

Strategic supplementation of deficient nutrients to the crossbred Milch cattle reared by small-scale farmers and its effect on milk yield and composition

B. Devasena¹ and J. Rama Prasad²

Department of Animal Nutrition

College of Veterinary Science, SVVU, Proddatur-516360, A.P. India.

¹Corresponding author: E-mail: devasenabusineni@yahoo.com; ²Retired Professor.

Feeding patterns in unorganized dairy farming by small and marginal farmers depend solely on grazing. In India livestock rearing is traditional, reflecting the socio-economic conditions of farmers. Poor feeding practices and the low availability of quality feeds are common problems. Adequate nutrition plays important role in dairy cattle productivity, which accounts for more than 70% of input costs.

The availability of feeds and fodders is affected by season, topographical conditions and land holding capacity of the farmers (Patange et al., 2002). Feeding practices often do not meet nutrient requirements and could negatively affect the performance of dairy animals (Prasad et al., 2005). This study aims to investigate the nutritional adequacy of feeding practices adopted by small and marginal farmers and to fulfill scientifically recommended requirements (Singh et al., 2003) by assessing the nutritional status (in terms of availability of DM, DCP and TDN) of crossbred cattle under field conditions and identifying the gap between the requirement and supply of nutrients. Suitable technological interventions in existing feeding systems are recommended to correct deficiencies through strategic supplementation of suitable feeds.

The field study was conducted in an institute adopted village, in Chittoor district of Andhra Pradesh. Crossbred Jersey Milch cattle were maintained under a semi-intensive system including the provision of paddy straw, seasonally grown maize and jowar fodders depending on availability. Concentrate feed supplements such as rice bran and groundnut cake were fed to a limited extent. The nutrient requirements and availability of the existing feeding practices were calculated (ICAR, 1998) to assess the deficit/excess of any particular nutrient.

Existing feeding practices showed that animals suffered from severe protein deficiency and marginal energy deficiency. To bridge the gap between the supply and requirements, an appropriate feeding strategy was planned to supplement the deficit nutrients through protein supplement to improve productivity of the animals.

Lactating crossbred cows (after peak lactation) were selected and depending on the level of production of the animals, strategic supplementation of protein (1-1.5 Kg/head/day) was applied for a period of 90 days. The effect of supplementation was studied on milk yield and milk components. There was substantial ($P < 0.05$) improvement in the milk yield (34.9%) and marginal improvement in milk fat (3.4%), SNF (0.6%) and milk protein (4.5%) in the supplementary feeding group, compared to control. These results are in agreement with Atwal et al., (1995), Cunningham et al., (1996) and Danes et al., (2013). It was concluded that strategic supplementation of protein during early lactation in crossbred cows maintained under a semi-intensive management system proved to be beneficial.

References

- Atwal A.S., Mahadevan S., Wolynetz, M.S., and YU Y. (1995). Increased Milk Production of Cows in Early Lactation Fed Chemically Treated Soybean Meal. *J. Dairy Sci.* 78(3): 595-603.
- Cunningham, K.D., Ceca, M.J., Johnson, T.R., and Ludden, P.A. (1996). Influence of source and amount of dietary protein on milk yield by cows in early lactation. *J. Dairy Sci.* 79(4): 620-630.
- Danes M.A, Chagas L.J., Pedroso A.M., Santos F.A. (2013). Effect of protein supplementation on milk production and metabolism of dairy cows grazing tropical grass. *J. Dairy. Sci.* 96(1): 407-419.
- ICAR (1998). *Nutrient requirement of livestock and poultry*. Indian Council of Agricultural Research, New Delhi, India.
- Patange D.D., Kulkarni, A.N., Gujar, B.V. and Kalyanricar, S.D. (2002). Nutrient availability to milch Marathwadi Buffaloes in their home tract. *Indian J. Anim. Nutr.* 19(1): 41-46.
- Prasad C.S., Gowda, N.K.S., Ramana, J.V. and Singh, K. (2005). Micronutrient content of Soil Water, Feed and Fodder their availability to lactating cows. *Indian J. Dairy Sci.* 58(1): 44-48.
- Sing P., Singh, M., Jaiswaland, R.S. and Verma, M.L. (2003). Nutritional Availability of Livestock from different feed resources in Kumaon hills of Uttaranchal. *Indian J. Anim. Nutr.* 20(3): 285-290.