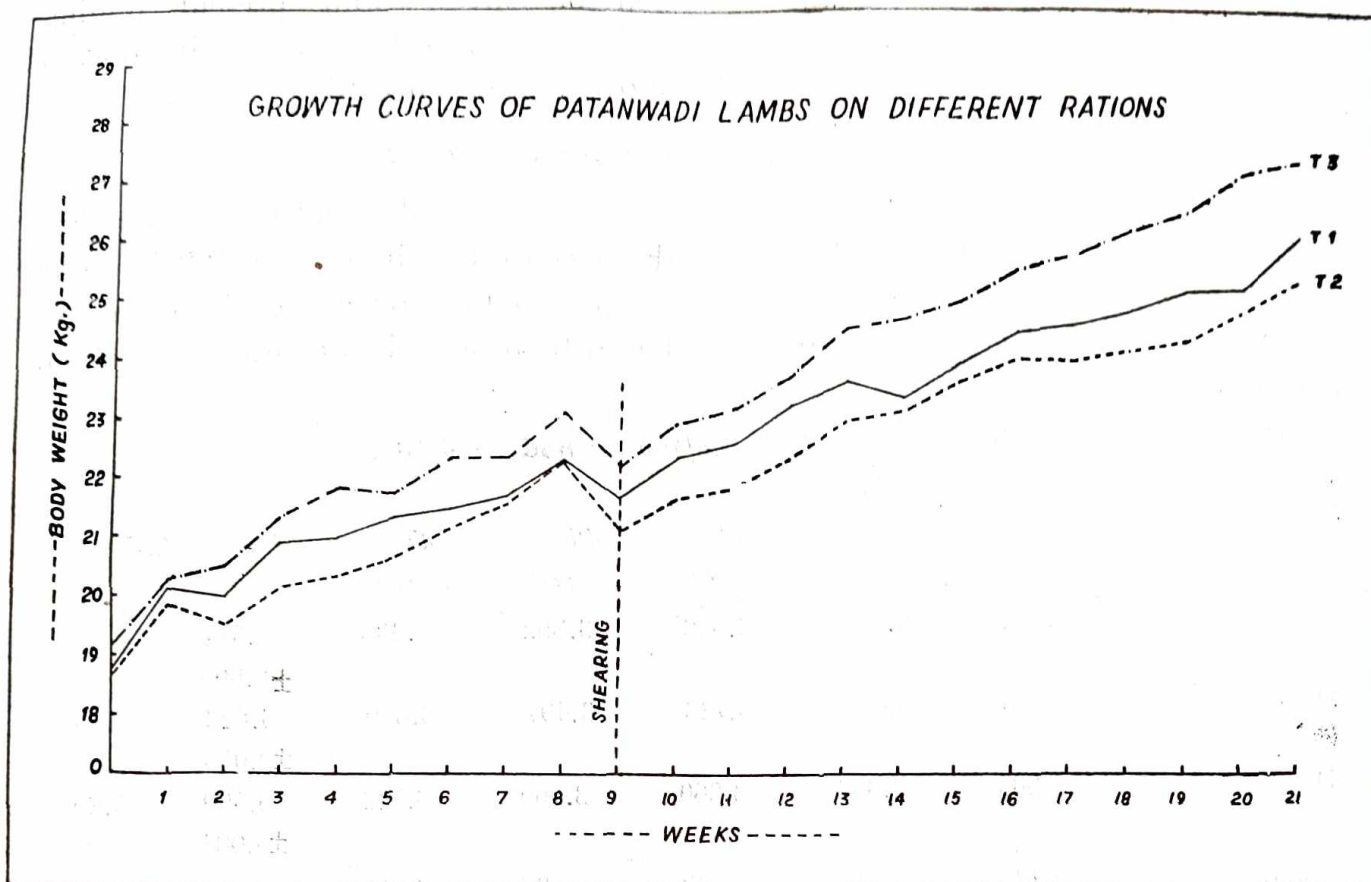
Effect of Rations, Groups, Periods and Interaction:

The mean weight gain of the hoggets belonging to the three treatments during different periods of the experiment is given in Table 2. The treatment effect, is illustrated in Figure 1.

TABLE 2

Mean weight gain during different periods.

Period	1st four week	2nd four week	3rd four week	4th four week	5th four week	Total	Mean
<i>Treatment I</i>							
Mean (kg)	2.275 ± 0.351	1.308 ± 0.206	1.958 ± 0.323	1.042 ± 0.259	1.517 ± 0.205	8.100 ± 0.106	1.620 ± 0.144
C. V. %	37.81	38.66	40.42	61.10	38.60	31.99	48.62
<i>Treatment II</i>							
Mean (kg)	1.800 ± 0.451	2.075 ± 0.523	1.875 ± 0.178	0.983 ± 0.289	1.317 ± 0.152	8.050 ± 0.590	1.610 ± 0.157
C. V. %	61.44	54.55	23.29	72.19	28.39	17.98	53.44
<i>Treatment III</i>							
Mean (kg)	2.592 ± 0.230	1.500 ± 0.223	2.258 ± 0.491	1.308 ± 0.234	1.667 ± 0.128	9.325 ± 0.580	1.865 ± 0.149
C. V. %	22.05	36.45	53.32	43.88	98.85	15.24	43.93



It can be seen that the ration constituting treatment three was superior to other two in all the periods. The trend of gain in weight was, very similar in case of treatment groups one and three. However, in all the periods the mean weight gain was consistently higher in case of third treatment group. This indicates superiority of treatment 3 over treatment 1.

Except in the second period, the animals under treatment two put on less amount of weight in all the other periods, as compared to that of treatment groups 1 and 3. This treatment, therefore, was, least effective of all the three. The difference in the amount of growth put up by hoggets in different periods was statistically highly significant ($P < 0.01$). This difference in amount of growth of hoggets needs

further investigation for its fuller and complete understanding. The amount of growth put up by hoggets was not significantly affected by period—treatment interaction. The group-period interaction, however, though did not reach the level of statistical significance ($P > 0.05$) was still marked and apparently, could be an important component of variation where large number of observations is involved. It can thus be seen that groundnut cake can be completely replaced by guar meal in the growth ration of hoggets with advantage. Comparative feeding value of groundnut cake and guar meal in growth rations of sheep, as studied here has not been reported in the literature. However, the rate of daily weight gain of Muzaffarnagari lambs (49.84 g) on oats hay supplemented with concentrates

mixture containing more than 50% groundnut cake, is less than that of Patanwadi hoggets (57 g) in this study (Binod Bhargava *et al.* 1973). Sadagopan and Talapatra (1967), Thatte *et al.* (1967) and Vidyasagar and Pradhan (1975), have reported that guar meal is as efficient a source of protein as groundnut cake in the growth ra-

tion of calves. Our present finding with sheep is in agreement with that of above workers in cattle.

Dry Matter Intake:

Average daily total dry matter (hay + concentrates) intake (kg/100 kg body weight) of the hoggets of the three different treatments is presented in Table 3.

TABLE 3

Average daily dry matter consumption (kg/100 kg body weight).

Period/ treatment	%					Mean	C.V. %
	1st four week	2nd four week	3rd four week	4th four week	5th four week		
I	3.702	3.417	3.658	3.392	3.388	3.511 ± 0.009	4.41
II	3.783	3.489	3.728	3.497	3.619	3.623 ± 0.059	3.66
III	3.689	3.353	3.860	3.569	3.522	3.599 ± 0.084	5.25
Mean	3.725 ± 0.029	3.419 ± 0.039	3.748 ± 0.059	3.486 ± 0.051	3.509 ± 0.066	3.578 ± 0.040	4.39
C. V. %	1.36	1.98	2.73	2.54	3.30		

Period effect is highly significant ($P \leq 0.01$)

It is observed that the mean daily dry matter intake of all the hoggets during the experimental period was observed to be 3.578 ± 0.040 kg per 100 kg body weight. It is further seen that the average daily dry matter consumption per 100 kg body weight for treatments 1, 2 and 3 was 3.511 ± 0.069 , 3.623 ± 0.059 and 3.599 ± 0.084 kg respectively. The values of the dry matter consumption were thus very similar for all the treatments. The dry matter consumption of hoggets as observed in this study is in agreement with those reported by Upadhyaya *et al.* (1971), Madan Mohan *et al.* (1972), Singh *et al.* (1972), Ram Ratan *et al.*

(1973), Singh (1973), Ram Ratan and Patnayak ((1974), Patnayak and Hajra (1974) and Banerjee *et al.* (1975).

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