



Study of mineral profile of high yielding buffaloes of Dantiwada Taluka

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ABSTRACT : Sardarkrushinagar Dantiwada Agricultural University adopted ten villages which were selected for the study of mineral profile in dairy animals. Samples of various feeds and fodders were collected with detail information of feeding practices in area. The requirement of Cu, Mn and Zn for potential production was calculated which was compared with actual availability of the minerals. The outcome of the study showed that there were significant low levels of Cu and Zn in diet while Mn was in good amount. To overcome deficiency of Cu and Zn, supplementation level was suggested.

KEY WORDS : Feed, Minerals, Production, Supplementation

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Mineral elements are considered to be inevitable for the normal metabolic and physiological processes of animal systems. Under supply of minerals in livestock rations is the most common feature. Especially, marginal deficiencies are expressed as sub-normal growth or low productions that are difficult to diagnose and result in significant economic losses. The deficiency of certain minerals may not affect crops yields but their availability from such forages may be inadequate for requirement of livestock. It is therefore necessary to generate information on mineral status area wise so as to identify the deficiencies or toxicities (Hinders, 1999). Area wise mapping of elements in feed and fodder is relatively a rapid, reliable and cost effective method of providing baseline data on the levels of macro and microelements.

The survey was conducted in ten villages viz., Vaghrol, Nilpur, Lodapa, Fatepura, Dhaneri, Jegol, Dantiwada, Bhadali, Nani Bhakhar, and Moti Bhakhar. Random sampling technique was used to select the respondents. In each village, 10 farmers who own buffalo/es producing at least 10 kg or more milk per

day were selected. Information regarding the amount and types of feeds and fodders being offered to the animals, approximate rate of daily feed intake by individual animal, milk yield were collected with the fair degree of precision on a questionnaire from individual farmer using standard sampling procedure, samples of green fodder, dry roughage, individual concentrate ingredients, compound concentrate mixtures and homemade concentrate mixtures were collected from all the respondents. Their requirements for Cu and Mn (NRC, 2001) and Zn (Arora, 1981) were worked out. The contents of Cu, Mn and Zn were analyzed using Atomic Absorption Spectrophotometer (ECIL, AAS 4141). The data were subjected to statistical analysis using methods of Snedecor and Cochran (1980).

The overall availability of Cu in daily diet of buffaloes was low. It was 140 mg/day against the requirement of 162 mg/day. The availability of Mn was higher than needed one. The actual availability was 890 mg/day against the requirement of 672 mg/day. The availability of Zn was significantly low in buffaloes feeding. It was 750 mg/day against the requirement of 1333 mg/day. Overall there were deficiency of 12.77 per cent and 43.98 per cent in Cu and Zn supply for buffaloes.

To maintain the essential level in daily diet plan, supplementation of CuSO_4 and ZnSO_4 should be given (Table 2). Suggested level of CuSO_4 (24%) in buffaloes were 54 to 129 mg/day while ZnSO_4 (33%) 1.40 to 1.93g/day to overcome deficiency. Table 1 is reprinting average estimated levels of Cu, Mn and Zn supplied to buffaloes in comparison to their

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Table 1: Average estimated levels of Cu, Mn and Zn supplied to buffaloes in comparison to their calculated requirement

Village	Mineral intake (mg/day)			Mineral requirement (mg/day)			Mineral intake (% of Requirement)		
	Cu	Mn	Zn	Cu	Mn	Zn	Cu	Mn	Zn
Vaghrol	150.01	975.55	777.89	172.23	715.58	1417.96	87.10	136.33	54.86
Nilpur	129.60	937.20	732.62	160.56	658.24	1302.45	81.35	142.38	56.25
Lodapa	147.84	952.24	816.34	168.14	704.10	1430.67	88.16	135.24	57.06
Fatepura	131.72	854.24	682.66	148.84	621.36	1250.31	89.00	137.48	54.60
Dhaneri	158.09	963.88	860.98	179.41	742.25	1472.27	88.11	129.86	58.48
Jegol	143.50	882.51	644.23	164.05	667.86	1360.00	87.50	132.14	47.37
Dantiwada	134.48	809.40	705.70	156.84	648.46	1286.37	85.66	124.82	54.86
Bhadali	149.04	887.78	715.07	162.00	679.88	1299.00	92.68	130.58	55.12
Nani Bhakhar	134.30	816.38	838.57	158.36	653.21	1302.33	85.46	124.98	64.39
Moti Bhakhar	131.38	822.71	730.46	151.74	632.37	1275.25	87.33	130.10	57.28
Average	140.99	890.18	750.45	162.21	672.33	1333.66	87.23	132.39	56.02

Table 2 : Suggested supplementation of Cu and Zn to obviate deficiency in buffaloes

Village	CuSO ₄ (mg/d)	ZnSO ₄ (g/d)	Mineral mixture as per BIS specification
Vaghrol	92.58	1.93	80
Nilpur	129.00	1.72	72
Lodapa	85.25	1.86	76
Fatepura	71.33	1.72	72
Dhaneri	92.54	1.54	64
Jegol	85.62	1.44	60
Dantiwada	93.16	1.93	80
Bhadali	54.00	1.77	73
Nani Bhakhar	100.0	1.40	59
Moti Bhakhar	84.83	1.65	69

calculated requirements and Table 2 suggested supplementation of Cu and Zn to obviate deficiency in buffaloes.

Conclusion:

For optimum production and reproduction performance by high yielding dairy animals, required minerals must be supplied in necessary amount. Supplementation of Cu and Zn in suggested level will fill the gap between availability and requirements of deficient minerals in cost effective way.

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