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Low Cost Economic Rations for Dairy Cattle Suitable for Coastal Rice Growing Areas

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The economy of milk production directly depends upon feeding, as feeding alone constitutes more than 80% of the cost of milk production. The balanced concentrate feed for dairy cattle usually contains maize, wheat bran and oil cakes as major ingredients. In areas where these ingredients are not locally produced, the cost of feeding is all the more high because of dependance from outside agencies. In the coastal belt where wheat cannot be grown because of hot humid climatic condition, rice is the major cereal crop cultivated round the year. In the same areas agricultural bye-products like rice bran, molasses, baggasse etc., are available in plenty. Incorporation of these by products and formulation of balanced livestock ration would facilitate cheaper livestock feeding in these areas. The present paper is the report of successful formulation and feeding trial of a balanced ration in Goa wherein the costly ingredients like wheat bran and maize were replaced completely and partially with the locally available cheap by products, rice bran and molasses respectively.

MATERIALS AND METHODS:

Two test rations were prepared by completely replacing wheat bran and partially replacing maize with rice bran and molasses. The ingredients and percentage inclusion are presented in Table 1.

A feeding experiment was conducted at Government Livestock Farm, Goa, for a period of 90 days to test the efficiency of the testrations. Eighteen cross bred cows (Jersey x Red Sindhi) in the early lactation (60-90 days) having similar body weights were selected and randomly alloted to 3 rations (6 in each group). The feeding schedule was same in all the three groups i.e. 2 kg Karad hay, 10 kg green grass and 1.5 kg concentrate feed with additional, concentrate feed to meet the produ-

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ction requirement as per Sen and Ray (1971).

The data on daily feed intake, and milk production was recorded for the entire period. Milk fat content was recorded once a month. These data were analysed as per Snedecor and Cochran (1967).

RESULT AND DISCUSSION:

The feed intake, milk production and feed efficiency are presented in Table III.

PROXIMATE ANALYSIS:

It was noted that there was not much difference in the chemical composition except in the C. fibre (17. 48% vs 13. 36%) and total ash contents (13.71% vs 7,36%) which were higher in test rations (Table II) which could possibly be due to the high proportion of rice bran in the test rations.

FEED INTAKE

All the animals remained healthy throughout the experimentation. From the observations on the feeding trial given in Table III, it may be observed that the total dry matter intake (9.76, 9.03 and 9.12 kg) as well as the concentrate feed intake among the groups were not significantly different. This was indicative in that the inclusion of rice bran and molasses did not adversely affect the palatability or the acceptability of the ration.

The pattern of feed intake remained normal throughout the experimental period which showed that the digestibility was normal although there were differences in the ration ingredients.

MILK PRODUCTION

It can also be noticed from the table that there was no significant difference among the groups in daily average milk yield (6.23,5.05 and 4.98 kg) or in the butter fat % (4.20, 4.31 and 4.28%). The difference in efficiency of production was also not significant. The pattern of lactation curve remained normal in all the groups throughout the experimental period. This indicated that the inclusion of these cheap ingredients had adversely affected neither the quantity nor the quality of milk.

Feed cost : On computing the economics it was found (Table III) that feeding cost/kg of milk production was Rs.1.54/kg in the group fed with control ration, and in the group fed with test rations I &II it was considerably lower viz Rs.1.32 and Rs.1·31 respectively. However, between the test rations no appreciable difference is observed.

The result clearly indicated that by inclusion of locally available cheap ingredients like rice bran and molasses in place of costly items like maize and wheat bran, the cost of concentrate feed for dairy cattle could be reduced considerably, without adversely affecting production. Therefore, for economic milk production in Goa as well as in other similar rice and sugar cane producing coastal areas, rice bran molasses can be profitably included upto 40% and 10% levels respectively for making blanced concentrate feed for milch animals.

TABLE I.

Feed ingredients and percentage inclusion of the experimental and contro rations.

Ingredients	Test Ration I Group A	Test Ration II Group B	Control Ration Group C
Maize	17	7	20
G. N. Cake	25	25	—
Cotton Seed Cake	15	15	36
Rice Bran	30	40	—
Wheat bran	—	—	40
Molasses	10	10	—
Min. Mix	2	2	3
Salt	1	1	1
Total	100	100	100
Cost Rs/kg	1.45		1.69

These rations were analysed as per A.O.A C. (1970) and the chemical composition is given in Table II.

TABLE II.

Chemical composition of the two test rations and control ration under trial.

	Moist	C. Prot.	CF	Ex. Ext.	T. Ash	NFE
Ration I	9.81	15.92	13.62	4.02	11.01	45.52
Ration II	9.61	15.12	17.48	3.97	13.71	40.11
Control	8.11	14.85	13.36	4.19	7.36	52.13

TABLE 3

Average Feed intake, milk production & feed efficiency: during trial period.

	Test Ration I	Test Ration	Control
1. Av.D.M. intake cow/day (kg)	9.76[a]	9.03[a]	9.12[a]
2. Av. Con. Feed intake cow/day (kg)	5.12[a]	4.40[a]	4.48[a]
3. Av. milk yield cow/day (kg)	6.23[a]	5 05[a]	4.98[a]
4. Fat %	4.20	4.31	4.28
5. Efficiency of production (feed intake/kg milk production)	1.57[a]	1.77[a]	1.83[a]
6. Feed cost/kg milk production	1.32	1.31	1.65

The values with same superscript within rows in not significantly different

ABSTRACT

Two test rations were formulated by completely replacing wheat bran and partially replacing maize with rice bran @ 40% and 30% and molasses @ 10% levels. The efficiency ofthese test rations were compared with a control ration by conducting a feeding trial on dairy cattle for a period of 90 days. The results indicated thataddition of 40% rice bran, and 10% molasses could considerably bring down feeding cost for milk production (Rs.0. 34/kg milk) without any adverse effect.

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