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COMPARATIVE GROWTH PERFORMANCE OF CAMEL CALVES KEPT UNDER FARM/FARMER'S CONDITIONS

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A 6-month study was undertaken on 14 camel calves aged 7 days to observe their comparative growth performance. Five calves belonged to the Barani Livestock.Production Research Institute (BLPRI), District Attock, Pakistan, while the rest were owned by the farmers living in the vicinity of BLPRI. All calves sucked milk from their respective dams *ad llbitum.* They started nibbling almost at 4 weeks of age. Vegetation for browsing/grazing mainly comprised Pholai *(Acacia modesta),* Kandair *(A/ha}i came/orum)* and Kao *(O/ea cuspidata).* Monthly growth rate of the Institute calves was determined by actual weighing the animals coupled with their weight. assessed by a standard formula based on body measurements. Because of non-availability of weigh bridge at farmers premises, growth rate of farmer's calves was assessed by using the formula method only. Institute calves on an average attained a net weight gain of 135:451 ± 6.35 kg, while farmer's calves gained 149.20 ± 3.06 kg. Daily growth rate in respect of Institute and fanner's camel calves worked out to be 0.75 and 0.82 kg respectively. On overall basis, daily growth rate of camel calves' could be due to personal attention given to them by their owners. The present findings are indicative of the great potential possessed by camel calves which can further be exploited under optimum feeding and management conditions for alleviating the animal protein deficiency prevailing in overpopulated and underdeveloped countries like Pakistan.

Key words: camel calves, comparative growth

JNTRODUcnON

Schloss (1911) defines growth as a " correlated. increase in the mass of the body in definite intervals of time, in a way characteristic of the species". Optimum growth should result in an adult organism capable of optimum performance through its normal life. Growth is the vel)' foundation of animal production. Youngones of meat animals will not make the most economical gains, if they were not raised to be thrifty and vigorous, Similarly, breeding females may have impaired reproductive ability, if they have been improperly grown. Further, one cannot expect the most satisfactory yields of milk from dairy buffalo/cow or she-camel unless they were well developed during growing period (Ensminger et aI., 1990).

Early growth of individuals, especially camel calves depends much on skilled management of calves and availability of milk for them and competition for that milk from farmer's family. Camel producer's family does share with calves the milk produced by their she-camels since the latter are the main source of milk required by the family for domestic consumption. Several studies conducted under varying conditions have indicated the potential of rapid growth rate during early months of camel life (Dong, ~979; Field, 1979 and Degen et aI., 1987). Efficient daily weight gain in youngones of any species especially that provide meat and/or milk such as camel may be considered a welcome natural phenomenon. This intrinsic ability of the animal is basically governed by the individual's genetic make up but may be supplemented by adequate feeding and proper management. The present study was planned to compare the efficiency of body weight gain in camel calves being raised by private owners with those under research institute management.

MATERIALS AND METHODS

Fourteen camel calves aged 7 days were used fOIl6 months to study their rate of growth. Of those, nine calves were owned by private farmers and the remaining five belonged to the Barani Livestock Production Research Institute (BLPRI) Kherimurat, District Attock, Punjab (Pakistan). The data concerning growth rate were recorded monthly. The rate of growth was determined by actual weighing of calves on a weigh bridge. Body weight of calves was also estimated from body measurements according to a formula given in May and Baker's guide as cited by Pirzada, et al. (1989). Given below is the formula:

$$\text{Body weight (kg)} = SH \times GS \times \frac{mf\backslash}{50}$$

where,

SH:, Shoulder height (metres)
as: Girth of shoulder (metres)
GH: Girth around hump (metres)

However, in case of privately owned calves, monthly growth rate was determined only from body measurements since the facility of weigh bridge was not available at farmer's premises. The calves were kept on milk plus available browsing during the daywith their herd-mates. Common

salt was provided *ad libitum* to the calves in the form of lumps in their housing premises. Water was also provided *ad libitum* once a day. The calves started nibbling at 4 weeks age.

RESULTS AND DISCUSSION

On overall basis, average monthly rate of growth of experimental calves was 23.62 with a range from 21,60 to 25.90 kg, while the same calculated on daily basis varied from 0.72 to 0.86 kg during different months with an average of 0.79 kg (Table 1). Considering the month-wise trend of growth rate of calves, there does not appear a consistent growth pattern either in Institute calves or those offarmer's. However, during 2nd month a significant decline in *monthlyl* daily' rate of growth was observed in calves of both categories. This probably could be attributed to increased feed requirements coupled with restricted milk feeding. Downward trend in growth rate was reversed during 3rd month in case of calves of Institute farm (IF), whereas further decline continued in farmer's calves. A visible recovery in rate of growth was noticed in calves of both categories during 4th month of the study. It was, of course, more pronounced in IF calves than those of farmer's. Enhanced rate of growth during 4th month seemed to be due to abundant supply of lush vegetation used by calves.

In terms of rate of growth of calves, 5th and 6th months of study, being very warm, were not favourable to efficient rate of growth, rather a gradual decline took place during both the months. High summer temperature during these months not only adversely affected the milk yield of dams but also resulted in reduced feed intake by calves with consequent lowered rate of calf growth.

In case of IF calves, growth rates recorded monthly by direct weighing and those obtained from body measurements were close to each other. The overall monthly gains in respect of IF calves and farmer's calves were in the order of 22.37 and 24.87 kg respectively (Table 1). The most probable reason for somewhat better gain by farmer's calves could be the personal attention of their owners. This infact is contrary to the expectations since the IF calves were expected to perform much better. The birth rate of camel calves doubled in second month of their age (data not given). This finding is supported by Ismail (1996) who reported that birth weight of Saudi camel calves male and female camel calves doubled in 64 days respectively. Chapman (1985) reported that on average birth weight of bactrian calves doubled at the age of 2.5 months. On average, IF calves attained a net weight gain of 135.45 ± 6.35 kg, while farmer's calves gained 149.20 ± 3.06 kg during 6 months study period. Degen et a1. (1987) reported that the calves averaged 155 kg at 180 days and average daily gain to that age was 0.68 kg. EI- Badawi (1996) also reported similar results (150 to 175 kg) concerning live weight at 6 months age.

Conclusion: The present findings are indicative of the great potential possessed by camel calves which can further be exploited under optimum feeding and manageinent conditions for alleviating the animal protein deficiency prevailing in overpopulated and underdeveloped countries like Pakistan.

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Table 1. Comparative growth rate of camel calves raised at institute farm and at farmer's level.

Months	Institute farm (kg)	Farmer level (kg)	Daily gain (kg)	Overall (kg)
1	20.25 ± 1,91 (20.04 ± 1,75)*	28.18 ± 1,55	0.80	*24.il*
2	18.85 ± 2.60 (21,9 ± 0.73)	24.29 ± 0.94	0.72	21,60
3	21,9 ± 0.73 (23.78 ± 1,16)	23.09 ± 1,17	0.75	*22.50*
4	26.04 ± 1,15 (22.23 ± 1,63)	25.77 ± 0.55	0.86	25.90
5	24.7 ± 2.23 (25.05 ± 1,89)	24.76 ± 1,11	0.82	22.78
6	22,45 ± 0.78 (20.82 ± 1,89)	23.11 ± 0.99	0.76	22.78
Overall	22,37 (22.30)	24.87	0.79	23.62

* Figures given in parentheses are the actual weights of calves.

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