

A Note on Proximate Composition of Cattle Feeds of Panchmahals

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Animal Nutrition Survey work to study the availability of feeds and fodders and their chemical composition was carried out in Panchmahals district. Survey work was taken up in August '78, January '79 and May '79. Following villages were selected for survey from different talukas of Panchmahals:

Talukas	Villages
Devgadh Baria	Ghoghamba, Gollav, Ankli, Palla and Dangaria
Godhra	Mehelol, Mora
Santrampur	Limbhola, Hadmat
Lunawada	Kothamba, Moti charel
Dahod	Abhalod, Katwara, Jesawada
Limkheda	Limkheda
Zalod	Mahudi, Hadmatkhuta, Limbdi

TABLE 1

Average chemical composition (% on D.M. basis) of feed samples collected from Panchmahal district.

Name of sample		C. Protein	E.Ext.	C.Fibre	N.F.E.	P	Ca
Concentrates							
Cotton seeds (<i>Gossypium herbaceum</i> , Linn)	(14)	18.05 ±0.43	16.90 ±0.43	18.93 ± 0.36	40.07 ± 0.86	0.50 ± 0.01	0.39 ±0.01
Dhandhan seeds (<i>Sesbania</i> Spp.)	(4)	32.94 ±0.13	4.22 ±0.14	6.46 ± 1.25	50.48 ± 1.32	0.59 ± 0.02	0.32 ±0.02
Milo (<i>Sorghum vulgare</i> , Pers)	(2)	9.61	2.76	1.58	83.03	0.35	0.15
Black paddy (<i>Oryza sativa</i> , Linn)	(7)	7.05 ±0.24	2.63 ±0.08	9.74 ± 0.22	72.89 ± 0.69	0.21 ± 0.01	0.17 ±0.01

During this survey 150, 118 and 108 cattle owners were contacted in monsoon, winter and summer respectively to know the feeding practices followed for their cattle and buffaloes, levels of feeding and other details relevant to nutrition. Samples of feeds and fodders collected during the survey were analysed for proximate constituents (A.O.-A.C. 1970).

The average proximate composition with standard error (Snedecor and Cochran, 1968) of feed samples over and above collected during different seasons are given in Table-1. The composition of known common feeds were found to have usual range hence they are not reported here.

From the above table it is seen that *Hibiscus cannabinus* Linn. (*sheria*) seeds were high in c.protein and ether extract. *Cassia tora* (*puvad*) seeds had fairly high c.protein and ether extract content and had proper calcium-phosphorus ratio. Different types of *Madhuca indica* (*mahuda*) cakes vary in composition depending upon processing for oil extra-

1	2	3	4	5	6	7	
<i>Puad</i> seeds	(13)	17.23	7.33	5.80	61.94	0.55	0.85
(<i>Cassia-tora</i>)	±	±0.16	±0.27	± 0.33	± 0.70	± 0.02	±0.01
<i>Sheria</i> seeds	(6)	22.46	20.25	17.21	33.60	0.60	0.40
(<i>Hibiscus cannabinus</i>)		±0.56	±0.63	± 0.79	± 0.57	± 0.03	±0.01
<i>Mahuda</i> seed cake (Expeller)	(13)	18.13	11.62	2.00	61.85	0.36	0.27
(<i>Madhuca indica</i> J.F. Gmel)		±0.68	±1.03	± 0.16	± 1.16	± 0.02	±0.02
<i>Mahuda</i> seed cake (Bullock ghani)	(2)	14.01	18.01	2.64	59.92	0.35	0.21
<i>Bajri</i> husk (<i>Pennisetum typhoides</i>							
(Burm.f). Stapf.)	(2)	7.66	4.28	29.71	47.73	0.23	0.51
<i>Tur chhala</i> (<i>Cajanus cajan</i>)	(5)	8.67	2.45	31.45	52.66	0.13	0.85
		±1.68	±0.32	± 3.58	± 2.00	± 0.02	±0.03
Con.Mixt.*	(13)	13.38	6.33	12.57	57.79	0.45	0.49
		±1.00	±0.42	± 0.92	± 1.28	± 0.02	±0.03
Con. Mixt.	(5)	11.32	4.10	13.09	61.41	0.40	0.41
(<i>Puad bafnu</i>)		±0.74	±0.54	± 1.88	± 3.56	± 0.02	±0.04
Con. Mixt.**	(33)	15.01	6.93	15.99	53.21	0.46	0.56
		±1.01	±0.59	± 1.46	± 1.45	± 0.02	±0.05
<i>Mahuda</i> flower	(7)	5.86	3.85	1.88	82.81	0.15	0.23
		±0.12	±0.63	± 0.48	± 0.84	± 0.00	±0.01
Maize cob covers	(7)	2.92	1.44	32.08	59.60	0.09	0.30
(<i>Zea mays</i> , L)		±0.35	±0.16	± 0.73	± 0.89	± 0.01	±0.04
<i>Sheria</i> bolls	(4)	9.63	10.23	24.64	48.24	0.25	1.27
		±0.75	±0.96	± 1.00	± 1.96	± 0.02	±0.07
Green fodders :							
<i>Akalu baklu</i>	(4)	16.93	2.52	21.14	39.56	0.41	1.62
(<i>Commelina benghalensis</i>)		±2.14	±0.17	± 1.05	± 2.34	± 0.05	±0.12
<i>Anghedo</i> (<i>Achyranthes aspera</i> , L)	(2)	16.94	2.96	24.43	39.94	0.33	1.93
<i>Arotato</i>	(6)	7.34	2.27	35.29	44.97	0.19	0.53
(<i>Digitaria adscendens</i> , Henrard)		±0.57	±0.13	± 0.27	± 1.06	± 0.03	±0.04
<i>Bhatadi</i>	(8)	5.23	1.89	37.37	47.42	0.11	0.46
(<i>Themeda triandra</i> Forsk)		±0.84	±0.18	± 1.43	± 2.22	± 0.02	±0.09

*Concentrate mixtue containing *puad* as major ingredient.

**Concentrate mixture containing traditional feeds only.

1		2	3	4	5	6	7
Chil (weed)	(4)	21.15	4.19	16.97	33.02	0.49	1.68
(Chenopodium album, L)	=	±1.87	±0.68	± 2.75	± 2.23	± 0.03	±0.04
Chicory type weed in lucerne	(3)	16.68	5.38	22.29	38.00	0.40	1.85
(Cicorium intybus L)	=	±3.12	±1.12	± 4.30	± 3.62	± 0.10	±0.17
Dharo	(3)	10.14	2.79	35.17	40.51	0.22	0.53
(Cynodon dactylon (L) Pers)	=	±1.44	±0.28	±10.20	±10.50	± 0.03	±0.17
Kanajaro	(4)	16.13	2.41	22.55	43.07	0.17	2.48
(Digera muricata(L)Mart)	=	±1.67	±0.45	± 1.30	± 1.91	± 0.03	±0.21
Karadi	(3)	7.73	3.05	36.47	38.72	0.34	0.42
(Apluda mutica, L)	=	±0.72	±0.14	± 0.88	± 1.80	± 0.06	±0.03
Lamadi	(2)	13.56	2.48	30.44	39.63	0.40	1.06
(Celosia argentea)	=						
Samo	(7)	7.50	2.20	30.72	45.98	0.19	1.05
(Echinochloa colonum, L)	=	±0.49	±0.19	± 1.18	± 0.92	± 0.03	±0.33
Sukali	(2)	4.02	1.61	36.00	47.76	0.13	0.34
(Heteropogon contortus(Linn)Beauv)	=						
Tandaljo plant	(2)	22.40	2.57	14.42	43.78	0.43	2.19
(Amaranthus lividus, L)	=						
Zari	(6)	7.66	2.40	34.99	41.91	0.18	0.60
(Echinochloa crusgalli P. Beauv)	=	±0.59	±0.35	± 0.42	± 0.97	± 0.03	±0.07
Zinzua	(7)	6.23	2.19	34.17	47.28	0.14	0.43
(Dichanthium annulatum, Forsk)	=	±0.27	±0.15	± 1.18	± 1.36	± 0.02	±0.03
Mix. green grasses	(25)	8.92	3.08	30.27	44.79	0.17	0.73
		±0.49	±0.33	± 0.87	± 0.72	± 0.04	±0.07
Kuri (Panicum spp.)	(2)	4.53	1.87	29.54	51.94	0.10	0.95
Sugarcane tops	(2)	5.09	3.26	26.92	53.10	0.18	0.70
(Sachharum officinarum Linn)	=						
Wal plant	(6)	16.84	3.76	30.18	40.12	0.25	1.99
(Dolichos lablab Linn)	=	±2.31	± 0.30	± 3.13	± 1.28	± 0.04	±0.15
Dry foddes	=						
Bhatadi	(18)	2.02	1.98	40.72	46.89	0.04	0.32
(Themeda tiandra, Forsk)	=	±0.10	±0.16	± 0.58	± 0.79	± 0.00	± 0.01
Forest grasses (Bhatadi)	(6)	1.73	2.03	38.74	45.24	0.06	0.39
		±0.16	±0.20	± 0.91	± 1.20	± 0.01	±0.04
Straw and gotars	=						
Banti straw	(6)	2.61	1.56	36.04	47.42	0.13	0.55
(Echinochloa stagnina, Beauv)	=	±0.10	±0.07	± 1.22	± 1.45	± 0.03	±0.03
Bawo starw (Eleusine coracana(L)							
Graerth)	(2)	2.17	1.66	28.53	58.86	0.22	0.70
Tree leaves and creepers (green)	=						
Khakhara leaves	(4)	11.72	4.81	27.72	39.49	0.12	2.75
(Butea monosperma (Lam.) Taub)	=	± 0.73	±0.29	± 1.55	± 1.17	± 0.01	±0.16
Neem leaves	(2)	11.51	6.30	13.00	59.47	0.13	2.98
(Azadirachta indica A. Juss)	=						
Wev creeper	(2)	12.84	4.23	25.20	50.74	0.19	1.14
(Cocculus hirsutus, (L) Diels.)	=						

() Fiure in the parenthesis indicates number of samples analysed.

ction. The *ghani* cake was high in ether extract (18%). *Sesamum indicum* Linn. (Sesame) cake was high in c.protein, ether extract, phosphorus and calcium contents. At some places cattle owners keep the sesame or *til* and *Mahuda* cake together in mixed form and they were also quite high in c.protein and ether extract content.

The husks were used as filler materials. Hulls of *Pennisetum typhoides* (Burm f) Stapf (*bajra*) had fair amount of c.protein.

The home-made concentrate mixtures (*bafnu*) were prepared in different talukas of Panchmahals district. Such type of *bafnu* is usually prepared by taking *puvad* seeds, rice or *Panicum miliarea* Lam. (*Vari*) bran, *bajri* husk, maize cob covers, cottonbolls, *tur* husks or *gotar* and wheat straw in an earthen pot and after addition of suitable quantity of water and salt it is boiled or cooked for 4-5 hours at very low heat. At some of the villages particularly of Dahod taluka, the cattle owners prepared compounded feed by mixing groundnut cake or sesame cake, rice polish, *chuni* and *mahuda* cake. *Mahuda* cake was fed to the extent of 1.0 to 1.5 kg. From the composition of home-made concentrate mixtures it was seen that they were relatively low in c.protein and high in c.fibre and silica content. They were not balanced for calcium-phosphorus ratio. In general the proximate values reported by Anonymous (1970), Desai *et al.* (1979) are in line with the present findings.

Cynodon dactylon (L) Pers. (*dharo*) grass samples collected during monsoon had higher c.protein than those collected during winter or summer seasons.

Tree leaves like *Azadirachta indica* (*neem*), and *Ficus tsiela* (*pipal*) etc. are being used as roughages in this district. *Butea monosperma* (*Khakhara*) leaves were commonly used for feeding milch buffaloes. Most common forest grasses were *Themeda tiandra* (*bhatadi*), *Heteropogon contortus* (*sukali*) etc. These grasses were over matured and high in c.fibre and silica content and quite low in c.protein content.

Straws of *bajra*, *sorghum vulgare* (*Jowar*), maize, *Paspalum scrobiculatum* (*kodra*), *Eleusine coracana* (L) Gaertn (*bavto*), *Echinochola stagnina* Beauv (*Banti*), paddy and wheat were generally used as dry roughage.

Other miscellaneous feeds like *mahuda* flower, maize cobs, cotton boll were also used for feeding purpose. *Mahuda* flowers are rich in N.F.E. Cotton bolls and maize cobs were used as filler materials.

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