Pak. J. Agri. Sci.
24(4)251, 1987.

PERFORMANCE OF BEETAL KIDS AS INFLUENCED BY FEEDING FREQUENCY OF A FATTENING RATION

Shahid Iqbal, Nazir Ahmad, S. H. Hanjra, Muhammad Sajjad Khan and Raza A. Gill

University of Agriculture, Faisalabad.

ABSTRACT

The influence of feeding frequency of concentrate ration containing alkali treated wheat straw on intake and growth rate of Beetal kids was determined. Nine Beetal kids of the same age were selected and allotted at random to three treatments i.e., feeding once-a day (F_1), twice-a-day (F_2) and thrice-a-day (F_3) in such a way that there were three kids under each treatment. Average weekly feed intake under F_1, F_2 and F_3 was 10676.15 $\pm$ 46, 12379.62 $\pm$ 51 and 12849.23 $\pm$ 83 g and the average body weight gain was 369.32 $\pm$ 56, 700.00 $\pm$ 110 and 684.62 $\pm$ 76 g, respectively. The carcass data showed non-significant difference among the three treatments. A significant ($P<0.01$) difference was, however, observed in the feed intake and body weight gain in the three groups. Twice-a-day feeding regime was better than once-a-day or thrice-a day feeding.

INTRODUCTION

Feeding frequency influences the production of the animal by affecting microflora in the rumen. When an animal is fed once or twice daily, the rumen microflora have short period for fermentation, thus causing initial fall in microbial activity due to diluting effect of the feed, saliva and the passage of some organisms from rumen to abomasum (Cuthbertson, 1969).

The major part of the feed of ruminants in Pakistan comprises of fibrous materials like wheat & paddy straw. The production of wheat & rice straw is estimated to be 11.5 and 3.4 million tonnes, respectively, in Pakistan (Anonymous, 1986). Due to high crude fibre content, the digestibility of straw is poor, thus limiting its consumption. To enhance the digestibility of poor quality roughages, sodium hydroxide treatment has become very popular. The treatment of wheat straw

with 4% sodium hydroxide is considered the optimum level for higher digestibility and intake by sheep. The apparent digestibility of the hemicellulose fraction may increase upto 70% when treated wheat straw is fed and appreciable increase in the intake of digestible organic matter is also observed (Ali, 1977). The present study reports the effect of feeding frequency by using concentrate ration including 4% sodium hydroxide treated wheat straw on the growth rate of Beetal kids.

MATERIALS AND METHODS

Nine growing Beetal kids approximately of the same age were used for the present study. Kids were dewormed by using Nilverm and one week adjustment period was given before the start of the experiment. The wheat straw used in the growing ration was treated with 4% sodium hydroxide, dried in open for 24 hours and then mixed with the concentrate. The growing ration containing 12.8% C.P. and 57.8% TDN was offered to all the animals according to the requirements based on Morrison Feeding Standards (Morrison, 1959).

Three feeding regimes were tried, i.e., feeding once-a-day (F_1), feeding twice-a-day (F_2) and feeding thrice-a-day (F_3). The experimental animals were randomly allotted to the three treatment groups in such a way that there were three kids on each treatment. The ration refused by each group of kids was weighed two hours after feeding to determine the feed consumption. Chopped green fodder (lucerne) Was offered at the rate of 200 g per head per day about half an hour before regular morning feeding. The experiment was carried out for a period of 3 months and daily feed intake and weekly weight gain were recorded. At the end of the experiment, two animals from each group were selected randomly and parameters like dressing percentage, remun contents (dry matter and moisture ratio), weight of full rumen, empty rumen, liver, heart, kidneys, lungs, spleen, intestine, pelts, heads and trotters was recorded and measurements of various body parts were made. The data obtained were subjected to the analysis of variance and the difference in the means was assessed using DMR test (Duncan, 1955).

RESULTS AND DISCUSSION

The weekly average feed intake of the experimental animals fed once, twice or thrice daily is given in Table 1. It was maximum in animals fed thrice-a-day

Table 1. *Mean values for average feed consumption, body weight gain, carcass yield, dressing percentage, dry matter content and bone meat ratio*

Particulars	Frequency I* (F_1)	Frequency II** (F_2)	Frequency III*** (F_3)
Weekly feed consumption (g)	10676.15±46	12379.62±51	12849.23±83
Weekly weight gain (g)	369.32±56	700.00±100	684.62±76
Carcass yield (kg)	6.85±0.64	7.07±0.60	7.65±0.60
Dressing persentage	53.95±1.62	55.76±3.03	56.43±2.78
Dry matter contents (%)	16.50±0.71	17.00±1.41	17.00±1.41
Bone meat ratio	1:1.26	1:1.38	1:1.42

* Fed once-a-day; ** fed twice-a-day; *** fed thrice-a-day.

Table 2. *Analysis of variance of data on feed consumption and weekly weight gain in beetal kids*

Source of variation	Degree of freedom	Mean squares	
		Weekly feed consumption (g)	Weekly weight gain (g)
Frequency of feeding	2	5665532.25**	151026.10**
Weeks	12	1741053.70**	10484.33 NS
Frequency x weeks	24	62039.50 NS	4266.34 NS
Error	78	52278.03	6367.52

** Significant ($P<0.01$); NS = Non-significant.

(12849.23 ± 83 g) and minimum in thofe fed once-a-day (10676.15 ± 46 g) For the kids fed twice-a-day, the intake was 12379.62 ± 51 g. The data when subjected to statistical analysis revealed a significant ($P<0.01$) difference in feed consumption for each treatment used in the study (Table 2). A comparison between means revealed that the feed intake was significantly different among three treatments. The findings of the present study i.e., increased feeding frequency increases feed intake are supported by the observations of Ikhatua and adu (1983) who reported that rams fed thrice-a-day had higher feed intakes than those fed once or twice a-day. Sajid (1986) also reported that with increase

in feeding frequency of lactating buffaloes, fodder intake was significantly increased.

The average weekly weight gain of kids under treatments F_1, F_2 and F_3 were 369.32 $\pm$ 56, 700.00 $\pm$ 100 and 684 62 $\pm$ 78 g, respectively (Table 1). The difference among the treatments being significant ($P < 0.01$) The kids maintained on twice feeding schedule gained the maximum (700.00 $\pm$ 100 g) as compared to thrice- and once-a-day feeding. Apparantly lesser weight gain in thrice feeding was due to the loose faeces which might have been caused by higher intake of molasses alongwith alkali treated wheat straw. The results are in close proximity with those of Ikhatua and Adu (1983) and Verma *et al.* (1984) who reported that increasing the feeding frequency resulted in more efficient nitrogen utilization, feed conversion and higher body weight gain. It may thus be concluded from the present results that by increasing the frequency of feeding, gain in body weight increased.

The average carcass weigh', dressing percentage, dry matter, bone meat ratio, weight of full rumen, empty rumen, liver, heart, kidneys, lungs, spleen, intestine, pelts, heads and trotters of kids under different treatments were also determined. The statistical analysis of the data revealed non-significant differences among different groups of animals. The data (not presented) on various measurements of the body showed that different feeding frequencies did not affect the body length, length of hind legs, width through shoulders, width through hip, width through legs and depth of body at seventh thoracic vertebra.

REFERENCES

Ali, C.S. 1977. Sodium hydroxide treated straws in pelleted diets for ruminants. Ph. D. Thesis, Inst. Anim. Sci., RVAU, Copenhagen.

Anonymous. 1986. Economic Survey of Pakistan. Government of Pakistan, Ministry of Finance, Islamabad.

Cuthbertson, S.D. 1969. The Nutrition of Animals of Agriculture Importance (Part I). Pergamon Press, New York.

Duncan, D.B. 1955. Multiple Range and Multiple F. test. Biometrics, 11:1-42.

Ikhatua, U J. and I.F. Adu. 1983. Effects of feeding frequency on feed and

nitrogen utilization in sheep. Tropical Veterinarian, 1 (1) ; 33-37. (Nutr. Abst. Rev., 54 (6) ; 2303, 1984).

Sajid, S. 1986. Milk yield and composition as affected by feeding frequency in dairy buffaloes. M.Sc. Thesis, Univ. of Agri., Faisalabad.

Morrison, F.B. 1959. Feeds and Feeding. The Morrison Publishing Co. Ames, Iowa, USA.

Verma, G.S., O.S. Tomer and N.P.S. Sirohi. 1984. Effect of frequency of feeding on growth and health of crossbred kids. International. Goat & Sheep Research, 2 (2) ; 122-125. (Nutr. Abst. Rev., 55 (1) : 293, 1985).