GAU Res. J. 1995. 21 (1) : 215-217

Nutritive Value of Banana Root Bulbs - An Unconventional Feed for Cattle

P. M. Talpada, R. S. Gupta, G. R. Patel and M. C. Desai

Animal Nutrition Department, Gujarat Agricultural University, Anand Campus, Anand-388 110

India possesses a huge bovine population to the tune of about 262 millions (Anon. 1989-90). It is difficult to maintain such a huge population only on available conventional feeds in view of 36 to 44% shortage of feeds and fodders (Acharya, 1986). This situation gets further aggravated during droughts. During scarcity the migratory cattle owners feed to their cattle and buffaloes banana crop residues including root bulbs. As no data are available for nutritive value of banana root bulbs, this study undertaken.

The banana root bulbs were procured in bulk from University Farm. These bulbs were washed with water to remove mud. After removing the outer covering the bulbs were sliced chaffed in to small pieces and were offered to four adult cross bred (Jersey x Kankrej – F_1) bullocks. Daily 60 kg of banana root bulbs were offered to each bullock under preliminary period of 14 days. A metabolism trial was conducted following conventional method and the collection period was of 7 days. The samples of feed material offered, leftovers, feces and urine were collected and analysed (AOAC, 1975) for different constituents.

The banana root bulbs contained 83% moisture. The bullocks consumed on an average 41.25 ± 2.66 kg fresh banana root bulbs per day. This worked out to an average dry matter consumption of 5.06 ± 0.15 kg per day, 1.02 ± 0.04 kg/100 kg body weight and 48.27 ± 1.70 g/kg $W.^{0.75}$. Because of high moisture content bullocks could not consume required quantity of dry matter.

TABLE 1

Experimental details of banana root bulbs feeding experiment.

Duration of the experiment (days)	Preliminary period 14 Collection period 7
Breed of animals	J X K – F_1 bullocks
Av. body weight of animals	494.5 ± 8.21
Number of animals	4
Dry matter intake (kg/day/animal)	5.06 ± 0.15
Dry matter intake (kg/100 kg body weight)	1.02 ± 0.04

TABLE 2

Proximate composition, digestibility and nutritive value of banana root bulbs.

Constituents	*Proximate composition (% on DM basis)*	*Digestibility coefficient*
Crude protein	9.59	48.92 ± 4.17
Ether extract	2.44	87.00 ± 1.16
Crude fibre	4.06	18.29 ± 19.98
Nitrogen free extract	76.79	79.03 ± 2.36
Organic matter	92.88	74.00 ± 3.15
Ash	7.12	
Silica	0.26	DCP 4.69
Phosphorus	0.28	TDN 70.90
Calcium	0.20	

TABLE 3

Average balances (g/day/animal) of nitrogen, phosphorus and calcium of bullocks fed banana root bulbs.

Particulars	*Nitrogen*	*Phosphorus*	*Calcium*
Total intake	81.20 ± 1.79	14.68 ± 0.06	9.66 ± 0.41
Voided in feces	39.52 ± 2.68	12.89 ± 2.12	11.60 ± 2.23
Voided in urine	36.81 ± 5.79	0.20 ± 0.08	1.43 ± 0.25
Total voided	76.33 ± 3.44	13.09 ± 2.15	13.03 ± 2.35
Balance	+4.87 ± 1.90	+ 1.59 ± 1.73	−3.37 ± 2.10

The banana root bulbs were found to contain 9.59, 2.44, 4.06, 76.79, 7.12, 0.26, 0.28 and 0.20% crude protein, ether extract, crude fibre, nitrogen free extract,, ash, silica, phosphorus and calcium, respectively on dry matter basis. The similar data for chemical composition were also reported by Sen *et al.* (1978).

The digestibility coefficients (%) on an average were found to be 48.92, 87.00, 18.29, 79.03, 74.00 and 71.25 for crude protien, ether extract, crude fibre, nitrogen free extract, organic matter and dry matter, respectively. The DCP and TDN values for banana root bulbs were found to be 4.69 and 70.90% on dry matter basis, respectively

The balance of nitrogen and phosphorus was positive while that of calcium was negative. The bullocks retained 6.00% of nitrogen and 10.83% of phosphorus from their respective total intakes of nitrogen and phosphorus.

Thus it is seen that banana root bulbs can be used as a cattle feed especially during scarcity and that it should be supplemented with suitable source of dry matter, protein and calcium.

(Received on 29th July, 1994)

REFERENCES

Acharya, R. M. (1986). Proc. Fifth Animal Nutrition Research Workers Conference organised by Animal Nutrition Society of India, held at M. L. S. University, Udaipur during July 14-17, 1986.

Anonymous (1989-90). Bulletin of Animal Husbandry and Dairying Statistics, Directorate of Animal Husbandry, Gujarat State, Gujarat, India.

AOAC (1975). *Official Methods of Analysis,* 12th edn. Association of Official Analytical Chemists, Washington, DC USA.

Sen, K. C.; Ray, S. N.; and Ranjhan, S. K. (1978). *Nutritive values of Indian Cattle Feeds and the Feeding of Animals.* Indian Council of Agricultural Research, New Delhi, India..