EVALUATION OF CONCENTRATE LIKE COMPLETE RATIONS CONTAINING ANIMAL PROTEIN AND MONENSIN FOR KIDS FOR MEAT PRODUCTION*

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ABSTRACT

An investigation was carried out in Malabari kids of three to four months of age to study the growth response on feeding concentrate like complete diets supplemented with monensin and animal proteins for a period of 90 days. Thirty Malabari kids of three to four months of age were divided into three equal groups of ten animals each on basis of age, body weight and sex and fed on three pelleted complete rations, CR-1, CR-2 and CR-3 respectively. CR-2 incorporated meat cum bone meal and CR-3 incorporated fishmeal replacing five percent gingelly cake of CR-1. Inclusion of animal proteins did not show any significant influence on digestibility of nutrients, growth, feed conversion rate, nitrogen balance values and dressing percentage. The dry matter intake was less in animal protein supplemented groups with better feed conversion rates and higher monetary gains. Maintaining kids on concentrate like complete rations appears profitable in states like Kerala, where roughage availability is less.

Key words: Malabari kids, Low fibre complete rations, Animal protein, Monensin, Meat production

INTRODUCTION

Majority of farmers in Kerala who rear goats are either land less or own less than ten cents of land. Kids are usually allowed to remain with the dam for 6-8 months before they are sold away for meat. This creates problems to the farmers by causing delay in subsequent pregnancy of the dam.

Surplus Malabari kids maintained under confinement on concentrate like complete rations supplemented with monensin have been found to weigh 17.40 kg body weight at 6-7 months of age (Biju, 1998).

In the present study , pelleted complete concentrate type feed containing animal protein supplements of high biological value along with an ionophore antibiotic , monensin is tested with a view to improve feed conversion efficiency of kids grown under intensive system of management.

MATERIALS AND METHODS

Thirty Malabari kids of three to four months of age were divided into three equal groups of ten animals each on basis of age, body weight and sex and fed on three pelleted complete rations, CR-1, CR-2 and CR-3 respectively. CR-2 incorporated meat cum bone meal and CR-3 incorporated fishmeal

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replacing five percent gingelly cake of CR-1. All rations contained one percent sodium bi carbonate, 20 ppm monensin (Coban-100) and vitamin supplement (Indomix). The ingredient composition and chemical composition of the rations are given in Table 1. Data on daily feed intake and weekly body weight gains were recorded during the experimental period of 90 days.

Towards the end of the experiment a digestion cum metabolism trial (total collection method, urine voided preserved in amber coloured bottles with 25 % sulphuric acid as preservative) was conducted using four male animals from each group and the digestibility and nitrogen balance values were recorded. The samples were analyzed for proximate principles (AOAC, 1990) and the data were analyzed statistically (Snedecor and Cochran, 1980).A slaughter study was conducted using the male kids from each group and dressing percentage was assessed. Based on the above parameters, the economics of meat production from Malabari kids were assessed.

RESULTS AND DISCUSSION

Summary of the performance of kids fed with CR-1, CR-2 and CR-3 during the experimental period is given in Table 2. There was no significant growth difference between kids fed on CR-1 and CR-2, but the cumulative weight gain by CR-3, in which fish meal was included, was significantly lesser ($P<0.05$).

Slightly better growth response, though non significant, observed in kids fed CR-2, compared to those fed CR-1 and CR-3 could be attributed to the combination of animal protein and monensin used in the rations. Even though animal protein plus monensin was used in CR-3, comparatively lesser growth was observed, probably due to the occasional diarrhea noted in CR- 3 fed kids.

The average daily dry matter intake of kids fed CR-1, CR- 2 and CR-3 were 680 ± 0.26g, 586 ± 0.13 g and 582 ± 0.17 g respectively, which works out to 4.06, 3.29 and 3.64 kg/100 kg bodyweight respectively. Dry matter intake for CR-2 and CR-3 were significantly lower ($P<0.01$) than CR-1 and this can be attributed to the palatability problems with animal protein containing diets.

Average daily weight gain (g) of kids fed CR-1, CR-2 and CR-3 were 150.76 ± 13.46, 153.40 ± 19.40 and 121.53 ± 17.28 respectively. There was no significant difference between the groups with regard to average daily body weight gain. Even though the dry matter intake was lower in kids fed on CR-2 and CR-3 their average live weight gain was still maintained due to the better amino acid profile and growth factors in animal protein containing diets.

Cumulative feed conversion efficiencies were 4.51, 3.67 and 4.79 for CR-1, CR-2 and CR- 3 fed kids respectively. There was no significant difference between the groups with regard to cumulative feed conversion efficiency. The data on digestibility coefficient of nutrients are summarized in Table 3. Animal protein inclusion was found to have no influence on the digestibility coefficients of dry matter, organic matter, crude protein, ether extract, crude fibre and nitrogen free extract.

The average nitrogen balance (g/day) in kids fed CR-1, CR-2 and CR-3 were 6.04 ± 0.28, 6.65 ± 0.32 and 5.21 ± 0.06 respectively. Animal protein inclusion was found to have no influence on the nitrogen balance values.

The average dressing percentage obtained from male kids slaughtered from CR-1, CR-2 and CR-3 were 49.39 ± 1.45, 49.63 ± 0.72 and 51.49 ± 1.93 respectively. The feed cost per kg live weight gain (Rs) for kids fed CR-1, CR-2 and CR-3 were 34.59, 30.27 and 35.59 respectively. The feed cost per kg live weight gain values reported were higher than those reported from similar studies (Chahal and Sharma, 1992)

Although cost of feed of CR-2 containing meat cum bone meal was higher than the other two rations, cost of production per kilogram live weight gain was lower in animals fed on CR-2 due to their better feed conversion rate. Gross profit calculated from the study per each kid for the period of 90 days for CR-1, CR-2 and CR-3 fed groups were Rs.292.06, Rs.357.90 and Rs.286.20 respectively. The gross profit obtained in the present study was higher than the values reported from a similar study (Biju, 2002), and it can be attributed to the better daily weight gain and higher final weights attained in the study. Higher body weights of kids of CR-2 fed group has reflected on its better feed conversion efficiency and higher gross profit.

Table1

Ingredient composition and chemical composition (on DM basis) of the complete rations

	CR-1	CR-2	CR-3
Ingredients (%)			
1. Groundnut cake (expellar)	5	5	5
2. Gingelly oil cake	5	-	-
3. Meat cum bone meal	-	5	-
4. Fish meal	-	-	5
5.Yellow maize	26	26	26
6.Wheat bran	56	56	56
7.Lucerne meal	5	5	5
8. Mineral mixture	1.5	1.5	1.5
9. Common salt	0.5	0.5	0.5
10. Sodium bicarbonate	1	1	1
Nutrients (%)			
1.Moisture	11.30	11.21	10.85
2.Organic matter	94.37	93.40	93.80
3. Crude protein	16.27	16.79	16.35
4. Ether extract	4.33	4.61	4.20
5. Crude fibre	7.98	8.12	7.81
6. Nitrogen free extract	65.79	63.88	65.44
7. Total Ash	5.63	6.60	6.20
8. Acid insoluble ash	1.46	1.61	1.71
9. Calcium	1.53	2.65	2.33
10. Phosphorus	0.92	0.84	0.88
11. Potassium	0.88	0.93	0.87
12. Sodium	0.13	0.20	0.23

Note: 20 g Coban-100 and 50 g Indomix were added to 100 kg of each of the three rations

Table 2

Performance of kids fed on CR-1, CR-2 and CR-3

Parameters	CR-1	CR-2	CR-3
Average cumulative weight gain (kg)	13.72 ± 0.36[a]	13.96 ± 0.32 [a]	11.06 ± 0.49 [b]
Average daily gain (g)	150.76 ± 13.46[a]	153.40 ± 19.40[a]	121.53 ± 17.28[a]
Average daily dry matter intake (g)	680 ± 0.26 [a]	586 ± 0.13 [b]	582 ± 0.17 [b]
Cumulative feed conversion efficiency	4.51[a]	3.67[a]	4.79[a]
Nitrogen balance (g/d)	6.04 ± 0.28[a]	6.65 ± 0.32[a]	5.21 ± 0.06[a]

Note: Means bearing same superscript in a row do not differ significantly

Table 3

Digestibility coefficients of nutrients (% DMB) in animals maintained on CR-1, CR-2 and CR-3

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