COMPARATIVE EVALUATION OF CONVENTIONAL AND COMPLETE FEED FEEDING SYSTEM ON BODY WEIGHT GAIN IN MARWARI GOATS

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ABSTRACT

To study the comparative evaluation of conventional and complete feed feeding system an experiment was conducted by taking 16 Marwari goats of same age (8-10 months) and uniform conformation in a randomized block design. The concentrate mixture of 20.90 per cent CP was formulated on dry matter basis using ingredients barley 35 parts, wheat bran 20 parts, cotton seed cake 30 parts, guar churi 13 parts, mineral mixture 1 part and salt 1 part. In T_1 chopped groundnut straw (*Arachis hypogia*) and concentrate mixture were offered separately, whereas in T_2 groundnut straw and concentrate mixture were mixed in 60:40 ratio and were given in mixed form. The results obtained from the comparative study of two feeding system suggest that blending of concentrate and roughage was beneficial rather than feeding them separately.

Key words: Goat, complete feed, concentrates roughage

Introduction

Goat is an animal of great importance to the livestock industry in India and goat farming in India is the backbone of economy of small and landless farmers. It is also well known that goat is superior then other ruminants in efficiency of nutrient utilization. Goat is most hardy animal and during draught and famine conditions the goat is the last animal to die. This ability is due to their habits of feeding on a wide variety of feed stuffs. It is not only raised for meat purpose but its milk is also of high nutritive value.

Goat is widely distributed animal species across all agro ecological region of our country and usually rose under harsh environmental conditions and has a unique ability to take advantage of marginal areas. Among the goat breeds of northwestern region of India, Marwari and Sirohi goats are very well adapted to local conditions (Sharma *et al.,* 2015). Goat has enormous potential to boost economy of our country and they play a major source of income especially to marginal farmers and landless labourers of our country (Ashfaque *et al*., 2015).

In traditional method of feeding which is also called as extensive system, animals are sent to graze on waste and community land resulting in low production and reproduction (Patil and Patel, 2007). The complete feed feeding system offers a means of controlling the ration of roughage, concentrate and other nutrients consumed. Complete feed is a blend of all feed stuffs i.e. fodder and various concentrate ingredients like cereal, grains, oil seed cake, mineral and vitamins which provide adequate nutrient to meet the need of animals. Each bite of complete feed consumed provides the required level of nutrients needed by animal (Sharma, 2002). Complete feed feeding helps for rearing sheep and goats under intensive system and this type of feed reduces the cost of feed for meat production (Reddy and Reddy, 2003).

India is facing a chronic shortage of feeds and fodders affecting livestock production in a substantial way. Therefore available resources should be used efficiently with the help of recently available scientific outcomes and technical principles. Hence an experiment has been planned for comparative evaluation of conventional and complete feed feeding system using groundnut straw as basal roughage for goat to observe the effect of two different feeding system on body weight gain in stall fed goats.

Materials and Methods

The present investigation was designed and conducted with 16 apparently healthy Marwari goat of same age (8-10 months old) and conformation. The experiment was conducted for eight weeks. The animals were weighed individually at the beginning, at weekly interval and at the end of 60 days experimental period after 16 hours fasting to determine the live weight changes (Harish *et al.,* 2003).

All the experimental animals were distributed by randomized block design into two groups having 8 animals in each group.

Experimental ration

Groundnut straw (*Arachis hypogia*) was used as roughage throughout the experimental period and a concentrate mixture was formulated on dry matter basis having about 20 % CP using barley, wheat bran, cotton seed cake, guar churi, mineral mixture and salt as shown in the following Table 2 and Table 3.

A complete feed was formulated having groundnut straw as a source of roughage and barley, wheat bran, cotton seed cake, guar churi, mineral mixture and salt as concentrate as presented in Table 3.

Results and Discussion

The average daily body weight gain in animals of two treatment groups obtained during feeding trial have been presented in Table 4 along with analysis of variance Table 5 and depicted in Fig. 1.

The overall mean daily gain in weight (g/d) were found to be 59.08 ± 4.91 in T_1 and 74.99 ± 4.53 in T_2 group. The higher daily gain was observed in animals of T_2 group receiving

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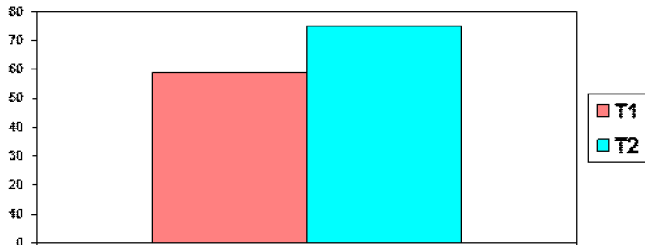

Fig. 1: Body weight gain in conventional (T1) and complete (T2) feed groups

complete feed having chopped groundnut and concentrate in the ratio of 60:40 and minimum gain was noticed in animals of T_1 group in which roughage and concentrate were given separately.

The statistical analysis of data revealed significant ($P<0.05$) difference due to effect of treatment. Significant effect on body weight gain on feeding roughage and concentrate in combined form than separately in goat noticed in present investigation however agree with the earlier findings of Reddy *et al.* (2002) in bull calves, Bhatia (2004) in sheep, Malisetty *et al.* (2013) in lambs and Al-Arif *et al.* (2016) in cattle who also recorded similar significant increase in average daily gain on complete (mesh) diet as compared to conventional diet. On

Table 1: Experimental design of animals

S.No.	Experimental group	Type of ration	No. of animal
1.	T1	Roughage and concentrate separately	1-8
2.	T2	Complete feed in mesh form	9-16

Table 2: Ingredients composition of concentrate mixture

S. No.	Name of Ingredients	Per cent ingredient
1	Barley	35 parts
2	Wheat bran	20 parts
3	Cotton seed cake	30 parts
4	Gaur churi	13 parts
5	Mineral mixture	01 parts
6	Salt	01 parts

complete diet the gain was more with complete pelleted diet than with complete mesh diet. The lower TDN intake coupled with lower DCP intake on conventional diet resulted in lower average daily gain (Reddy *et al.,* 2002).

Thus the daily gain in weight (g/day) in animals of T_1 and T_2 group were 59.08 and 74.99 g/day respectively. Though the gain weight was found to be higher in T2 group and the effect due to treatment was significant and the results obtained from the comparative study of two feeding system suggest that blending of concentrate and roughage was beneficial rather than feeding them separately

Table 3: Ingredients composition of complete feed

S. No.	Name of ingredients	Per cent Ingredient
1.	Roughage Groundnut straw	60 parts
2.	Concentrate 1.Barley 2.Wheat bran 3.Cotton seed cake 4.Gaur churi 5.Mineral mixture 6.Salt	40 parts 13 parts 08 parts 12 parts 05 parts 01 parts 01 parts

Table 4: Mean ± SE values of daily body weight gain (g/d) in conventional and complete feed groups

Animal No.	T1	T2
1	80.00	94.66
2	48.33	72.66
3	47.66	81.00
4	45.66	52.00
5	75.66	97.33
6	62.66	79.66
7	66.00	73.33
8	46.66	80.33
Mean ± SE	59.08a ± 4.91	74.99b ± 4.53

Table 5 :Analysis of variance of daily body weight gain

Source of variation	D.f.	SS	MSS	F value
Treatment	1	1013.46	1013.46	5.668*
Error	14	2503.27	178.80	

Note:* Significant at ($P< 0.05$) 5 per cent level of probability

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