

Study on Use of Saw Dust in Cattle Ration

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ABSTRACT

An attempt was made to study the feasibility of utilization of saw dust in the maintenance ration of cattle and thereby to evolve an economic feed formula which can be adopted during severe scarcity conditions for maintaining the cattle.

The results of this study indicated that incorporation of *Deodar* saw dust at 30% level in high urea-molasses and maize bran ration has not much deleterious effects on body weight, digestibility and balance of nutrients. Moreover, the cost of feeding the ration was very less. However, saw dust at 40% level in the ration showed less dry matter consumption and loss in body weight and also these effects were continued during green fodder supplementation under third period. Thus, it appears that during severe scarcity conditions this type of cheap ration having sawdust as an ingredient at 30% level may prove to be useful for maintaining the animals.

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INTRODUCTION

Scarcity of cattle feeds have stimulated the research work on utilization of agro-industrial waste products as cattle feeds. Saw dust is available from wood-work industries. Several workers have studied the utilization of saw dust in partial replacement of roughages. (Satter, Baker and Millett 1970, Hudson, 1972 and Satter, Lang, Baker and Millett, 1973).

Therefore, a feeding trial was conducted using six Kankrej bullocks to assess the feasibility of utilizing the saw dust in the maintenance ration of cattle and thereby to evolve an economic feed formula which can be adopted during severe scarcity condition for maintenance of the cattle.

MATERIALS AND METHODS

Six Kankrej bullocks were selected as experimental animals having same age and body weight. In the first phase (P_1) of the experiment all the bullocks were fed *ad-lib* concentrate mixture A (Table 1) for a period of 6 weeks. Two kg hybrid napier hay was also fed to each animal everyday.

In the second phase (P_2) of the feeding experiment the same bullocks were fed, *ad-lib* concentrate mixture B (Table 1) and 2 kg hybrid napier hay per day per animal for a period of 6 weeks whereas in the third phase (P_3) of the experiment concentrate mixture B was fed *ad-lib* for a period of 6 weeks to the same bullocks. Also in this phase 5 kg green hybrid napier plus one kg

hybrid napier hay was fed every day to each bullocks.

The records of weekly body weights, and daily feed consumptions were kept throughout the experiment for all the individual animals. A metabolism trial was also conducted under each phase of the experiment during the last week of each period.

The samples of feeds, feces and urine were analysed by the method of AOAC (1970).

RESULTS AND DISCUSSION

Effect on body weight: The bullocks were weighed at the weekly intervals during each period and from such data gain or loss in body weights were worked out and the results are presented in Table 2.

TABLE 1

Proportion (%) of ingredients in the concentrate mixture.

Ingredients	Concentrate Mixtures	
	A	B
Maize bran	32	22
Saw dust*	30	40
Molasses	31	30.63
Urea	4	4.37
Salt	2	2.00
Bonemeal	1	1.00

* It was from, *Deodar* wood (*Cedrus deodara*)

Chemical Composition of feeds and fodders used (on % d.m. basis).

Feed Constituents	Concentrate Mixture		Hybrid napier		Sawdust
	A	B	Hay	Green	
Crude protein	16.15	17.34—18.89	6.12—9.29	13.88	0.59
Ether Extract	2.78	2.38—2.55	1.96—4.57	4.33	4.74
Crude Fibre	25.59	29.79—30.49	31.06—36.16	26.30	64.07
Nitrogen Free Extract.	45.08	39.26—39.86	40.24—49.95	39.54	29.85
Ash	10.40	10.53—10.91	9.69—14.33	15.95	0.75
Silica	1.85	2.38—2.65	7.06—8.10	6.13	0.12
P	0.35	0.24—0.31	0.29—0.41	0.52	0.008
Ca	0.82	0.91—1.08	0.57—0.80	0.80	0.20

TABLE 2

Effect of feeding saw dust in urea-molasses-maize bran ration on gain or loss (kg) in body weight of bullocks.

Period Ani. No.	P ₁	P ₂	P ₃
1.	0.0	— 12.7	— 17.2
2.	+ 1.8	— 10.9	— 11.8
3.	+ 10.1	— 14.5	— 14.6
4.	+ 15.4	— 29.0	— 9.1
5.	+ 8.1	— 19.9	+ 2.7
6.	+ 10.9	— 22.7	+ 1.8
Av.	+7.70±2.37	— 18.28±2.81	— 3.03±3.44

From the results it was observed that the animals under P₁ gained in weight while under P₂ and P₃ there was loss in weight and such loss in weight was more under P₂ than that under P₃. The less loss in body weight under P₃ might be due to green feeding during this period. These results indicated that during scarcity conditions animals can be maintained on such ration provided that some better type of roughage may be used with this ration. Satter *et al.* (1970) reported that the aspen saw dust can be a partial roughage substitute in lactating dairy cows ration and it was helpful in maintaining near normal milk fat content in high concentrate rations.

Effect on dry matter consumption: The dry matter consumptions during the last week of each feeding period are given in Table 3.

TABLE 3

Effect of feeding saw dust in urea-molasses-maize bran ration on dry matter consumption of bullocks (% of body weight in kg).

Period Ani. No.	P ₁	P ₂	P ₃
1.	1.55	1.43	1.39
2.	1.47	1.51	1.34
3.	1.42	1.30	1.44
4.	1.46	1.31	1.24
5.	1.49	1.40	1.45
6.	1.41	1.36	1.30
Av.	1.47 ±0.02	1.37 ±0.02	1.36 ±0.03

The dry matter intake of the animals during the first period was higher than second and third periods. However, the dry matter consumption during different periods remained within narrow margin. The present findings of lower dry matter consumption are similar to those reported by Cody, Morrill and Hibbs (1972).

Effect on digestibility and balances of nitrogen, phosphorus and calcium:

The average results on digestibility of proximate nutrients and balance are presented in Table 4.

The results on digestibility indicate that the crude protein digestibility during all the period was more or less the same while the digestibility of other proximate constituents was higher in P₁ as compared to P₂ and P₃ except for ether extract.

Similar trends were also observed for balances of nitrogen and phosphorus

while calcium balance was lower for first period compared to other two periods.

TABLE 4

Effect of feeding sawdust in urea-molasses-maize bran ration on digestibility and balances of nutrients (whole ration).

Period Nutrients	P ₁	P ₂	P ₃
	Digestibility Coefficients		
C. Protein	70.53 ± 0.89	72.13 ± 0.63	70.41 ± 1.18
E. Extract	53.52 ± 1.49	61.53 ± 0.93	49.82 ± 1.99
C. Fibre	54.87 ± 1.43	37.43 ± 1.30	44.77 ± 1.18
N.F.E.	58.44 ± 1.35	49.48 ± 1.09	47.86 ± 2.17
Organic matter	58.32 ± 1.03	49.66 ± 0.80	50.66 ± 1.28
	Balances (g/day/animal)		
Nitrogen	+7.81 ± 3.73	+4.26 ± 1.99	-3.03 ± 4.00
Phosphorus	+2.20 ± 0.64	+0.92 ± 0.62	-1.63 ± 0.45
Calcium	+2.50 ± 1.27	+8.33 ± 0.99	+4.92 ± 2.08

Effect on the cost of feeding: The economics of feeding concentrate mixture were worked out considering the total feeds consumed and the rate of procurement of each ingredients. The results on the cost of feeding are given in Table-5.

TABLE 5

Effect of feeding sawdust in urea-molasses-maize bran ration on cost of feeding (Rs/day/animal).

Period Ani. No.	P ₁	P ₂	P ₃
1.	1.93	1.51	1.47
2.	1.71	1.45	1.52
3.	1.79	1.49	1.59
4.	1.90	1.50	1.56
5.	1.82	1.51	1.59
6.	1.77	1.44	1.55
AV	1.82 ± 0.03	1.48 ± 0.01	1.55 ± 0.02

The data revealed that the cost of feeding was higher during first period, however, the feeding cost in each period is not varying much. It was therefore,

concluded that during severe scarcity conditions animals can be maintained economically on sawdust-urea-molasses feeding.

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