

NUTRITIONAL STATUS OF BUFFALOES IN PATAN DISTRICT OF NORTH GUJARAT

Chavda M.R.¹ and S. Parnerkar²

¹Assistant Professor, Polytechnic in Animal Husbandry,
Veterinary College, Junagadh Agricultural University, Junagadh

²Research Scientist & Head, Animal Nutrition Research Station,
Anand Agricultural University, Anand

E-mail: drmrchavda@gmail.com (*Corresponding Author)

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Abstract: In order to study the plane of nutrition of buffaloes in Patan district of North Gujarat, a survey was conducted during September-October 2002 in five talukas, which has well-developed dairy cooperative network. Two villages were selected in each taluka, which were geographically located apart in direction and truly represented the animal husbandry practices of taluka. In each village, 10 farmers whose animals produced at least 10 kg or more milk per day were selected ensuring that they truly represented animal feeding practices of the village. The average daily milk yield of buffaloes was 11.24 kg. On an average, the dry matter intake of buffaloes in Siddhpur, Patan, Chansma, Harij and Sami taluka was 15.83, 17.02, 16.96, 17.23 and 17.66 kg, respectively with district average of 16.94 kg. For corresponding talukas, the average DCP intake of buffaloes was 104.03, 96.33, 103.68, 103.68 and 102.86 % of requirement, respectively with district average of 102.12 % and the average TDN intake was 102.79, 114.80, 112.31, 124.55 and 127.06 % of requirement, respectively with district average of 116.30 percent. It was inferred that majority of buffaloes under the study were adequately fed in terms of energy and proteins.

Keywords: Dairy Animals, Feeding Plane, Nutritional Status, Patan, Buffaloes.

Introduction

Conventional feeding practices followed by the farmers are based on available homegrown concentrates / compound feed and available green and dry fodder. In order that animals with high milk yielding potential produce milk to their inherited capacity, it is necessary to provide adequate and balanced nutrition. Over-feeding, under-feeding and imbalanced diets lead to nutritional and reproductive disorders. Therefore, it is essential to conduct survey to make objective assessment of the adequacy of feeding of dairy animals by way of studying existing animal husbandry practices and the plane of nutrition of dairy animals and to suggest necessary modifications in the feeding practices within available resources and supplement.

The present investigation was, therefore, carried out to assess nutrient availability from different feed resources and present nutritional status of buffaloes in the Patan district of North Gujarat.

Materials and Methods

A survey was conducted during September-October 2002 in five talukas of Patan district viz. Sidhpur, Patan, Chanasma, Harij and Sami. Multistage Random Sampling technique was used in which talukas were selected randomly which has well-developed dairy cooperative network and in each taluka two villages were selected, which were geographically located apart in direction and truly represented the animal husbandry practices of the taluka. In each village, 10 farmers who owned animal/s producing at least 10 kg or more milk per day were selected. The selected farmers were interviewed on the basis of questionnaire developed. Information regarding the amount and types of feeds and fodder being offered to the animals, approximate rate of daily feed intake by individual animal, milk yield and milk-fat content were collected with the fair degree of precision on a questionnaire from individual farmer using standard sampling procedure. The amount of dry matter (DM), digestible crude protein (DCP) and total digestible nutrients (TDN) available to dairy cows and buffaloes were calculated from the records of intake of feeds and fodder using digestibility coefficients/nutritive value as given by Sen *et al.* (1978), Ranjhan (1991) and ICAR (1998). On an average, the body weight of buffaloes in the district was considered as 500 kg. Their requirements for protein and energy (ICAR, 1998) were worked out. The data of milk yield of buffaloes was converted to 6 % FCM (Rice *et al.*, 1970). The data were subjected to statistical analysis (Snedecor and Cochran, 1980).

Results and Discussion

The data on village-wise milk yield, 6% fat corrected milk (FCM) yield, dry matter intake and nutrient intake of the animals in different talukas under the study are presented in **Table 1**. The values were similar in all talukas.

The overall average DM intake of the buffaloes in Patan district was observed as 16.94 kg/d which indicated that the buffaloes in the district got adequate dry matter as per the requirement. Similar observation was recorded by Bakshi and Wadhwa (2011) in dairy animals of western plain zone of Punjab State in their study. However, Vidya *et al.* (2013) reported that dairy animals in Sonbhadra district of Uttar Pradesh got less dry matter than the requirement.

Daily average DCP intake in the buffaloes in Patan district was observed 1.049 kg/d. The average DCP intake as % of requirement in entire Patan district ranged between 96.33 and 104.03% with overall district average of 101.12% which indicated that the buffaloes in the district got adequate DCP as per the requirement. Other studies aimed at evaluating the nutritional status of dairy animals in India based on survey of different districts/regions showed variable trends - Most of them showing undersupply of DCP as compared to standard requirements (Bakshi *et al.*, 2010; Jawale *et al.*, 2007; Singh *et al.*, 2003; Vidya *et al.*, 2013). Daily average TDN intake in the buffaloes in Patan district was observed 10.17 kg/d. On an average, the TDN intake as % of requirement in entire Patan district ranged between 102.79 and 127.06% with overall district average of 116.30% which indicated that the buffaloes in the district got surplus amount of TDN as compared to standard requirement. The findings are supported by the observations of Patange *et al.* (2002) and Singh *et al.* (2003) indicating a surplus of TDN supply against requirement of the buffaloes surveyed. However, Vidya *et al.* (2013) observed deficit supply (13.01%) of TDN in dairy animals in Sonbhadra district of Uttar Pradesh. Deficit supply of TDN in lactating buffaloes was also reported by Chaturvedi *et al.* (2009) and Singh *et al.* (2008) in their study.

The extent of deficiencies and the percentage of buffaloes underfed, moderately underfed, adequately fed, moderately overfed and overfed (intake as % of requirement) in terms of DCP and TDN were also worked out (Table 2 and Table 3). In majority of villages the farmers supplied sufficient DCP and TDN to their buffaloes.

Conclusion

The majority of all the milch buffaloes of the areas surveyed in the Patan district were being adequately fed in terms of energy and proteins. In general, the surveys of different districts in different states aimed at evaluating nutritional status of dairy animals and high producing dairy animals in particular have shown a trend of deficit supply of DCP and TDN to the dairy animals. However, the overall supply of DCP and TDN in comparison to their calculated requirements to buffaloes indicated that the farmers of the Patan district used their traditional wisdom in feeding their livestock.

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Table 1. Average estimated levels of nutrients supplied to buffaloes in comparison to their calculated requirements

Taluka	Village	MY	6 % FCM	DMI	Nutrient Intake (kg/d)		Nutrient Requirement (kg/d)		Nutrient intake (% of requirement)	
					DCP	TDN	DCP	TDN	DCP	TDN
Siddhpur	Methan	12.33	14.40	16.20	1.248	9.50	1.122	9.46	110.72	100.33
	Nagwasan	11.77	13.33	15.47	1.031	9.51	1.061	9.03	97.34	105.26
	Average	12.05	13.87	15.83	1.140	9.51	1.091	9.24	104.03	102.79
Patan	Balisana	11.69	13.53	16.15	1.009	9.56	1.072	9.11	94.30	105.05
	Anavada	10.67	11.25	17.88	0.929	10.17	0.942	8.17	98.37	124.56
	Average	11.18	12.39	17.02	0.969	9.86	1.007	8.64	96.33	114.80
Chanasma	Mithi Ghariyal	12.76	14.82	17.35	1.130	10.92	1.146	9.64	98.99	113.86
	Islampura	11.00	12.72	16.57	1.117	9.72	1.026	8.77	108.37	110.75
	Average	11.88	13.77	16.96	1.124	10.32	1.086	9.20	103.68	112.31
Harij	Dunavada	10.32	11.27	16.41	1.071	9.93	0.943	8.18	113.69	121.39
	Boratvada	10.71	12.05	18.05	0.923	10.81	0.988	8.50	93.66	127.71
	Average	10.52	11.66	17.23	0.997	10.37	0.966	8.34	103.68	124.55
Sami	Mujpur	10.75	12.21	17.26	1.128	10.49	0.997	8.57	113.63	122.99
	Rafu	10.43	11.99	18.07	0.900	11.05	0.985	8.48	92.10	131.14
	Average	10.59	12.10	17.66	1.014	10.77	0.991	8.52	102.86	127.06
District	Average	11.24	12.76	16.94	1.049	10.17	1.028	8.79	102.12	116.30

Table 2. Percent deficit (-)/surplus (+) of nutrients in buffaloes surveyed

Taluka	Village	Nutrient	
		DCP	TDN
Siddhpur	Methan	+10.72	+0.33
	Nagvasana	-2.66	+5.26
	Average	+4.03	+2.79
Patan	Balisana	-5.70	+5.05
	Anaavada	-1.63	+24.56
	Average	-3.67	+14.80
Chansma	Mithighariyal	-1.01	+13.86
	Islampura	+8.37	+10.75
	Average	+3.68	+12.31
Harij	Dunavada	+13.69	+21.39
	Boratvada	-6.34	+27.71
	Average	+3.68	+24.55
Sami	Mujpur	+13.63	+22.99
	Rafu	-7.90	+31.14
	Average	+2.86	+27.06
District	Average	+2.12	+16.30

Table 3. Percentage of buffaloes underfed, moderately underfed, adequately moderately overfed and overfed

Taluka	DCP					TDN				
	U	MU	A	MO	O	U	MU	A	MO	O
Siddhpur	6.98	39.53	34.88	11.63	6.98	-	23.25	44.19	32.56	-
Patan	32.14	35.71	14.29	14.29	3.57	-	7.14	39.29	25.00	28.57
Chanasma	22.58	12.90	19.35	38.71	8.46	-	3.23	29.03	58.06	9.68
Harij	23.26	16.28	30.23	18.60	11.63	-	-	9.30	51.16	39.54
Sami	31.82	27.27	13.64	18.18	9.09	-	9.09	9.09	13.64	68.18

- None, U=Underfed (< 90 % of requirement), MU=Moderately Underfed (>90<100 % of requirement), A = Adequately Fed (>100<110 % of requirement), MO= Moderately Overfed (>110<125 % of requirement), O = Overfed (>125 % of requirement)