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GROWTH PATTERN OF TEDDY KIDS UP TO THE WEANING AGE

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In order to study the influence of age on growth rate, efficiency of feed utilization and physiological norms of teddy goats, six days old kids were reared up to their weaning age. Each kid consumed on an average 35113.80 and 128720.16 grams of milk and green fodder respectively throughout the experimental period. The protein and kilo-calories consumed from milk and fodder was calculated which showed a positive correlation ($r=0.9945$ and $r=0.9962$, respectively) with body weight. The average weekly growth rate of each kid was 0.495 kg. (66 gms. per day). The effect of age on growth rate were found to be statistically significant ($P<0.01$). The protein efficiency ratio revealed that one gram of protein intake was required to gain, 1.8234 gram of body weight. Respiratory frequency, pulse rate and rectal temperature were comparatively more at evening than morning times. The rectal temperature showed a slightly increasing trend, but respiration and pulse rate reduced as the age of kids advanced.

INTRODUCTION

Goats have proved useful to man throughout the ages, largely because of their adaptability to varying environmental conditions and different nutritional regimes under which the different breeds and types have been evolved and in which they have been maintained. Many breeds and varieties of goats are found in the world, some of which are well documented, while others have not been adequately described or classified. Each breed has its own specific arttributes which fit it into a particulars economic, social and adaphic or climatic niche. Pakistan possesses 18.82 million heads of goats (Bhatti 1976). Out of the existing breeds of goats, Teddy is becoming more popular among the common farmers due to its pleasing look, rapid growth, more prolificacy, less feed consumption and less cost of expenditure on management, etc. Keeping this in view, it seems imperative to study the growth rate, feed requirements and physiological norms of this breed in Pakistan.

MATERIALS AND METHODS

To study the growth performance of Teddy goats, six, day-old kids were selected and maintained under routine farm management upto weaning age.

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The following observations were recorded.

1. Daily Milk consumed per kid.
2. Daily fodder consumed per kid.
3. Weekly body weight per kid.
4. Monthly body measurements (length, heart girth and height).
5. Fortnightly milk analysis (Moisture, Protein, Fat, Lactose and Ash percentage).
6. Proximate composition of fodder.
7. Daily respiration per minutes.
8. Daily pulse rate per minute.
9. Daily rectal temperature.

The data so obtained was subjected to statistical analysis to determine the relationship of growth, feed efficiency and other physiological norms with the age of animals.

RESULTS AND DISCUSSION

Composition and Consumption of Milk and Fodder :

The record of milk and fodder consumed by the kids was maintained which revealed that on an average 35113.86 grams of milk and 128720.16 grams of green fodder were consumed by each kid up to their weaning age (17 weeks). The milk suckled by the kids was analysed on each fortnight, which showed that as the stage of lactation advances in Toddy goat, the lactose, solid-not-fat and ash percentages increased whereas, the moisture content reduced by 2 per cent during the last fortnight of lactation. No appreciable difference as regard protein and fat contents of milk was observed. Similarly, the fodder, offered was analysed which showed that with the maturity of fodder, the moisture percentage reduced and crude protein, crude fibre, ether extract and ash percentages proportionately increased.

Growth Rate :

Weekly body weight of each kid was recorded in order to asses the influence of age on body weight. The data thus obtained was analysed which revealed that the age of the kids have a significant (P—0.01) influence on body weight. Similar results were reported by Singh and Singh (1974). It was concluded that as the age of animal advanced, the body weight proportionately increased. It may be due to the growth hormone which increases the anabolic process, stimulating the both bone and muscle development. Secondly thyroxine have basic effect on growth, by speeding up the metabolic rate and oxygen consumption of tissue (Maynard and Loosli 1961)

The average body weight, protein and kilo-calories consumed from milk and fodder by the kids at fortnightly intervals is presented in Table 1.

Table 1. *Average body weight, Protein and Kilo-Calories Consumed from milk and Fodder by Kids.*

Fortnightly intervals	Protein consumed from milk and fodder (grams)	Kilo-Calories consumed from milk and fodder (Kcal)	Average weight of kids. (grams)
At birth	—	—	3601.86
1st	17.4510	449.7758	4190.24
2nd	25.4988	649.3617	4827.46
3rd	27.4055	911.4571	5760.74
4th	37.7995	1122.2324	6925.40
5th	44.0299	1366.5055	7953.70
6th	52.2998	1614.3737	9118.36
7th	64.0812	1931.9188	10515.92
8th	66.9638	2031.6164	11549.94

Protein and kilo-calories consumed by kid from two different sources viz milk and fodder, showed a positive correlations ($r=0.9945$ and $r=0.9962$ respectively) with body weight, which were statistically significant ($P<0.010$). It is evident from the Table 1, that the kids consumed on an average 17.4510 grams of protein and 449.7758 kilo-calories of energy daily from milk and fodder and achieved an increase of 16 per cent gain in body weight at the end of first fortnight. In the subsequent fortnights, the consumption of protein and kilo-calories was increased accordingly. The gain in body weight was found to be 34, 69, 92, 121, 153, 192 and 221 per cent for the 2nd, 3rd, 4th, 5th, 6th, 7th and 8th fortnight intervals, respectively. It was concluded that at two month of age, the average body weight of the kids become approximately double over the birth weight. Whereas, the consumption of protein from both sources i.e. milk and fodder was almost found to be double at the same period At three and half months of age, the gain in body weight was more than three times over the birth weight. Similarly the consumption of protein was almost in same order.

The average monthly growth rate of Teddy kids up to 4 months of age was found to be 1.98 kg (66 gram per day). The present results are partially in agreement with those of Wijeratne (1968) who observed a monthly

growth rate of 1.56 kg up to one year of age in south Indian meat goats. Whereas, Cognie and Houix (1971) found a weight gain of 45 gms per day in criollo goats.

Protein Efficiency Ratio (P.E.R.)

The protein efficiency ratio was calculated from milk and fodder consumed by the kids during experimental period is presented in Table 2.

Table 2. *Protein Efficiency Ratio (Per) of Kids.*

Feed	Average Consumption (grams)	Average Protein (Per cent)	Average protein consumed (grams)
Milk	35113.80	3.40	1193.87
Fodder	128720.16	13.66	3164.97
Total	—	—	4358.84

Average initial body weight = 3601.86 grams

Average final body weight = 11549.94 ,,

Average weight gain = 7948.08 ,,

Protein efficiency ration = $\frac{\text{Gain in body weight}}{\text{Protein consumed}}$

$= \frac{7948.08}{4358.84} = 1.8234$

It is evident from the data shown in Table 2 that the protein efficiency ratio as per calculation was found to be 1.8234.

The present findings substantiate the results of Saeed (1967) who reported that Lohi lambs required one gram of protein to raise 1.90 grams of body weight. The results were also in partial agreement with those of Raja (1973) who estimated that to raise 1.60 grams body weight of Lohi lambs, one gram of protein was needed.

From the above results it is concluded that the Teddy kids are as efficient in protein utilization as Lohi sheep.

Physiological Norms :

The data on pulse rate, respiratory frequency and rectal temperature was recorded in order to study the Physiological response to climatic stress in Teddy goats up to their weaning age. The ranges of Physiological norms are presented in Table 3.

Table 3: *Pulse rate, Repiration Frequency and rectal Temperature of Teddy Kids.*

	Pulse rate per minute	Respiratory frequency per minute	Rectal temperature F°
Morning	71.60–73.99	16.10-19.78	101.8-102.9
Evening	72.42-74.12	17.68-21.71	102.0-103.1

The result indicated that the pulse rate, respiratory frequency and rectal temperature of morning and evening time remained within the normal range. Similar results were reported by Duke (1955). It was further investigated that all the corresponding values of the said norms were comparatively more at evening than morning times. Gaalaas (1945) also reported similar findings as regard respiration rate and rectal temperature in Jersey cattle. The probable reason is that at evening times, the stomach of the kids was full of fodder etc. which increased the metabolic rate and also stimulate the accelerated fibres which play an active role in the reflect acceleration of heart thus cause the heart to be at faster rate, Duke (1955). Comparatively higher environmental temperature at evening was also the factor, which increased the respiration rate and rectal temperature of Teddy kids than the moring time.

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