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SHORT COMMUNICATION

EFFECT OF KID STARTER ON GROWTH PERFORMANCE OF SIKKIM LOCAL KIDS

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ABSTRACT

Ten Sikkim local kids (1m, old) were randomly divided into two groups of five each. Kids of group I (4.67±0.17 kg b.wt.) were allowed to suckle their mothers milk (350 ml./d) while in group II (3.50±0.78 kg b.wt.) kids were restricted from suckling mother's milk and were offered 50 g kid starter/kid/ day. Kids of both groups were allowed to graze free of choice. Total live weight gain (kg) and live weight gain (g/d) were significantly ($p<0.05$) higher in group II (3.70±0.32 and 75.51±6.56) as compared to group I (2.03±0.17 and 41.50±3.40). During metabolism trial dry matter (DM) intake(Kg), DMI (% body wt.), DMI (g/Kg W0.75), digestible DM (DDM), digestible organic matter (DOM), digestible crude protein (DCP) and total digestible nutrients (TDN) intakes did not differ significantly between the groups. Digestibility of DM, OM, CP, CF, EE, and NFE were similar in both the groups. N balance also did not differ significantly between the groups. So, 50 g kid starter per day per head can meet the nutrient requirement of growing kids restricted to milk feeding.

Key words : Kid starter, Growth, Kid

Today milk is India's second most important agricultural commodity in terms of value of its input, ranking after paddy, but much above wheat (Dairy India,1992). India's per capita milk consumption is not commensurate with its ranking as World's largest milk producer (FAO, 1997). Sikkim possesses a sizeable goat population, estimated as 82,938 (Anon,1997). About 60% of the settled farming house holds in Sikkim maintain goat. Half of this farming households rear goats under stall fed condition, while the others rear them by extensive or limited grazing. From commercial point of view , a milch goat must give on an average 1.5 Kg milk per day during a lactation period of 25 weeks, to make goat milk production economically viable (Balaraman,1987). If young preruminant kids can

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be reared by replacing the milk with milk substitute or kid starter without affecting their growth performance, a large amount of milk can be saved for human consumption. Keeping this point in view a kid starter has been constituted using locally available ingredients to see its effect on growth performance of Sikkim local kids.

Ten one month old Sikkim local kids were randomly divided into two groups of five each. Kids of group I (4.67±0.17 kg b.wt.) were allowed to suckle their mother's milk (350 ml/d) but suckling was totally restricted for kids of group II (3.50±0.78 kg b.wt.), and were given 50 g kid starter (maize 45 parts, molasses 12 parts, soybean flakes 30 parts, wheat bran 10 parts, mineral mixture 2.5 parts, common salt 0.5 parts, vitamin A,D,B_{12} 100 ppm) per kid per day. Kid starter was offered twice a day. Kids of both groups were allowed to graze jungle grass, constituted of *Artemisia vulgaris* (Tittepatti), *Galinsogo perviflora* (Udase), *Agerum conzoides* (Elame), *Setaria palmifolia* (Dhotesaro), *Cystella parasitica* (Unyu), *Cynodon dactylon* (Dhubo), *Heydyatis scandens* (Kane), free of choice. Kids were housed individually in well ventilated shed. Fresh drinking water was provided *ad lib* to kids of both groups. The kids were made free from external and internal parasite by applying butox 0.5%(V/V) and feeding albendazole (0.5 mg/Kg body wt.), respectively. Growth trial was conducted for 8 weeks. At the end of growth period kids of both groups were offered 100 g concentrate mixture (maize grain 42 parts, mustard cake 40 parts, wheat bran 15 parts, mineral mix. 2 parts and salt 1 part) and mixed jungle grass (50:50) for 15 days followed by a metabolism trial of 5 days collection period to determine feed intake, digestibility of nutrients and N balance. Body weight changes were recorded weekly by measuring the weight of kids for two consecutive days before allowing the kids to suckle or offering any feeds. Feeds and faeces sample were analyzed for proximate principles and urine was analyzed for N content (AOAC,1984). Data obtained were analyzed statistically (Snedecor and Cochran,1986).

Table 1 Chemical composition (% DM) of feed material

Parameter	Concentrate mixture	Mixed jungle grass
DM	83.33	15.00
OM	94.79	87.86
CP	18.35	8.96
CF	1.86	26.44
EE	1.71	2.85
NFE	72.87	49.61
Total Ash	5.21	12.14

Chemical composition of concentrate mixture and mixed jungle grass is given in Table 1. DM intake through concentrate mixture, Jungle grass, total DM intake, DMI (% body wt.), DMI (g/$W^{0.75}$Kg) were similar between the groups (Table 2). Digestible DM, OM, CP and TDN intake did not differ significantly between two groups. Digestibility of DM, OM, CP, CF, EE and NFE though apparently higher in group II but did not differ significantly (Table 2). Similar digestibility of nutrients were also observed in calves raised on milk and milk substitute (Pres and Kroliczek, 1971; Petit *et al*, 1988; De and Kurar,

1998). Nutritive value (DCP% and TDN%) of the ration of both groups during metabolism trial was similar. Average N intake and loss through different sources did not differ significantly among groups (Table 2).

Table 2 Feed intake, digestibility of nutrients and nitrogen balance in kids of different treatment groups

Parameter	G-I	G-II
DM intake (g/d)		
Conc. Mix.	74.51±5.49	88.97±11.61
Jungle grass	63.33±1.05	66.93±9.56
Total	137.83±4.98	155.90±20.95
DMI (kg/100kg bw)	2.25±0.18	2.44±0.22
DMI (g/$W^{0.75}$kg)	35.42±2.41	38.51±1.93
Digestibility (%)		
DM	71.27±3.30	77.66±2.20
OM	75.02±2.98	80.61±1.96
CP	60.91±3.92	66.46±1.87
CF	66.04±5.99	72.72±2.40
EE	62.56±7.35	72.05±2.06
NFE	80.58±3.16	85.69±2.21
Digestible nutrients intake		
DDMI (g/d)	98.56±7.96	121.99±20.15
DOMI (g/d)	95.01±7.21	116.13±18.66
DCPI (g/d)	18.85±1.29	14.88±2.17
TDNI (g/d)	97.44±7.55	119.25±19.15
Nutritive value of diet(%)		
DCP	8.55±0.65	9.52±0.20
TDN	70.47±3.02	76.00±1.83
N intake(g/d)		
Through conc. Mix.	2.19±0.16	2.61±0.34
Through jungle grass	0.91±0.01	0.96±0.14
Total intake	3.10±0.15	3.57±0.48
N out go (g/d)		
Voided in faeces	1.20±0.07	1.19±0.14
Voided in urine	1.18±0.09	1.36±0.27
Total out go	2.38±0.04	2.55±0.38
N absorbed (g/d)	1.90±0.21	2.38±0.35
N retained (g/d)	0.72±0.17	1.02±0.11
N retained as % of intake (NPU)	22.70±4.59	28.83±1.88
N retained as % of absorbed nitrogen (BV)	36.78±6.27	43.66±4.19

Non of the parameters differ significantly due to diet.

N absorption and retention, net protein utilization(NPU) and biological value(BV) also did not differ significantly between the groups. Total live weight gain and daily live weight gain in 8 weeks was significantly ($p<0.05$) higher in kids of group II as compared to group I (Table 2).

Table 3 Live weight changes at different weeks and average daily gain in kids of different treatment groups

Parameter	G-I	G-II	CD
Live weight (kg)			
1st week	4.67±0.44	3.50±0.78	NS
2nd week	5.20±0.15	3.93±0.84	NS
3rd week	5.37±0.19	4.50±1.04	NS
4th week	5.50±0.29	5.20±0.96	NS
5th week	5.57±0.29	5.37±1.08	NS
6th week	6.23±0.27	6.23±0.95	NS
7th week	6.26±0.28	6.57±1.05	NS
8th week	6.70±0.29	7.20±1.08	NS
Live weight gain(Kg)	2.03±0.17[a]	3.70±0.32[b]	0.76*
Live weight gain (g/d)	41.50±3.40[a]	75.51±6.56[b]	15.47*

Different superscripts [a,b] in a row differ significantly P<0.05

Higher average weekly weight gain was also found in calf fed calf starter rather than milk (Rajdan *et al*,1965). This higher weight gain might be due to early rumen development as a result of which nutrient from plant source might have better utilized in kids of group II leading to higher live weight gain. It was evident from digestibility data that rumen became equally functional in both the groups even though milk feeding was totally restricted to kids of group II. So, from this study it can be concluded that 50 g milk replacer per kid per day can meet the requirement of growing Sikkim local kids restricted to milk feeding and show better performance in terms of growth rate. Thus milk can be saved for human beings by supplementing milk replacer to the kids without affecting performance of animal.

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