NUTRITIONAL STATUS OF DAIRY CATTLE IN KUPWARA DISTRICT OF KASHMIR)

Sajad. H. Bhat, F. A. Mattoo, D. Medhi, H. A. Ahmad and Y. Afzal

Division of Animal Nutrition

Faculty of Veterinary Sciences and Animal Husbandry

SKUAST- Kashmir

Shuhama,Srinagar-190 006, J & K, India

Recevied 25-7-2011 Accepted 16-12-2011

ABSTRACT

A survey was conducted in nine villages, three each from Kupwara, Handwara and Karnah tehsils of Kupwara district to ascertain the existing feeding practices and nutritional status of dairy cattle. Fifteen farm families from each nine villages were randomly selected and data were collected through a common questionnaire. The average land holdings (ha/family) of the farmers was 0.80±0.02, 2.49±0.08 and 0.89±0.05 in Kupwara, Handwara and Karnah tehsils, respectively The average body weight (kg) of lactating cows was 205.78±6.81, 196.83±4.90 and 176.58±2.75 in Kupwara, Handwara and Karnah tehsils respectively. The daily intake of concentrates (kg) and roughages (kg) for lactating cows were 4.43±0.27 and 4.47±0; 4.97±0.21 and 5.60±0.38; 3.34±0.16 and 3.70±0.34 in Kupwara, Handwara and Karnah tehsil, respectively. Average daily DM intake for lactating cows was in excess to the tune of 19.61 and 43.93 per cent for Kupwara and Handwara tehsils while for Karnah tehsil it was deficit by 4.74 per cent. The daily DCP intake was 12.65 and 38.10 per cent surplus than their requirement in Kupwara and Handwara tehsils while in Karnah tehsil, it was deficit by 5.22 per cent. The daily TDN intake was 36.70, 55.9 and 7.6 per cent in excess to their nutrient requirements for the respective tehsils. The daily average milk yield (lt./ animal/day) was 4.89 ±0.37, 4.69±0.28 and 3.76±0.28 in the respective tehsils. Milk urea nitrogen was 18.55±0.74, 21.29±1.31 and 16.87±1.41 for the respective tehsils.

KEYWORDS: Nutritional Status, Lactating Cattle, District Kupwara, Kashmir

INTRODUCTION

The state of Jammu and Kashmir (J&K) has three distinct climatic zones viz., subtropical, temperate and cold arid. The livestock rearing practices in these zones exhibit wide diversity. The state has potential grazing resources in the form of forests, green meadows and pastures, yet nutritional status of majority of the animals is far from satisfaction. The health and productivity of the animals further worsens during winter season when greenery perishes from the scenario (November-December). Scanty information is available regarding nutrient supply to livestock in rural areas (Singh *et al.,* 1998). Poor productivity of dairy cattle in hilly areas in general is attributed to their imbalanced feeding as these animals are largely maintained on dry fodder like straw and grass hay, which are deficient in critical nutrients especially proteins and minerals (Singh and Singh, 2003). There is tremendous pressure of livestock on available feed resources, as land under fodder production is limited and far below the national average of 4 per cent. Livestock production vis-à-vis feed and fodder resources in the hill areas of Kashmir valley remains a continuing concern of local people who primarily depend on its sustainability.

MATERIALS AND METHODS

Samples of feeds and fodders offered to lactating cattle collected from each village were oven dried at 80±5°C for 24 hours till a constant weight was obtained and were subsequently grinded and analyzed for proximate principles as per methods described by AOAC (1995) and fibre fraction as per Van Soest *et al.* (1991). DCP value of the available feeds and fodders was calculated by

digestibility coefficient value given by Ranjhan (2001). TDN value of the samples was estimated using the following equations reported by Martin (1985) and Chandler (1990).

TDN (%) in straw	=	96.4 – 1.15 x ADF (%)
TDN (%) in native grass	=	105 – 0.68 x NDF (%)
TDN (%) in concentrates	=	81.4 – 0.48 x NDF (%)

Milk urea nitrogen was estimated following Microkjeldhal's method. Milk fat % was analysed by milk auto analyzer. Body weight was calculated using Shaffer's formula (Sastry *et al.*, 1982).

After data collection, the amount of daily DM, DCP and TDN intakes by lactating cattle were calculated from the feed intake on the basis of average nutritive values of feeds and fodders (Ranjhan, 2001). The estimated supply of nutrients to the animals was compared with the nutrient requirement given in feeding standards (Ranjhan, 1998) to determine their nutritional status. Feed intake, approximate body weight (lb) based on body measurements and milk yield were also recorded for individual milch animal during the study.

The data obtained in this experiment were analysed using conventional statistical procedure as suggested by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

All the farmers were found to fortify the basal diet of the animals with common salt. In tehsil Handwara and Karnah, common salt was fed to animals mixed with concentrate mixture @ 50 g whereas in tehsil Kupwara common salt was fed by dissolving in drinking water. Meena *et al.* (2008) and Tiwary *et al.* (2007) also reported a common practice of feeding common salt to different categories of animals. None of the farmers supplemented mineral mixture in the ration of animals. As there was no awareness among farmers regarding importance of mineral mixture in livestock productivity. Earlier Mudghal *et al.* (2003) also reported that farmers in Madhya Pradesh do not use mineral mixture in the ration of their animals. However , Bakshi *et al.* (2009) reported that 2.5 per cent of the farmers in Ferozpur and 9.52 per cent in Moga district of Punjab were feeding mineral mixture to their animals. Moreover, Tiwary *et al.* (2007) also reported that 50 per cent of the farmers supplemented mineral mixture in the ration of animals in Uttrakhand .

Results of present study represented normal chemical composition of various feed resources (data not shown) which is in accordance to those reported by Ganai *et al.* (2006) and Misra *et al.* (2009). The daily intake of concentrates (kg) and roughages (kg) for lactating cattle were 4.43±0.27 and 4.47±0.47; 4.97±0.21 and 5.60±0.38; 3.34±0.16 and 3.70±0.34 in Kupwara, Handwara and Karnah tehsil, respectively. The average district wise daily intake of concentrate and roughage (kg) was 4.33±0.19 and 4.70±0.26, respectively. The higher intake of concentrate and roughages by the lactating cows might be due to large land holdings and good socio-economic status of farmers in the district. These findings were much higher than the values of Meena *et al.* (2008) who reported that lactating cows were fed 1-1.5 kg concentrate per day in Bundelkhand region of Jhansi district.

The DM intake was significantly ($P \leq 0.05$) higher for Handwara tehsil (7.60 ±0.15) followed by Kupwara (6.89±0.16)and Karnah tehsils (5.02±0.67). The estimated supply of DM on comparing with nutrient requirement given in feeding standard (Ranjhan, 1998) revealed that lactating cows get 19.61 and 43.93 per cent excess DM per day in Kupwara and Handwara tehsil, respectively while in Karnah tehsil daily DM intake was deficit by 4.74 per cent. Average district wise daily intake of DM for lactating cattle was 6.55±0.13kg/day which was 20.84 per cent in excess to requirements given by Ranjhan (1998) . Elseed *et al*. (2008) had also reported higher daily intake of DM in dairy cattle than their requirements. In Contrary, Tiwary *et al*. (2007) reported 13.8 per cent deficit DM intake per day in different categories of dairy cattle.

The average daily DCP intake through different feed resources for lactating cows were 390±13.66, 469.01±13.44 and 295.71±7.43 g in Kupwara, Handwara and Karnah tehsils, respectively . The daily DCP intake was significantly ($p \leq 0.05$) higher in Handwara tehsil followed by Kupwara and Karnah tehsils. The DCP intake was 12.65 and 38.1 per cent surplus than their requirement in Kupwara and Handwara tehsils while in Karnah tehsil DCP intake was deficit by 5.22 per cent. The average daily DCP inteake for lactating cattle was 386.2±9.3 g and was excess to the tune of 15.6 per cent of requirements . Similar to the present observation , Bishoni and Singh (2009) reported higher DCP intake in dairy animals over the standard requirements. The higher intake of DCP in case of productive animals might be due to higher intake of concentrates than their requirements. The daily intake of TDN for lactating cattle was significantly ($p \leq 0.05$) lower in Karnah tehsil (3.10±0.10 kg) than that of Kupwara (4.32±0.11 kg) and Handwara tehsils (4.85±0.12 kg) and was 36.7, 55.9 and 7.6 per cent in excess to their standard nutrient requirements . In the whole district the daily intake of TDN for lactating cows was 4.11±0.09 and was in surplus by 34.3%. The findings were comparable to those of Bishoni and Singh (2009). The excess TDN for lactating cattle in the study area might be due to their lesser requirements because of low body weight and sufficient supply of straws.

The average daily milk yield (lt/d/animal) was higher in Kupwara (4.89±0.37)and Handwara tehsils (4.69± 0.28) compared to Karnah tehsil (3.76±0.28) . Tiwary *et al*. (2007) also reported that milk production of 5.16±0.43 l/d/animal in Laksar tehsil and 5.60±0.90 in Roorkee tehsil. The low productivity irrespective of higher intake of macronutrients might be due to poor genetic potential and imbalanced feeding of animals. The urea nitrogen concentration (mg%) in the milk of lactating cattle was 18.55±0.74, 21.29±1.31 and 16.87±1.41 for the respective tehsils. This was significantly ($p \leq 0.05$) lower in Karnah tehsil than that in Handwara and Kupwara tehsil. Higher MUN concentration might be due to excessive feeding of concentrates to the lactating cattle in present study. The results were in contrast to those of Bakshi *et al.* (2009) who reported MUN concentration of 4.70 mM/l which was lower than that recommended values for well fed (11-16 mg/dl) animals (Wadhwa *et al.,* 2005).

The present study indicated that most of the dairy farmers in district Kupwara of Kashmir valley rear non-descript indigenous cattle of low body weight and productivity. Though farmers provide them feed in excess to their requirements, still production is less which might be due to poor genetic potential, feeding imbalanced ration to the animals or non awareness of the farmers regarding mineral supplementation. It is envisaged to replace the unproductive indigenous animals of low genetic potential by cross bred cattle of high genetic potential. Besides farmers be trained by conducting some awareness programmes among them at field level regarding importance of various nutrients and feeding of animals on balanced ration to increase the productivity of the bovines in this region.

REFERENCES :

AOAC. (1995). Official Methods of Analysis, 15thed. Association of Analytical Chemists, Washington, DC.

Bakshi, M.P.S., Wadhwa, M., Kaur, K. and Kaur J. (2009). Indian Journal of Animal Nutrition, **26**: 199-203.

Bishoni, D. K. and Singh, R. (2009). Indian Journal of Animal Nutrition **26**: 243-246.

Elseed, A.M.A.F., Mahalo, A.G. and Khaier, F., Amel H., (2008). International Journal of Dairy Science **3**: 93-96.

Ganai, A.M., Matto, F.A., Singh, P.K, Ahmad, H.A. and Samoon, M.H. (2006). SKUAST Journal of Research **8**: 145-151.

Meena, B.S., Kundu, S.S. and Chauhan, J. (2008). Indian Journal of Animal Nutrition **25**: 63-66.

Misra, A.K., Chauhan, V., Yadav, S.K. and Sankar, G.R.M. (2009). Indian Journal of Animal Nutrition

26: 23-28.

Mudgal, V., Mehta, M.K., Rane, A.S. and Nanvati, S. (2003). Indian Journal of Animal Nutrition **20**: 217-222.

Ranjhan, S.K. (1998). Nutritional Requirement of Livestock and Poultry. Second Revised Edition, Indian Council of Agricultural Research Krishi Anusandhan Bhavan, PUSA, New Delhi.

Ranjhan, S.K. (2001). Animal Nutrition in Tropics. Fifth Revised Edition. Vikash Publishing House Private Limited, New Dehli, India, pp. 491-555.

Sastry, N.S.R., Thomas, C.K. and Singh, A.A. (1982). Farm Animal Management and Poultry Production. 2nd Ed. Vikas Publishing House Pvt. Ltd., New Dehli, India.

Singh, A.K., Vidyarthi, N.K., Verma, D.N. and Lal, S.N. (1998). Indian Journal of Animal Nutrition **15**: 125-128.

Singh, P.R. and Singh, M. (2003). Indian Journal of Animal Nutrition **20**: 1-5.

Snedecor, G.W. and Cochran, W.C. (1994). Statistical methods 8th Ed. Oxford and IBH Publishing Co., New Delhi, India.

Tiwary, M.K., Tiwari, D.P., Kumar, A. and Mondal, B.C. (2007). Animal Nutrition and Feed Technology **7**: 177-185.

Van Soest, P.J., Robortson, J.B. and Lewis B.A. (1991). Journal of Diary Science **74**: 3584-3597.

Wadhwa, M., Kaushal, S., Bakshi, M.P.S. and Parmar, O.S. (2005). Indian Journal of Animal Nutrition **22**: 144-156.

❑